

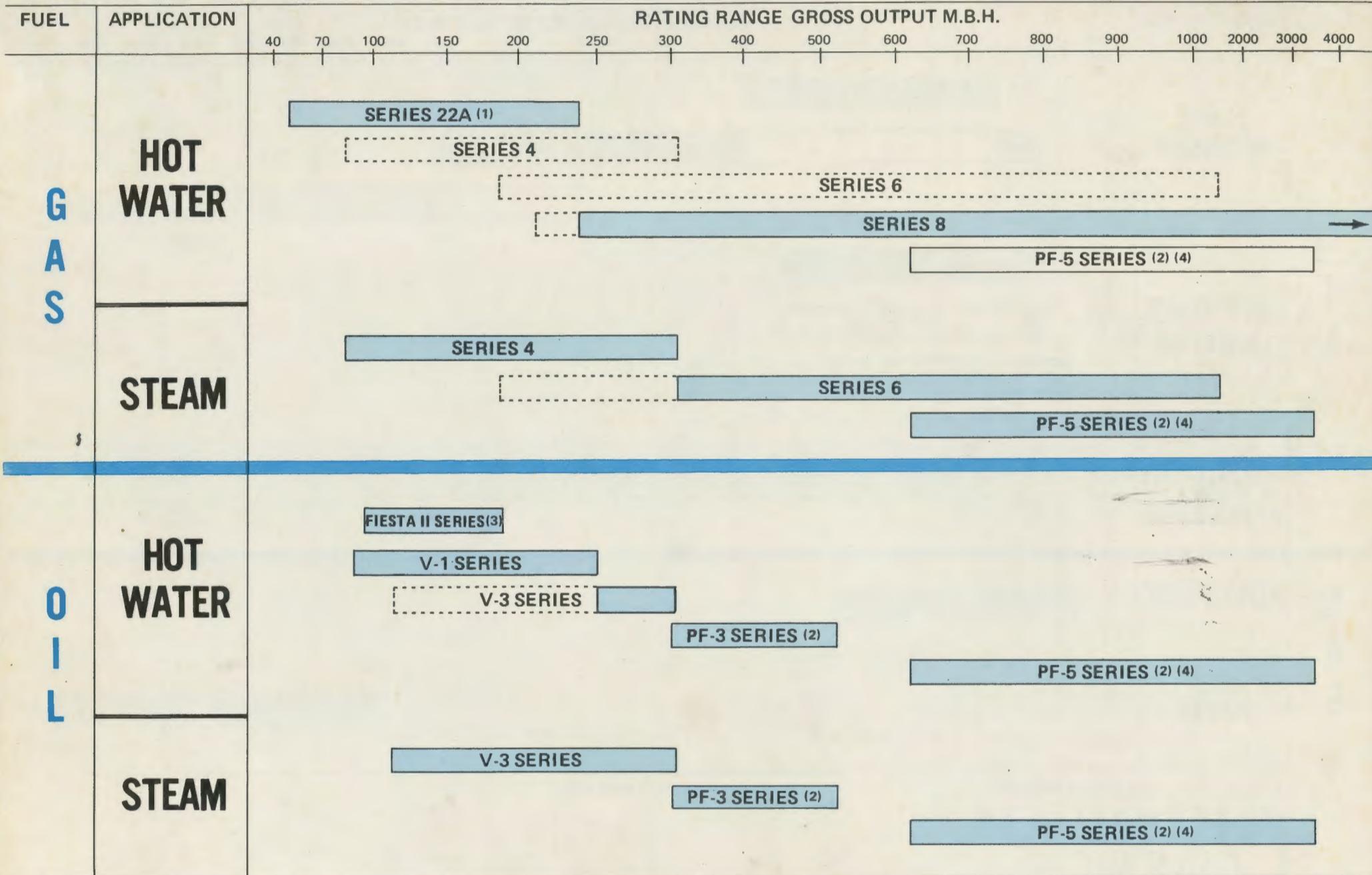
BURMAH
AMERICAN

AMERICA

BURNHAM CORPORATION
HYDRONICS DIVISION
Lancaster, Pennsylvania 17601

CAST IRON BOILER SELECTION CHART

SHADED AREAS— BURNHAM AMERICA RECOMMENDED SELECTIONS FOR INDICATED RATINGS
DOTTED AREAS— ALTERNATE SELECTIONS WITHIN COMPARABLE RATING RANGE

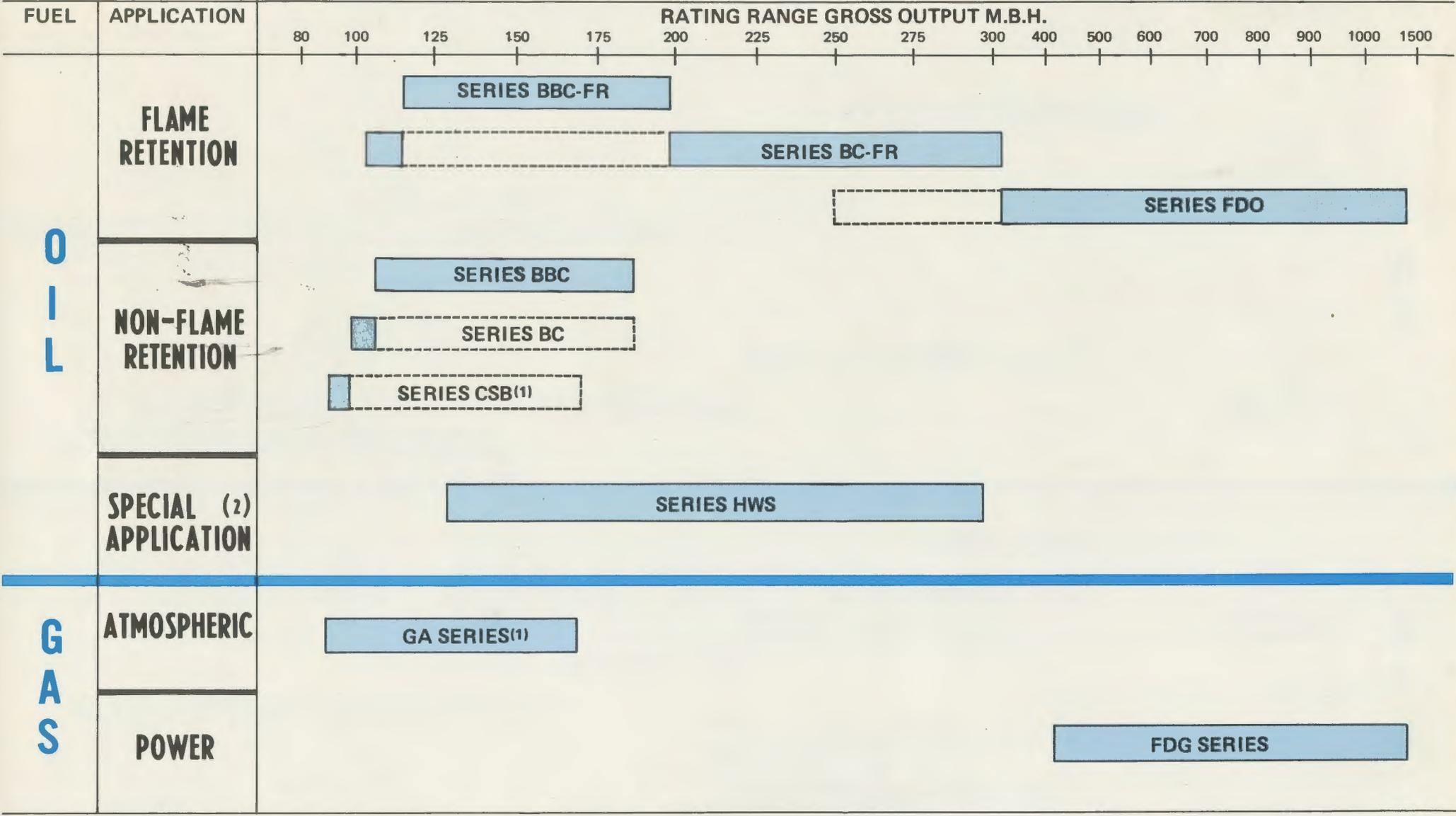


(1) NOT AVAILABLE FOR TANKLESS HEATER APPLICATION — USE SERIES 4
 (2) POWER BURNER-PRESSURE FIRED

(3) DRY-BASE
 (4) AVAILABLE WITH OPTIONAL GAS/OIL BURNER

STEEL BOILER SELECTION CHART - Hot Water Only

SHADED AREAS— BURNHAM AMERICA RECOMMENDED SELECTIONS FOR INDICATED RATINGS.
DOTTED AREAS— ALTERNATE SELECTIONS WITHIN COMPARABLE RATING RANGE.



(1) S.B.I. RATINGS

(2) HOT WATER SUPPLY PACKAGE





Truck and Window DECAL Identification

(Order Form: Fill in other side)

Make your trucks mobile billboards

Thousands of people see your trucks and business vehicles every day. Now you can put them to work for you as mobile billboards with bright, attention-getting Burnham America truck identification and your imprint prominently displayed.

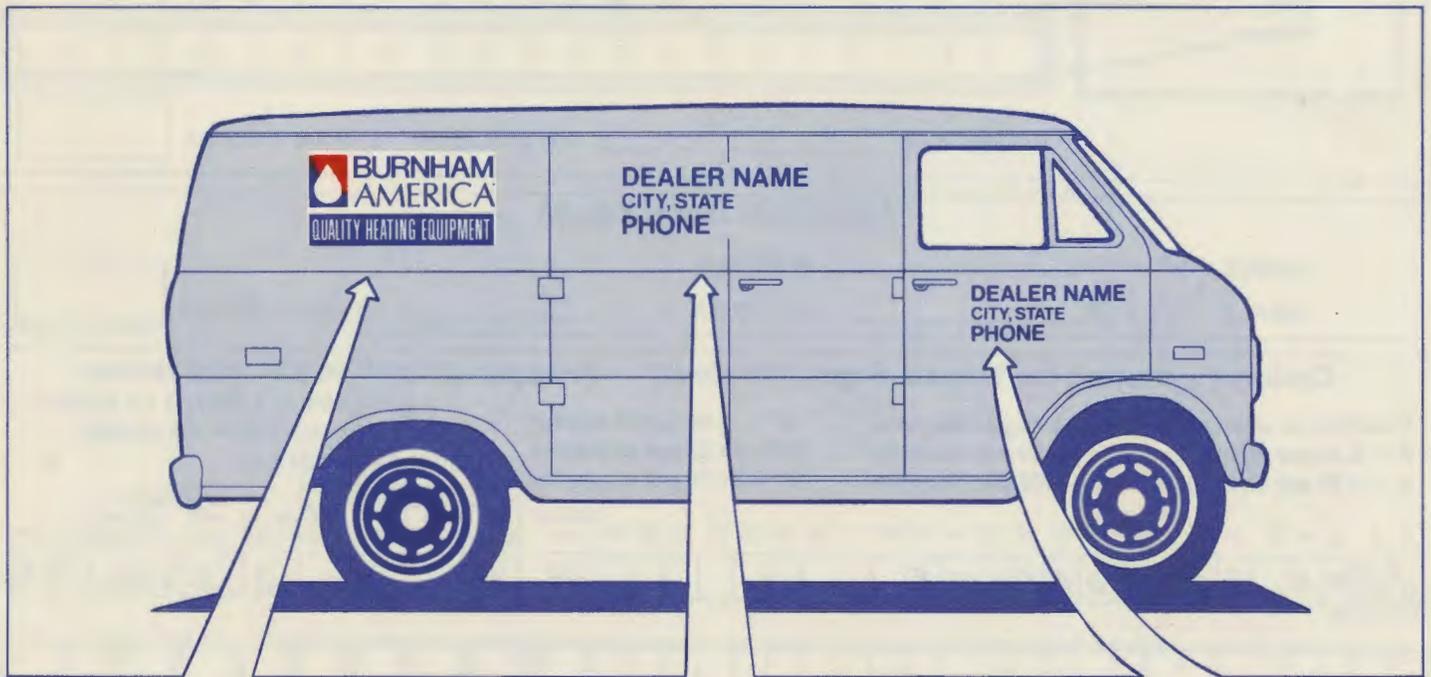
Bright red, blue and white Burnham America markings plus your name,

address and phone number clearly identify you as THE BURNHAM AMERICA dealer in your area. . .reinforce your advertising with exposure that's hard to beat.

You can quickly and easily identify all your vehicles with Burnham America markings. Pressure sensitive, weather-proof vinyl decals are easy to apply.

Simply peel off the back and squeegee on. Letters for your imprint are pre-spaced and die-cut on a carrier for fast application. Do it yourself in a short time and at a low cost.

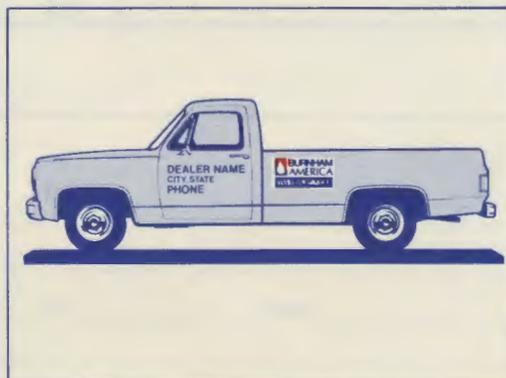
Fill in the back of this form and send it with check to VM Corp. today.



Kit includes 2—14"x26" and 2—7"x13" Burnham America decals for truck sides and back, or for store windows. Instructions and squeegee are furnished.

OPTIONAL Pre-spaced Letters Available at *extra cost* for use on van sides or store windows. 1" through 12" available. See price list on back.

Kit includes your imprint in 2" die-cut, pre-spaced letters for two door panels. Specify white, black, red, or blue.



Series 22A

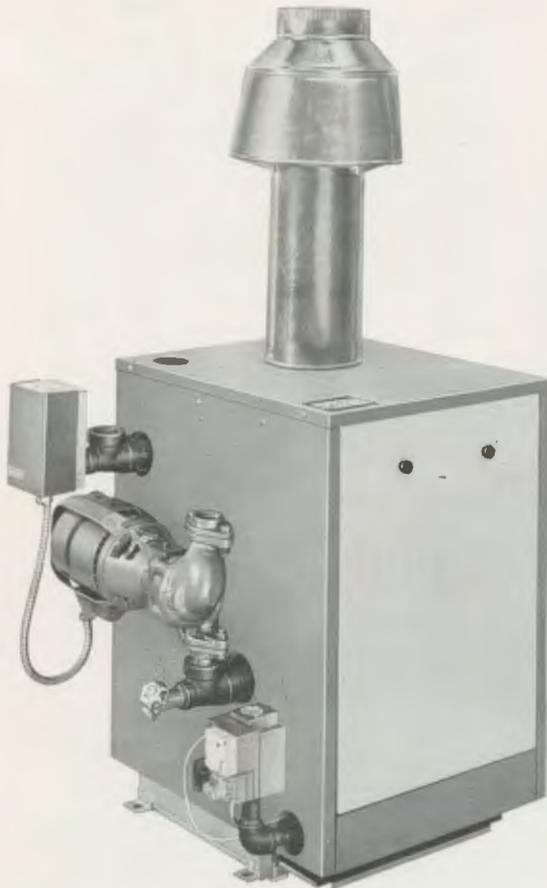
CAST IRON
GAS
HYDRONIC
PACKAGE



NATURAL OR PROPANE GAS
HOT WATER

NINE SIZES:
GROSS OUTPUTS—48,000 to 240,000 BTU/HR

 **BURNHAM
AMERICA**



The compact SERIES 22A is designed for modern tuck-away heating. Only 28 $\frac{1}{2}$ " high, it can be unobtrusively installed under stairs, in closets or remote corners. Because of its special base design, it can be safely installed on combustible floors.

The SERIES 22A is cast iron constructed for long life and highest heating performance. It is shipped completely packaged in a skid-bottom crate to make handling and installation easy and quick.

Completely factory assembled, this unit requires only system piping connection, gas and electric hook-up to put it into operation.

The SERIES 22A features a two tone jacket. An optional jacket extension conceals circulator and all controls for an appliance look that does not detract from any modern decor.

STANDARD EQUIPMENT

| | |
|--|---|
| Factory assembled and shipped in skid-bottom crate. | 100% Shut-off Combination Gas Controls |
| Boiler | High Limit |
| Flush Jacket | Wiring (Internal) |
| Circulator with Piping to Boiler: | Main Gas Burners |
| • 1 $\frac{1}{4}$ " on 3 thru 6 sections | Supply Piping |
| • 1 $\frac{1}{2}$ " on 7 thru 1 $\frac{1}{2}$ sections | 24V. Gas Valve Transformer and Junction Box — when required (Millivolt controls optional) |
| ASME Safety Relief Valve | |
| Altitude Gauge and Thermometer | |
| Boiler Drain Cock | |

ADDITIONAL EQUIPMENT SHIPPED IN SEPARATE CARTON

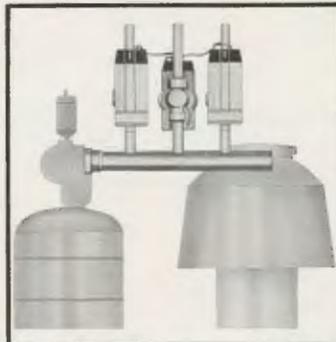
Pilot Gas Filter (furnished only when required by Gas Co.)
 Pilot Igniter, Stick Type (furnished only when required by Gas Co.)
 Drafthood
 Room Thermostat, 24 volt, 2 wire

OPTIONAL EQUIPMENT

ZONE CONTROL PACK

SERIES 22A boilers can be supplied with zone pack assemblies for two or three zone systems. Zone packs include all necessary zone valves, manifolds and wiring to circulator. Thermostats, and necessary transformers are shipped in separate carton.

Zoned hydronic heating with this unit can provide the ultimate in heating comfort and economy.



EXPANSION AND AIR REMOVAL PACKAGE

As an option, SERIES 22A boilers may be furnished with a pre-pressurized, diaphragm-type expansion tank, air eliminator and air vent.

The package provides dependable expansion control and constant elimination of excess air in system. Since the air cushion is sealed from system water in the pre-pressurized expansion tank, waterlogging will never occur.



DE LUXE JACKET EXTENSION

Optional jacket extension covers all controls and circulator. Shipped in separate carton and easily applied after piping is completed. (See illustration on front cover.)

For other optional equipment and controls, refer to price sheet.

GAS HYDRONIC PACKAGE

RATINGS—Natural and Propane Gases - 0 To 2000 Ft. Elevation (1)

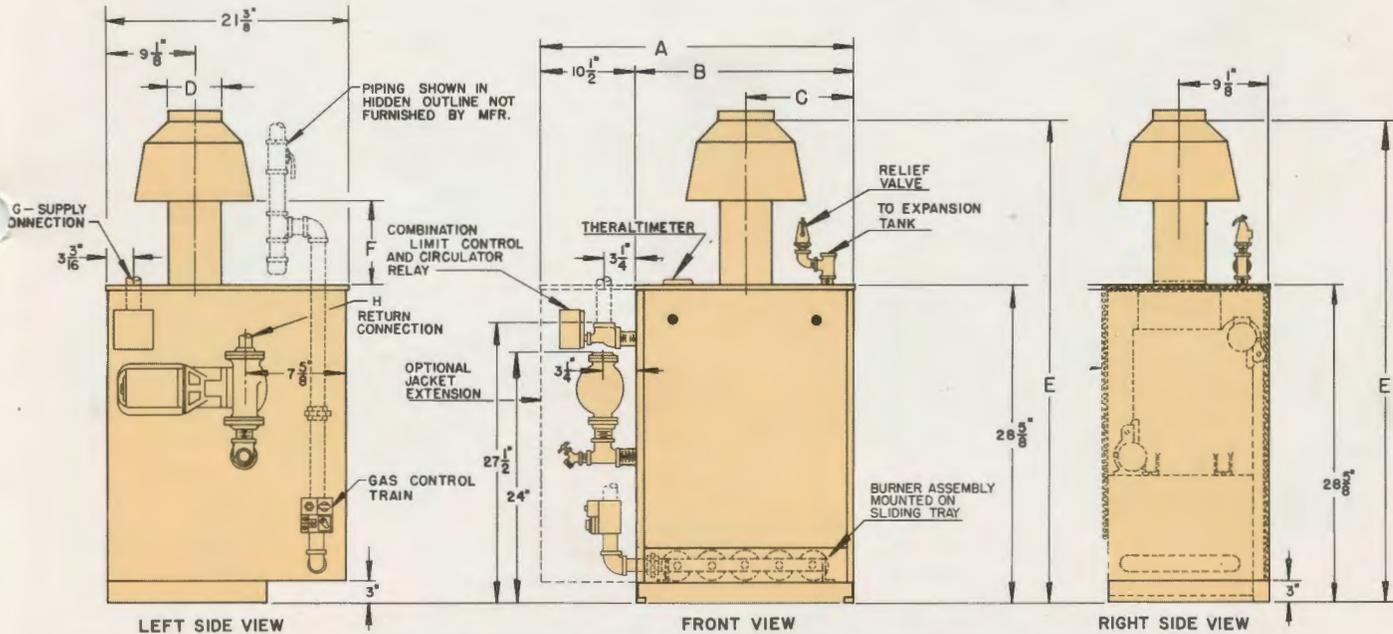
| BOILER SIZE | | A.G.A. & C.G.A. RATINGS | | NET (2) | (3) | FLUE OUTLET Dia. | BREECHING Dia. | RECOMMENDED CHIMNEY | |
|----------------|---------|-------------------------|-------------------------|--------------------------------|--------------------------------|------------------------|-------------------|-------------------------|--------------------------------|
| NATURAL GAS | PROPANE | INPUT BTU/HR. | GROSS OUTPUT BTU/HR. | IBR RATING WATER BTU/HR. | NET RATING WATER Sq. Ft. | | | ROUND Dia. In. x Ft. | RECTANGULAR In. x In. x Ft. |
| 3-22AN | 3-22A | 60,000 | 48,000 | 41,700 | 280 | 4 | 4 | 4 x 15 | 8 x 8 x 15 |
| 4-22AN | 4-22A | 90,000 | 72,000 | 62,600 | 420 | 5 | 5 | 5 x 15 | 8 x 8 x 15 |
| 5-22AN | 5-22A | 120,000 | 96,000 | 83,500 | 555 | 6 | 6 | 6 x 15 | 8 x 8 x 15 |
| 6-22AN | 6-22A | 150,000 | 120,000 | 104,300 | 695 | 6 | 6 | 6 x 15 | 8 x 8 x 15 |
| 7-22AN | 7-22A | 180,000 | 144,000 | 125,200 | 835 | 7 | 7 | 7 x 15 | 8 x 8 x 15 |
| 8-22AN | 8-22A | 210,000 | 168,000 | 146,100 | 975 | 7 | 7 | 7 x 15 | 8 x 8 x 15 |
| 9-22AN | 9-22A | 240,000 | 192,000 | 167,000 | 1115 | 8 | 8 | 8 x 15 | 8 x 8 x 15 |
| 10-22AN | 10-22A | 270,000 | 216,000 | 187,800 | 1250 | 8 | 8 | 8 x 15 | 8 x 8 x 15 |
| 11-22AN | 11-22A | 300,000 | 240,000 | 208,700 | 1390 | 9 | 9 | 9 x 15 | 8 x 12 x 15 |

NOTE: (1) For elevations above 2,000 Ft., A.G.A. ratings should be reduced at the rate of four percent (4%) for each 1,000 Ft. above sea level. C.G.A. ratings should be reduced 10% for elevations 2,000 Ft. to 4,500 Ft. elevations above sea level.

(2) Net IBR ratings shown are based on normal IBR piping and pick-up allowance of 1.15.

Consult the manufacturer for installations having unusual piping and pick-up requirements such as intermittent system of operation, extensive piping systems, etc.

(3) Based on 170°F average water temperature in radiators (heat emission rate of 150 BTU/HR./Sq. Ft.). For higher water temperatures, select boiler on basis of net ratings in BTU/HR.



DIMENSIONAL DATA (in inches)

| Boiler Model | Burner Drill Port | | Dim. A | Dim. B | Dim. C | Dim. D | Dim. E* | | Dim. F* | | Conn. G | Conn. H | Gas Conn. for Automatic Gas Valve |
|--------------|-------------------|-------------|--------|--------|--------|--------|---------|---------|---------|---------|---------|---------|-----------------------------------|
| | Natural "AN" | Propane "A" | | | | | Natural | Propane | Natural | Propane | | | |
| | 3-W-22 | ≅30 | | | | | ≅35 | 21 3/8 | 11 1/4 | 5 1/2 | | | |
| 4-W-22 | ≅30 | ≅35 | 25 | 14 1/2 | 7 1/4 | 5 | 48 1/2 | 59 1/2 | 13 | 24 | 1 1/4 | 1 1/4 | 1/2 |
| 5-W-22 | ≅30 | ≅35 | 28 1/4 | 17 3/4 | 8 3/8 | 6 | 49 3/4 | 60 3/4 | 13 | 24 | 1 1/4 | 1 1/4 | 1/2 |
| 6-W-22 | ≅30 | ≅35 | 31 1/2 | 21 | 10 1/2 | 6 | 49 3/4 | 60 3/4 | 13 | 24 | 1 1/4 | 1 1/4 | 1/2 |
| 7-W-22 | ≅30 | ≅35 | 34 3/4 | 24 1/4 | 12 1/4 | 7 | 51 1/4 | 61 1/4 | 14 | 24 | 1 1/2 | 1 1/2 | 1/2 |
| 8-W-22 | ≅30 | ≅35 | 38 | 27 1/2 | 13 3/4 | 7 | 51 1/4 | 61 1/4 | 14 | 24 | 1 1/2 | 1 1/2 | 1/2 |
| 9-W-22 | ≅30 | ≅35 | 41 1/4 | 30 3/4 | 15 1/2 | 8 | 52 1/2 | 62 1/2 | 14 | 24 | 1 1/2 | 1 1/2 | 3/4 |
| 10-W-22 | ≅30 | ≅35 | 44 1/2 | 34 | 17 | 8 | 52 1/2 | 62 1/2 | 14 | 24 | 1 1/2 | 1 1/2 | 3/4 |
| 11-W-22 | ≅30 | ≅35 | 47 3/4 | 37 1/4 | 18 3/8 | 9 | 53 1/2 | 63 1/2 | 14 | 24 | 1 1/2 | 1 1/2 | 3/4 |

*For Natural Gas Boilers ordered special with #35 Burner Drill Ports use Propane dimensions E & F.

Series 22A

VERTICAL FLUE DESIGN CAST IRON CONSTRUCTION



RIBBED CROWN SHEET

Directs travel of flue gases causing turbulence and maximum scrubbing of high temperature gases. Ribbings also act as prime water-backed heating surfaces.

- All sections are of vertical section design.
- Positive circulation—top and bottom nipples.
- Cast iron boiler sections resist rust and corrosion, giving the unit durability for long-lasting performance.
- Section design means greater operation economy.
- As the heated gases pass over the surface of each boiler section, hundreds of heat-grabbing pins absorb the heat.
- Optimum water circulation carries this extra heat through the system for increased heating output.
- Cast iron burners—high quality drilled port type assures high operating efficiency. Separate burner for each flueway.
- Latest and finest in automatic controls, safe, dependable and fully automatic.



SLIDE-OUT BURNER ASSEMBLY

An important feature of the SERIES 22A is the unitized burner assembly. Burners are factory assembled and aligned and securely mounted on burner tray. The entire burner assembly slides out by releasing two catches and disconnecting main gas line connection.

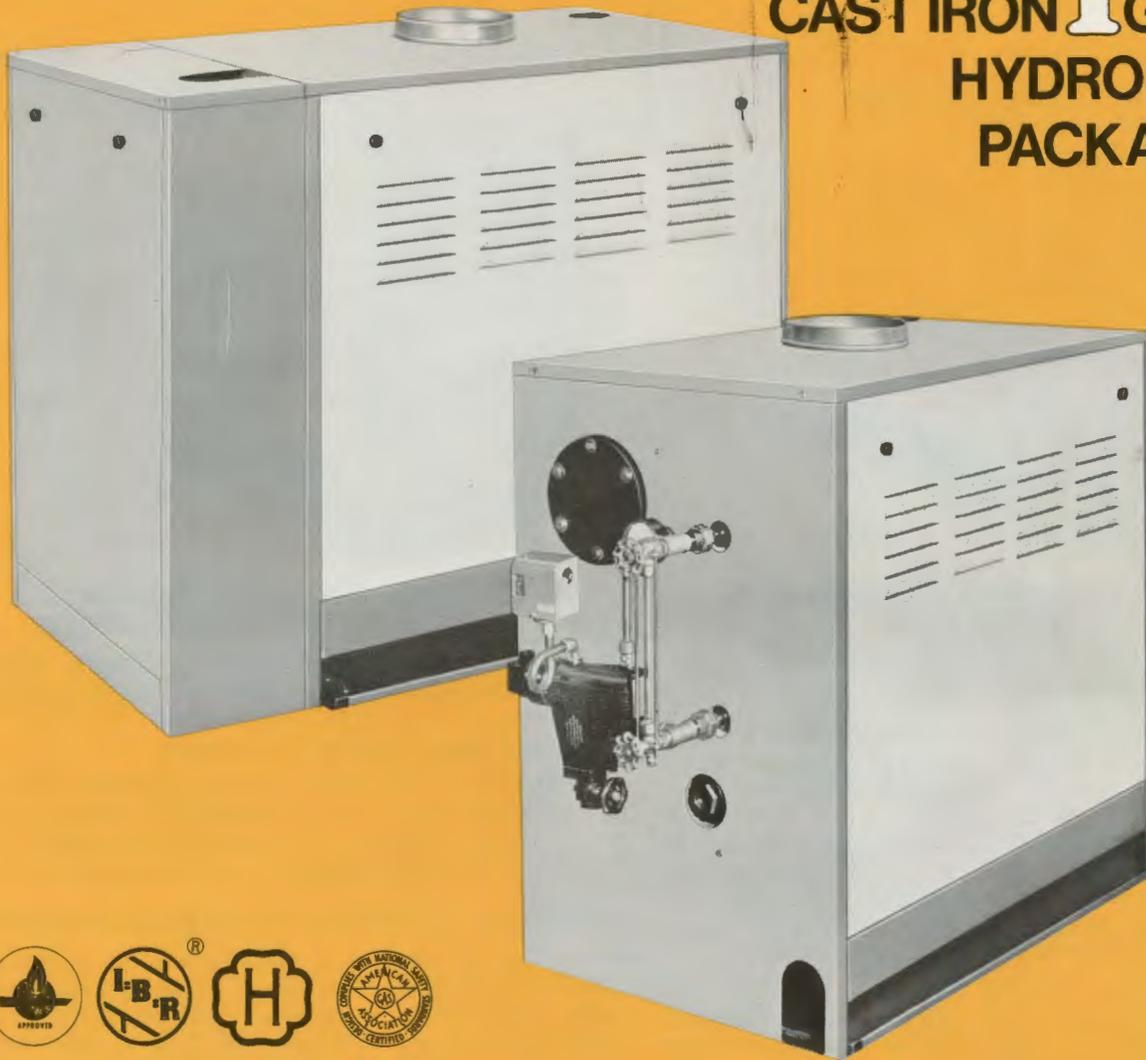
This slide-out feature allows easy access to burners and pilots for inspection and maintenance.



BURNHAM CORPORATION
HYDRONICS DIVISION
Lancaster, Pa. 17604

high efficiency hydronics

Series **4**
CAST IRON GAS
HYDRONIC
PACKAGE



NATURAL GAS (all sizes) OR PROPANE GAS (404-408 only)

HOT WATER OR STEAM

NINE SIZES:

GROSS OUTPUTS 84,000 to 308,000 BTU/HR

 **BURNHAM
AMERICA**



BURNHAM AMERICA

Series 4



STEAM



WATER

**FACTORY ASSEMBLED AND PACKAGED
IN THREE STYLES**

Series 4 units are available in three package variations to meet all installation needs.

COMPLETE-PAK . . . Completely assembled boiler, burners, and all controls for quick and easy hook-up on the job-site. Just hook up piping, wiring, and gas line.

UTILITY-PAK . . . Semi-packaged unit with boiler, burners, and jacket pre-assembled. Choice of steam or water trim and controls as a separate packaged element allows use of basic package for either steam or water installations. Utility-Pak allows great flexibility in stocking.

SUB-PAK . . . A sub-assembled version of the Series 4, shipped with all sections assembled and a separate base-burner-manifold assembly. Jacket, controls, and trim are shipped in separate cartons for complete assembly in the field.

**NINE SIZES TO MEET ALL RESIDENTIAL
AND INTERMEDIATE APPLICATIONS**

The Series 4 is available for steam or water in nine sizes: 263 to 963 net square feet steam; 487 to 1785 net square feet water.

MODERN TWO-TONE BLUE JACKET

The smartly styled jacket gives an appliance look to hydronic installations. The standard flush jacket (provided on all units) conceals the burners and manifold. The optional deluxe jacket extension conceals all controls and trim.

CERTIFIED: CONSTRUCTION-RATINGS-PERFORMANCE

The Series 4 meets all requirements of the American Society of Mechanical Engineers (A.S.M.E.) and the Institute of Boiler and Radiator Manufacturers (I=B=R). American Gas Association (A.G.A.) and Canadian Gas Association (C.G.A.) design certified for natural gas (all sizes) and propane gas (404 to 408 only).

The Series 4 is A.G.A. and C.G.A. approved for alcove (three sided enclosure) installations.

RATINGS Natural and Propane Gas

Not for installation on combustible floors unless equipped with special floor shield.

| BOILER SIZE | A.G.A. and C.G.A. RATINGS | | I=B=R RATINGS | | | NET RATING WATER SQ.FT. |
|-------------|---------------------------|---------------------|---------------|--------------|--------------|-------------------------|
| | INPUT BTU/HR | GROSS OUTPUT BTU/HR | STEAM BTU/HR | STEAM SQ.FT. | WATER BTU/HR | |
| 404 | 105,000 | 84,000 | 63,000 | 263 | 73,000 | 487 |
| 405 | 140,000 | 112,000 | 84,000 | 350 | 97,400 | 649 |
| 406 | 175,000 | 140,000 | 105,000 | 438 | 121,700 | 811 |
| 407 | 210,000 | 168,000 | 126,000 | 525 | 146,100 | 974 |
| 408 | 245,000 | 196,000 | 147,000 | 613 | 170,400 | 1136 |
| 409* | 280,000 | 224,000 | 168,000 | 700 | 194,800 | 1299 |
| 410* | 315,000 | 252,000 | 189,000 | 788 | 219,100 | 1461 |
| 411° | 350,000 | 280,000 | 210,100 | 875 | 243,500 | 1623 |
| 412* | 385,000 | 308,000 | 231,100 | 963 | 267,800 | 1785 |

* Not available for propane gas.

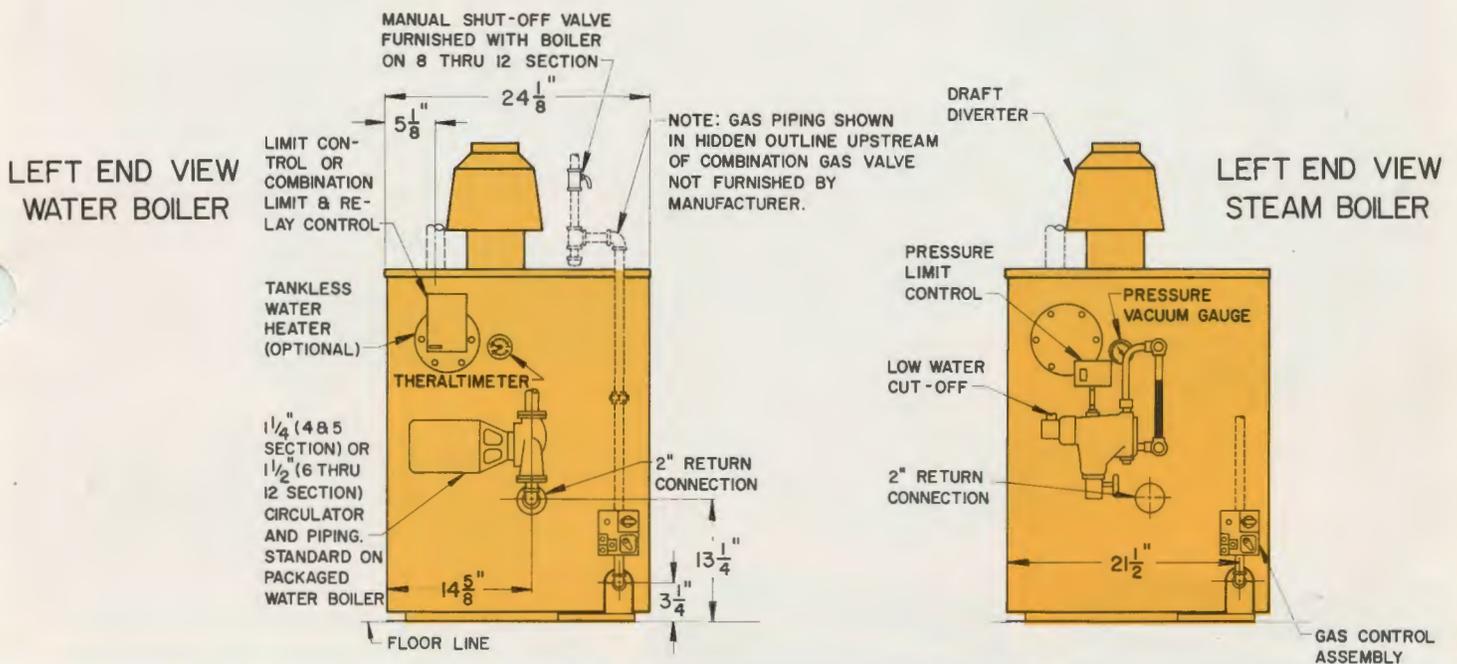
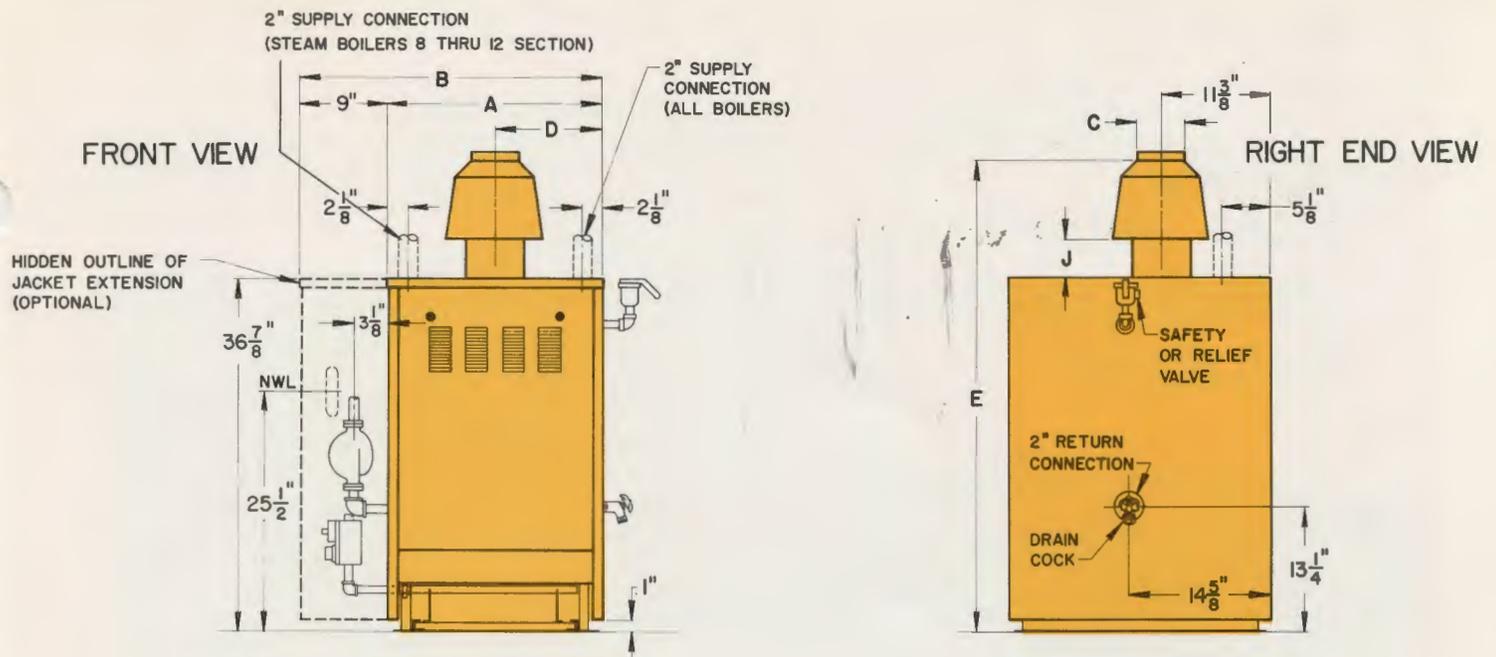
A.G.A. ratings shown are for installations at sea level and elevations up to 2,000 ft. For elevations above 2,000 ft. ratings should be reduced at the rate of four percent (4%) for each 1,000 ft. above sea level.

C.G.A. ratings shown are for installations at sea level and elevations up to 2,000 ft. Ratings at altitudes of from 2,000 to 4,500 ft. are 90% of those shown.

Net I=B=R Ratings shown are based on a piping and pickup allowance of 1.33 for steam and 1.15 for water.

Consult the manufacturer for installation having unusual piping and pickup requirements, such as intermittent system of operation, extensive piping systems, etc.

Net Ratings for Water, Square Feet are based on 170° average water temperature in radiators with a heat emission rate of 150 BTU/HR/SQ. FT. For higher water temperature select boiler on basis of net ratings in BTU/HR.

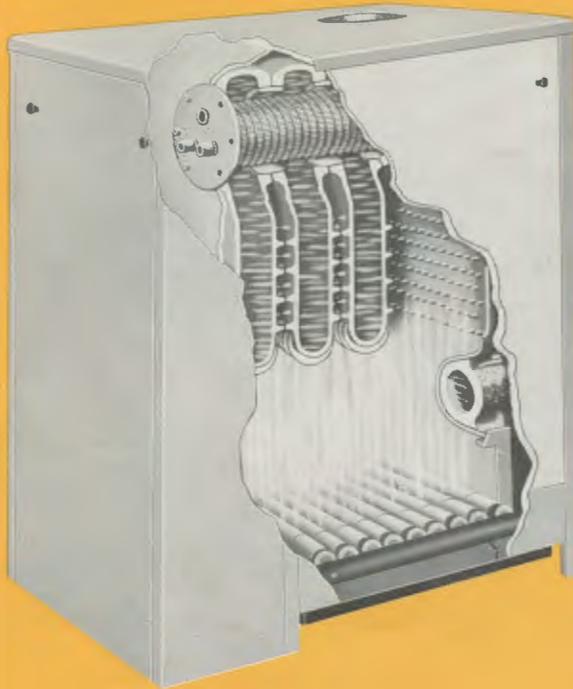


DIMENSIONS (in inches)

| BOILER SIZE | JACKET LENGTH "A" | EXTENDED LENGTH "B" | DIM. "C" | DIM. "D" | DIVERTER HEIGHT "E" | | DIVERTER SKIRT HEIGHT "J" | | RECOMMENDED CHIMNEY | | BREECHING DIAMETER | GAS CONNECTION |
|-------------|--------------------------------|--------------------------------|----------|---------------------------------|---------------------------------|---------------------------------|--------------------------------|--------------------------------|---------------------|---------------------|--------------------|----------------|
| | | | | | NAT. | PROP. | NAT. | PROP. | ROUND DIA".xHT'. | SQUARE IN.xIN.xHT'. | | |
| | | | | | | | | | | | | |
| 404 | 15 ³ / ₄ | 24 ³ / ₄ | 5 | 7 ⁷ / ₈ | 49 ¹ / ₁₆ | 49 ¹ / ₁₆ | 6 | 6 | 5 x 15 | 8 x 8 x 15 | 5 | 1/2 |
| 405 | 19 ³ / ₈ | 28 ³ / ₈ | 6 | 9 ¹ / ₁₆ | 51 ⁵ / ₈ | 54 ⁵ / ₈ | 7 ¹ / ₄ | 10 ¹ / ₄ | 6 x 15 | 8 x 8 x 15 | 6 | 1/2 |
| 406 | 22 ⁷ / ₈ | 31 ⁷ / ₈ | 6 | 11 ⁷ / ₁₆ | 52 ⁷ / ₈ | 55 ⁷ / ₈ | 8 ¹ / ₂ | 11 ¹ / ₂ | 6 x 15 | 8 x 8 x 15 | 6 | 1/2 |
| 407 | 26 ¹ / ₂ | 35 ¹ / ₂ | 7 | 13 ¹ / ₄ | 55 ³ / ₈ | 58 ⁵ / ₁₆ | 9 ³ / ₄ | 12 ³ / ₄ | 7 x 15 | 8 x 8 x 15 | 7 | 1/2 |
| 408 | 30 | 39 | 7 | 15 | 56 ⁵ / ₈ | 60 ¹ / ₁₆ | 11 | 14 ¹ / ₂ | 7 x 15 | 8 x 8 x 15 | 7 | 3/4 |
| 409 | 33 ⁵ / ₈ | 42 ⁵ / ₈ | 8 | 16 ¹ / ₁₆ | 59 ¹ / ₁₆ | — | 12 ³ / ₄ | — | 8 x 15 | 8 x 8 x 15 | 8 | 3/4 |
| 410 | 37 ¹ / ₈ | 46 ¹ / ₈ | 8 | 18 ⁹ / ₁₆ | 61 ³ / ₁₆ | — | 14 ¹ / ₂ | — | 8 x 15 | 8 x 12 x 15 | 8 | 3/4 |
| 411 | 40 ³ / ₄ | 49 ³ / ₄ | 8 | 20 ³ / ₈ | 62 ¹ / ₁₆ | — | 16 ¹ / ₄ | — | 8 x 15 | 8 x 12 x 15 | 8 | 3/4 |
| 412 | 44 ¹ / ₄ | 53 ¹ / ₄ | 8 | 22 ⁷ / ₈ | 64 ¹ / ₁₆ | — | 18 | — | 8 x 15 | 8 x 12 x 15 | 8 | 3/4 |

Series 4

QUALITY FEATURES



CAST-IRON CONSTRUCTION

Rugged cast iron gives the Series 4 lifetime durability and trouble-free performance. Cast iron is well known for its resistance to corrosion and rust.

VERTICAL FLUE TRAVEL

This scientific feature assures economical operation. Heated gases pass over special heat-absorbing surfaces studded with hundreds of heat-grabbing pins.

YEAR 'ROUND HOT WATER

Specially designed, all copper built-in tankless heaters provide a maximum amount of domestic hot water with a minimum of gas consumption. (Water boilers only).

TOP TAPPINGS

Ideal for steam applications. Provides more flexibility in piping.

LARGE NIPPLE PORTS

Wide and open sections coupled with large nipple ports provide good internal water circulation. The large upper nipple port becomes an excellent internal header for steam applications.

CONTROLS

Safe, dependable and fully automatic, the Series 4 controls are the finest obtainable. Controls are available in 24 volt or millivolt (self-energizing) and are easily accessible from the front of boiler.



Series 4 water boilers offer an optional built-in all copper coil with XL Trufin tubing. Located at the top of the boiler to assure fast heat transfer.



BURNER-BASE-MANIFOLD ASSEMBLY

Steel burners are factory assembled and aligned, then securely mounted on burner tray. The entire burner drawer assembly slides out as illustrated.

This unitized slide-out feature allows easy access to burners and pilot for inspection and maintenance. Newly designed steel burners in the Series 4 provide the optimum in performance.



BURNHAM CORPORATION

HYDRONICS DIVISION
Lancaster, Pa. 17604

high efficiency hydronics



Series **5**
CAST
IRON
GAS
HYDRONIC UNIT



NATURAL or PROPANE GAS

HOT WATER or STEAM

Nineteen Sizes

Gross Outputs 312,000 to 1,560,000 BTU/HR



**BURNHAM
AMERICA**

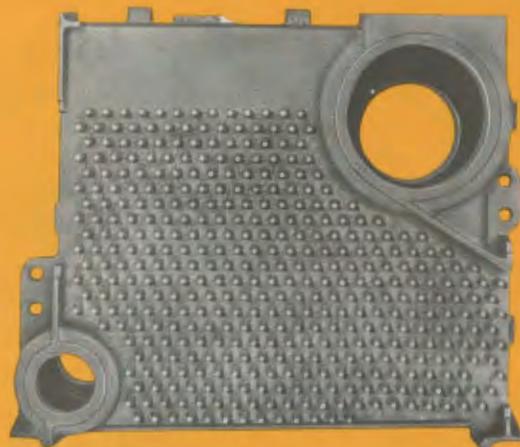
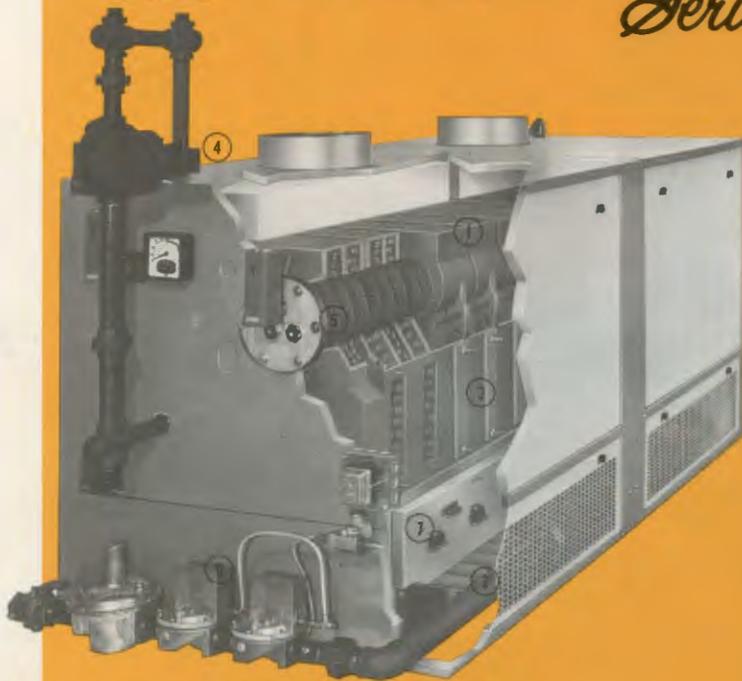


**BURNHAM
AMERICA**

Series **5**

A CAST IRON GAS FIRED BOILER DESIGNED FOR ENGINEERED HEATING SYSTEMS

The Series 5 offers the capacities and features that make it ideal for commercial, institutional and high rise residential heating applications. The Series 5 is designed for efficient, trouble-free operation. Nineteen sizes in gross outputs from 312,000 to 1,560,000 BTU/HR. (Not certified for installation on combustible flooring.)



1. Cast Iron Sections. Series 5 sections are made of rugged cast iron which provides durability, high heat transfer and resistance to corrosion and rust. Compact design makes sections easier to handle and assemble—even fitting through narrow doorways. Vertical flue travel through pinned flue surface insures maximum heat transfer.

Standard A.S.M.E. construction rated for 50 lb. (water) or 15 lb. (steam) working pressure.

2. Stainless Steel Burners. Stainless burners and air shutters provide long life, optimum primary air flow and high combustion efficiency.

The multi-slotted burners feature quiet ignition and positive flame extinction.

3. Flue Plates. Flue plates on both front and rear are easily removed for inspection and maintenance of entire flueway.

4. Supply Tappings. At top for ease of system connection, lower piping costs and assurance of dry steam or air-free hot water.

5. Tankless Heater. Provision is made for high performance tankless water heating in hot water units.

6. Gas Controls. Automatic gas controls meet full A.G.A. and CGA requirements. Intermittent electric ignition and redundant gas valves are standard equipment on USA boilers.

7. Base-Burner—Manifold Assembly. Factory assembled components reduce on-the-job installation costs. Proper alignment and positive securing of burners minimize service calls.

Maximum of two-bolt-together assemblies.

RATINGS—For Natural and Propane Gas 50 LB. W. P. (water)—15 LB. W. P. (steam)

| Boiler Number ⁽¹⁾ | AGA/CGA Ratings ⁽²⁾ MBH | | NET RATINGS ⁽³⁾ | | | | Boiler H.P. | No. & Size of Flue Outlets | Breeching Dia. Inches | Recommended Chimney Sizes ⁽⁵⁾ | |
|------------------------------|---------------------------------------|--------------|----------------------------|-----------|---------------|-----------|-------------|----------------------------|-----------------------|--|-----------------------------|
| | INPUT | GROSS OUTPUT | WATER | | STEAM | | | | | Round | Rectangular In. x In. x Ht. |
| | | | SQ. FT. ⁽⁴⁾ | I=B=R MBH | I=B=R SQ. FT. | I=B=R MBH | | | | | |
| K-5006 ⁽¹⁾ | 390 | 312.0 | 1810 | 271.3 | 975 | 234.1 | 9.30 | 1-9" | 9 | 10 x 15 | 12 x 12 x 15 |
| K-5007 | 468 | 374.4 | 2170 | 325.2 | 1169 | 280.6 | 11.20 | 1-10" | 10 | 10 x 15 | 12 x 12 x 15 |
| K-5008 | 546 | 436.8 | 2530 | 379.1 | 1363 | 327.1 | 13.05 | 1-12" | 12 | 12 x 15 | 12 x 16 x 15 |
| K-5009 | 624 | 499.2 | 2900 | 434.8 | 1563 | 375.1 | 14.90 | 1-12" | 12 | 12 x 15 | 12 x 16 x 15 |
| K-5010 | 702 | 561.6 | 3260 | 488.7 | 1757 | 421.6 | 16.80 | 1-12" | 12 | 12 x 15 | 12 x 16 x 15 |
| K-5011 | 780 | 624.0 | 3615 | 542.6 | 1950 | 468.1 | 18.65 | 2-9" | 14 | 15 x 15 | 16 x 16 x 15 |
| K-5012 | 858 | 686.4 | 3975 | 596.5 | 2144 | 514.6 | 20.50 | 1-9", 1-10" | 14 | 15 x 15 | 16 x 16 x 15 |
| K-5013 | 936 | 748.8 | 4335 | 650.4 | 2338 | 561.1 | 22.35 | 2-10" | 14 | 15 x 15 | 16 x 16 x 15 |
| K-5014 | 1014 | 811.2 | 4710 | 706.4 | 2538 | 609.2 | 24.25 | 1-10", 1-12" | 14 | 15 x 20 | 16 x 16 x 20 |
| K-5015 | 1092 | 873.6 | 5065 | 760.0 | 2732 | 655.7 | 26.10 | 2-12" | 14 | 15 x 20 | 16 x 16 x 20 |
| K-5016 | 1170 | 936.0 | 5425 | 813.9 | 2926 | 702.2 | 27.95 | 2-12" | 14 | 15 x 20 | 16 x 16 x 20 |
| K-5017 | 1248 | 998.4 | 5785 | 867.8 | 3120 | 748.7 | 29.85 | 2-12" | 14 | 15 x 20 | 16 x 16 x 20 |
| K-5018 | 1326 | 1060.8 | 6145 | 921.7 | 3313 | 795.2 | 31.70 | 2-12" | 16 | 15 x 20 | 16 x 16 x 20 |
| K-5019 | 1404 | 1123.2 | 6516 | 977.4 | 3513 | 843.2 | 33.55 | 2-12" | 16 | 18 x 20 | 16 x 20 x 20 |
| K-5020 | 1482 | 1185.6 | 6875 | 1031.3 | 3707 | 889.7 | 35.40 | 2-9", 1-10" | 16 | 18 x 20 | 16 x 20 x 20 |
| K-5021 | 1560 | 1248.0 | 7235 | 1085.2 | 3901 | 936.2 | 37.30 | 1-9", 1-10" 1-12" | 16 | 18 x 20 | 16 x 20 x 20 |
| K-5022 | 1638 | 1310.4 | 7595 | 1139.1 | 4113 | 987.2 | 39.15 | 2-10", 1-12" | 16 | 18 x 20 | 16 x 20 x 20 |
| K-5024 | 1794 | 1435.2 | 8325 | 1248.7 | 4547 | 1091.2 | 42.90 | 1-9", 3-10" | 18 | 18 x 20 | 20 x 20 x 20 |
| K-5026 | 1950 | 1560.0 | 9045 | 1356.5 | 4977 | 1194.5 | 46.60 | 3-10", 1-12" | 18 | 18 x 20 | 20 x 20 x 20 |

- (1) Boiler Number—use following suffixes: USA—WIN—water natural gas; WIP—water propane gas; SIN—steam natural gas; SIP—steam propane gas. Canada—WN—water natural gas; WP—water propane gas; SN—steam natural gas; SP—steam propane gas.
- (2) For installations from sea level to 2000 FT. For altitudes above 2000 FT: USA—Reduce ratings 4% for each 1000 FT. above sea level. Canada—Certified for use at altitudes to 4500 FT. above sea level. Each installation, however, must be authorized by local authorities.
- (3) Net I=B=R ratings shown are based on normal I=B=R piping and pick-up factor. Water: 1.15 (all sizes) Steam: 1.333 (5006 thru 5021) 1.327 (5022) 1.316 (5024) 1.306 (5026).
- (4) Based on 170°F average water temperature in radiators

- (5) (heat emission rate of 150 BTUH/SQ. FT.) For high water temperatures select boiler on basis of net ratings in BTUH. Recommended Chimneys—Based on year-round use with 6 FT. breechings and no more than one elbow. Chimney height measured from installation floor line to chimney top. Flue size based on nominal size of unlined chimney. Flue lined with largest flue liner which will fit within these dimensions is construed to have the same effective flue area. Individual Vents—If boiler is equipped with individual vertical vent riser(s) of same size as flue outlet(s) on draft diverter(s), these vent(s) should not be less than 5 ft. in height as measured from top of draft diverter. For other chimney and breeching combinations consult manufacturer.

Series 5

STANDARD EQUIPMENT

(all boilers)

Sections unassembled including left and right heater ends • Heater opening cover plates • Base-burner-manifold assembly (5006 thru 5014) shipped as two sub-assemblies (5015 thru 5026) • Gas Control Assembly; one assembly (5006 thru 5014); two assemblies (5015 thru 5026) • Flush Jacket • Canopy • Drafthood • Boiler drain cock

Water Trim

A.S.M.E. safety relief valve • Pressure, altitude, temperature gauge • L 4006A high limit control • #64 LWCO (except 5006)

Steam Trim

A.S.M.E. safety valve • Pressure vacuum gauge • Gauge glass set • PA 404A high limit control • #67 BC2 LWCO

U.S.A. BOILERS

El Electronic Control Set; one set (5006 thru 5014); two sets (5015 thru 5026); provides electric ignition; 100% safety shut-off; electronic supervision of pilot and intermittent pilot operation • Set includes: G60PML-1 ignition control; J996DYW pilot with Y755A-2 sensing probe; 25A11-227 pilot gas valve; AT88A valve transformer; and RV-10 pilot line regulator.

CANADIAN BOILERS

Lubricated plug cock; EV-10 pilot line regulator. Natural Gas: Thermocouple pilot assembly; 100% shut-off; one set (5006 thru 5013); two sets (5015 thru 5026) • EO electronic control set on 5014 (one set) and 5026 (two sets) only • Propane Gas: Thermocouple pilot assembly • 100% shut-off on 5006 only • EO electronic control set on 5007 thru 5014 (one set) and 5015 thru 5026 (two sets).

OPTIONAL EQUIPMENT

Electronic Control Sets EO, EOP, EEP, EOP-FM, EOP-IRI (FIA) • LWCO and feeder combination in lieu of standard • On-Off automatic gas valve—motorized • Hi-Lo off automatic gas valve—motorized • On-Off fluid power automatic gas valve • Modulating type automatic gas valve.

Series 5 TANKLESS HEATER DATA

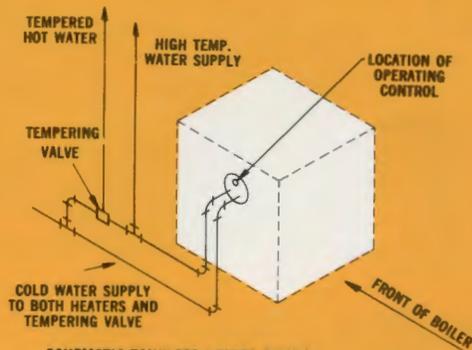
WATER BOILERS ONLY



Piping to heater(s) should be run at side(s) or rear of boiler.

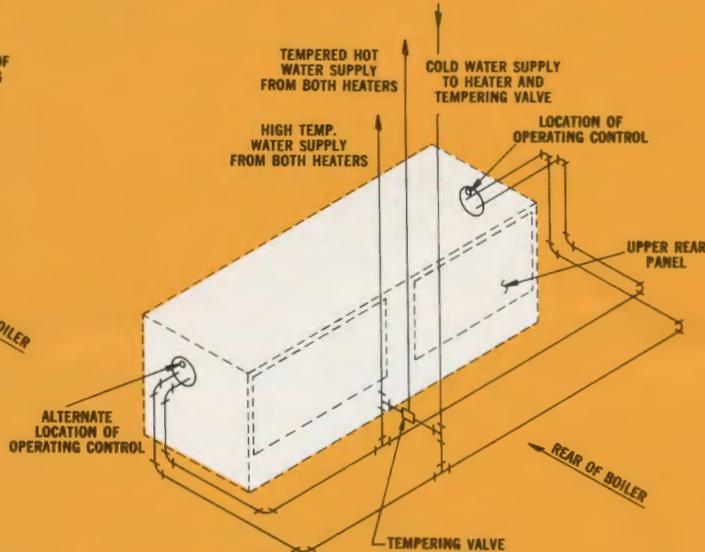
Piping at rear of boiler should not interfere with removal of upper rear panel(s) for access to flueways for cleaning.

Piping to accommodate two heaters must be proportionally sized in both cold and hot water supply headers to match heater ratings—necessary for maximum hot water delivery at minimum pressure drop.



SCHEMATIC TANKLESS HEATER PIPING
ONE HEATER

(LEFT END HOOK-UP ILLUSTRATED—RIGHT END HOOK-UP SIMILAR)



SCHEMATIC TANKLESS HEATER PIPING
TWO HEATERS

| Heater Number | For use in Boilers: | Continuous Draw Heater Ratings 40°—140° Rise w/200°F Boiler Temp. | Pressure Drop through Heater | Clearance requirement for Heater removal |
|---------------|---------------------|---|------------------------------|--|
| AT-2 | all sizes | 4½ GPM | 8.8 PSI | 27" |
| AT-3 | all sizes | 5 GPM | 18.0 PSI | 32" |
| AT-4 | 5008 and larger | 6 GPM | 1.2 PSI | 42" |

All Series 5 boilers are furnished with left and right heater end sections. It is possible to install a heater in both ends provided the number of sections in the boiler is not less than the sum of the number of sections required for each heater as indicated below:

AT-2 Heater—5 section
 AT-3 Heater—6 section
 AT-4 Heater—8 section

example: AT-3 + AT-4 Heater =
 6 + 8 = 14 section or larger
 boiler required.

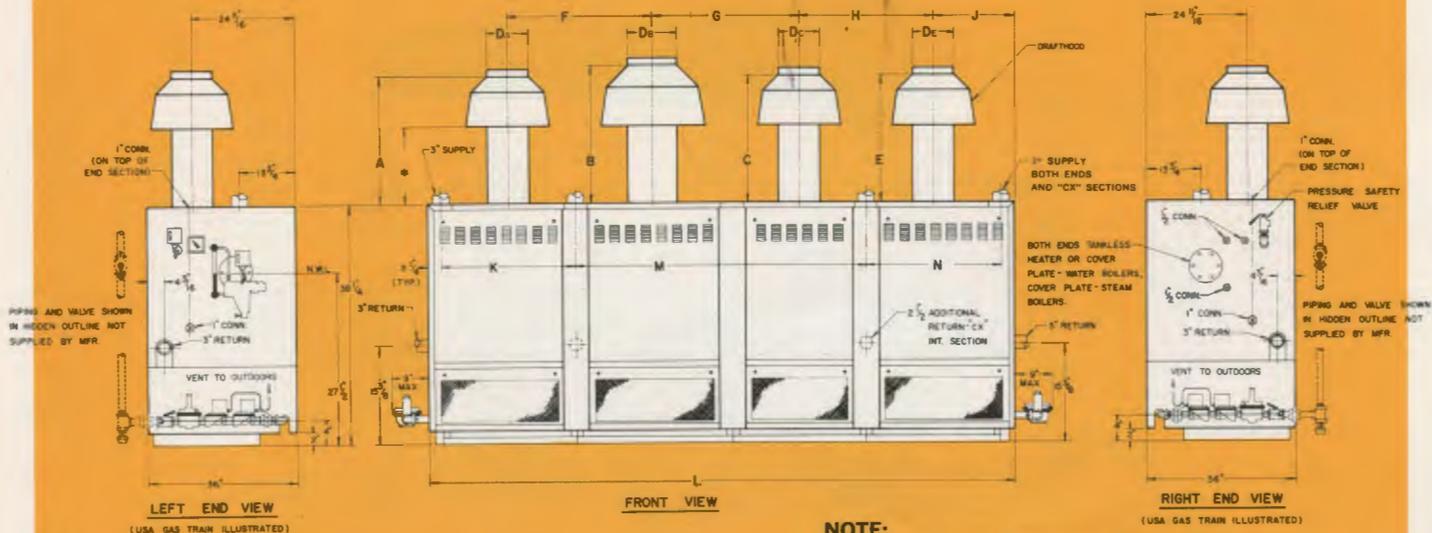
Hot Water Supply Boiler Capacities*—Gallons per hour—water boilers only

| Boiler No. | 5006 | 5007 | 5008 | 5009 | 5010 | 5011 | 5012 | 5013 | 5014 | 5015 | 5016 | 5017 | 5018 | 5019 | 5020 | 5021 | 5022 | 5024 | 5026 |
|------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 60°F rise | 625 | 750 | 875 | 1000 | 1125 | 1250 | 1375 | 1500 | 1620 | 1750 | 1870 | 1995 | 2120 | 2245 | 2370 | 2495 | 2620 | 2870 | 3120 |
| 80°F rise | 470 | 560 | 655 | 750 | 845 | 940 | 1030 | 1125 | 1220 | 1310 | 1405 | 1500 | 1590 | 1685 | 1780 | 1870 | 1965 | 2155 | 2340 |
| 100°F rise | 375 | 450 | 525 | 600 | 675 | 750 | 825 | 900 | 975 | 1050 | 1125 | 1200 | 1275 | 1350 | 1425 | 1500 | 1575 | 1725 | 1875 |

* Recommended only for use in indirect hot water supply systems (with tankless heater installed in boiler on water boilers only; external heat exchanger; steam to water or water to steam submerged in storage tank). Ratings for hot water supply are based on the gross output of boiler.

**HOT
WATER
SUPPLY
BOILER
CAPACITY**

Series 5 CAST IRON GAS HYDRONIC UNIT



* 17½"—9" and 10" dia. drafthoods.
20¾"—12" dia. drafthoods.

NOTE:

- 5006 thru 5014: Boilers require single gas train. Location on left end of boiler standard. Gas train may be relocated to right end of boiler except 5012 and 5014 boilers.
- 5015 thru 5026: Boilers require dual gas trains.

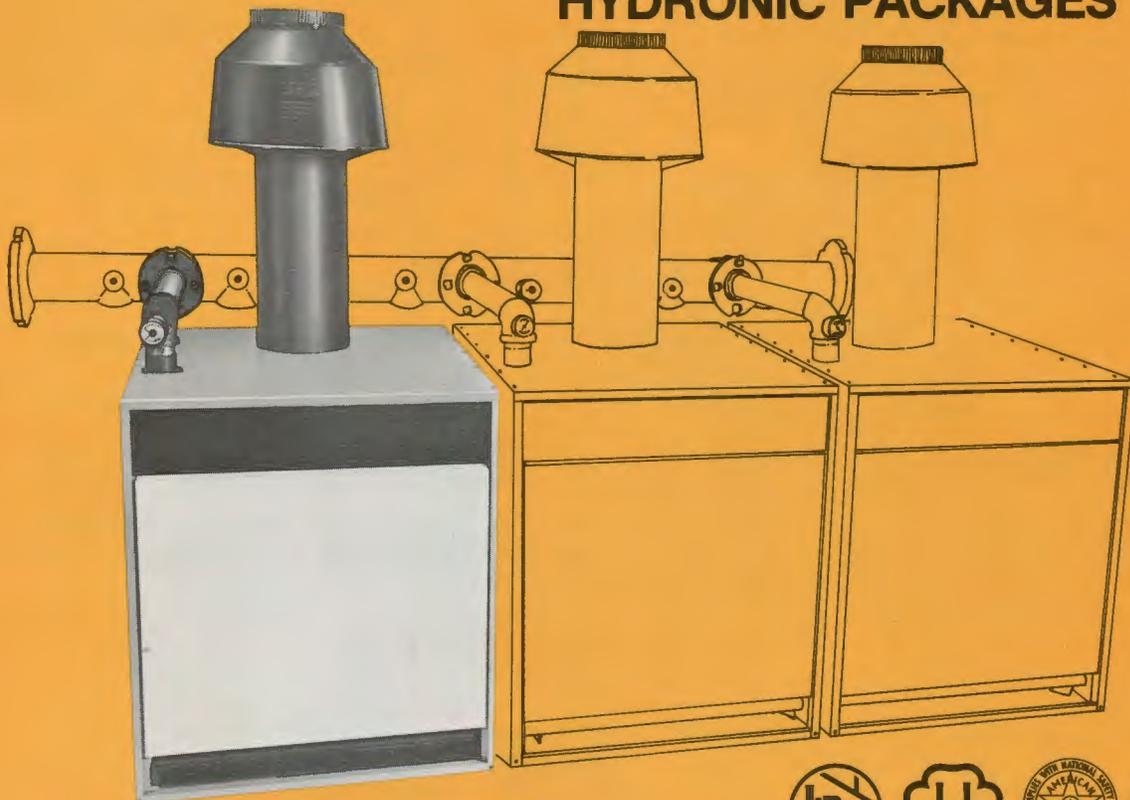
Series 5 DIMENSIONS (In Inches)

| Boiler Size | Jacket Overall Length L | Drafthood Height, Size and Location | | | | | | | | | | | Top Supply and Rear Return Location | | | Supply Conn. Qty. & Size (Inches) | Return Conn. Qty. & Size (Inches) | Gas Conn. Size Nat. & Propane | |
|-------------|-----------------------------------|-------------------------------------|---------------------|----------------------------------|--------------------------------|---------------------|---------------------------------|--------------------------------|---------------------|--------------------------------|--------------------------------|----------------------------------|-------------------------------------|--------------------------------|----------------------------------|-----------------------------------|--------------------------------------|--|-----------------------------------|
| | | A Ht. | D _A Diam | F | B Ht. | D _B Diam | G | C Ht. | D _C Diam | H | E Ht. | D _E Diam | J | K | M | | | | N |
| 5006 | 33 ¹⁵ / ₁₆ | 28 ⁷ / ₈ | 9 | — | — | — | — | — | — | — | — | 17 | 27 ¹ / ₂ | — | — | 2-3 | 2-3 | 1 | |
| 5007 | 39 ³ / ₈ | 29 ⁷ / ₈ | 10 | — | — | — | — | — | — | — | — | 19 ¹¹ / ₁₆ | 32 ³ / ₁₆ | — | — | 2-3 | 2-3 | 1 | |
| 5008 | 44 ¹³ / ₁₆ | 35 ³ / ₈ | 12 | — | — | — | — | — | — | — | — | 22 ³ / ₈ | 38 ³ / ₈ | — | — | 2-3 | 2-3 | 1 | |
| 5009 | 50 ¹ / ₄ | 35 ³ / ₈ | 12 | — | — | — | — | — | — | — | — | 25 ¹ / ₈ | 43 ¹³ / ₁₆ | — | — | 2-3 | 2-3 | 1 ¹ / ₄ | |
| 5010 | 55 ¹¹ / ₁₆ | 35 ³ / ₈ | 12 | — | — | — | — | — | — | — | — | 27 ⁷ / ₈ | 49 ¹ / ₄ | — | — | 2-3 | 2-3 | 1 ¹ / ₄ | |
| 5011 | 61 ¹ / ₈ | 28 ⁷ / ₈ | 9 | 27 ¹ / ₁₆ | 28 ³ / ₈ | 9 | — | — | — | — | — | 17 | 54 ¹¹ / ₁₆ | — | — | 2-3 | 2-3 | 1 ¹ / ₄ | |
| 5012 | 66 ¹ / ₁₆ | 28 ⁷ / ₈ | 9 | 29 ⁷ / ₈ | 29 ⁵ / ₈ | 10 | — | — | — | — | — | 19 ¹¹ / ₁₆ | 60 ¹ / ₈ | — | — | 2-3 | 2-3 | 1 ¹ / ₄ | |
| 5013 | 72 | 29 ⁷ / ₈ | 10 | 32 ⁵ / ₈ | 29 ⁵ / ₈ | 10 | — | — | — | — | — | 19 ¹¹ / ₁₆ | 65 ¹ / ₁₆ | — | — | 2-3 | 2-3 | 1 ¹ / ₄ | |
| 5014 | 77 ¹ / ₁₆ | 29 ⁷ / ₈ | 10 | 35 ³ / ₈ | 32 ¹ / ₈ | 12 | — | — | — | — | — | 22 ³ / ₈ | 71 | — | — | 2-3 | 2-3 | 1 ¹ / ₄ | |
| 5015 | 82 ⁷ / ₈ | 35 ³ / ₈ | 12 | 38 ¹ / ₁₆ | 35 ³ / ₈ | 12 | — | — | — | — | — | 22 ³ / ₈ | 38 ¹ / ₄ | 38 ¹ / ₄ | — | 3-3 | 2-3, 1-2 ¹ / ₂ | 2-1* | |
| 5016 | 88 ¹ / ₁₆ | 35 ³ / ₈ | 12 | 40 ³ / ₄ | 35 ³ / ₈ | 12 | — | — | — | — | — | 25 ¹ / ₈ | 38 ¹ / ₄ | 43 ⁵ / ₈ | — | 3-3 | 2-3, 1-2 ¹ / ₂ | 1-1, 1-1 ¹ / ₄ * | |
| 5017 | 93 ³ / ₄ | 35 ³ / ₈ | 12 | 43 ¹ / ₂ | 35 ³ / ₈ | 12 | — | — | — | — | — | 25 ¹ / ₈ | 43 ⁵ / ₈ | 43 ⁵ / ₈ | — | 3-3 | 2-3, 1-2 ¹ / ₂ | 2-1 ¹ / ₄ * | |
| 5018 | 99 ¹ / ₁₆ | 35 ³ / ₈ | 12 | 46 ¹ / ₄ | 35 ³ / ₈ | 12 | — | — | — | — | — | 27 ⁷ / ₈ | 43 ⁵ / ₈ | 49 ¹ / ₈ | — | 3-3 | 2-3, 1-2 ¹ / ₂ | 2-1 ¹ / ₄ * | |
| 5019 | 104 ⁵ / ₈ | 35 ³ / ₈ | 12 | 48 ¹³ / ₁₆ | 35 ³ / ₈ | 12 | — | — | — | — | — | 27 ⁷ / ₈ | 49 ¹ / ₈ | 49 ¹ / ₈ | — | 3-3 | 2-3, 1-2 ¹ / ₂ | 2-1 ¹ / ₄ * | |
| 5020 | 110 ¹ / ₁₆ | 28 ⁷ / ₈ | 9 | 27 ¹ / ₁₆ | 28 ³ / ₈ | 9 | 38 ¹ / ₁₆ | 35 ³ / ₈ | 12 | — | — | 27 ⁷ / ₈ | 54 ¹ / ₂ | 49 ¹ / ₈ | — | 3-3 | 2-3, 1-2 ¹ / ₂ | 2-1 ¹ / ₄ * | |
| 5021 | 115 ¹ / ₂ | 28 ⁷ / ₈ | 9 | 29 ⁷ / ₈ | 29 ⁵ / ₈ | 10 | 40 ³ / ₄ | 35 ³ / ₈ | 12 | — | — | 27 ⁷ / ₈ | 27 ³ / ₈ | 32 ⁵ / ₈ | 49 ¹ / ₈ | 4-3 | 2-3, 2-2 ¹ / ₂ | 2-1 ¹ / ₄ * | |
| 5022 | 120 ¹³ / ₁₆ | 29 ⁷ / ₈ | 10 | 32 ⁵ / ₈ | 29 ⁵ / ₈ | 10 | 40 ³ / ₄ | 35 ³ / ₈ | 12 | — | — | 27 ⁷ / ₈ | 32 ³ / ₄ | 32 ⁵ / ₈ | 49 ¹ / ₈ | 4-3 | 2-3, 2-2 ¹ / ₂ | 2-1 ¹ / ₄ * | |
| 5024 | 131 ¹³ / ₁₆ | 28 ⁷ / ₈ | 9 | 29 ⁷ / ₈ | 29 ⁵ / ₈ | 10 | 32 ⁵ / ₈ | 29 ⁵ / ₈ | 10 | 32 ⁵ / ₈ | 29 ⁵ / ₈ | 10 | 19 ¹¹ / ₁₆ | 27 ³ / ₈ | 65 ¹ / ₄ | 32 ³ / ₄ | 4-3 | 2-3, 2-2 ¹ / ₂ | 2-1 ¹ / ₄ * |
| 5026 | 142 ¹¹ / ₁₆ | 29 ⁷ / ₈ | 10 | 35 ³ / ₈ | 35 ³ / ₈ | 12 | 35 ³ / ₈ | 29 ⁵ / ₈ | 10 | 32 ⁵ / ₈ | 29 ⁵ / ₈ | 10 | 19 ¹¹ / ₁₆ | 32 ³ / ₄ | 70 ¹¹ / ₁₆ | 32 ³ / ₄ | 4-3 | 2-3, 2-2 ¹ / ₂ | 2-1 ¹ / ₄ * |

* Dual manifolds—5015 thru 5026

Series 8-B

**SINGLE AND
MODULAR
CAST IRON GAS
HYDRONIC PACKAGES**



**NATURAL or PROPANE GAS
HOT WATER**

SIX BASIC PACKAGES

**Gross Outputs starting at 211,000 BTU/HR and
increasing in increments of 53,000 BTU/HR**



**BURNHAM
AMERICA**

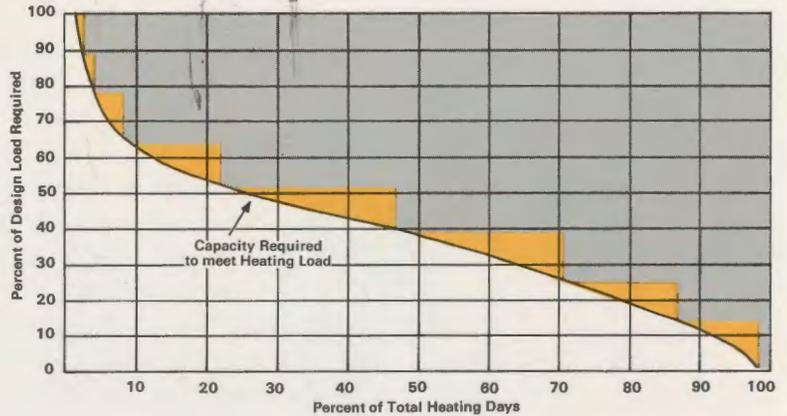
MODULAR MODULAR MODULAR SYSTEM FEATURES

Fuel Savings

A heating system must be sized for extreme climatic conditions although these conditions may exist only a few days each year.

The chart to the right graphically illustrates the difference between total boiler capacity and the variable heating demand. The color steps illustrate the controlled operation of multiple boilers to match this variable heating demand.

The use of modular boilers each operating at its design capacity and sequenced to operate as a single heating plant results in significant fuel savings.



Excess Capacity — Single Boiler
 Excess Capacity — Modular Boilers

Additional Fuel Savings

Stand-by heat loss is minimized by utilizing primary-secondary circulation. This is accomplished by circulating system water only thru the operating boilers.

Stand-by Security

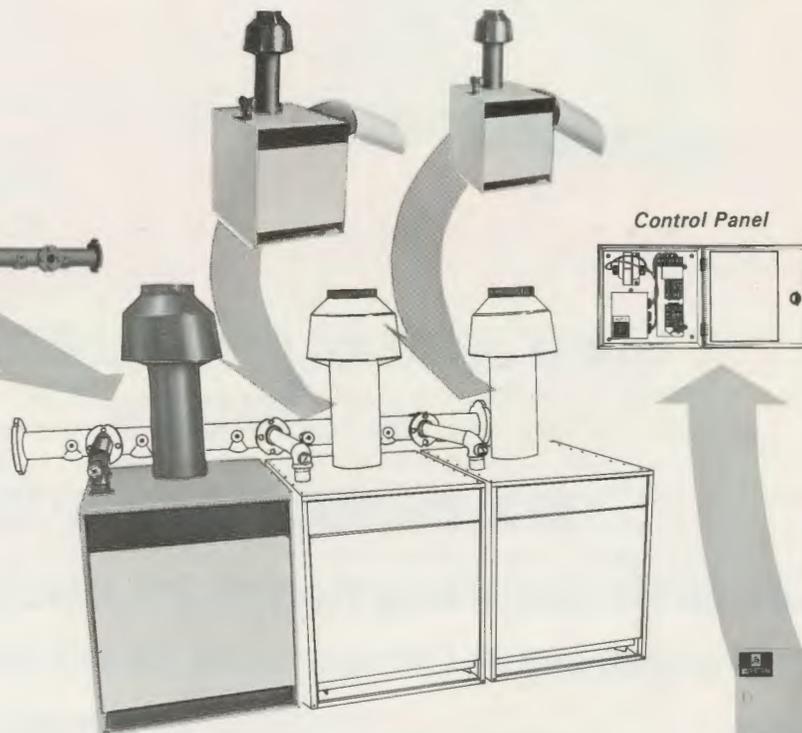
Component boilers in a modular installation may be individually serviced or repaired without affecting the operation of the heating system.

Prefabricated Header



Simplified Installation

Assembled components, prefabricated supply and return headers, sequencing control panels — all serve to uncomplicate large installations.



Flexibility

A modular system will accommodate future expansion. Adding additional capacity, as the illustration demonstrates, becomes a simple extension of the basic system.

SINGLE BOILER RATINGS — Natural and Propane Gas

| Boiler No. | A.G.A. Rating | | Net Rating | | Chimney Dia (In) x Ht (Ft) | Water Content Gallons | Approx. Shipping Weight |
|------------|---------------|------------------|---------------|------------|----------------------------|-----------------------|-------------------------|
| | Input MBH | Gross Output MBH | **Square Feet | *I=B=R MBH | | | |
| 805B | 264 | 211.2 | 1225 | 183.5 | 7 x 15 | 11.9 | 613 |
| 806B | 330 | 264.0 | 1530 | 229.6 | 8 x 15 | 13.9 | 716 |
| 807B | 396 | 316.8 | 1840 | 275.7 | 8 x 15 | 15.9 | 823 |
| 808B | 462 | 369.6 | 2145 | 321.7 | 9 x 15 | 17.9 | 920 |
| 809B | 528 | 422.4 | 2445 | 367.0 | 10 x 15 | 19.9 | 1030 |
| 810B | 594 | 475.2 | 2760 | 413.9 | 10 x 15 | 21.9 | 1150 |

NOTE: Ratings shown are for installations at sea level and elevations up to 2,000 ft. For elevations above 2,000 ft., ratings should be reduced at the rate of four percent (4%) for each 1,000 ft. above sea level.

* Net IBR ratings shown are based on normal IBR piping and pick-up allowance of 1.15.

Consult the manufacturer for installations having unusual piping and pick-up requirements such as intermittent system of operation, extensive piping systems, etc.

** Based on 170°F average water temperature in radiators (heat emission rate of 150 BTU/HR/Sq. Ft.). For higher water temperatures, select boiler on basis of net ratings in BTU/HR.

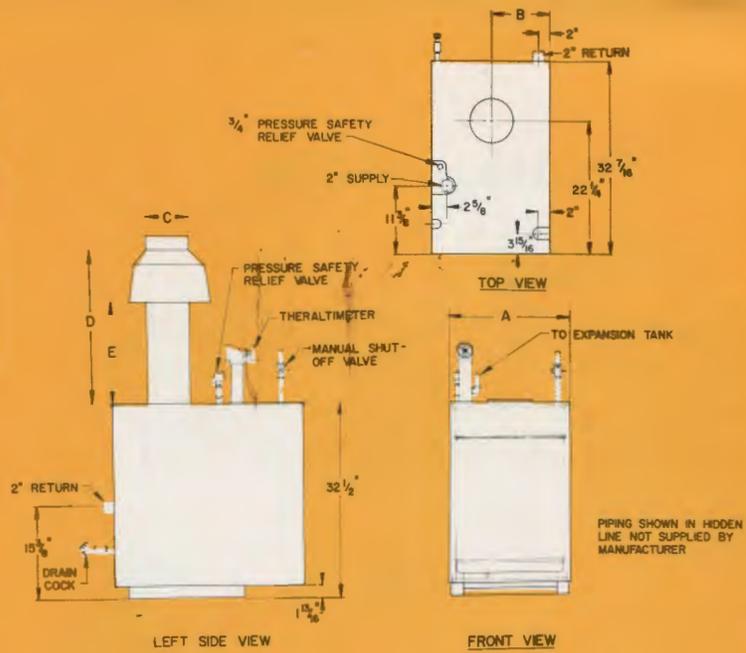
Modular Boiler Selection Guide

| Input (MBH) | Gross Output (MBH) | Modules Used | | |
|-------------|--------------------|--------------|------|------|
| | | 805B | 806B | 807B |
| 528 | 422.4 | 2 | — | — |
| 594 | 475.2 | 1 | 1 | — |
| 660 | 528.0 | — | 2 | — |
| 726 | 580.8 | — | 1 | 1 |
| 792 | 633.6 | — | — | 2 |
| 858 | 686.4 | 2 | 1 | — |
| 924 | 739.2 | 1 | 2 | — |
| 990 | 792.0 | — | 3 | — |
| 1056 | 844.8 | — | 2 | 1 |
| 1122 | 897.6 | — | 1 | 2 |
| 1188 | 950.4 | — | — | 3 |
| 1254 | 1003.2 | 1 | 3 | — |
| 1320 | 1056.0 | — | 4 | — |
| 1386 | 1108.8 | — | 3 | 1 |
| 1452 | 1161.6 | — | 2 | 2 |
| 1518 | 1214.4 | — | 1 | 3 |
| 1584 | 1267.2 | — | — | 4 |
| 1650 | 1320.0 | — | 5 | — |
| 1716 | 1372.8 | — | 4 | 1 |
| 1782 | 1425.6 | — | 3 | 2 |
| 1848 | 1478.4 | — | 2 | 3 |

| Input (MBH) | Gross Output (MBH) | Modules Used | | |
|-------------|--------------------|--------------|------|------|
| | | 805B | 806B | 807B |
| 1914 | 1531.2 | — | 1 | 4 |
| 1980 | 1584.0 | — | — | 5 |
| 2046 | 1636.8 | — | 5 | 1 |
| 2112 | 1689.6 | — | 4 | 2 |
| 2178 | 1742.4 | — | 3 | 3 |
| 2244 | 1795.2 | — | 2 | 4 |
| 2310 | 1848.0 | — | 1 | 5 |
| 2376 | 1900.8 | — | — | 6 |
| 2442 | 1953.6 | — | 5 | 2 |
| 2508 | 2006.4 | — | 4 | 3 |
| 2574 | 2059.2 | — | 3 | 4 |
| 2640 | 2112.0 | — | 2 | 5 |
| 2706 | 2164.8 | — | 1 | 6 |
| 2772 | 2217.6 | — | — | 7 |
| 2838 | 2270.4 | — | 5 | 3 |
| 2904 | 2323.2 | — | 4 | 4 |
| 2970 | 2376.0 | — | 3 | 5 |
| 3036 | 2428.8 | — | 2 | 6 |
| 3102 | 2481.6 | — | 1 | 7 |
| 3168 | 2534.4 | — | — | 8 |

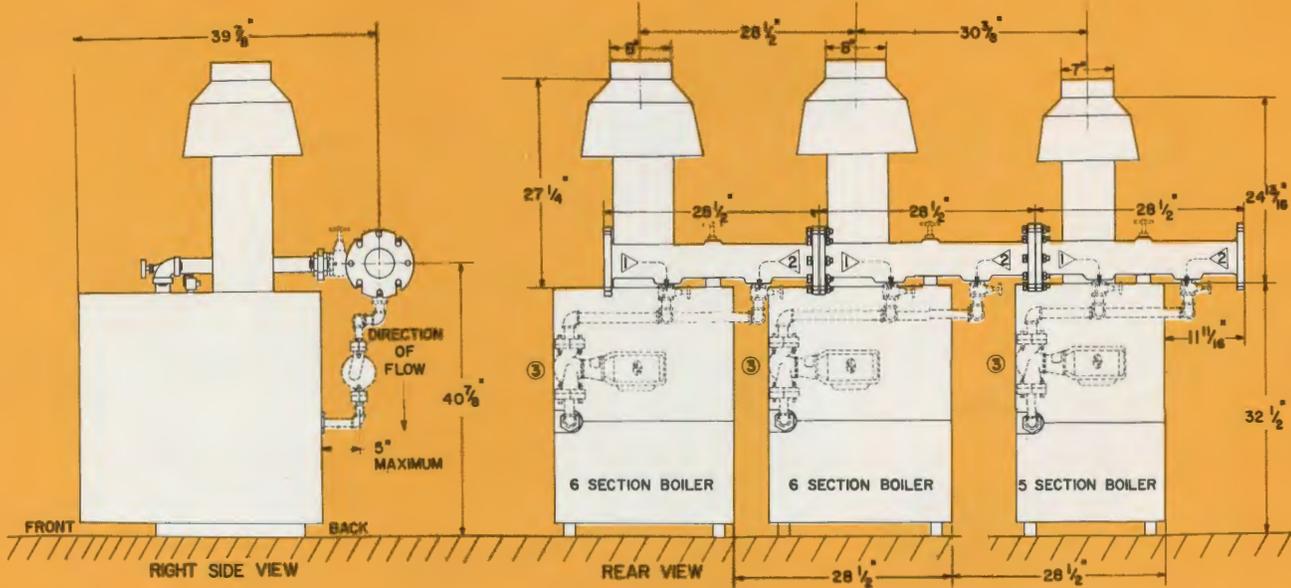
Single Boiler Installation

| Boiler No. | Dimensions | | | | | | Gas Connection | | |
|------------|------------|--------|----|----------|----------|--------|----------------|---------|---------|
| | A | B | C | D | | E | | Natural | Propane |
| | | | | USA | Canada | USA | Canada | | |
| 805B | 20 | 10 | 7 | 24-13/16 | 24-13/16 | 16-1/8 | 16-1/8 | 3/4 | 3/4 |
| 806B | 23-3/4 | 11-7/8 | 8 | 27-3/4 | 25-3/4 | 18 | 16 | 3/4 | 3/4 |
| 807B | 27-1/2 | 13-3/4 | 9 | 27-3/4 | 25-3/4 | 18 | 16 | 3/4 | 3/4 |
| 808B | 31-1/4 | 15-5/8 | 9 | 30-11/16 | 26-11/16 | 20 | 16 | 3/4 | 3/4 |
| 809B | 35 | 17-1/2 | 10 | 33-7/16 | 26-7/16 | 22 | 15 | 1 | 1 |
| 810B | 38-3/4 | 19-3/8 | 10 | 33-7/16 | 26-7/16 | 22 | 15 | 1 | 1 |



Modular Boiler Installation

Primary-Secondary Circulation



NOTE: Up to 8 boilers (805B, 806B, 807B or any combination thereof) may be placed in a row using the water manifold supplied on special order. If more than 8 boilers are used, they should be split into two rows (9 thru 16 boilers) or into three rows (17 thru 21 boilers). The rows should be piped in parallel.

Piping shown in hidden line not supplied by manufacturer.

1 Circulator piping for left to right flow in water manifold (viewing from back).

2 Circulator piping for right to left flow in water manifold (viewing from back).

3 Circulator (Taco 110 or B & G 125).

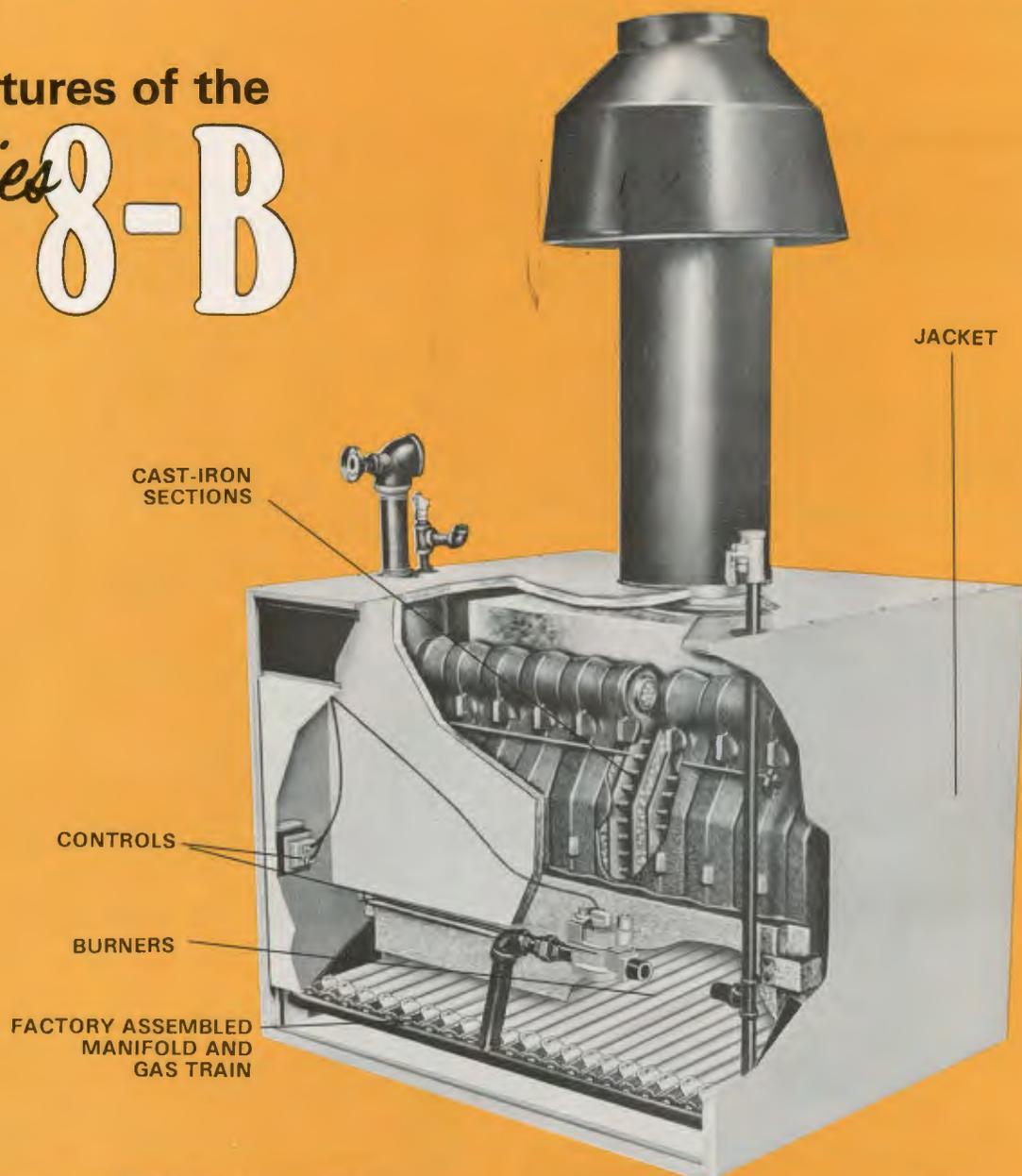
STANDARD EQUIPMENT

Section Assembly • Insulated Deluxe Jacket • 100% Shut-Off Gas Controls furnished as combination unit which includes: *Manual Shut-Off Valve — Automatic Gas Valve — Regulator — Manual Pilot Shut-Off Valve — Pilot Safety Switch — Thermocouple Control System (805B thru 807B) — Electronic Control System (808B thru 810B)* • ASME Safety Relief Valve • Altitude Temperature and Pressure Gauge • Boiler Drain Cock • 24V Gas Valve Transformer and Junction Box • Aluminized Steel Burners • Draft Hood • L-4080 Immersion Limit Control • #64 LWCO (808B-809B-810B only)

OPTIONAL EQUIPMENT

Self Energizing Controls in lieu of Standard 24 Volt (805B thru 807B only) • Electronic Control Systems • Four Stage Immersion Type Operating Control • Immersion Type Operating Control w/Individual Outdoor Resets • Eight Stage Boiler Sequencing Control Package w/Outdoor Reset • Factory Fabricated Water Manifold for Primary-Secondary Circulation Includes interconnecting supply piping (805B-806B & 807B only) • Factory Fabricated Water Manifold for Parallel Boiler Hookup. *Includes interconnecting supply and return piping.*

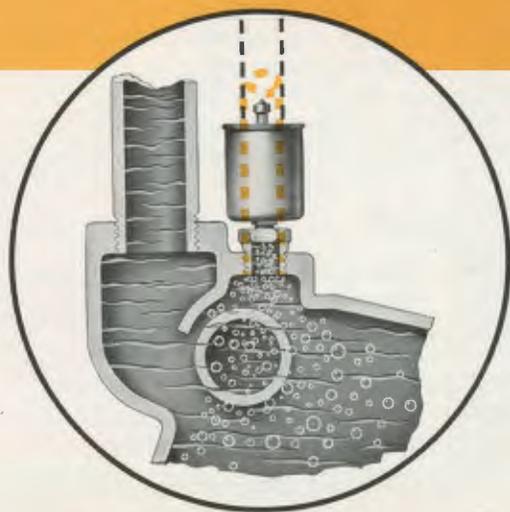
Features of the *Series* 8-B



ALUMINIZED STEEL BURNERS — Precision slotted burners and air shutters provide long life, optimum primary air flow and high combustion efficiency. Quiet ignition and positive flame extinction achieved.

CONTROLS—mounted on front of boiler for easy adjustment and modular installation.

CAST IRON SECTIONS — Knocked-down boiler features assembled section block, base and manifold assembly with burners installed and securely fastened in position for correct alignment and on-the-job labor saving.



ELIMINAIRE® — a patented, cost-saving feature. This unique built-in air eliminator is integrally cast into the left-hand end section. Furnished with all boilers, the ELIMINAIRE baffle diverts rising air bubbles into a tapping for connection to the expansion tank. No external device is required to separate air and water, thus reducing both cost and installation time.

**GENERAL
SPECIFICATION**

Contractor shall furnish and install, where indicated on the drawings, Series 8B
(water) gas fired modular boilers having a net I=B=R approved rating of Mbh with A.G.A. certified total input of Mbh when fired with
..... (natural/propane) gas. Each module boiler shall be constructed of cast iron sections manufactured in accordance with ASME requirements for low pressure boilers and each section shall be permanently marked with the ASME symbol and certified test pressures.

**MODULAR BOILER
EQUIPMENT
SPECIFICATION**

- 2.1 Each module boiler shall have vertical pinned surface flue ways.
- 2.2 Module boiler shall be equipped with aluminized steel burners.
- 2.3 Each module boiler shall have a built-in air elimination device.
- 2.4 Each module boiler flue canopy shall be constructed of heavy aluminized steel concealed under the jacket.
- 2.5 A draft hood shall be furnished for each module.
- 2.6 Jackets shall be deluxe extended type and insulated with fiberglass insulation and shall be capable of being installed before or after system piping has been connected to boiler section assembly.
- 2.7 All modular water boiler sections shall be hydrostatically tested for 50 working pressure in accordance with ASME Code section IV.
- 2.8 Water trim shall include a 2½" round pressure-temperature gauge with separate scales for pressure and water temperature. In addition, ASME approved water relief valves shall be furnished, as required, sized to exceed the boiler output capacity and shall be factory set to relieve pressure at 50 psi.
- 2.9 Factory fabricated water manifolds shall be provided that are designed for (select option (a) or (b) below).

Option (a)

Primary/secondary circulation which will be base bid arrangement. Boiler manufacturer will supply the interconnecting boiler to manifold supply piping. The contractor shall furnish the required number of circulators to match the number of modules. The manifolds shall be provided with necessary tappings for operating controls and plugs to complete manifold installation.

Option (b)

Parallel supply and return circulation which will be accepted as an alternate arrangement. One set of supply and return manifolds shall be purchased by contractor. Boiler manufacturer will include with the manifolds the inter-connecting boiler to manifold supply or return piping. The manifolds shall be furnished with the necessary tappings for operating controls and plugs to complete the manifold installation.



high efficiency hydronics

NEW!

Series 2



CAST IRON
GAS
HYDRONIC
PACKAGE



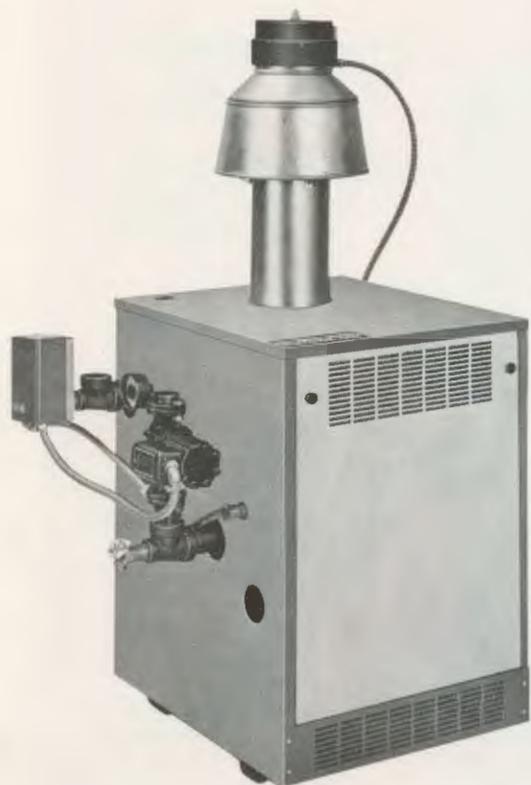
NATURAL OR PROPANE GAS
HOT WATER

Eight Sizes

DOE Heating Capacity: 51,000 to 245,000 BTU/HR

 **Burnham**
AMERICA'S BOILER COMPANY

THE GAS BOILER OF THE 80's



With Department of Energy efficiency ratings of up to 80%, the Series 2 exceeds the proposed D.O.E. 1986 efficiency requirements (when equipped with available electric ignition and vent damper, published by D.O.E. June 30, 1980).

But the Series 2 is more than a high efficiency heating unit. Rugged cast iron construction, stainless steel burners, and a proven design enable the Series 2 to deliver clean, quiet and dependable home comfort year after year.

In addition, the Series 2 is safe enough to trust your home to. Gas valves are safely hidden inside the jacket away from children and safe from accidental bumps and tampering.

Completely factory assembled and fire tested, this unit requires only system piping connections, gas and electric hook-up to put it into operation.

Efficiency, dependability, and safety... The Series 2 is everything the most particular contractor could ask for.

STANDARD EQUIPMENT

(Factory assembled and shipped in skid-bottom crate)

| | |
|---|--|
| Deluxe two-tone blue jacket | 100% Shut-off-Combination Step-opening Gas Valve |
| 1 1/4" Circulator with Piping to Boiler | High Limit |
| ASME Safety Relief Valve | Wiring (Internal) |
| Theraltimeter | Universal Stainless Steel Burners |
| Boiler Drain Cock | Transformer and Junction Box |
| Built-in Air Elimination | — when required |

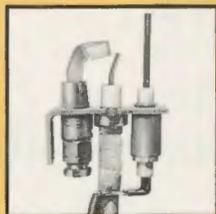
ADDITIONAL EQUIPMENT SHIPPED IN SEPARATE CARTON

Pilot Gas Filter (furnished only when required by Gas Co.)
Draffhood
Room Thermostat, 24 volt, 2 wire

OPTIONAL EQUIPMENT

ELECTRIC IGNITION

Optional spark ignited pilot (EI) is available on all sizes for natural gas only. Coupled with a redundant gas valve the system shuts down on loss of pilot flame within .8 sec. The control arrangement provides for a 30 second try for pilot relight following shutdown. If after the length of time the pilot is not re-established the entire system goes on safety shutdown.



FUEL SAVING VENT DAMPER —

Increases annual efficiency and saves fuel dollars. Automatically closes the flue after the burner shuts off and reopens it again before the burner comes on. Available as optional equipment — mounts & wires easily.

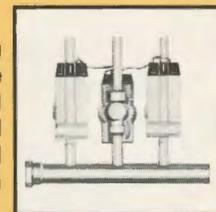


DE LUXE JACKET EXTENSION

Optional jacket extension covers all controls and circulator. Shipped in separate carton and easily applied after piping is completed.

ZONE CONTROL PACK

SERIES 2 boilers can be supplied with zone pack assemblies for two or three zone systems. Zone packs include all necessary zone valves, manifolds and wiring to circulator. Thermostats, and necessary transformers are shipped in separate carton.



Zoned hydronic heating with this unit can provide the ultimate in heating comfort and economy.

Millivolt, other optional control and equipment, refer to price sheet.

GAS HYDRONIC PACKAGE

RATINGS — Natural and Propane Gas(1) — 0 to 2000 Ft. Elevation(2)

| Boiler Number | AGA Input MBH | DOE Heating Capacity MBH | I=B=R Net Rating MBH(3) | Net Rating Water Sq. Ft.(4) | Flue Outlet & Breeching Diameter | Recommended Chimney Size Round Dia. In. (x Ft. (5)) | DOE Annual Efficiency, % | | |
|---------------|---------------|--------------------------|-------------------------|-----------------------------|----------------------------------|--|--------------------------|------|--------------------|
| | | | | | | | Standing Pilot | EI | EI and Vent Damper |
| 203 | 62 | 51 | 44.3 | 295 | 4 | 4 x 15 | 69.1 | 72.1 | 79.6 |
| 204 | 96 | 79 | 68.7 | 458 | 5 | 5 x 15 | 69.4 | 72.1 | 79.8 |
| 205 | 130 | 107 | 93.0 | 620 | 6 | 6 x 15 | 69.6 | 72.1 | 79.9 |
| 206 | 164 | 135 | 118.3 | 789 | 6 | 6 x 15 | 69.9 | 72.1 | 80.0 |
| 207 | 198 | 162 | 140.9 | 939 | 7 | 7 x 15 | 70.2 | 72.1 | 80.2 |
| 208 | 232 | 190 | 165.2 | 1101 | 7 | 7 x 15 | 70.4 | 72.1 | 80.3 |
| 209 | 266 | 218 | 189.6 | 1264 | 8 | 8 x 15 | 70.7 | 72.1 | 80.5 |
| 210 | 299 | 245 | 213.0 | 1420 | 8 | 8 x 15 | 70.9 | 72.1 | 80.6 |

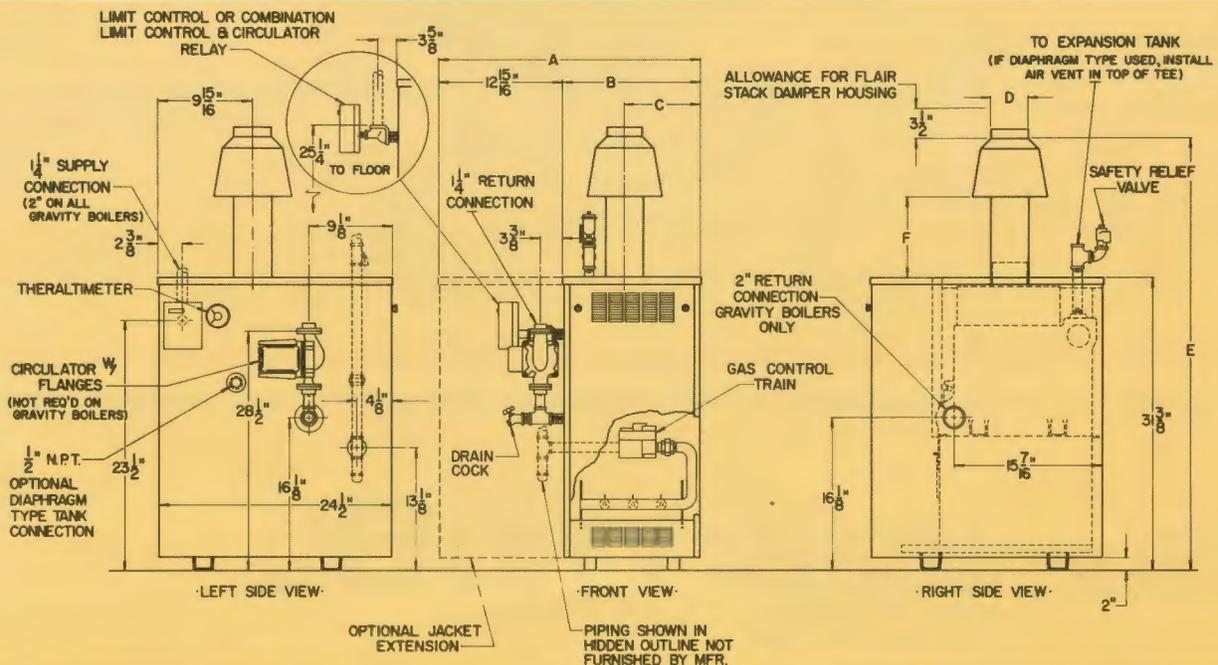
DOE heating capacity and annual efficiency are based on U.S. Government standard tests.

DIMENSIONAL DATA

| Boiler Model | Dim A | Dim B | Dim C | Dim D | Dim E | Dim F | Gas Connection for Gas Valve — Natural & Propane |
|--------------|-------|-------|-------|-------|-------|-------|--|
| 203 | 27½ | 14½ | 8 | 4 | 44⅞ | 8½ | ½ |
| 204 | 30¾ | 17¾ | 9⅝ | 5 | 45⅞ | 9⅝ | ½ |
| 205 | 34 | 21 | 11¼ | 6 | 46¾ | 9¾ | ½ |
| 206 | 37¼ | 24¼ | 12⅞ | 6 | 46¾ | 9¾ | ½ |
| 207 | 40½ | 27½ | 14½ | 7 | 48⅞ | 10⅝ | ½ |
| 208 | 43¾ | 30¾ | 16⅝ | 7 | 48⅞ | 10⅝ | ½(1) |
| 209 | 47 | 34 | 17¾ | 8 | 49½ | 11 | ¾ |
| 210 | 50½ | 37¼ | 19⅞ | 8 | 49½ | 11 | ¾ |

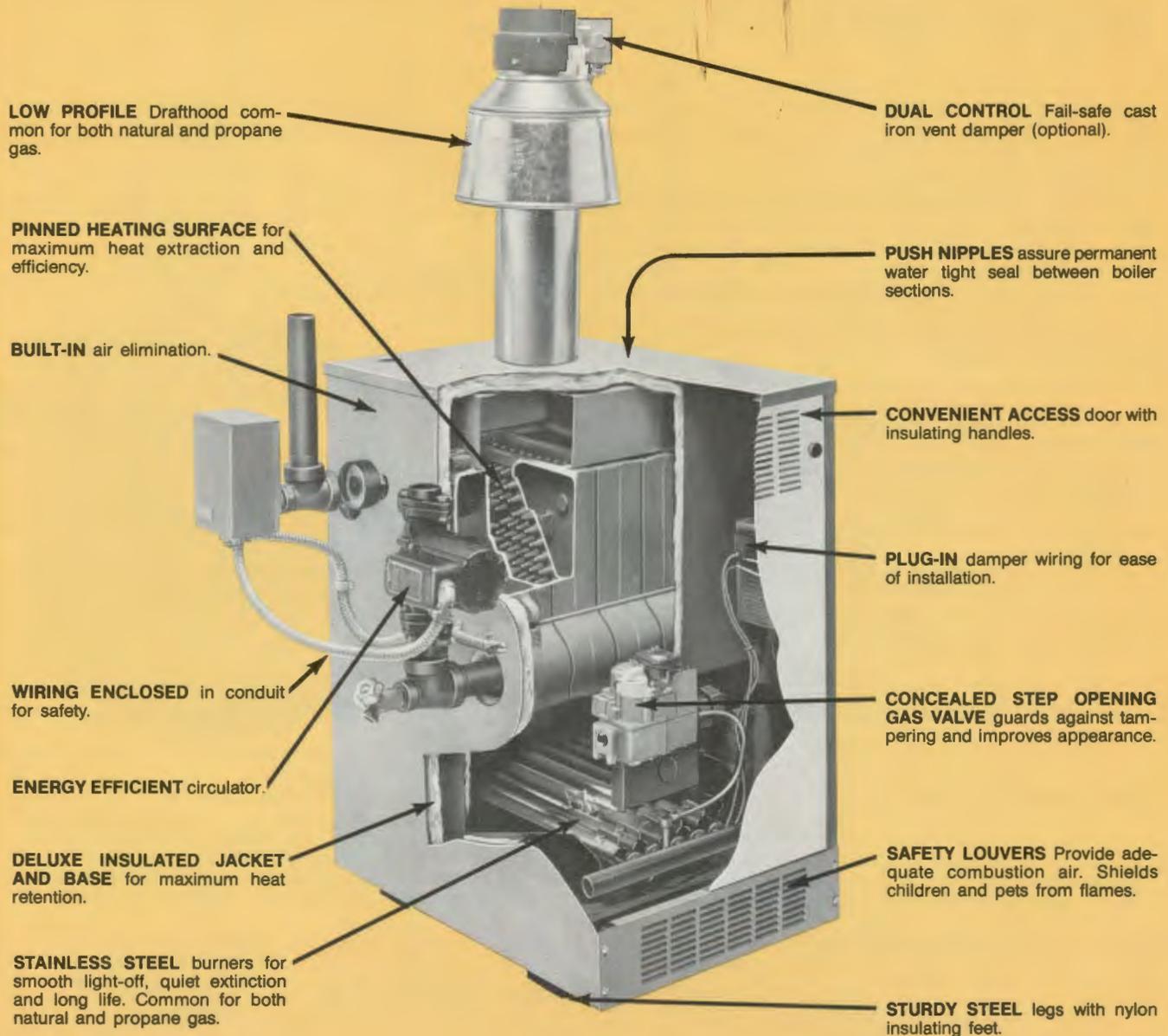
(1) — Gas Connection for 208 with EI Controls is ¾".

- (1) Propane available for standing pilot only.
- (2) For elevations above 2,000 ft. A.G.A. ratings should be reduced at the rate of four percent (4%) for each 1,000 ft. above sea level.
- (3) Net I=B=R ratings shown are based on normal I=B=R piping and pick-up allowance of 1.15. Consult the manufacturer for installations having unusual piping and pick-up requirements such as intermittent system of operation, extensive piping systems, etc.
- (4) Based on 170°F average water temperature in radiators (heat emission rate of 150 BTU/HR/Sq. Ft.). For higher water temperatures, select boiler on basis of net ratings in BTU/HR.
- (5) Recommended chimney for rectangular application is 8 in. x 8 in. x 15 ft. for sizes 203 through 209, and 8 in. x 12 in. x 15 ft. for size 210.



Series 2 / THE GAS BOILER OF THE 80's

EXCEEDS 1986 DEPARTMENT OF ENERGY EFFICIENCY REQUIREMENTS*



LOW PROFILE Drafthood common for both natural and propane gas.

PINNED HEATING SURFACE for maximum heat extraction and efficiency.

BUILT-IN air elimination.

WIRING ENCLOSED in conduit for safety.

ENERGY EFFICIENT circulator.

DELUXE INSULATED JACKET AND BASE for maximum heat retention.

STAINLESS STEEL burners for smooth light-off, quiet extinction and long life. Common for both natural and propane gas.

DUAL CONTROL Fail-safe cast iron vent damper (optional).

PUSH NIPPLES assure permanent water tight seal between boiler sections.

CONVENIENT ACCESS door with insulating handles.

PLUG-IN damper wiring for ease of installation.

CONCEALED STEP OPENING GAS VALVE guards against tampering and improves appearance.

SAFETY LOUVERS Provide adequate combustion air. Shields children and pets from flames.

STURDY STEEL legs with nylon insulating feet.

FIRE TESTED at factory.

Approved for close closet and combustible floor installation.

*When equipped with available electric ignition and vent damper. Proposed Efficiency Standards Published by D.O.E. June 30, 1980

BEFORE PURCHASING THIS APPLIANCE READ IMPORTANT ENERGY COST AND EFFICIENCY INFORMATION AVAILABLE FROM YOUR CONTRACTOR.

Burnham
HYDRONICS DIVISION
Lancaster, PA 17604

Form No. 4125-12-80-30Mf

Series 4

CAST IRON GAS
HYDRONIC
PACKAGE



NATURAL GAS (all sizes) OR PROPANE GAS (404-408 only)

HOT WATER OR STEAM

NINE SIZES:

GROSS OUTPUTS 84,000 to 308,000 BTU/HR

 **BURNHAM
AMERICA**

BURNHAM AMERICA

Series 4



STEAM

**FACTORY ASSEMBLED AND PACKAGED
IN THREE STYLES**

Series 4 units are available in three package variations to meet all installation needs.

COMPLETE-PAK . . . Completely assembled boiler, burners, and all controls for quick and easy hook-up on the job-site. Just hook up piping, wiring, and gas line.

UTILITY-PAK . . . Semi-packaged unit with boiler, burners, and jacket pre-assembled. Choice of steam or water trim and controls as a separate packaged element allows use of basic package for either steam or water installations. Utility-Pak allows great flexibility in stocking.

SUB-PAK . . . A sub-assembled version of the Series 4, shipped with all sections assembled and a separate base-burner-manifold assembly. Jacket, controls, and trim are shipped in separate cartons for complete assembly in the field.



WATER

**NINE SIZES TO MEET ALL RESIDENTIAL
AND INTERMEDIATE APPLICATIONS**

The Series 4 is available for steam or water in nine sizes: 263 to 963 net square feet steam; 487 to 1785 net square feet water.

MODERN TWO-TONE BLUE JACKET

The smartly styled jacket gives an appliance look to hydronic installations. The standard flush jacket (provided on all units) conceals the burners and manifold. The optional deluxe jacket extension conceals all controls and trim.

CERTIFIED: CONSTRUCTION-RATINGS-PERFORMANCE

The Series 4 meets all requirements of the American Society of Mechanical Engineers (A.S.M.E.) and the Institute of Boiler and Radiator Manufacturers (I=B=R). American Gas Association (A.G.A.) design certified for natural gas (all sizes) and propane gas (404 to 408 only).

The Series 4 is A.G.A. approved for alcove (three sided enclosure) installations.

Not for installation on combustible floors unless equipped with special floor shield.

RATINGS Natural and Propane Gas

| BOILER SIZE | A.G.A. RATINGS | | I=B=R NET RATINGS | | | NET RATING WATER SQ.FT. |
|----------------|-----------------|------------------------|-------------------|-----------------|-----------------|-------------------------------|
| | INPUT BTU/HR | GROSS OUTPUT BTU/HR | STEAM BTU/HR | STEAM SQ.FT. | WATER BTU/HR | |
| 404 | 105,000 | 84,000 | 63,000 | 263 | 73,000 | 487 |
| 405 | 140,000 | 112,000 | 84,000 | 350 | 97,400 | 649 |
| 406 | 175,000 | 140,000 | 105,000 | 438 | 121,700 | 811 |
| 407 | 210,000 | 168,000 | 126,000 | 525 | 146,100 | 974 |
| 408 | 245,000 | 196,000 | 147,000 | 613 | 170,400 | 1136 |
| 409* | 280,000 | 224,000 | 168,000 | 700 | 194,800 | 1299 |
| 410* | 315,000 | 252,000 | 189,000 | 788 | 219,100 | 1461 |
| 411* | 350,000 | 280,000 | 210,100 | 875 | 243,500 | 1623 |
| 412* | 385,000 | 308,000 | 231,100 | 963 | 267,800 | 1785 |

* Not available for propane gas.

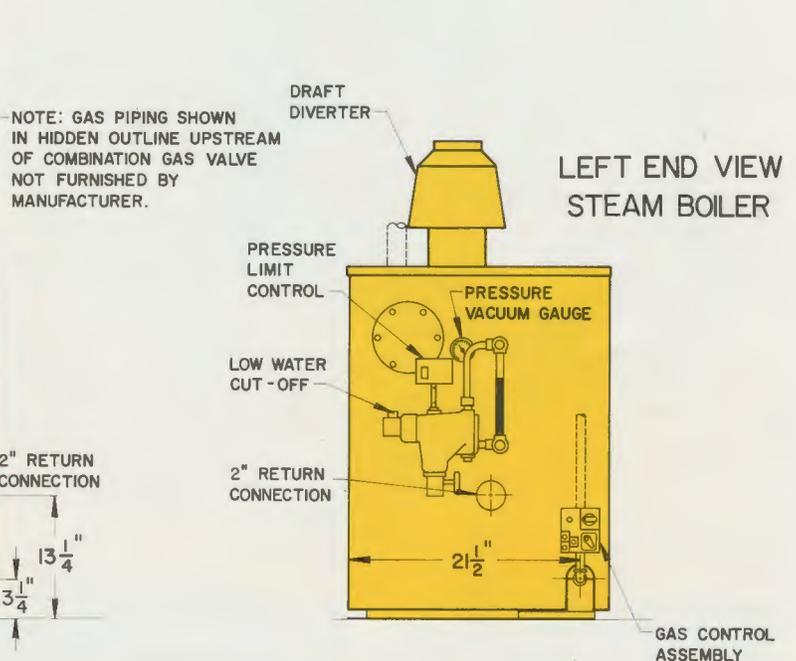
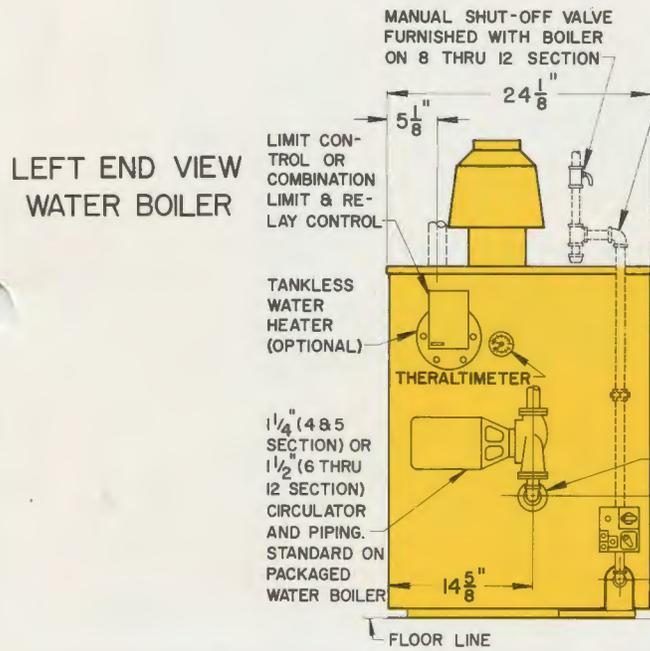
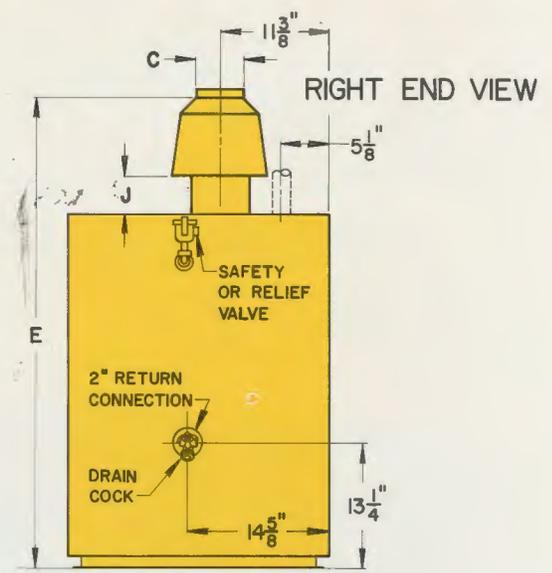
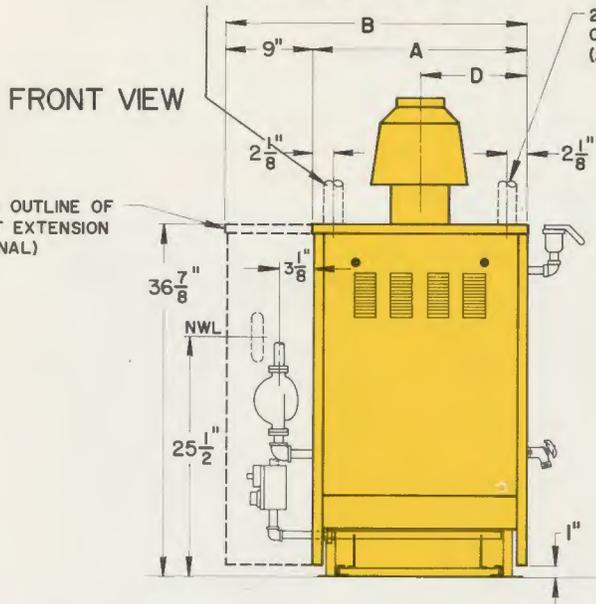
Ratings shown are for installations at sea level and elevations up to 2,000 ft. For elevations above 2,000 ft. ratings should be reduced at the rate of four percent (4%) for each 1,000 ft. above sea level.

Net I=B=R Ratings shown are based on a piping and pickup allowance of 1.33 for steam and 1.15 for water.

Consult the manufacturer for installation having unusual piping and pickup requirements, such as intermittent system of operation, extensive piping systems, etc.

Net Ratings for Water, Square Feet are based on 170° average water temperature in radiators with a heat emission rate of 150 BTU/HR/SQ.FT. For higher water temperature select boiler on basis of net ratings in BTU/HR.

2" SUPPLY CONNECTION
(STEAM BOILERS 8 THRU 12 SECTION)



DIMENSIONS (in inches)

| BOILER SIZE | JACKET LENGTH "A" | EXTENDED LENGTH "B" | DIM. "C" | DIM. "D" | DIVERter HEIGHT "E" | | DIVERter SKIRT HEIGHT "J" | | RECOMMENDED CHIMNEY | | BREACHING DIAMETER | GAS CONNECTION |
|-------------|-------------------|---------------------|----------|----------|---------------------|----------|---------------------------|--------|---------------------|-------------------------|--------------------|----------------|
| | | | | | NAT. | PROP. | NAT. | PROP. | ROUND DIA". x HT'. | SQUARE IN. x IN. x HT'. | | |
| | | | | | | | | | | | | |
| 404 | 15 3/4 | 24 3/4 | 5 | 7 7/8 | 49 11/16 | 49 11/16 | 6 | 6 | 5 x 15 | 8 x 8 x 15 | 5 | 1/2 |
| 405 | 19 3/8 | 28 3/8 | 6 | 9 11/16 | 51 5/8 | 54 5/8 | 7 1/4 | 10 1/4 | 6 x 15 | 8 x 8 x 15 | 6 | 1/2 |
| 406 | 22 7/8 | 31 7/8 | 6 | 11 1/16 | 52 7/8 | 55 7/8 | 8 1/2 | 11 1/2 | 6 x 15 | 8 x 8 x 15 | 6 | 1/2 |
| 407 | 26 1/2 | 35 1/2 | 7 | 13 1/4 | 55 3/8 | 58 5/16 | 9 3/4 | 12 3/4 | 7 x 15 | 8 x 8 x 15 | 7 | 1/2 |
| 408 | 30 | 39 | 7 | 15 | 56 5/8 | 60 1/16 | 11 | 14 1/2 | 7 x 15 | 8 x 8 x 15 | 7 | 3/4 |
| 409 | 33 5/8 | 42 5/8 | 8 | 16 3/16 | 59 7/16 | — | 12 3/4 | — | 8 x 15 | 8 x 8 x 15 | 8 | 3/4 |
| 410 | 37 1/8 | 46 1/8 | 8 | 18 9/16 | 61 3/16 | — | 14 1/2 | — | 8 x 15 | 8 x 12 x 15 | 8 | 3/4 |
| 411 | 40 3/4 | 49 3/4 | 8 | 20 3/8 | 62 15/16 | — | 16 1/4 | — | 8 x 15 | 8 x 12 x 15 | 8 | 3/4 |
| 412 | 44 1/4 | 53 1/4 | 8 | 22 1/8 | 64 1 1/16 | — | 18 | — | 8 x 15 | 8 x 12 x 15 | 8 | 3/4 |

Series 4

QUALITY FEATURES

CAST-IRON CONSTRUCTION

Rugged cast iron gives the Series 4 lifetime durability and trouble-free performance. Cast Iron is well known for its resistance to corrosion and rust.

VERTICAL FLUE TRAVEL

This scientific feature assures economical operation. Heated gases pass over special heat-absorbing surfaces studded with hundreds of heat-grabbing pins.

YEAR 'ROUND HOT WATER

Specially designed, all copper built-in tankless heaters provide a maximum amount of domestic hot water with a minimum of gas consumption. (Water boilers only).

TOP TAPPINGS

Ideal for steam applications. Provides more flexibility in piping.

LARGE NIPPLE PORTS

Wide and open sections coupled with large nipple ports provide good internal water circulation. The large upper nipple port becomes an excellent internal header for steam applications.

CONTROLS

Safe, dependable and fully automatic, the Series 4 controls are the finest obtainable. Controls are available in 24 volt or millivolt (self-energizing) and are easily accessible from the front of boiler.



Series 4 water boilers offer an optional built-in all copper coil with XL Trufin tubing. Located at the top of the boiler to assure fast heat transfer.



BURNER-BASE-MANIFOLD ASSEMBLY

Steel burners are factory assembled and aligned, then securely mounted on burner tray. The entire burner drawer assembly slides out as illustrated.

This unitized slide-out feature allows easy access to burners and pilot for inspection and maintenance. Newly designed steel burners in the Series 4 provide the optimum in performance.



BURNHAM CORPORATION
HYDRONICS DIVISION
LANCASTER, PA. 17604

FREEDOM 62

CAST IRON
GAS
HYDRONIC
PACKAGE



HOT WATER OR STEAM

SEVEN SIZES:

GROSS OUTPUTS 84,000 to 252,000 BTU/HR



**BURNHAM
AMERICA**



FREEDOM 62

FACTORY ASSEMBLED AND PACKAGED IN THREE STYLES

FREEDOM 62 units are available in three package variations to meet all installation needs.

COMPLETE-PAK . . . Completely assembled boiler, burners, and all controls for quick easy hook-up on the job-site. Just hook up piping, wiring, and gas line.

UTILITY-PAK . . . Semi-packaged unit with boiler, burners, and jacket pre-assembled. Choice of steam or water trim and controls as a separate packaged element allows use of basic package for either steam or water installations. Utility-Pak allows great flexibility in stocking.

SUB-PAK . . . A sub-assembled version of the FREEDOM 62, shipped with all sections assembled and a separate base-burner-manifold assembly. Jacket, controls, and trim are shipped in separate cartons for complete assembly in the field.

SEVEN SIZES TO MEET ALL RESIDENTIAL AND INTERMEDIATE APPLICATIONS

The FREEDOM 62 is available for water or steam in seven full range sizes: 265 Net Sq. Ft. to 790 Net Sq. Ft. steam; 485 Net Sq. Ft. to 1460 Net Sq. Ft. water.

FASHION STYLED JACKET DESIGN

Modern jacket design gives appliance look to hydronic installations. Standard flush jacket shipped on all package units conceals burners and manifold. Optional deluxe jacket extension conceals all controls and trim.

A.G.A. DESIGN CERTIFIED

For Natural gas. Meets all requirements of Eastern Utilities (S.U.R.), Institute of Boiler and Radiator Manufacturers (I = B = R) and of the American Society of Mechanical Engineers (A.S.M.E.)

Not for installation on combustible floors unless equipped with special floor shield.

BOILER RATINGS AND DATA (Natural Gas)

| BOILER SIZE | A.G.A. RATINGS | | I-B-R NET RATINGS | | | NET RATING WATER Sq. Ft. |
|-------------|----------------|----------------------|-------------------|---------------|---------------|--------------------------|
| | INPUT BTU/Hr. | GROSS OUTPUT BTU/Hr. | STEAM BTU/Hr. | STEAM Sq. Ft. | WATER BTU/Hr. | |
| 4-62 | 105,000 | 84,000 | 63,000 | 265 | 73,000 | 485 |
| 5-62 | 140,000 | 112,000 | 84,000 | 350 | 97,400 | 650 |
| 6-62 | 175,000 | 140,000 | 105,000 | 440 | 121,700 | 810 |
| 7-62 | 210,000 | 168,000 | 120,000 | 525 | 146,100 | 975 |
| 8-62 | 245,000 | 196,000 | 147,000 | 615 | 170,400 | 1135 |
| 9-62 | 280,000 | 224,000 | 168,000 | 700 | 194,800 | 1300 |
| 10-62 | 315,000 | 252,000 | 189,000 | 790 | 219,100 | 1460 |

NOTE:

Ratings shown are for installations at sea level and elevations up to 2,000 Ft. For elevations above 2,000 Ft. ratings should be reduced at the rate of four percent (4%) for each 1,000 Ft. above sea level.

Net I-B-R Ratings shown are based on a piping and pickup allowance of 1.33 for steam and 1.15 for water.

Consult the manufacturer for installation having unusual piping and pickup requirements, such as intermittent system of operation, extensive piping systems, etc.

Net Ratings for Water, Square Feet are based on 170° average water temperature in radiators with a heat emission rate of 150 BTU/Hr./Sq. Ft.

DIMENSIONS (Inches) Series 62 — Flush Jacket and Extension

| BOILER SIZE | FLUSH JACKET LENGTH A | EXTENDED JACKET LENGTH B | DIM. C | DIM. D | DIVERter HEIGHT E | GAS CONN. | BREECH. DIA. | FLUE OUTLET DIA. | RECOMMENDED CHIMNEY | |
|-------------|--------------------------------|--------------------------------|--------|--------------------------------|--------------------------------|-----------|--------------|------------------|----------------------|------------------------|
| | | | | | | | | | ROUND Dia. In. x Ft. | SQUARE In. x In. x Ft. |
| 4-62 | 15 ³ / ₄ | 24 ³ / ₄ | 5 | 7 ⁷ / ₈ | 47 ⁵ / ₈ | 1/2 | 5 | 5 | 5 x 15 | 8 x 8 x 15 |
| 5-62 | 19 ³ / ₈ | 28 ³ / ₈ | 6 | 9 ⁵ / ₈ | 49 ⁷ / ₈ | 1/2 | 6 | 6 | 6 x 15 | 8 x 8 x 15 |
| 6-62 | 22 ⁷ / ₈ | 31 ⁷ / ₈ | 6 | 11 ³ / ₈ | 51 ³ / ₈ | 1/2 | 6 | 6 | 6 x 15 | 8 x 8 x 15 |
| 7-62 | 26 ¹ / ₂ | 35 ¹ / ₂ | 7 | 13 ¹ / ₄ | 54 | 1/2 | 7 | 7 | 7 x 15 | 8 x 8 x 15 |
| 8-62 | 30 | 39 | 7 | 15 | 55 ⁵ / ₈ | 3/4 | 7 | 7 | 7 x 15 | 8 x 8 x 15 |
| 9-62 | 33 ⁵ / ₈ | 42 ⁵ / ₈ | 8 | 16 ³ / ₄ | 58 ¹ / ₈ | 3/4 | 8 | 8 | 8 x 15 | 8 x 8 x 15 |
| 10-62 | 37 ¹ / ₈ | 46 ¹ / ₈ | 8 | 18 ⁵ / ₈ | 59 ⁵ / ₈ | 3/4 | 8 | 8 | 8 x 15 | 8 x 12 x 15 |

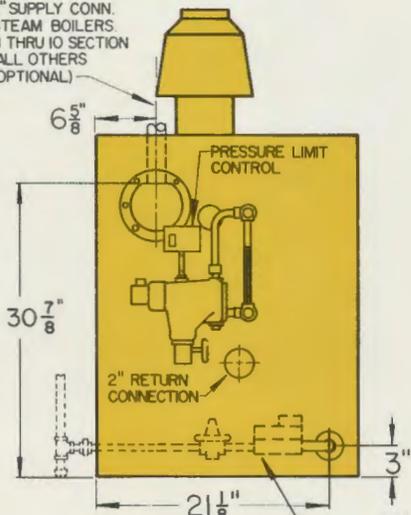
STEAM



WATER

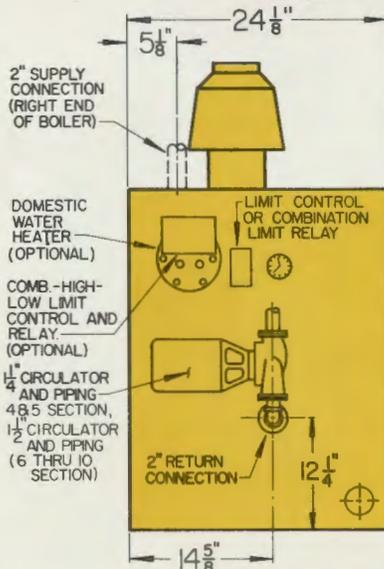


2" SUPPLY CONN.
STEAM BOILERS
8 THRU 10 SECTION
(ALL OTHERS
OPTIONAL)



**LEFT END
(STEAM)**

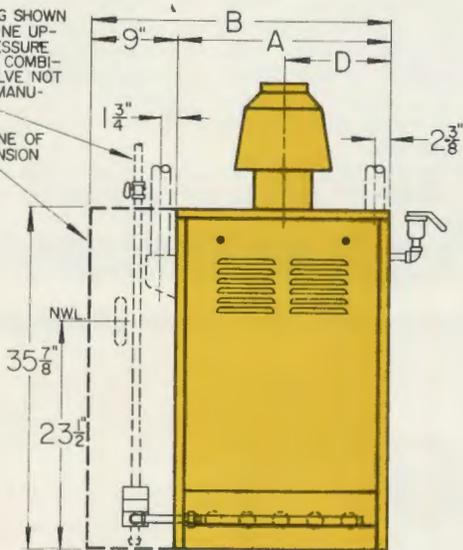
GAS CONTROL TRAIN AS
ILLUSTRATED 8 THRU 10
SECTION, USES COMBINATION
GAS VALVE 3 THRU 7 SECT.



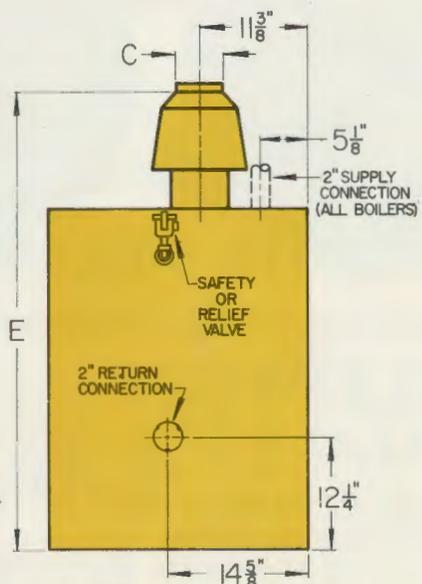
**LEFT END
(WATER)**

NOTE - GAS PIPING SHOWN
IN HIDDEN OUTLINE UP-
STREAM OF PRESSURE
REGULATOR OR COMBI-
NATION GAS VALVE NOT
FURNISHED BY MANU-
FACTURER.

HIDDEN OUTLINE OF
JACKET EXTENSION
(OPTIONAL)



**FRONT
(STEAM OR WATER)**



**RIGHT END
(STEAM OR WATER)**

FREEDOM 62 QUALITY FEATURES

CAST-IRON CONSTRUCTION

Rugged cast iron gives FREEDOM 62 lifetime durability and trouble-free performance. There is no other metal more resistant to corrosion and rust.

VERTICAL FLUE TRAVEL

This scientific feature assures economical operation. Heated gases pass over special heat-absorbing surfaces studded with hundreds of heat-grabbing pins.

YEAR 'ROUND HOT WATER

Specially designed, all copper built-in tankless heaters provide a maximum amount of domestic hot water with a minimum of gas consumption. (Water boilers only).

SUPERIOR INSULATION

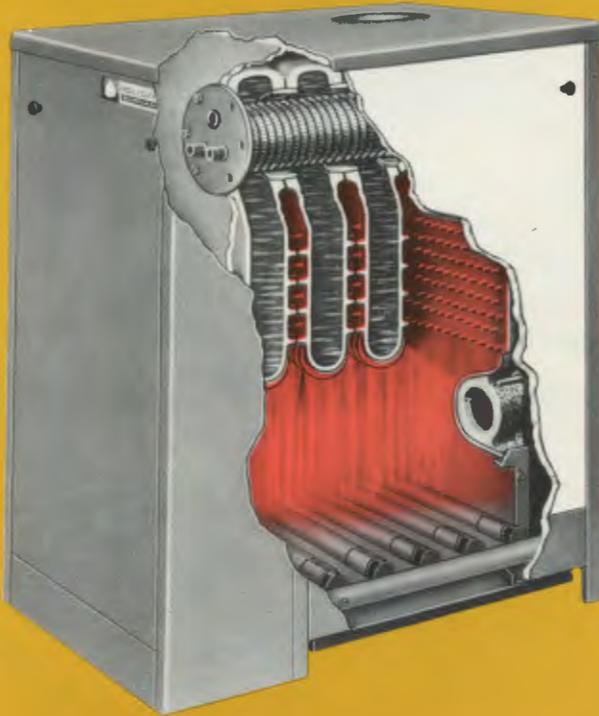
Thick glass-wool insulation increases economy of operation by reducing heat loss.

TOP TAPPINGS

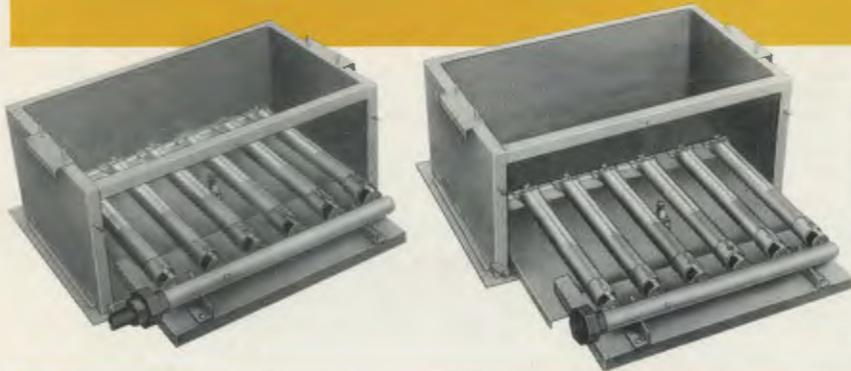
Easy piping connections are provided to allow maximum flexibility in installation.

CONTROLS

Safe, dependable and fully automatic, FREEDOM 62's controls are the finest obtainable. Easily accessible from front of boiler.



FREEDOM 62 packages include built-in all copper coils and Trufin tubing. Located at top of boiler to assure fastest heat transfer.



The FREEDOM 62 features a unitized burner assembly. Steel burners are factory assembled and aligned, then securely mounted on the burner tray. The entire burner assembly slides out by releasing two catches and disconnecting main gas line.

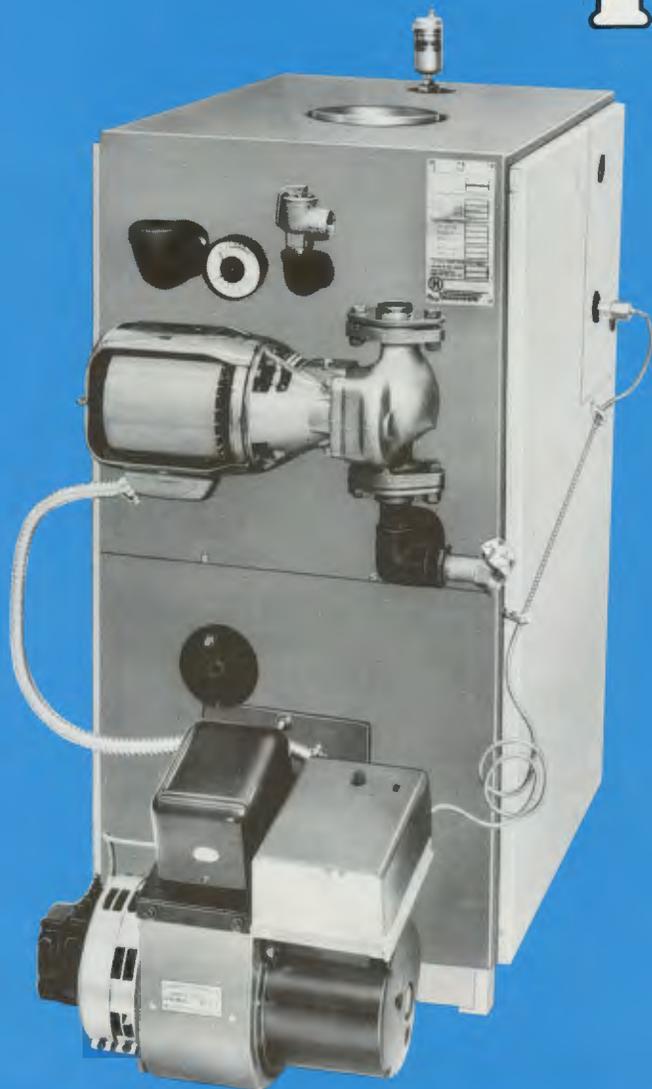
This unitized slide-out feature allows easy access to burners and pilot for inspection and maintenance.

Newly designed steel burners in the FREEDOM 62 provide the optimum in performance.

 **BURNHAM
AMERICA**
BURNHAM CORPORATION
HYDRONICS DIVISION
LANCASTER, PA. 17604

Fiesta II

CAST IRON
OIL
HYDRONIC
PACKAGE



HOT WATER

FOUR SIZES

GROSS OUTPUTS-97,000 to 193,000 BTU/HR



**BURNHAM
AMERICA**



**BURNHAM
AMERICA**

Fiesta II

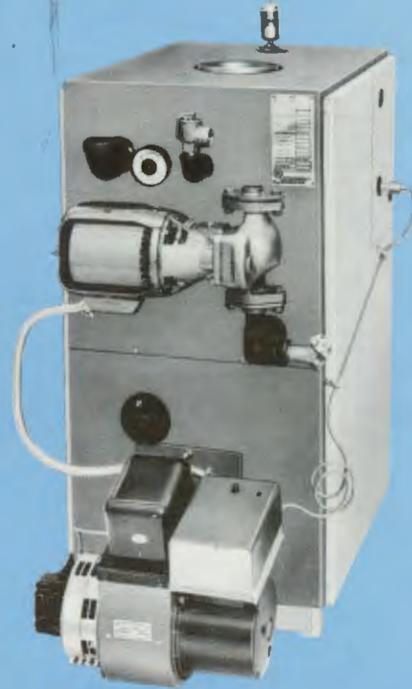
STANDARD EQUIPMENT

Fiesta II Boiler • Flush Jacket (two tone blue) • Oil Burner with cad cell • Combustion Chamber • 1 1/2" Circulator with piping to boiler • 1 1/2" Supply Piping • AT-32 Tankless Heater (PH models only) • Pressure and Temperature Gauge • Boiler Drain Cock • A.S.M.E. Safety Relief Valve • Combination Protectorelay and Hydronic Heating Control mounted on oil burner • Wiring Harness • Flue Brush. Draft Regulator and 24 volt, T-822D Thermostat (In separate carton).

Fiesta II shipped factory assembled.

OPTIONAL EQUIPMENT

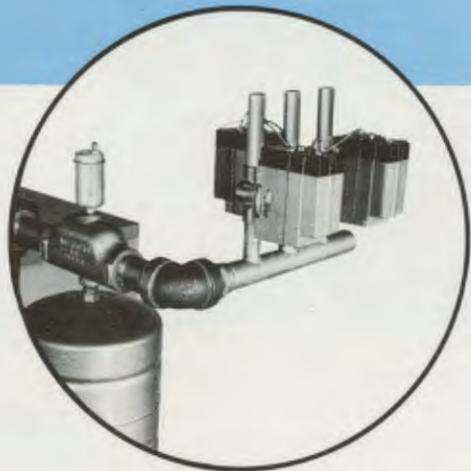
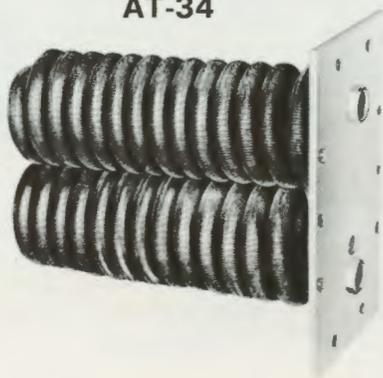
AT-34 Tankless Heater • Two and Three Zone Valve packages • #1500 Extrol Pak • #3000 Extrol Pak • Combustible Floor Base • T87-F Thermostat and Two Stage Fuel Pump. (Consult price sheet for additional cost).



AT-32



AT-34



Fiesta II
ZONE

VALVE PACKAGES

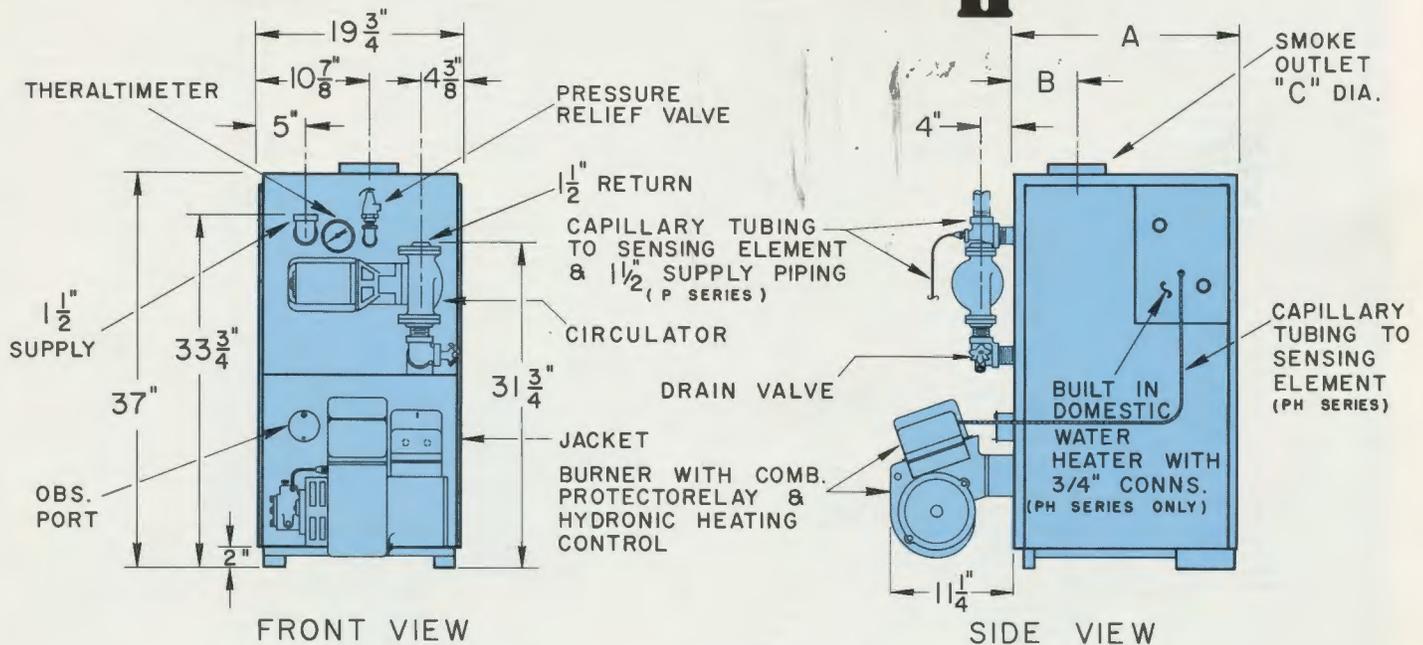
Pre-piped manifold and zone valve package includes, manifold, two or three zone valves, one or two thermostats and 24V transformer. Package is easily installed on any unit.

TANKLESS HEATER RATINGS

| BOILER NO. | RATING W/STD. AT-32 HEATER GPM | RATING W/OPTL. AT-34 HEATER GPH |
|------------|--------------------------------|---------------------------------|
| PH-45-W | 3 1/2 | 4 |
| PH-55-W | 3 1/2 | 4 1/2 |
| PH-65-W | 4 | 4 1/2 |
| PH-75-W | 4 | 5 |

Tankless heater ratings are based on 40°-140° rise with boiler temperature at 200°.

BURNHAM AMERICA / Fiesta II



SPECIAL BASE REQUIRED IF BOILER IS TO BE INSTALLED ON COMBUSTIBLE FLOOR.

DIMENSIONS (In Inches)

| BOILER NO. | A | B | C |
|--------------|--------|--------|---|
| P or PH-45-W | 22 3/8 | 7 1/2 | 6 |
| P or PH-55-W | 25 5/8 | 9 1/8 | 7 |
| P or PH-65-W | 29 | 10 3/4 | 7 |
| P or PH-75-W | 32 1/4 | 12 3/8 | 8 |



These hydronic units comply with The Hydronics Institute's Testing and Rating Standard for Cast Iron and Steel Heating Boilers and with the Heating Boilers Section of the ASME Boiler & Pressure Vessel Code. All wiring and controls are listed by Underwriters' Laboratories.

RATING DATA

| *BOILER NO. | †NET RATING WATER Sq. Ft. | I=B=R RATINGS | | ** NOZZLE GPH—ANGLE-TYPE | ‡I=B=R BURNER CAPACITY GPH | CHIMNEY SIZE In. x In. x Ft. |
|--------------|---------------------------|---------------|---------------------|--------------------------|----------------------------|------------------------------|
| | | NET BTU/HR | GROSS OUTPUT BTU/HR | | | |
| P or PH-45-W | 560 | 84,300 | 97,000 | 0.90-80-B | 0.95 | 8 x 8 x 15 |
| P or PH-55-W | 750 | 112,200 | 129,000 | 1.20-60-B | 1.25 | 8 x 8 x 15 |
| P or PH-65-W | 935 | 140,000 | 161,000 | 1.50-60-B | 1.50 | 8 x 8 x 15 |
| P or PH-75-W | 1120 | 167,800 | 193,000 | 1.75-60-B | 1.80 | 8 x 12 x 15 |

*P—designates boiler with small back section, and without a tankless heater.

PH—designates boiler with large back section, and with a tankless heater.

†Net ratings for water square feet are based on 170°F average temperature in radiators. For higher water temperatures, select boiler on basis of I-B-R net rating, BTU/hr. Net I-B-R ratings shown are based on a piping and pick-up allowance of 1.15. Consult manufacturer for installations having unusual piping and pick-up requirements, such as intermittent system of operation, extensive piping systems, etc.

‡ The I=B=R Burner Capacity is based on oil having a heat value of 140,000 BTU/Gal.

** All nozzles are solid spray.

Fiesta II

QUALITY FEATURES II

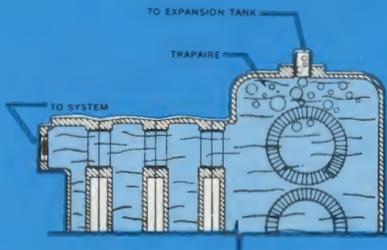
THE NEW LOOK—The newest look in hydronic heating. Compact, sturdy cast-iron construction with matched oil burner, circulator, and controls all factory assembled and wired. It has the modern look that can be merchandised by heating contractors, fuel oil dealers and home builders.



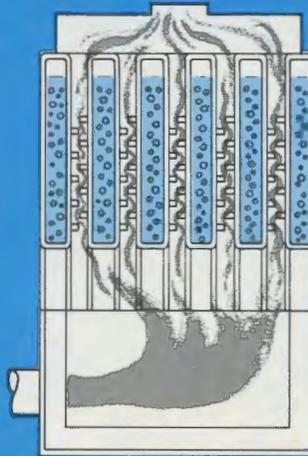
CAST IRON CONSTRUCTION
Provides durability and long life.



SIDE CLEANOUT
The maximum cleaning of all flueways can be accomplished through convenient side cleanout panel.



AUTOMATIC AIR ELIMINATION—A specially designed air eliminator releases air to the expansion tank. This is accomplished through the special tapping in the elevated large volume dome section. (Available on PH models only.)



VERTICAL CAST-IRON FLUE TRAVEL—An efficient proven design using hundreds of heat absorbing, integrally cast pins to extract maximum heat from flue gases.



ONE PIECE LIGHTWEIGHT COMBUSTION CHAMBER
Constructed and contoured from refractory fibres for instant heat-up and combustion efficiency. Easily replaced through removable front base panel.



(A) MATCHED OIL BURNER
The oil burner is specifically designed for use with the Fiesta II and is fully equipped with all controls for safe, automatic firing.

(B) SINGLE BURNER CONTROL—Combines control function and relay for Cad cell flame detector.

BURNHAM CORPORATION
HYDRONICS DIVISION
Lancaster, Pa. 17604

high efficiency hydronics

V₁ Series

CAST IRON OIL
HYDRONIC
PACKAGE



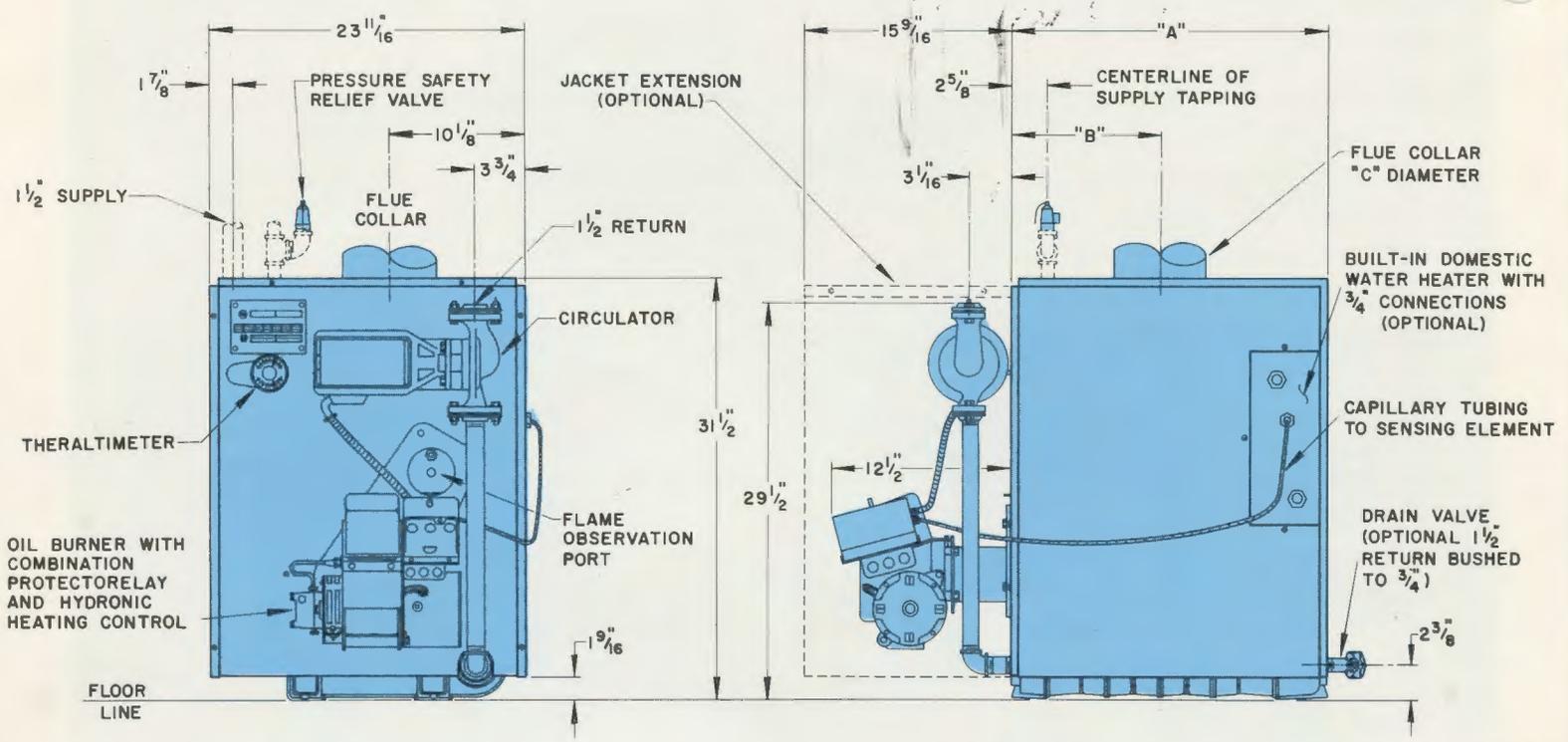
HOT WATER—FLAME RETENTION

Six Models

Gross Outputs 87,000 to 254,000 BTU/HR



**BURNHAM
AMERICA**



FRONT VIEW

RIGHT SIDE VIEW

| Model No. | Firing Rate (GPH) | Dimensions—Inches | | | Chimney Size In. x In. x Ft. |
|-----------|-------------------|-------------------|--------|-----|---------------------------------|
| | | "A" | "B" | "C" | |
| V-13 | 0.75 | 15 7/8 | 7 1/4 | 6 | 8 x 8 x 15 |
| V-14 | 1.05 | 19 7/8 | 9 1/4 | | |
| V-15 | 1.35 | 23 7/8 | 11 1/4 | 7 | |
| V-16 | 1.65 | 27 7/8 | 13 1/4 | | |
| V-17 | 1.95 | 31 7/8 | 15 1/4 | 8 | |
| V-18 | 2.25 | 35 7/8 | 17 1/4 |  |  | 8 x 12 x 15 |

RATING DATA

| Boiler No. ⁽¹⁾ | Gross I=B=R Output (MBH) | I=B=R Burner Capacity ⁽²⁾ (GPH) | No. of Sections | Tankless Heater Capacity V ₁ -1 heater ⁽³⁾ | Net I=B=R Rating ⁽⁴⁾ (MBH) | Net Rating Sq. Ft. Water ⁽⁴⁾ | Burner Wayne M-SR (Spec. No.) | Nozzle Make GPH-Angle Type ⁽⁵⁾ | I=B=R Nominal Chimney Size ⁽⁶⁾ In. x In. x Ft. |
|---------------------------|--------------------------|--|-----------------|--|---------------------------------------|---|-------------------------------|---|---|
| V-13 | 87 | 0.75 | 3 | 3¼ ⁺ | 75.7 | 505 | 122-123 | Monarch 0.85-80°-AR | 8 x 8 x 15 |
| V-14 | 119 | 1.05 | 4 | 3½ | 103.5 | 690 | 122-125 | Monarch 1.10-80°-AR | 8 x 8 x 15 |
| V-15 | 153 | 1.35 | 5 | 4 | 133.0 | 885 | 122-127 | Delavan 1.35-80°-B | 8 x 8 x 15 |
| V-16 | 186 | 1.65 | 6 | 4 | 161.7 | 1080 | 122-129 | Delavan 1.65-80°-B | 8 x 8 x 15 |
| V-17 | 220 | 1.95 | 7 | 4 | 191.3 | 1275 | 122-131 | Delavan 2.00-80°-B | 8 x 8 x 15 |
| V-18 | 254 | 2.25 | 8 | 4 | 220.9 | 1475 | 122-133 | Delavan 2.25-80°-B | 8 x 12 x 15 |

- (1)—Add suffix "T" to denote boiler with tankless heater back section and with tankless heater shown. No suffix denotes boiler with back section having no provision for installation of tankless heater.
- (2)—The I=B=R Burner Capacity is based on oil having a heat value of 140,000 BTU/GAL.
- (3)—Tankless Heater Ratings are based on 40°-140°F rise with boiler temperature at 200°F—intermittent draw.
- (4)—V₁ Series Boiler Ratings are based on 12¼% CO₂. Net ratings for water square feet are based on 170°F average temperature in radiators. For higher water temperatures, select boiler on basis of I=B=R net rating, BTU/HR. Net I=B=R ratings shown are based on a piping

and pick-up allowance of 1.15. Consult manufacturer for installations having unusual piping and pick-up requirements, such as intermittent system of operation, extensive piping systems, etc.

- (5)—All nozzles are solid spray. Nozzles are for Wayne Burners only.
- (6)—Chimney sizes and heights shown are selected in accordance with the Hydronics Institute Testing and Rating Standard for cast iron and steel heating boilers. Such chimneys will produce sufficient draft under normal conditions and are based on using short, direct breeching into chimney. When necessary to use more than one elbow in breeching, five (5) feet of chimney should be added to the catalogued chimney height for each additional 90° elbow used.
- (7)—Sun Ray "FC" Series Burner may be substituted at Burnham Corporation's discretion.

*V-13 boiler uses tankless heater V₁-2

OPTIONAL TANKLESS HEATERS

STANDARD EQUIPMENT:

V₁ Series Boiler

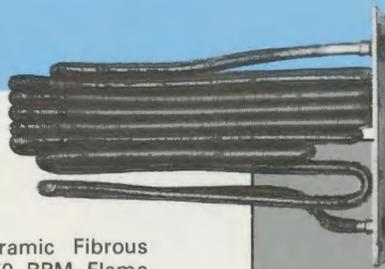
Preformed Combustion Target Wall—Lightweight Ceramic Fibrous Type • Insulated Flush Jacket (Two Tone Blue) • 3450 RPM Flame Retention Oil Burner with Cad Cell • Combination Protectorelay and Hydronic Heating Control Mounted on Burner • Tankless Heater (Boilers with T Suffix Only) • 1½" Circulator With Piping to Boiler • Pressure and Temperature Gauge • Wiring Harness • 30 p.s.i. Working Pressure (Water)

IN SEPARATE CARTON

ASME Safety Relief Valve With Piping To Boiler • Boiler Drain Cock • Draft Regulator • T822D Thermostat

OPTIONAL EQUIPMENT:

V₁-2 Tankless Heater For V-14T and Larger Boilers • Two Stage Fuel Unit For Oil Burner • Jacket Extension • T87F Thermostat • Two and Three Zone Valve Packages



| Boiler No. | Tankless Heater No. | Tankless Heater Capacity (GPM) |
|------------|---------------------|--------------------------------|
| V-14T | V ₁ -2 | 4 |
| V-15T | V ₁ -2 | 4½ |
| V-16T | V ₁ -2 | 4½ |
| V-17T | V ₁ -2 | 5 |
| V-18T | V ₁ -2 | 5 |

OUTSTANDING FEATURES

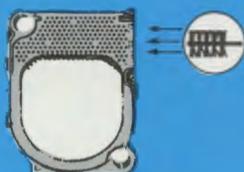
V₁ Series

The most efficient cast iron
wet base, residential boiler
on the market!

Designed for efficient, trouble-free operation, the V₁ Series features conservative firing rates, low draft losses, large combustion volumes, and reliable controls.



PACKAGED—completely packaged in a sturdy, insulated, two-tone blue, steel jacket. Skid mounted in protective carton for easy handling.



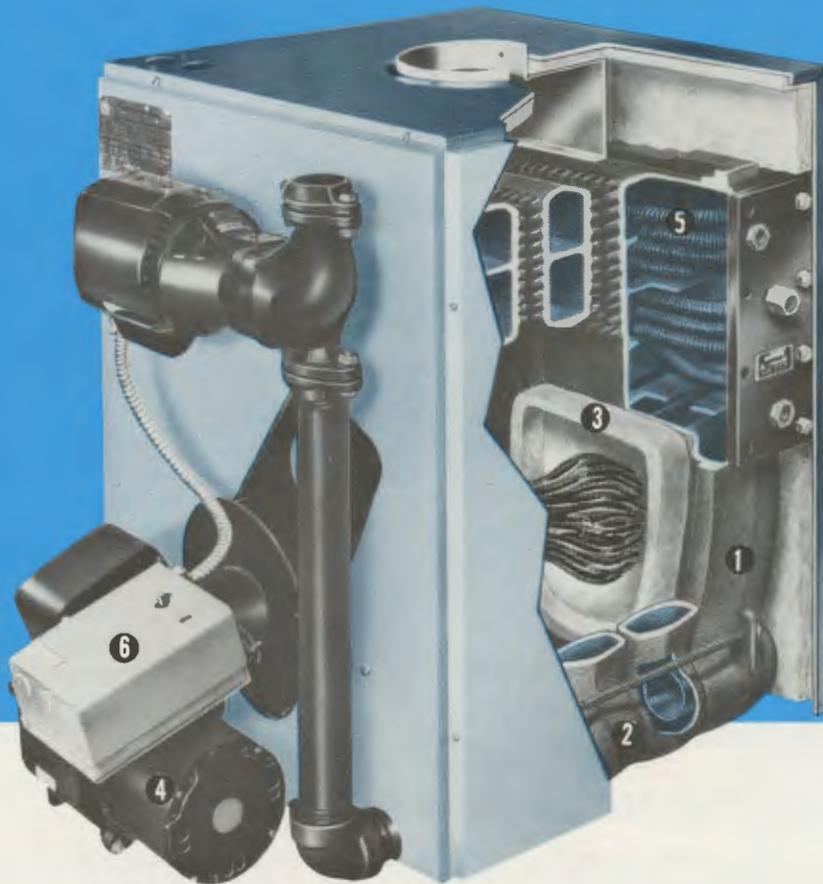
SIDE CLEANOUT—permits access to all flue surfaces from right side without disturbing burner, controls, or accessories.



ELIMINAIRE[®]—A patented cost-saving feature. This built-in air eliminator is cast into the front section of all V₁ Series boilers to divert rising air bubbles into a tapping for connection to the expansion tank. No external device is required to separate air and water, reducing cost and installation time.

OPTIONAL RETURN TAPPING (not shown)—located on rear section for zoning with circulators.

- 1 BOILER SECTIONS**—of durable cast iron, with vertical flue design and pinned surface area to extract maximum combustion heat with low draft losses. Overall boiler efficiency exceeds 80%. Sections are pressure tested twice—individual sections at twice maximum working pressure and as an assembled boiler at 1½ times maximum working pressure.
- 2 WET BASE CONSTRUCTION**—Waterways completely surround combustion area making the V₁ ideal for installation on combustible floors.
- 3 COMBUSTION TARGET WALL**—factory installed. Provides instant heat-up and combustion efficiency and is contoured for even flue gas distribution.
- 4 OIL BURNER**—Flange mounted, 3450 RPM flame-retention burner engineered to operate at 12¼% CO₂ with combustion efficiency equal to or exceeding 81.7%. Provides clean, efficient, economical firing.
- 5 TANKLESS HEATER**—sized to meet domestic hot water demands—with a low pressure drop thru coils. Coil is inserted into right side of rear section, surrounded by water. Control is located in heater for quick response and recovery as water is drawn.
- 6 SINGLE BURNER CONTROL**—combination cad cell relay and Hydronic Heating Control mounted on burner for easy service and adjustment.



 **BURNHAM CORPORATION**
HYDRONICS DIVISION
Lancaster, Pa. 17604

high efficiency hydronics



V3 Series

CAST IRON
OIL
HYDRONIC UNIT



HOT WATER OR STEAM

Four Sizes

Gross Outputs—116,000 to 302,000 BTU/HR



**BURNHAM
AMERICA**



V3 ALL PURPOSE BOILER-BURNER

RATINGS (Steam and Water)

| No. of Sections | Model Number [■] | Burner Model and Rating No. | I=B=R Burner Capacity (GPH) | Nozzle GPH ANGLE TYPE | I=B=R RATINGS | | | | Net Water Rating (Sq. Ft.) | I=B=R Nominal Chimney Size [●] In. x In. x Ft. |
|-----------------|---------------------------|-----------------------------|-----------------------------|-----------------------|--------------------|-------------------|-----------------------|-------------------|----------------------------|---|
| | | | | | Gross Output (MBH) | ▲ Net Steam (MBH) | ▲ Net Steam (Sq. Ft.) | ▲ Net Water (MBH) | | |
| 3 | V-33 | FC-134 | 1.05 | 1.00—80°—B* | 116 | 87.0 | 363 | 100.9 | 675 | 8 x 8 x 15 |
| | | | 1.15 | 1.10—80°—B | 128 | 96.0 | 400 | 111.3 | 740 | |
| 4 | V-34 | FC-234 | 1.55 | 1.50—60°—ES* | 172 | 129.0 | 538 | 149.6 | 995 | 8 x 8 x 15 |
| | | | 1.70 | 1.65—60°—ES | 186 | 139.5 | 581 | 161.7 | 1080 | |
| 5 | V-35 | FC-234 | 2.10 | 2.00—45°—P* | 228 | 171.0 | 713 | 198.3 | 1320 | 8 x 8 x 15 |
| | | | 2.25 | 2.25—45°—P | 244 | 183.0 | 763 | 212.2 | 1415 | |
| 6 | V-36 | FC-234 | 2.60 | 2.50—30°—P* | 284 | 213.1 | 888 | 247.0 | 1645 | 8 x 12 x 15 |
| | | | 2.80 | 2.75—45°—P | 302 | 226.6 | 944 | 262.6 | 1750 | |

■ "W" suffix denotes Forced Circulation Water Boiler wo/Tankless Heater
 "WT" suffix denotes Forced Circulation Water Boiler w/Tankless Heater
 "S" suffix denotes Steam Boiler wo/Tankless Heater
 "ST" suffix denotes Steam Boiler w/Tankless Heater

* Denotes Nozzle installed in Burner
 B Designates Delavan Solid Type Nozzle
 ES Designates Hago Extra Solid Type Nozzle
 P Designates Hago Extra Solid Type Nozzle



V3-M ALL PURPOSE BOILER ONLY

RATINGS (Steam and Water)

| No. of Sections | Model Number [■] | Suggested Burner Model and Rating No. | I=B=R Burner Capacity (GPH) | Nozzle for Suggested Burner GPH ANGLE TYPE | I=B=R RATINGS | | | | Net Water Rating (Sq. Ft.) | I=B=R Nominal Chimney Size [●] In. x In. x Ft. |
|-----------------|---------------------------|---------------------------------------|-----------------------------|--|--------------------|-----------------|---------------------|-----------------|----------------------------|---|
| | | | | | Gross Output (MBH) | Net Steam (MBH) | Net Steam (Sq. Ft.) | Net Water (MBH) | | |
| 3 | V-33M | 40-N "B-2" | .85 | .85—80°—A* | 92 | 69.0 | 288 | 80.0 | 535 | 8 x 8 x 15 |
| | | | 1.00 | 1.00—80°—A | 110 | 82.5 | 344 | 95.7 | 640 | |
| 4 | V-34M | 40-N "C-5" | 1.30 | 1.25—70°—B* | 138 | 103.5 | 431 | 120.0 | 800 | 8 x 8 x 15 |
| | | | 1.45 | 1.35—70°—B | 156 | 117.0 | 488 | 135.7 | 905 | |
| 5 | V-35M | 40-N "C-5" | 1.70 | 1.65—60°—B* | 184 | 138.0 | 575 | 160.0 | 1065 | 8 x 8 x 15 |
| | | | 1.90 | 1.75—70°—B | 202 | 151.5 | 631 | 175.7 | 1170 | |
| 6 | V-36M | 40-N "H-4" | 2.15 | 2.00—60°—B* | 230 | 172.5 | 719 | 200.0 | 1335 | 8 x 12 x 15 |
| | | | 2.35 | 2.25—60°—B | 248 | 186.0 | 775 | 215.7 | 1440 | |

■ "W" suffix denotes Forced Circulation Water Boiler wo/Tankless Heater
 "WT" suffix denotes Forced Circulation Water Boiler w/Tankless Heater
 "S" suffix denotes Steam Boiler wo/Tankless Heater
 "ST" suffix denotes Steam Boiler w/Tankless Heater

* Denotes Nozzle installed in Burner if Burner ordered w/Boiler
 A Designates Delavan Hollow Type Nozzle
 B Designates Delavan Solid Type Nozzle

▲ I=B=R Net Ratings shown are based on a piping and pickup allowance of 1.333 for steam, and 1.15 for water.
 Consult manufacturer for installations having unusual piping and pickup requirements, such as intermittent system operation, extensive piping systems, etc.
 Net Ratings for water, square feet, are based on 170°F average water temperature in radiators.
 For higher water temperatures, select boiler on basis of I=B=R Net Rating MBH.
 The I=B=R Burner Capacity in GPH is based on oil having a heat value of 140,000 BTU per gallon.

V-3 Boiler Ratings are based on 12¼% CO₂. V-3M Boiler Ratings are based on 10% CO₂.
 ● Chimney sizes and heights shown are selected in accordance with the Hydronics Institute Testing and Rating Standard for cast iron and steel heating boilers. Such chimneys will produce sufficient draft under normal conditions and are based on using short, direct breeching into chimney. When necessary to use more than one elbow in breeching, five (5) feet of chimney should be added to the catalogued chimney height for each additional 90° elbow used.

Standard Equipment

V3 Boiler-Burner Units

| Description | Boiler Size | Water Boilers | | | Steam Boilers | |
|--|-------------|--------------------|-------------|---------|-------------------|-------------|
| | | Forced Circulation | | Gravity | w/tankless Heater | less Heater |
| | | w/tankless Heater | less Heater | | | |
| | | Model No. Suffix | | | | |
| WBT | WB | WBG | SBT | SB | | |
| Section Ass'y w/ Front Heater Section | All | X | X | X | X | X |
| Refractory Target Wall | All | X | X | X | X | X |
| Tankless Heater #222 | V-33 | X | | | X | |
| Tankless Heater #226 | V-34 | X | | | X | |
| Tankless Heater #232 | V-35 | X | | | X | |
| Tankless Heater #445 | V-36 | X | | | X | |
| Heater Opening Cover Plate—Tapped 3/4" NPT | All | X | X | X | X | X |
| Heater Opening Cover Plate—Not Tapped | All | | X | X | | X |
| Flush Jacket | All | X | X | X | X | X |
| Flange Mounted FC Flame Retention | All | X | X | X | X | X |
| Oil Burner—3450 RPM Motor C554A | | | | | | |
| Cad Cell and "J" Box Mounted | | | | | | |
| R8182D Protectorelay and Hydronic Control | All | X | | | | |
| R8182E Protectorelay and Hydronic Control | All | | X | | | |
| L4080B Temperature Limit Control | All | | | X | | |
| R8184G Cad Cell Relay | All | | | X | X | X |
| PA404A Pressure Limit Control | All | | | | X | X |
| L4006A Operating Control | All | | | | X | |
| T822D Thermostat | All | X | X | X | X | X |
| Draft Regulator | All | X | X | X | X | X |
| Boiler Drain Cock | All | X | X | X | X | X |
| A.S.M.E. Safety Relief Valve | All | X | X | X | | |
| Altitude, Temperature and Pressure Gauge | All | X | X | X | | |
| A.S.M.E. Safety Valve | All | | | | X | X |
| Pressure and Vacuum Gauge | All | | | | X | X |
| Gauge Glass and Fittings | All | | | | X | X |

Standard Equipment

V3-M Bare Boilers

| Description | Boiler Size | Water Boilers | | Steam Boilers | |
|--|-------------|--------------------|-------------|----------------------|-------------|
| | | Forced Circulation | | with tankless Heater | less Heater |
| | | w/tankless Heater | less Heater | | |
| | | Model No. Suffix | | | |
| WT | W | ST | S | | |
| Section Ass'y w/ front Heater Section | All | X | X | X | X |
| Pre-cast Refractory Combustion Chamber | All | X | X | X | X |
| Tankless Heater #222 | V-33M | X | | X | |
| Tankless Heater #226 | V-34M | X | | X | |
| Tankless Heater #232 | V-35M | X | | X | |
| Tankless Heater #445 | V-36M | X | | X | |
| Heater Opening Cover Plate—Tapped 3/4" NPT | All | X | X | X | X |
| Heater Opening Cover Plate—Not Tapped | All | | X | | X |
| Flush Jacket | All | X | X | X | X |
| Boiler Drain Cock | All | X | X | X | X |
| A.S.M.E. Safety Relief Valve | All | X | X | | |
| Altitude, Temperature and Pressure Gauge | All | X | X | | |
| A.S.M.E. Safety Valve | All | | | X | X |
| Pressure and Vacuum Gauge | All | | | X | X |
| Gauge Glass and Fittings | All | | | X | X |

OPTIONAL EQUIPMENT

Jacket Extension
 T-822-D Honeywell Thermostat (Standard on V3)
 T-87-F Honeywell Thermostat
 Oil Burner (for V-3M Boiler)

Two Stage Fuel Unit
 #67AR McDonnell-Miller Low Water Cut Off
 #63 McDonnell-Miller Low Water Cut Off
 Heater Opening Cover Plate—Tapped 3/4" NPT

V3

Flame Retention Boiler Burner Unit

The ideal non-packaged unit for steam, forced hot water or gravity. With sections factory assembled, and tested, job assembly time is lessened. Available in 4 section arrangements with 8 firing rates. Each unit comes with a high firing rate nozzle and a low firing rate nozzle. Install boiler now to operate at maximum efficiency (over 81%) without excess cycling and when additional room(s) is added just change to high firing rate nozzle. High capacity tankless heaters are available on steam or forced hot water units.



V-3
all-purpose
boiler-burner unit
—steam illustrated



V3-M

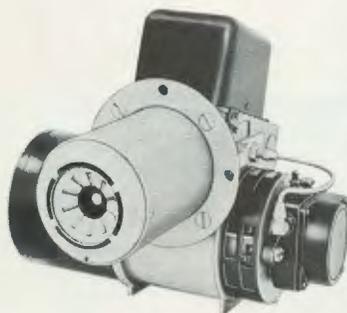
All-purpose Unit, Boiler Only

Similar to the V-3 except designed to accommodate a non-flame retention burner. This boiler differs from the V-3 in that it is provided with a full combustion chamber. V-3M ratings are based on use with non-flame retention burners capable of developing 10% CO₂.



Tankless Heater Recommendations

| Heater No. | Boiler No. | | Firing Rate (GPH) | Heater Rating 200°F Boiler Temperature 40°-140°F Rise | |
|------------|-----------------------------|----------------------------|-------------------|---|-------|
| | FR 12 1/4 % CO ₂ | Non FR 10% CO ₂ | | Steam | Water |
| 222 | | V-33M | .85 1.00 | 4 | 4 1/2 |
| | | V-33 | 1.05 1.15 | 4 1/4 | 4 3/4 |
| 226 | | V-34M | 1.30 1.45 | 5 | 5 1/2 |
| | | V-34 | 1.55 1.70 | 5 1/4 | 5 3/4 |
| 232 | | V-35M | 1.70 1.90 | 6 | 6 3/4 |
| | | V-35 | 2.10 2.25 | 6 1/4 | 7 |
| 445 | | V-36M | 2.15 2.35 | 7 | 7 3/4 |
| | | V-36 | 2.60 2.80 | 7 1/4 | 8 1/4 |

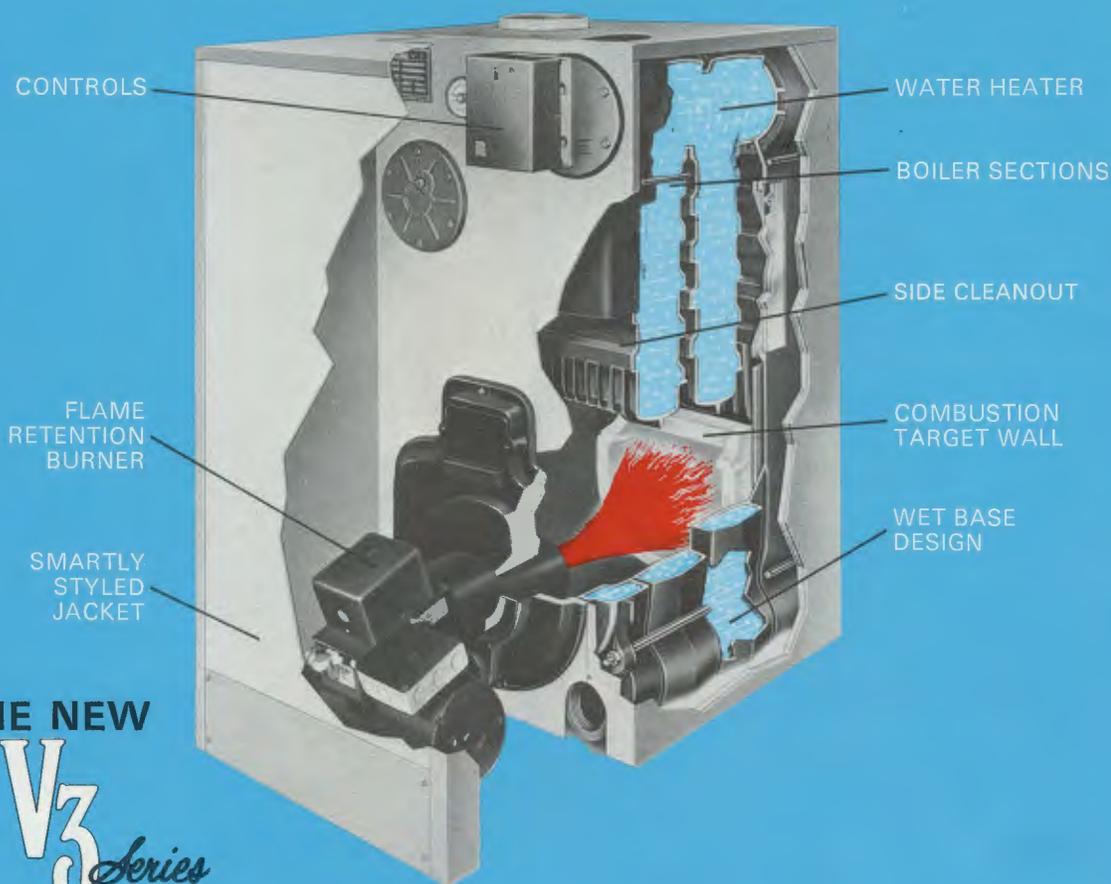


Flame Retention Burner

For V-3 boiler burner units—provides efficient firing with an exceptionally clean flame. Twin air bands and an index scale for precise air adjustment and setting. Rugged steel housing maintains alignment of fan, motor and fuel unit.

Domestic Hot Water Connection Size:
1/2" NPT—Heaters #222, #226 & #232 3/4" NPT—Heater #445

* Due to the unique design of the V-3 and the V-3M water boilers, a second tankless heater can be installed improving the intermittent domestic hot water draw.



THE NEW
V3 Series
 BOILER-BURNER
 FEATURES

DUAL FIRING RATES—each boiler comes with two nozzles. Install the one that meets immediate needs. Change capacity later when and if required just by switching to other nozzle. Maximum combustion efficiency is achieved when nozzle is sized to meet the immediate heat loss of the installation.

WET BASE DESIGN—for durability, heat transfer, and combustion efficiency. These sections are pressure tested twice—individual sections at 2 times maximum working pressure of boiler; and as an assembled boiler at 1½ times maximum working pressure.

ALL-PURPOSE—steam or water, non-packaged for complete versatility.

EFFICIENT—flame retention burner designed to operate at 12¼% CO₂ with combustion efficiency of over 81.3%.

CONTROLS—all controls are front mounted for ease of ser-

vice and adjustment. Primary control features light-sensing detector for fast response to ignition and shutdown.

OIL BURNER—flange mounted, 3450 RPM flame retention burner engineered to provide clean and complete combustion.

WATER HEATER—large capacity, copper coil tankless type. Inserts into upper nipple port (and lower if desired) on water boiler, lower nipple port on steam boiler.

ONE-PIECE CLEANOUT PANEL—permits cleaning of all flue surfaces from right side without disturbing burner, controls or accessories.

COMBUSTION TARGET WALL—improves combustion and contoured to provide even distribution of the flue gasses.

SMARTLY STYLED—sturdy, insulated, two-tone blue, steel jacket.



BURNHAM CORPORATION
HYDRONICS DIVISION
 LANCASTER, PA. 17604

Printed in U.S.A.

Form No. 4230B-8-77-40Mi

PF-3 *Series*



CAST IRON
OIL
HYDRONIC UNIT
Forced Draft



HOT WATER OR STEAM

FOUR SIZES

Gross Outputs: 300,000 to 526,000 BTU/HR



**BURNHAM
AMERICA**



BURNHAM AMERICA

PF-3. . . is an excellent heating unit for application in smaller apartment or commercial buildings. Designed specifically for light oil, forced draft firing this cast iron sectional unit is available either as a steam or hot water boiler and attains superior combustion efficiency.

Forced draft boilers, in addition to increased operating efficiencies, require much less space than conventional boilers of comparable rating and eliminate the need for external draft devices such as a high chimney or mechanical draft equipment—the PF-3 features: compact wet base design; no separate base or combustion chamber; and the provision for tankless heater in both steam and water boilers. The boiler also features a high efficiency burner and the use of an elastic sealant compound for sealing.

STANDARD EQUIPMENT—PF-3 Forced Draft Boiler-Burner Unit

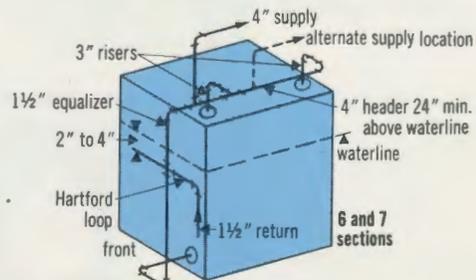
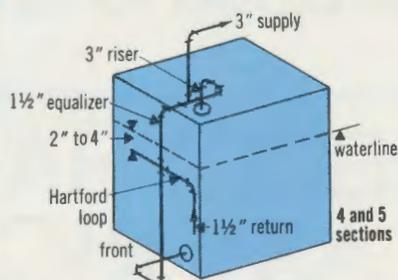
| Description | Boiler Size | Water Boilers | | Steam Boilers | |
|--|-------------|--------------------|-------------|-----------------|--------|
| | | Forced Circulation | | with | less |
| | | w/tankless heater | Less heater | tankless heater | heater |
| | | Model No. Suffix | | | |
| | | WT | W | ST | S |
| Sealed Section Ass'y w/Front Heater Section | All | X | X | X | X |
| Tankless Heater #226 | All | X | | X | |
| Heater Opening Cover Plate—Tapped | All | X | X | X | X |
| Heater Opening Cover Plate—Untapped | All | | X | | X |
| Flush Jacket | All | X | X | X | X |
| Oil Burner Model RL-4; Flange Mounted; 3450 RPM, 1/3 H.P., 115 V, 60 Hz Motor; 300 PSI Fuel Unit with following components mounted and wired: C554A CAD Cell; R8184G 15 Sec. Primary; 5 Sec. Prepurge Timer; 20 Sec. Low Fire Timer; Nozzle Valve; Bypass Oil Valve, | | X | X | X | X |
| PF-34—Model RL-4.21-0-03/77 w/Hago 1.75, 45° ES Nozzle | PF-34 | X | X | X | X |
| PF-35—Model RL-4.21-0-03/77 w/Hago 2.25, 30°P Nozzle | PF-35 | X | X | X | X |
| PF-36—Model RL-4.2-0-03/77 w/Hago 2.75, 30°P Nozzle | PF-36 | X | X | X | X |
| PF-37—Model RL-4.2-0-03/77 w/Hago 3.25, 30°P Nozzle | PF-37 | X | X | X | X |
| R8124C High Limit, Low Limit and Circulator Control | All | X | | | |
| L4081B Temperature Limit and Circulator Control | All | | X | | |
| PA404A Pressure Limit Control | All | | | X | X |
| L4006A Operating Control | All | | | X | |
| T822D Thermostat | All | X | X | X | X |
| Boiler Drain Cock | All | X | X | X | X |
| A.S.M.E. Safety Relief Valve | All | X | X | | |
| Altitude, Temperature and Pressure Gauge | All | X | X | | |
| A.S.M.E. Safety Valve | All | | | X | X |
| Pressure and Vacuum Gauge | All | | | X | X |
| Gauge Glass and Fittings | All | | | X | X |

Tankless Heater Ratings and Data

| Heater No. | For use in Boilers: | † Rating (GPM) | Pressure Drop (PSI) | Heat Connection Size (NPT) |
|------------|---------------------|----------------|---------------------|----------------------------|
| 226 | all | 6 | 23 | 1/2 |
| 232 | PF-35, PF-36, PF-37 | 7.5 | 36 | 1/2 |
| 445 | PF-36, PF-37 | 9 | 37 | 3/4 |

† Continuous Draw—water heated 40°F to 140°F with 200°F boiler water temperature.

minimum piping recommendations - steam boilers





RATINGS (Water 50 lb. W.P. and Steam 15 lb. W.P.)

| No. of Secs. | Model No. | Forced Draft Burner Mod. and Spec. No. | I=B=R Burner Capacity Light Oil (GPH) | Nozzle* GPH Angle Type | Boiler HP | I=B=R Ratings | | | | Net Water Rating (Sq. Ft.) | I=B=R Vent Diam.* (in.w.c.) | Heating Surface (Ft. ²) | Net Firebox Volume (Ft. ³) | Pressure in Firebox (in.w.c.) | Assembled Section Wt. (lbs.) | Water Content Full (lbs.) |
|--------------|-----------|--|---------------------------------------|------------------------|-----------|--------------------|-------------------|-----------------------|-------------------|----------------------------|-----------------------------|-------------------------------------|--|-------------------------------|------------------------------|---------------------------|
| | | | | | | Gross Output (MBH) | ▲ Net Steam (MBH) | ▲ Net Steam (Sq. Ft.) | ▲ Net Water (MBH) | | | | | | | |
| 4 | PF-34 | RL-4.21-0-03/77 | 2.65 | 1.75 45°-ES | 9.0 | 300 | 225.1 | 938 | 260.9 | 1740 | 8 | 35.35 | 2.40 | + 0.37 | 800 | 276 |
| 5 | PF-35 | RL-4.21-0-03/77 | 3.30 | 2.25 30°-P | 11.2 | 375 | 281.3 | 1172 | 326.1 | 2175 | 8 | 46.24 | 3.23 | + 0.37 | 1000 | 335 |
| 6 | PF-36 | RL-4.2-0-03/77 | 3.95 | 2.75 30°-P | 13.4 | 450 | 337.6 | 1407 | 391.3 | 2610 | 8 | 57.13 | 4.05 | + 0.37 | 1200 | 402 |
| 7 | PF-37 | RL-4.2-0-03/77 | 4.60 | 3.25 30°-P | 15.7 | 526 | 394.6 | 1644 | 457.4 | 3050 | 8 | 68.02 | 4.87 | + 0.35 | 1400 | 465 |

▲ I=B=R Net Ratings shown are based on a piping and pickup allowance of 1.333 for steam, and 1.15 for water.

Consult manufacturer for installations having unusual piping and pickup requirements, such as intermittent system operation, extensive piping systems, etc.

Net Ratings for water, square feet, are based on 170°F average water temperatures in radiators. For higher water temperatures, select boiler on basis of I=B=R Net Ratings, MBH.

The I=B=R burner capacity in GPH is based on oil having a heat value of 140,000 BTU per gallon.

▼ PF-3 boiler ratings are based on 12¼% CO₂, + .10" water column pressure at boiler flue outlet.

● Vent sizes are selected in accordance with the Hydronics Institute Testing and Rating Standard for cast iron and steel heating boilers.

■ "W" suffix denotes forced circulation water unit w/o tankless heater

"WT" suffix denotes forced circulation water unit w/ tankless heater

"S" suffix denotes steam unit w/o tankless heater

"ST" suffix denotes steam unit w/ tankless heater

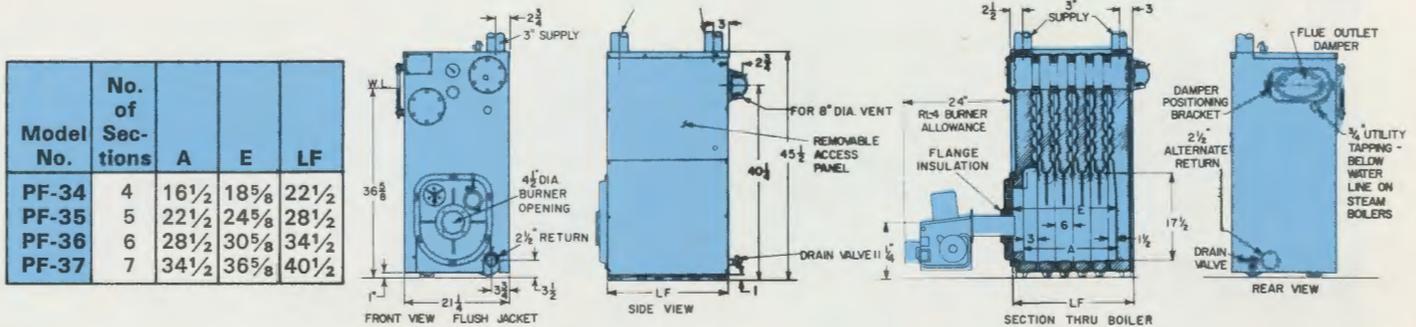
* Indicates nozzle installed in burner

P designates Hago solid type nozzle

ES designates Hago extra solid type nozzle

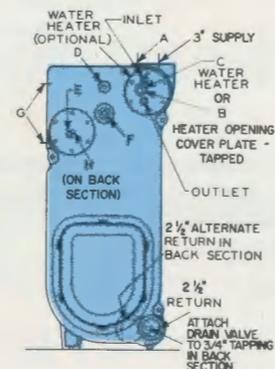
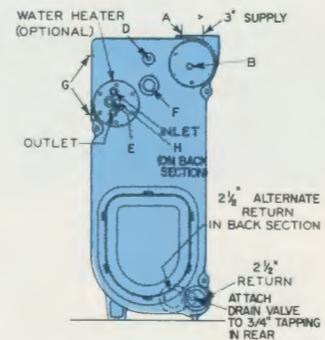
Note:
Special Equipment Required For N.Y.C.

Table of Dimensions



Control Tappings— All Purpose Boiler

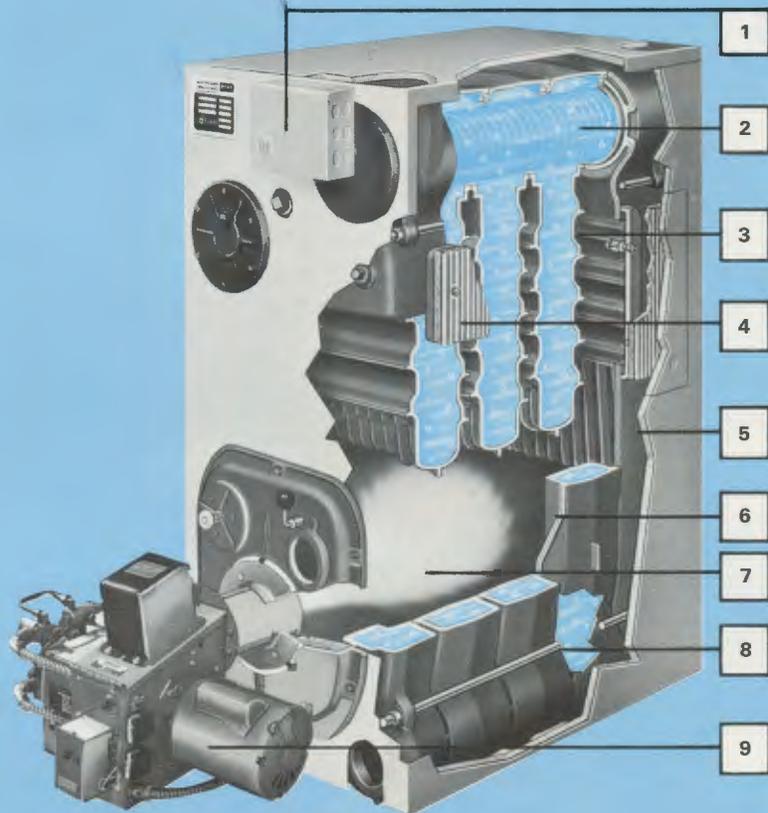
| Location On Boiler | Size (Inches) | Water Control Used | Steam Control Used |
|--------------------|---------------|---|--|
| A | 1 | Safety Relief Valve | Safety Valve |
| B | ¾ | Limit Control or Combination High Limit and Circulator Control (for installations without tankless water heater) | Bush to ¼" Pressuretrol —or Optional Controls |
| C | ¾ | Combination High Limit, Low Limit and Circulator Control (for installations with tankless heater) | — |
| D | ¼ | Combination Pressure and Temperature Gauge | Steam Pressure Gauge |
| E | ¾ | Auxiliary Limit Control (when needed — requires additional tapped heater opening cover plate for installations without tankless heater) | Operating Control (for installations with tankless heater) —or optional controls (requires additional tapped heater opening cover plate for installations without tankless heater) |
| F | 1½ | Not used | Blowoff |
| G | ½ | Not used | Gauge Glass and Low Water Cut-Off |
| H | ¾ | Auxiliary Tapping | Auxiliary Tapping—Below Normal Water Line |



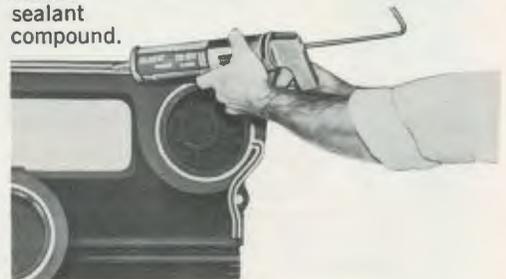
TEN OUTSTANDING FEATURES

PF-3 Series

1. **Controls**—mounted on front of boiler for ease of service and adjustment.
2. **Water Heater**—large, copper coil tankless type. Two locations—both 5" nipple ports can be utilized on water boilers to improve the domestic hot water draw; steam boilers utilize lower nipple port only.
3. **Cast Iron Sections**—factory assembled sealed and water pressure tested.
4. **Side Cleanout Openings**—permits cleaning of all flue surfaces from right side without dismantling jacket or disturbing burner, controls or accessories.
5. **Insulated Jacket**—heavy glass fiber insulation prevents wasteful heat loss, keeps jacket cool.
6. **Elastic Sealant**—effectively seals sections for pressure firing.
7. **No Combustion Chamber**—more primary heating surface is exposed to the radiant heat from the flame for increased combustion efficiency.
8. **Wet Base Construction**—besides providing extra primary heating surface, water backed combustion area eliminates base burnouts.
9. **Oil Burner**—flange mounted, 3450 RPM burner engineered to provide clean and efficient combustion.



elastic sealant compound.



Elastic Sealant . . . It is imperative that forced draft boilers be absolutely gastight. This quality is attained with the PF-3 by sealing all section joints and canopy connections with elastic compound. (Covered by Patent No. 3,533,379.) The elastic sealant requires less installation time than other gasketing methods and provides a superior gastight seal which will maintain its integrity over the years.

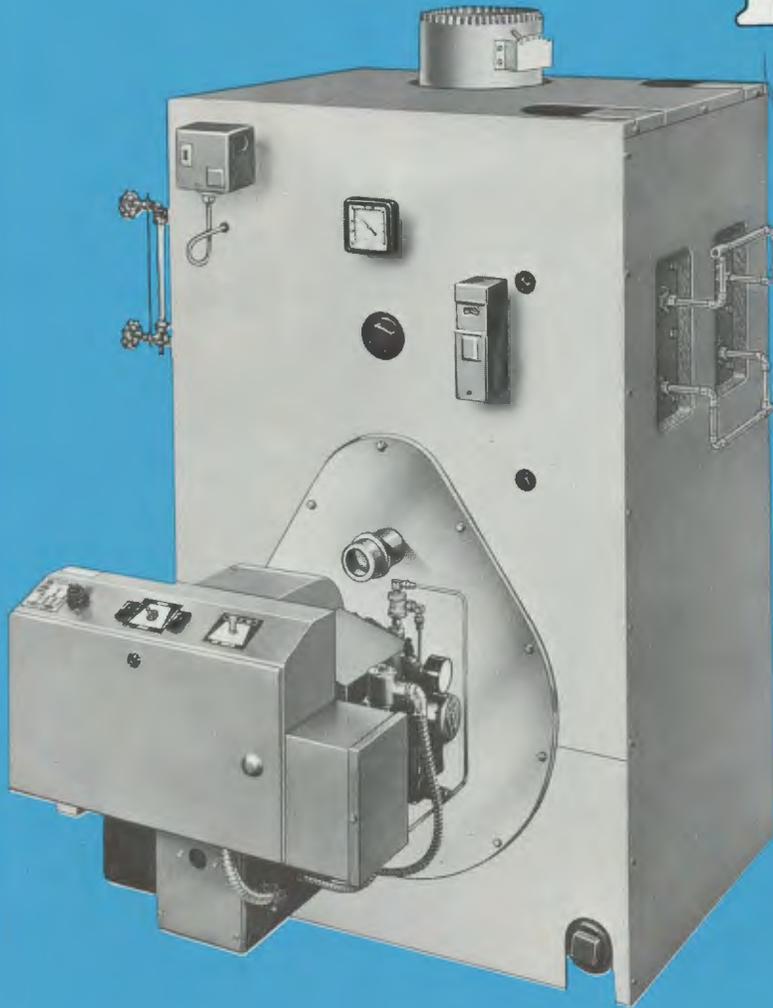
 **BURNHAM CORPORATION**
HYDRONICS DIVISION
Lancaster, Pa. 17604

high efficiency hydronics

PF-5 *Series*

CAST
IRON
HYDRONIC
UNIT

Forced Draft



GAS, OIL OR GAS/OIL COMBINATION

HOT WATER OR STEAM

Eighteen Sizes

Gross Outputs 620,000 to 3,430,000 BTU/HR

 **BURNHAM
AMERICA**



BURNHAM AMERICA

PF-5 Series

FORCED DRAFT HYDRONIC UNIT

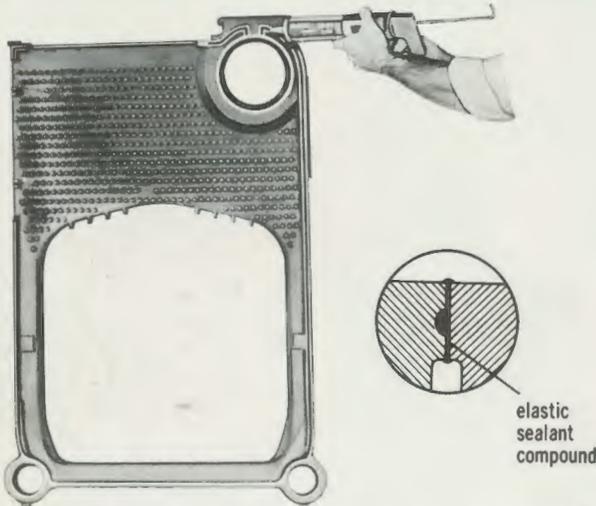
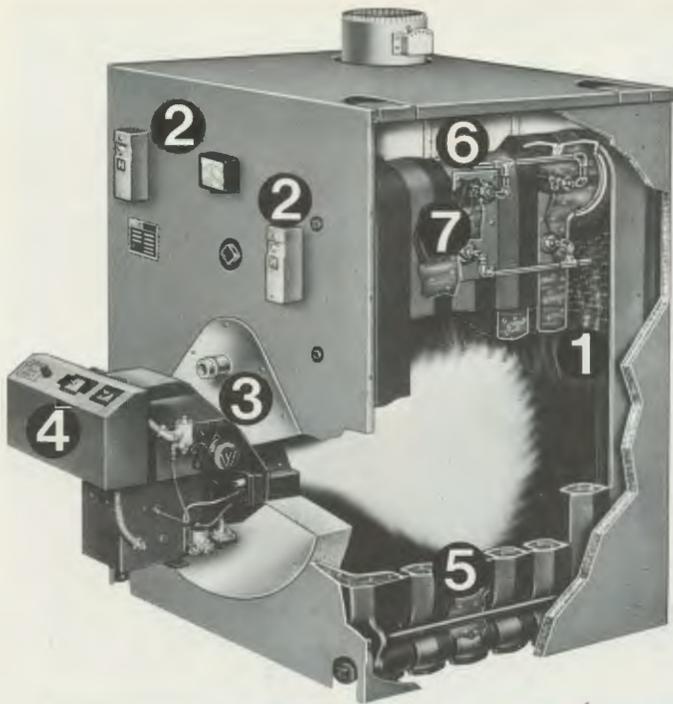
The PF-5 Series represents a new approach in large cast iron boiler design.

COMPACT SIZE . . . LESS WEIGHT

Utilizing a completely sealed, forced draft wet base design, the PF-5 Series requires no separate base or combustion chamber. The PF-5 Series is smaller and weighs less than conventional boilers with comparable ratings, yet provides a continuous performance efficiency of over 80%.

NO HIGH CHIMNEY REQUIRED

Since the sealed, forced draft design provides optimum draft, naturally, there is no need for high chimneys or mechanical equipment to artificially induce proper draft.



1 CAST IRON VERTICAL FLUE DESIGN

Ruggedly cast sections provide vertical flue ways with large 7 inch top nipple port. The off-center positioning of the nipple port speeds water circulation. Projecting heat absorbing studs extract maximum heat from flue gases. Sections are individually water tested at 2½ times W.P. (water) and are accessible from the left side for cleaning.

Elastic Sealant Boiler sections are sealed gas-tight with our unique elastic sealing compound. This sealant is used on all section joints and canopy connections to guarantee the completely sealed and gas tight assembly required for forced draft operation. The sealant is easily applied, takes less time than applying conventional gasketing materials, and lasts many times longer.

2 CONTROLS

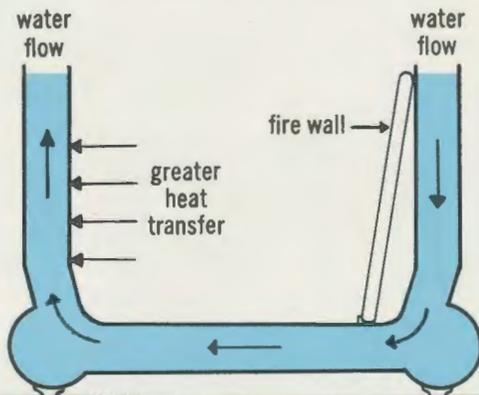
Mounted on the front of the boiler for ease in adjustment and maintenance.

3 BURNER PLATE

Incorporates a compressed insulation seal between burner mounting plate and front section. Flame observation is provided through a round shutter-type sight glass located just above burner.

4 THREE OPTIONAL BURNERS

Three burners are available for light oil, gas/light oil or gas firing. Burners are all laboratory tested for matched performance in PF-5 Series boiler-burner units.



5 WET BASE THERMAL PUMP CONSTRUCTION

Incorporated into the wet base design is a "thermal pump" action that greatly improves circulation in both water and steam versions of the PF-5 Series. This thermal pump insures good steam quality as well as maximum tankless heater capacity. The thermal pumping action is created by causing greater heat transfer on one side of the boiler than on the other. An upward flow of water occurs on the side where heat transfer is greatest, and a downward water flow results on the side where heat transfer is lowest. Continuous water circulation is assured.

6 FLUE CANOPY

Constructed of aluminized steel for long life with reinforcing channels and welded seams.

7 TANKLESS HEATER

Precise positioning of the internal tankless heater in hottest area of boiler water permits supplying domestic hot water requirements ranging from 8 to 64 GPM.

RATINGS - 50 lb. W.P. (water), 15 lb. W.P. (steam)

| * Boiler Number | Boiler H.P. | Gross I=B=R Output (Btuh) | Net I=B=R Rating | | | I=B=R Burner Capacity | | ** Gas Pressure Required (inches water column) | Heating Surface (ft. ²) | Net Firebox Volume (ft. ³) | † Pressure in Firebox (inches water column) | Water Content Full (lbs.) | I=B=R Vent Diameter (inches) |
|-----------------|-------------|---------------------------|------------------|--------------|--------------|-----------------------|-----------|--|-------------------------------------|--|---|---------------------------|------------------------------|
| | | | Steam (sq. ft.) | Steam (Btuh) | Water (Btuh) | Light Oil (gph) | Gas (mbh) | | | | | | |
| PF-504 | 18.5 | 620,000 | 1,938 | 465,100 | 539,100 | 5.45 | 763 | 5.2 | 66 | 8.5 | .244 | 581 | 10 |
| PF-505 | 23.4 | 786,000 | 2,457 | 589,600 | 683,500 | 6.90 | 966 | 6.4 | 85 | 11.1 | .244 | 700 | 10 |
| PF-506 | 28.4 | 950,000 | 2,969 | 712,700 | 826,100 | 8.35 | 1,169 | 6.6 | 104 | 13.7 | .245 | 818 | 10 |
| PF-507 | 33.3 | 1,116,000 | 3,488 | 837,200 | 970,400 | 9.80 | 1,372 | 6.9 | 123 | 16.3 | .245 | 937 | 10 |
| PF-508 | 38.2 | 1,282,000 | 4,016 | 963,900 | 1,114,800 | 11.20 | 1,568 | 6.5 | 142 | 18.9 | .246 | 1056 | 10 |
| PF-509 | 43.2 | 1,446,000 | 4,582 | 1,099,600 | 1,257,400 | 12.65 | 1,771 | 6.5 | 161 | 21.5 | .246 | 1174 | 14 |
| PF-510 | 48.2 | 1,612,000 | 5,159 | 1,238,100 | 1,401,700 | 14.10 | 1,974 | 5.9 | 179 | 24.1 | .247 | 1293 | 14 |
| PF-511 | 53.1 | 1,776,000 | 5,728 | 1,374,600 | 1,544,300 | 15.55 | 2,177 | 5.7 | 198 | 26.8 | .247 | 1412 | 14 |
| PF-512 | 58.1 | 1,944,000 | 6,289 | 1,509,300 | 1,690,400 | 16.95 | 2,373 | 6.8 | 217 | 29.4 | .248 | 1530 | 14 |
| PF-513 | 63.0 | 2,108,000 | 6,819 | 1,636,600 | 1,833,000 | 18.40 | 2,576 | 6.3 | 236 | 32.0 | .248 | 1649 | 14 |
| PF-514 | 67.9 | 2,272,000 | 7,350 | 1,764,000 | 1,975,700 | 19.85 | 2,779 | 6.1 | 255 | 34.6 | .249 | 1768 | 14 |
| PF-515 | 72.9 | 2,440,000 | 7,893 | 1,894,400 | 2,121,700 | 21.25 | 2,975 | 6.2 | 274 | 37.2 | .249 | 1886 | 14 |
| PF-516 | 77.8 | 2,604,000 | 8,424 | 2,021,700 | 2,264,300 | 22.70 | 3,178 | 6.0 | 293 | 39.8 | .250 | 2005 | 18 |
| PF-517 | 82.7 | 2,768,000 | 8,954 | 2,149,100 | 2,407,000 | 24.15 | 3,381 | 5.5 | 312 | 42.4 | .250 | 2123 | 18 |
| PF-518 | 87.7 | 2,936,000 | 9,498 | 2,279,500 | 2,553,000 | 25.60 | 3,584 | 6.2 | 330 | 45.0 | .251 | 2242 | 18 |
| PF-519 | 92.6 | 3,100,000 | 10,028 | 2,406,800 | 2,695,700 | 27.00 | 3,780 | 6.2 | 349 | 47.6 | .251 | 2361 | 18 |
| PF-520 | 97.4 | 3,260,000 | 10,546 | 2,531,100 | 2,834,800 | 28.45 | 3,983 | 6.7 | 368 | 50.2 | .252 | 2479 | 18 |
| PF-521 | 102.5 | 3,430,000 | 11,096 | 2,663,000 | 2,982,600 | 29.90 | 4,186 | 7.4 | 387 | 52.8 | .252 | 2598 | 18 |

*Suffix "S" indicates steam boiler, "W" indicates water boiler.
 Suffix "G" indicates gas-fired, "O" indicates oil-fired, "GO" indicates combination gas-oil fired.

**Minimum gas pressure required at std. gas train inlet for maximum burner input based on 1000 Btu/cu. ft. 0.60 specific gravity gas.
 †With positive pressure of 0.10 inches water column in boiler flue outlet.

ASSEMBLAGE OF SECTIONS *

| Boiler Number | Arrangement of Sections from Front to Back of Boiler | | | | | | | | | | | | | | | | | | | | |
|---------------|--|----|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 |
| PF-504 | FX | CT | C | BX | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| PF-505 | FX | CT | C | CT | BX | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| PF-506 | FX | CT | C | CT | C | BX | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| PF-507 | FX | CT | C | CT | C | CT | BX | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| PF-508 | FX | CT | C | CT | C | CT | C | BX | — | — | — | — | — | — | — | — | — | — | — | — | — |
| PF-509 | FX | CT | C | CT | C | CT | C | CT | BX | — | — | — | — | — | — | — | — | — | — | — | — |
| PF-510 | FX | CT | C | CT | CX | CT | C | CT | C | BX | — | — | — | — | — | — | — | — | — | — | — |
| PF-511 | FX | CT | C | CT | C | CT | CX | CT | C | C | BX | — | — | — | — | — | — | — | — | — | — |
| PF-512 | FX | CT | C | CT | C | CT | CX | CT | C | CT | C | BX | — | — | — | — | — | — | — | — | — |
| PF-513 | FX | CT | C | CT | C | CT | CX | CT | C | CT | C | C | BX | — | — | — | — | — | — | — | — |
| PF-514 | FX | C | C | CT | CX | CT | C | CT | CX | CT | C | CT | C | BX | — | — | — | — | — | — | — |
| PF-515 | FX | C | C | CT | CX | CT | C | CT | CX | CT | C | CT | C | CT | BX | — | — | — | — | — | — |
| PF-516 | FX | C | C | CT | CX | CT | C | CT | C | CT | CX | CT | C | CT | C | BX | — | — | — | — | — |
| PF-517 | FX | C | C | CT | CX | CT | C | CT | C | CT | CX | CT | C | CT | C | C | BX | — | — | — | — |
| PF-518 | FX | C | C | CT | CX | CT | C | CT | C | CT | CX | CT | C | CT | CX | CT | C | BX | — | — | — |
| PF-519 | FX | C | C | CT | CX | CT | C | CT | C | CT | CX | CT | C | CT | CX | CT | C | C | BX | — | — |
| PF-520 | FX | C | C | CT | C | CT | CX | CT | C | CT | CX | CT | C | CT | C | CT | C | CT | C | BX | — |
| PF-521 | FX | C | C | CT | C | CT | CX | CT | C | CT | CX | CT | C | CT | C | CT | CX | CT | C | C | BX |

Legend:

- FX—front section with 4" top tapping
- C—center section
- CX—center section with 4" top tapping
- CT—center section with T.W.H. opening
- BX—back section with 4" top tapping

Note:
 For boilers less tankless water heaters replace the "CT" sections with "C" sections.

* CT sections furnished only on special request or to accommodate number of tankless heaters ordered.

STANDARD EQUIPMENT

ALL BOILERS

Sections Unassembled • Flush Jacket • Burner Mounting Plate • Pressure Relief Door Fire Wall Plates • Flue Damper Assembly • Trim and Controls.

STEAM: PA-404A Pressuretrol, ASME Safety Valve, Gauge Glass Assembly, Drain Valve, Pressure-vacuum Gauge.

WATER: L-4006A High Limit, ASME Safety Relief Valve, Pressure and Temperature Gauge, Drain Valve.

OIL BOILERS

Flange Mounted Oil Burner—97A-T-A, 97A-T-2, 97A Hi-Lo and 98A Hi-Lo Burners furnished with Flange and Pedestal; 2-Stage Fuel Unit. On 95A-1, 96A-1, 96A-B, 96A-T-A and 97A-T-A Burners, factory installed Cad Cell, Bracket and Leads, R8185E Light Sensing Primary Control; V4046B Instantaneous Oil Valve, Electronic Time Delay. On 97A-T-2, 97A Hi-Lo-2 and 98A Hi-Lo-2 Burners, R4140M Control—provides pre-purge and post-purge, Q520A Base, factory installed C7013A Photo Cell; Delayed and Instantaneous Oil Valves, Nozzles.

Standard motor voltages for listed oil burners—115-60-1 on all except 97A-T-A, 97A-T-2, 97A Hi-Lo and 98A Hi-Lo—230-60-1.

GAS/OIL BOILERS

Flange Mounted Gas Burner, Standard burner controls meet latest UL requirements. Dual Automatic Gas Valves for added reliability. Gas-Electric Ignition. Electric Programming Controls and Components are factory wired in a control cabinet on the burner. Includes R4795 Relay on 4-12 section; GP100U Control on 13-21 section; proven pilot. Standard burners equipped to operate with 1,000 BTU, 0.6 specific gravity natural gas.

GAS BOILERS

Flange Mounted Combination Gas-Oil Burner. Standard burner controls meet latest UL requirements. Manually Operated Fuel Switch for dual fuel change-over. Dual Automatic Gas Valves for added reliability. Gas-Electric Ignition. Electric Programming Controls and Components are factory wired in a control cabinet on the burner. R4795 Relay on 4-12 section; GP100U Control on 13-21 section; proven pilot. Standard burner equipped to operate on No. 1 or No. 2 fuel oil and 1,000 BTU, 0.6 specific gravity natural gas.

OPTIONAL EQUIPMENT

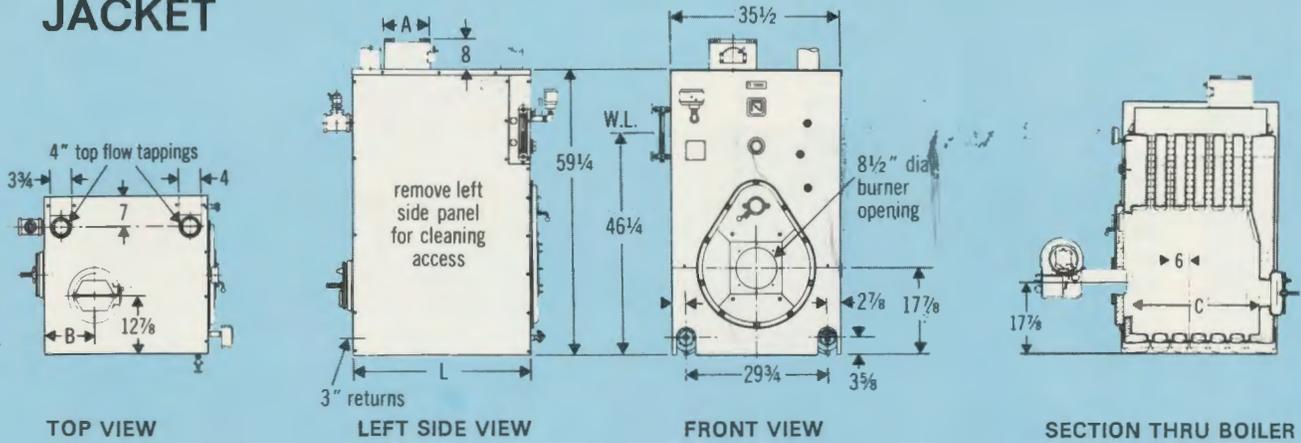
ALL BOILERS

Sections Assembled • Sections Stamped and Tested for 70# W.W.P. • Tankless Heaters.

SPECIAL APPLICATIONS

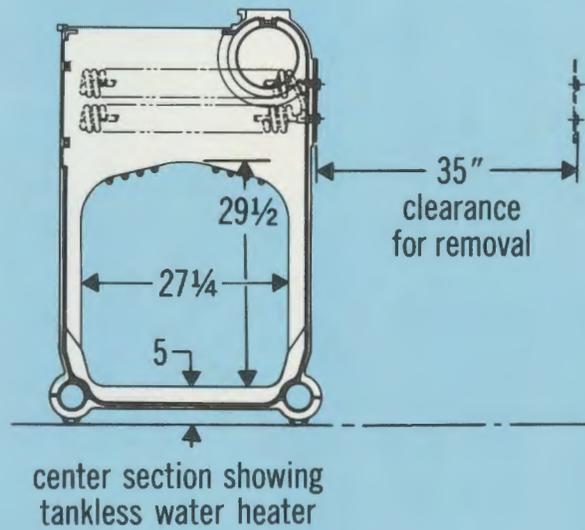
Combustion and hydronic controls to meet special applications such as F.M., I.R.I. (F.I.A.) and local codes are available on request.

FLUSH JACKET



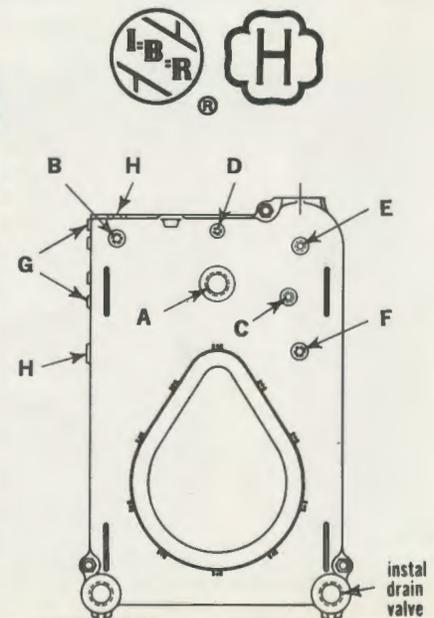
DIMENSIONS (Inches)

| Boiler Number | No. of Sections | A | B | C | L Flush Jacket | Assembled Section Weight (lbs) |
|---------------|-----------------|----|----|---------|----------------|--------------------------------|
| PF-504 | 4 | 10 | 12 | 19 1/2 | 25 3/4 | 1650 |
| PF-505 | 5 | 10 | 12 | 25 1/2 | 31 3/4 | 2000 |
| PF-506 | 6 | 10 | 12 | 31 1/2 | 37 3/4 | 2300 |
| PF-507 | 7 | 10 | 12 | 37 1/2 | 43 3/4 | 2650 |
| PF-508 | 8 | 10 | 12 | 43 1/2 | 49 3/4 | 2950 |
| PF-509 | 9 | 14 | 12 | 49 1/2 | 55 3/4 | 3300 |
| PF-510 | 10 | 14 | 12 | 55 1/2 | 61 3/4 | 3650 |
| PF-511 | 11 | 14 | 12 | 61 1/2 | 67 3/4 | 3950 |
| PF-512 | 12 | 14 | 27 | 67 1/2 | 73 3/4 | 4300 |
| PF-513 | 13 | 14 | 33 | 73 1/2 | 79 3/4 | 4600 |
| PF-514 | 14 | 14 | 39 | 79 1/2 | 85 3/4 | 4950 |
| PF-515 | 15 | 14 | 45 | 85 1/2 | 91 3/4 | 5300 |
| PF-516 | 16 | 18 | 51 | 91 1/2 | 97 3/4 | 5600 |
| PF-517 | 17 | 18 | 57 | 97 1/2 | 103 3/4 | 5950 |
| PF-518 | 18 | 18 | 63 | 103 1/2 | 109 3/4 | 6300 |
| PF-519 | 19 | 18 | 69 | 109 1/2 | 115 3/4 | 6600 |
| PF-520 | 20 | 18 | 75 | 115 1/2 | 121 3/4 | 6950 |
| PF-521 | 21 | 18 | 81 | 121 1/2 | 127 3/4 | 7300 |



CONTROL TAPPINGS

| Location | Size of Tappings | Steam | Water |
|----------|------------------|----------------------------------|--------------------------------------|
| A | 2 1/2 | Low water cut-off | Not used |
| B | 3/4 | Pressure limit control | Temperature limit control |
| C | 3/4 | Operating cont. Tankless heater | Operating cont. Tankless heater |
| D | 1/2 | Pressure gauge | Comb. altitude Gauge and thermometer |
| E | 3/4 | Not used | Not used |
| F | 3/4 | Not used | Reverse acting control |
| G | 1/2 | Gauge glass | Not used |
| H | 1 | Water Feeder, LWCO, Water Column | Not used |



NOTE—2 1/2" blow-off on back section safety or relief valve piped in connection with blow-off.

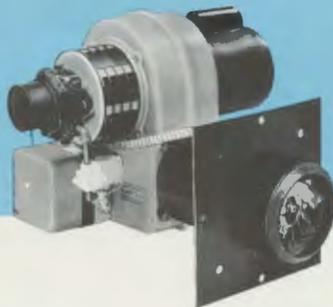
R

BURNER SCHEDULE

| Boiler Number | I=B=R Burner Capacity | | Burner Number | | |
|---------------|-----------------------|---------|---------------|---------------|------------|
| | GPH Oil | MBH Gas | Light Oil | Gas/Light Oil | Gas |
| PF-504 | 5.45 | 763 | 95A-1 | R6.2-GO-03 | R6.2-G-03 |
| PF-505 | 6.90 | 966 | 96A-1 | R6.2-GO-03 | R6.2-G-03 |
| PF-506 | 8.35 | 1169 | 96A-1 | R6.2-GO-03 | R6.2-G-03 |
| PF-507 | 9.80 | 1372 | 96A-B | R8-GO-05 | R8-G-05 |
| PF-508 | 11.20 | 1568 | 96A-B | R8-GO-05 | R8-G-05 |
| PF-509 | 12.65 | 1771 | 96A-B | R8-GO-05 | R8-G-05 |
| PF-510 | 14.10 | 1960 | 96A-T-A | R8.1-GO-05 | R8.1-G-05 |
| PF-511 | 15.55 | 2177 | 97A-T-A | R8.2-GO-07 | R8.2-G-07 |
| PF-512 | 16.95 | 2373 | 97A-T-A | R8.3-GO-10 | R8.3-G-10 |
| PF-513 | 18.40 | 2576 | 97A-T-A | R10.9-GO-10 | R10.9-G-10 |
| PF-514 | 19.85 | 2779 | 97A-T-A | R10.9-GO-10 | R10.9-G-10 |
| PF-515 | 21.25 | 2975 | 97A-T-2 | R10.9-GO-10 | R10.9-G-10 |
| PF-516 | 22.70 | 3178 | 97A-Hi Lo-2 | R10-GO-15 | R10-G-15 |
| PF-517 | 24.15 | 3381 | 97A-Hi Lo-2 | R10-GO-15 | R10-G-15 |
| PF-518 | 25.60 | 3584 | 98A-Hi Lo-2 | R10.1-GO-20 | R10.1-G-20 |
| PF-519 | 27.00 | 3780 | 98A-Hi Lo-2 | R10.1-GO-20 | R10.1-G-20 |
| PF-520 | 28.45 | 3983 | 98A-Hi Lo-2 | R10.1-GO-30 | R10.1-G-30 |
| PF-521 | 29.90 | 4186 | 98A-Hi Lo-2 | R10.1-GO-30 | R10.1-G-30 |

APPROVAL: Burnham America flame retention gas, gas/oil and oil burners (115 and 230 volt/60 cycle) are listed with Underwriters' Laboratories, Inc. for all gases and No. 1 and No. 2 grades of fuel oil, whether obtained by distillation or

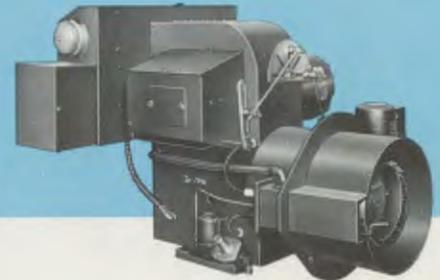
catalytic cracking process. They are approved by the New York City Board of Standards and Appeals, the State Fire Marshal of the Commonwealth of Massachusetts and the Department of State Police, State of Connecticut.



Light Oil Burner



Gas/Light Oil Burner

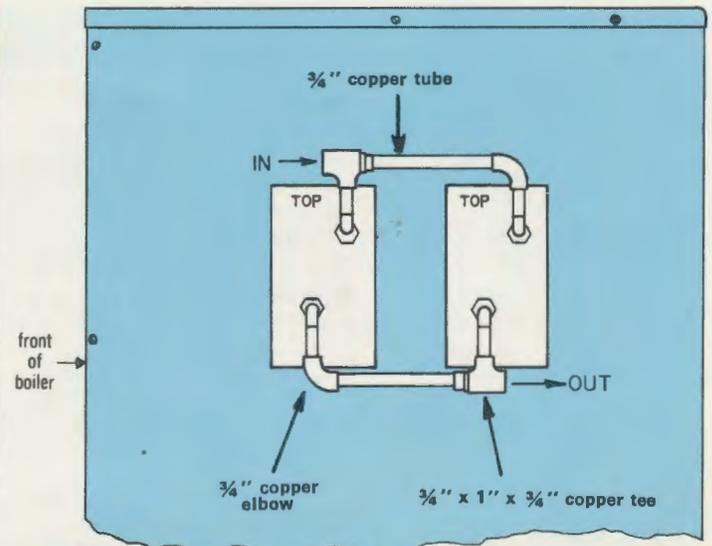


Gas Burner

TANKLESS HEATER RATINGS (Water and Steam)

| Boiler Number | Number of #548 Heaters Installed* | | | | | | | |
|---------------|-----------------------------------|------|------|------|------|------|------|------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| PF-504 | 8.0 | — | — | — | — | — | — | — |
| PF-505 | 8.0 | 16.0 | — | — | — | — | — | — |
| PF-506 | 8.0 | 16.0 | — | — | — | — | — | — |
| PF-507 | 8.0 | 16.0 | 24.0 | — | — | — | — | — |
| PF-508 | 8.0 | 16.0 | 24.0 | — | — | — | — | — |
| PF-509 | 8.0 | 16.0 | 24.0 | 32.0 | — | — | — | — |
| PF-510 | 8.0 | 16.0 | 24.0 | 32.0 | — | — | — | — |
| PF-511 | 8.0 | 16.0 | 24.0 | 32.0 | 40.0 | — | — | — |
| PF-512 | 8.0 | 16.0 | 24.0 | 32.0 | 40.0 | — | — | — |
| PF-513 | 8.0 | 16.0 | 24.0 | 32.0 | 40.0 | — | — | — |
| PF-514 | 8.0 | 16.0 | 24.0 | 32.0 | 40.0 | — | — | — |
| PF-515 | 8.0 | 16.0 | 24.0 | 32.0 | 40.0 | 48.0 | — | — |
| PF-516 | 8.0 | 16.0 | 24.0 | 32.0 | 40.0 | 48.0 | — | — |
| PF-517 | 8.0 | 16.0 | 24.0 | 32.0 | 40.0 | 48.0 | — | — |
| PF-518 | 8.0 | 16.0 | 24.0 | 32.0 | 40.0 | 48.0 | 56.0 | — |
| PF-519 | 8.0 | 16.0 | 24.0 | 32.0 | 40.0 | 48.0 | 56.0 | — |
| PF-520 | 8.0 | 16.0 | 24.0 | 32.0 | 40.0 | 48.0 | 56.0 | 64.0 |
| PF-521 | 8.0 | 16.0 | 24.0 | 32.0 | 40.0 | 48.0 | 56.0 | 64.0 |

*Ratings are given in gallons per minute continuous draw of water heated from 40°F to 140°F with 200°F boiler water.



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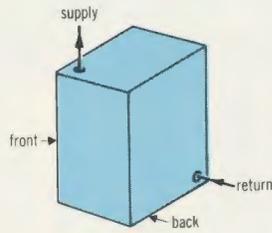
MINIMUM PIPING RECOMMENDATIONS

Note:

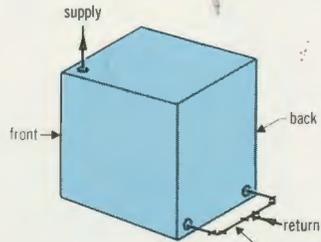
These schematic drawings are intended solely to show recommended tapping locations and general piping arrangements. Actual piping details should be designed in accordance with standard engineering practice.

Water Boiler

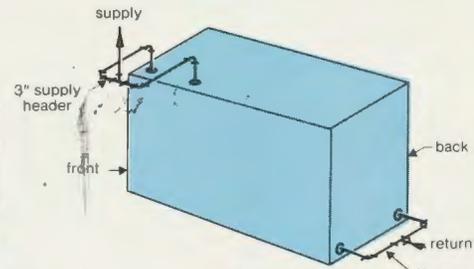
| Boiler Number | Supply and Return (inches) |
|---------------|----------------------------|
| PF-504 | 2½ |
| PF-505 | 2½ |
| PF-506 | 3 |
| PF-507 | 3 |
| PF-508 | 4 |
| PF-509 | 4 |
| PF-510 | 4 |
| PF-511 | 4 |
| PF-512 | 4 |
| PF-513 | 4 |
| PF-514 | 5 |
| PF-515 | 5 |
| PF-516 | 5 |
| PF-517 | 5 |
| PF-518 | 5 |
| PF-519 | 5 |
| PF-520 | 5 |
| PF-521 | 5 |



PF-504 thru PF-507



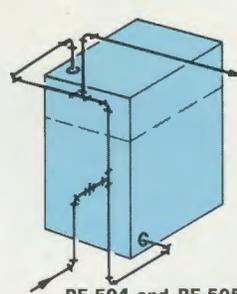
PF-508 thru PF-513



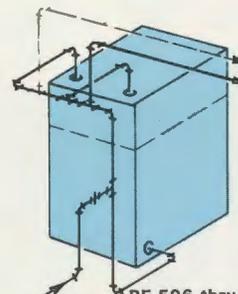
PF-514 thru PF-521

Steam Boiler

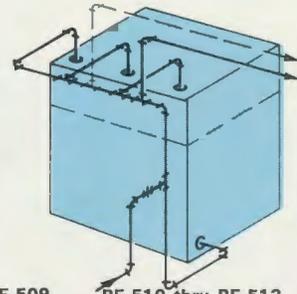
| Boiler Number | Pipe Size (inches) | | | |
|---------------|--------------------|--------|--------|-----------|
| | Riser | Return | Header | Equalizer |
| PF-504 | (1) 4 | 2 | 4 | 2½ |
| PF-505 | (1) 4 | 2 | 4 | 2½ |
| PF-506 | (2) 4 | 2½ | 6 | 2½ |
| PF-507 | (2) 4 | 2½ | 6 | 2½ |
| PF-508 | (2) 4 | 2½ | 6 | 2½ |
| PF-509 | (2) 4 | 2½ | 6 | 2½ |
| PF-510 | (3) 4 | 2½ | 8 | 2½ |
| PF-511 | (3) 4 | 3 | 8 | 4 |
| PF-512 | (3) 4 | 3 | 8 | 4 |
| PF-513 | (3) 4 | 3 | 8 | 4 |
| PF-514 | (4) 4 | 3 | 8 | 4 |
| PF-515 | (4) 4 | 3 | 8 | 4 |
| PF-516 | (4) 4 | 3 | 8 | 4 |
| PF-517 | (4) 4 | 3 | 8 | 4 |
| PF-518 | (5) 4 | 3 | 8 | 4 |
| PF-519 | (5) 4 | 3 | 8 | 4 |
| PF-520 | (5) 4 | 3 | 8 | 4 |
| PF-521 | (5) 4 | 3 | 10 | 4 |



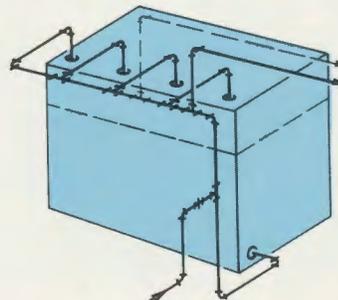
PF-504 and PF-505



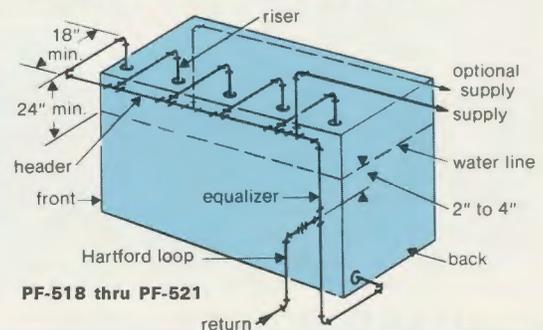
PF-506 thru PF-509



PF-510 thru PF-513



PF-514 thru PF-517



PF-518 thru PF-521

SAMPLE SPECIFICATIONS

Contractor shall furnish and install, as indicated on plans (light oil, gas-light oil or gas)-fired, forced draft boilers having an input of (GPH OR BTUH) and an I=B=R rating of BTUH. Boiler(s) shall be constructed of cast iron in accordance with A.S.M.E. requirements for low pressure heating boilers and bear the A.S.M.E. symbol. Each section shall be factory tested at 2½ times maximum working pressure of (*) for water. Boiler(s) shall have I=B=R ratings. Boiler sections shall be constructed so that the water line for steam boilers shall be above the bottom of top nipple ports to insure proper water circulation between

(*) 50 lbs. working pressure standard, 70 lbs. available on special order.

sections. Boiler flue passages shall be vertical with pinned surfaces. To insure gas tight integrity all boiler sections shall be sealed with elastic sealant compound. Boiler shall be constructed so as not to require a combustion chamber

Boiler shall be equipped with tankless heater(s) having a rating of GPM.

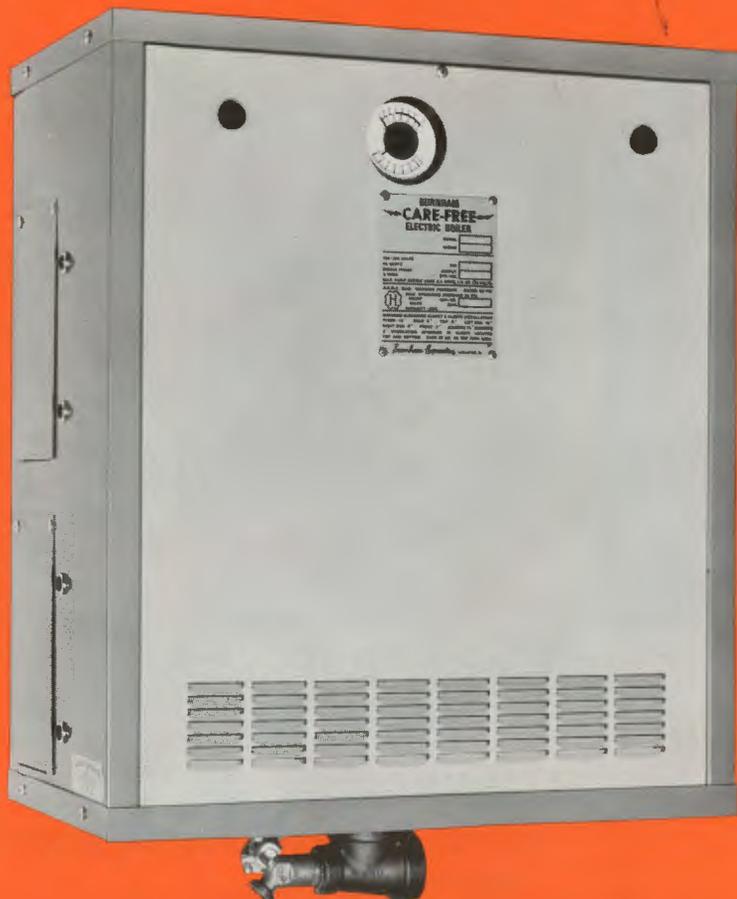
Burners shall include controls as herein described. (Note: include description of controls as required and other burner features as desired.)

BURNHAM CORPORATION
HYDRONICS DIVISION
Lancaster, Pa. 17604

high efficiency hydronics

CARE-FREE

*Electric
Boiler*



CAST IRON
HYDRONIC
PACKAGE



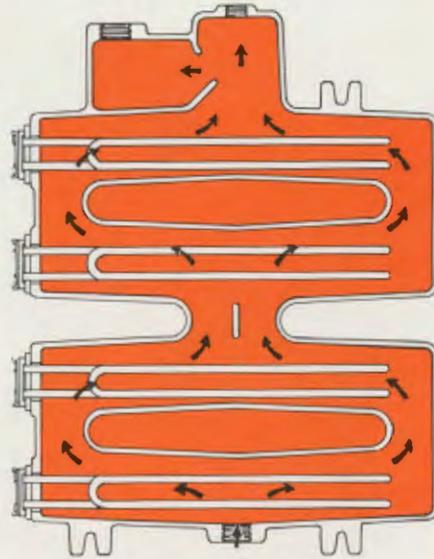
100% EFFICIENT — NO FLUE LOSSES

FIVE SIZES

40,956 TO 68,260 BTU/HR

 **Burnham**
AMERICA'S BOILER COMPANY

HOMES • APARTMENTS — NEW or CONVERSION INSTALLATIONS



**THE BURNHAM CARE-FREE
Electric Boiler Provides
THE CONSUMER WITH —**

- Comfort
- Economy
- Versatility
- Deluxe Styling
- Lifetime Construction
- UL Listed
- 100% Efficient—No flue losses

THE CONTRACTOR WITH —

- Complete Packaging
- 3 sizes ranging from 41,000 BTU/HR through 68,000 BTU/HR
- Reliable controls
- Quick-Connect circulator pak
- Zone valve packages
- Installation ease

No floor space required
No chimney is necessary

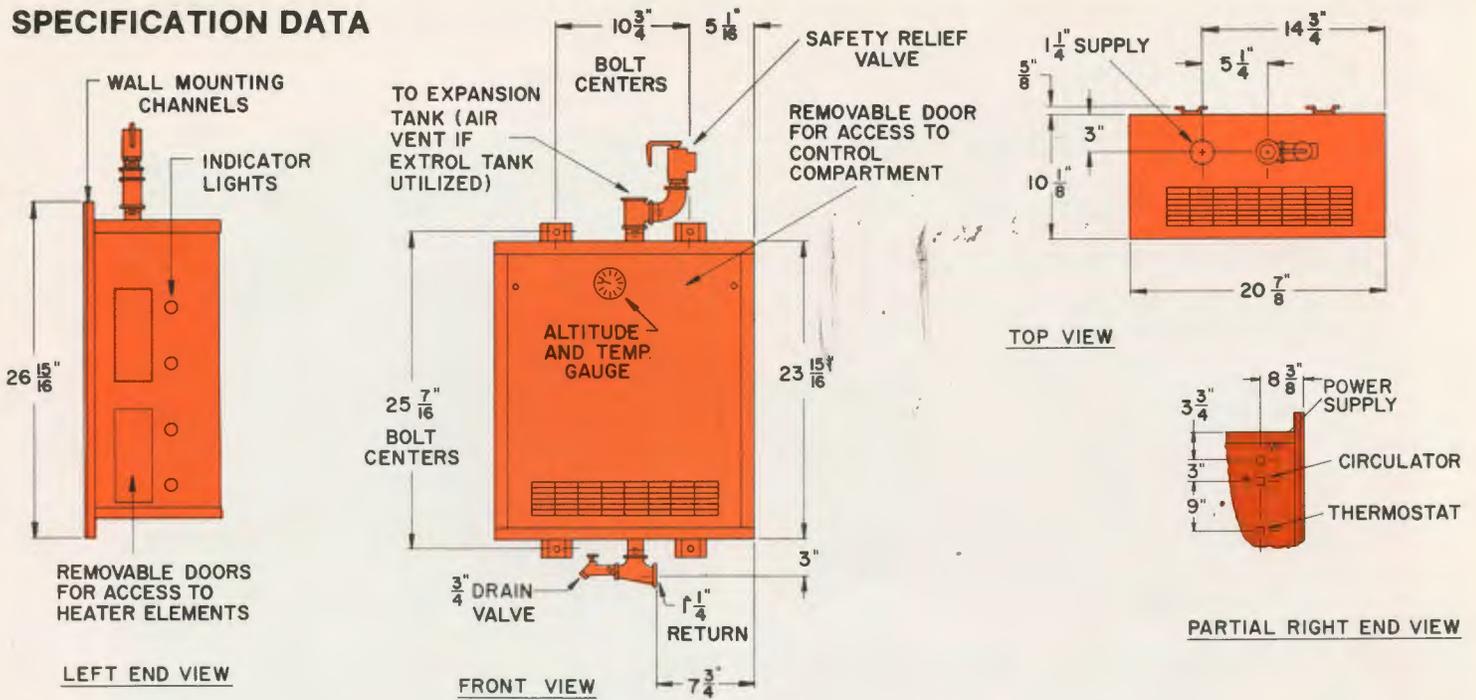
BOILER SECTION

1. One piece cast iron A. S. M. E. construction.
2. Large water capacity—3.5 gals.
3. Parallel water flow over heating elements for higher system design temperature—to 210°F.
4. Air pockets and dead water spots cannot exist—steaming, which causes noise and reduces element life, is eliminated.
5. Built-in air separator at top of section—assures quiet operation and eliminates need for external air separator.
6. All heating elements inserted from one side—reduces space requirements for installation.

HEATING ELEMENTS

1. Low density type for long life, and quiet trouble free operation.
2. Sheathed in tin and brazed to mounting flanges for long life.

SPECIFICATION DATA



CLEARANCE REQUIREMENTS

| | FOR SERVICE ACCESSIBILITY | APPROVED FOR CLOSET & ALCOVE INSTALLATION WITH MINIMUM CLEARANCE TO COMBUSTIBLE MATERIAL* |
|------------|---------------------------|---|
| LEFT SIDE | 18" | 18" |
| RIGHT SIDE | 6" | 0" |
| TOP | 9" | 9" |
| BOTTOM | 9" | 15" |
| REAR | 0" | 0" |
| FRONT | FOR DOOR REMOVAL | 2" CLOSET 18" ALCOVE |

* Closet Installation Requires Two Ventilation Openings, one located at top and one at bottom, each opening to have 25 sq. in. net free area.

RECOMMENDED POWER SUPPLY TO BOILER

| BOILER MODEL | KW | AMPS | VOLTS PHASE | NO. AND SIZE OF ELEMENTS | MIN.* WIRE SIZE | MAX. FUSE SIZE AMPS | APPX. WT. FULL LBS. | WATER CONTENTS GALS. |
|--------------|----|------|-------------|--------------------------|-----------------|---------------------|---------------------|----------------------|
| E-412 | 12 | 50 | 240/1 | 4-3KW | 6 | 60 | 155 | 3 1/2 |
| E-416 | 16 | 70 | 240/1 | 2-3KW 2-5KW | 4 | 80 | 155 | 3 1/2 |
| E-420 | 20 | 85 | 240/1 | 4-5KW | 2 | 90 | 155 | 3 1/2 |

* For runs in excess of 50 ft., consult local and national electrical code.

BOILER RATINGS

| BOILER MODEL | DOE HEATING CAPACITY BTUH | | | DOE ANNUAL EFFICIENCY | AMPS (240V) | WATER FLOW RATE—GPM BASED ON 20°F TEMP. RISE AND BOILER CAPACITY AT | | | APPROX. SHIPPING WEIGHT (LBS.) |
|--------------|---------------------------|--------|--------|-----------------------|-------------|---|-------|-------|--------------------------------|
| | 240V. | 220V. | 208V. | | | 240V. | 220V. | 208V. | |
| E-412 | 41,000 | 35,000 | 31,000 | 100% | 50 | 4.1 | 3.5 | 3.1 | 133 |
| E-416 | 55,000 | 46,000 | 41,000 | 100% | 70 | 5.5 | 4.6 | 4.2 | 133 |
| E-420 | 68,000 | 58,000 | 52,000 | 100% | 85 | 6.8 | 5.8 | 5.2 | 133 |

* Gross Output ratings are shown. Where the boiler and piping are in the heated space, the boiler may be selected on the basis of the Gross Output. Where a piping loss and/or a pickup loss will exist, add this loss to the building loss to determine the total heating requirement. Where a piping loss only will exist but cannot be calculated, multiply the calculated building loss by a 1.15 factor to determine the total heating requirement.

STANDARD EQUIPMENT

Insulated two-tone blue jacket
 Wall mounting brackets
 Heating element sequencers
 Neon indicator lights
 Circulator delay control
 Circulator switch
 Control circuit fuse
 Transformer-120/24V-40VA
 Field wiring terminal block
 Thermostat terminal block
 Dual high limit control
 Altimeter
 A.S.M.E. Safety Relief valve
 Drain Cock
 Internal wiring
 Thermostat-24V-2-wire
 Heating Element Relays

OPTIONAL EQUIPMENT

Quick-Connect Circulator Pak
 (In separate carton)
 Circulator-1 1/4" w/wiring harness
 Fill-trol #108 (Compression tank and fill valve)
 Completely assembled piping with circulator and fill-trol installed
 Float type air vent
CIRCULATOR RELAYS—For zoning with multiple circulators
 Honeywell R845A-1022 (No barrier)
 DPST—One required per circulator
ZONE VALVE PACKAGES
 (In separate carton)
 3 Zone package (24V) includes—
 3 Zone valves w/3/4" solder connections;
 1 1/4" manifold; 40VA transformer;
 2 thermostats-24V-2 wire and wiring harness
 2 Zone package (24V) includes—
 2 Zone valves w/3/4" solder connections;
 1 1/4" manifold; 20VA transformer;
 1 thermostat-24V-2 wire and wiring harness

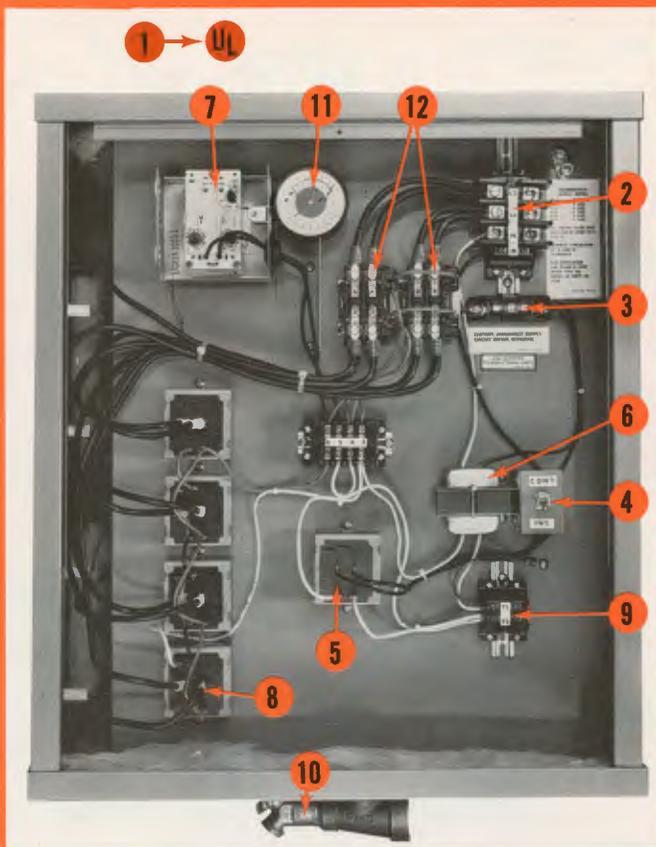
CARE-FREE

Electric Boiler

FEATURES

ELECTRICAL COMPONENTS

1. All Electrical Components are U.L. LISTED.
2. FIELD WIRING TERMINAL BLOCK — designed for use on 240-volt a-c (nominal) three-wire, single-phase, 60-cycle service. Internal wiring provides 120 volts from this source to operate transformer and circulators. Extra terminal on block simplifies field wiring of Circulator. Oversized connectors assure positive connections — barrier block construction prevents short circuiting.
3. CIRCULATOR FUSE — protects Circulator and Heating Element Sequencers — if fuse is blown and Circulator is inoperative, Heating Elements cannot be energized. Eliminates need for separate Circulator Fuse Box.
4. CIRCULATOR SWITCH — manually operated — provides for selection of CONTINUOUS OR INTERMITTENT CIRCULATOR OPERATION. Aids in purging air during initial start-up.
5. CIRCULATOR DELAY CONTROL — with Circulator Switch in the "INT" position (Intermittent Circulator Operation), this control will activate circulator on "call for heat" from thermostat. Circulator will continue to operate until thermostat is satisfied even if Heating Elements are de-energized by the High Limit Control. Control prevents energizing of Heating Elements until Circulator is operating. Time delay feature keeps Circulator running 90 seconds after Heating Element is de-energized. When zoning with circulators and relays (i.e. with circulator switch in continuous position) time delay feature is not utilized.
6. 24 VOLT 40 VA TRANSFORMER — provides power for LOW VOLTAGE CONTROL CIRCUIT — oversized to carry full load without overheating.
7. DUAL HIGH LIMIT CONTROL — consists of two independently adjustable temperature limits. The left hand adjustment is the safety limit — maximum setting 220°F. The lower right hand adjustment is for the operating limit and should be set at least 10°F below safety limit. These adjustments may be varied to suit the individual installation. If the operating or safety limit is reached, only the heating elements will be de-energized; the circulator will continue to run. The Dual High Limit utilizes an immersion type well permitting replacement without draining the boiler.
8. HEATING ELEMENT SEQUENCERS — one per Heating Element, thus elements are individually energized 45 seconds apart preventing any power surge on the electric service line. When the thermostat is satisfied or the setting of High Limit is reached, the Heating Elements are de-energized within a short time span of each other.



9. THERMOSTAT TERMINAL BLOCK — provides connections for leads from 2-wire low voltage thermostat, end switch on zone valve, or low voltage side of circulator relay (for systems zoned with Circulators).

* RED NEON INDICATOR LIGHTS — visual indication of Heating Element being energized.

HYDRONIC COMPONENTS

- * A.S.M.E. SAFETY RELIEF VALVE — installed outside of Jacket in leg of Tee piped to top of Boiler, thus isolated from all electrical connection.
10. DRAIN COCK — installed outside of Jacket in leg of Tee piped to bottom of Boiler, thus remote from all electrical wiring and components. Readily accessible for hose connection.
11. ALTITUDE AND TEMPERATURE GAUGE — easily visible thru opening in Jacket Front Door yet recessed for added protection from breakage.
12. HEATING ELEMENT RELAYS — an additional safety feature, operating through the Dual High Limit, to disconnect all high voltage heating element circuits instantly upon boiler reaching the high limit setting or if the thermostat is satisfied.

* Not illustrated above.

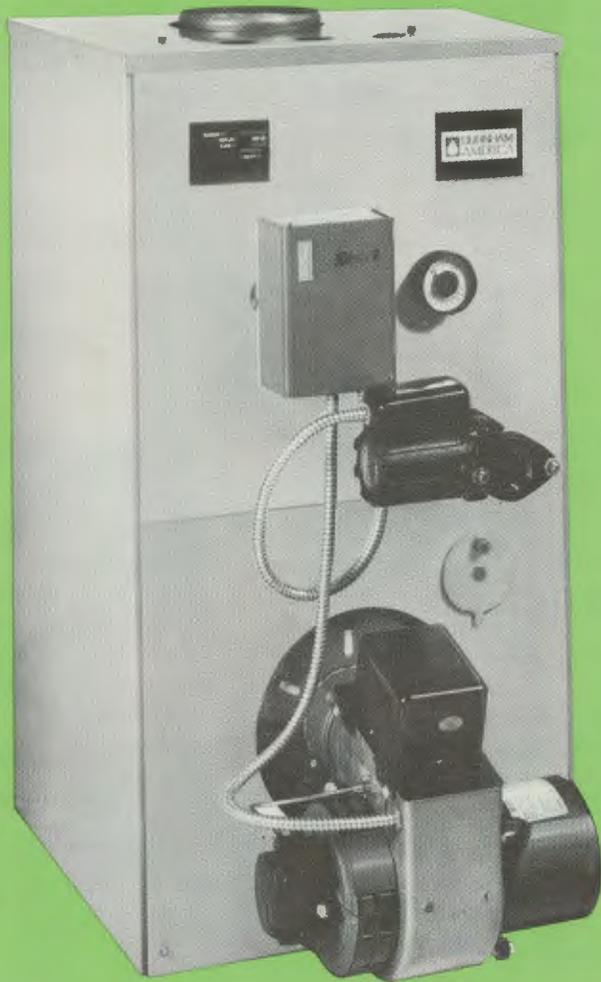
BEFORE PURCHASING THIS APPLIANCE READ IMPORTANT ENERGY COST AND EFFICIENCY INFORMATION AVAILABLE FROM YOUR CONTRACTOR.

Burnham
HYDRONICS DIVISION
Lancaster, PA 17604

Form No. 4310A-12-79-30Mf

BBCA *Series*

RESIDENTIAL STEEL
OIL FIRED
HYDRONIC
PACKAGES

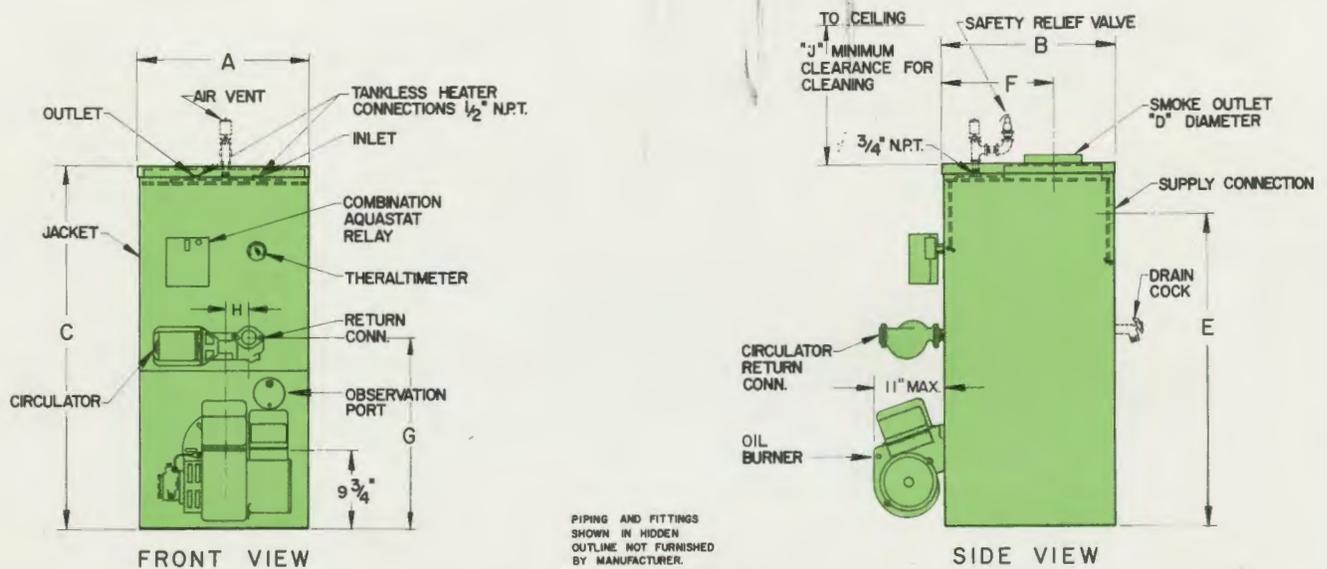


* sizes 109 thru 115

WITH OR WITHOUT FLAME RETENTION

EIGHTEEN MODELS
DOE HEATING CAPACITIES: 94,000 to 207,000 BTU/HR
GROSS OUTPUTS: 227,000 to 340,000 BTU/HR

 **Burnham**
AMERICA'S BOILER COMPANY



DIMENSIONS (In Inches)

BBCA

| BOILER NUMBER | A | B | C | D | E | F | G | H | J | HEATING BOILERS ONLY | | |
|---------------|--------|--------|----|---|--------|--------|--------|-------|----|----------------------|--------|-------|
| | | | | | | | | | | SUPPLY CONN. | RETURN | |
| | | | | | | | | | | | CIR. | BLR. |
| BBCA-109 | 21 | 21 1/4 | 39 | 7 | 34 1/8 | 13 1/2 | 22 1/8 | 4 1/2 | 24 | 1 1/2 | 1 | 1 |
| BBCA-110 | 21 | 21 1/4 | 39 | 7 | 34 1/8 | 13 1/2 | 22 1/8 | 4 1/2 | 24 | 1 1/2 | 1 | 1 |
| BBCA-111 | 21 | 21 1/4 | 39 | 7 | 34 1/8 | 13 1/2 | 22 1/8 | 4 1/2 | 24 | 1 1/2 | 1 | 1 |
| BBCA-112 | 21 | 21 1/4 | 39 | 7 | 34 1/8 | 13 1/2 | 22 1/8 | 4 1/2 | 24 | 1 1/2 | 1 | 1 |
| BBCA-113 | 20 3/4 | 21 1/4 | 44 | 7 | 39 1/2 | 13 3/4 | 20 3/4 | 3 1/2 | 24 | 1 1/2 | 1 | 1 1/2 |
| BBCA-114 | 20 3/4 | 21 1/4 | 44 | 7 | 39 1/2 | 13 3/4 | 20 3/4 | 3 1/2 | 24 | 1 1/2 | 1 | 1 1/2 |
| BBCA-115 | 20 3/4 | 21 1/4 | 50 | 7 | 45 1/2 | 13 3/4 | 20 3/4 | 3 1/2 | 30 | 1 1/2 | 1 | 1 1/2 |

BBCA-FR

| BOILER NUMBER | A | B | C | D | E | F | G | H | J | HEATING BOILERS ONLY | | |
|---------------|--------|--------|----|---|--------|--------|--------|-------|----|----------------------|--------|-------|
| | | | | | | | | | | SUPPLY CONN. | RETURN | |
| | | | | | | | | | | | CIR. | BLR. |
| BBCA-109-FR | 21 | 21 1/4 | 39 | 7 | 34 1/8 | 13 1/2 | 22 1/8 | 4 1/2 | 24 | 1 1/2 | 1 | 1 |
| BBCA-110-FR | 21 | 21 1/4 | 39 | 7 | 34 1/8 | 13 1/2 | 22 1/8 | 4 1/2 | 24 | 1 1/2 | 1 | 1 |
| BBCA-111-FR | 21 | 21 1/4 | 39 | 7 | 34 1/8 | 13 1/2 | 22 1/8 | 4 1/2 | 24 | 1 1/2 | 1 | 1 |
| BBCA-112-FR | 21 | 21 1/4 | 39 | 7 | 34 1/8 | 13 1/2 | 22 1/8 | 4 1/2 | 24 | 1 1/2 | 1 | 1 |
| BBCA-113-FR | 20 3/4 | 21 1/4 | 44 | 7 | 39 1/2 | 13 3/4 | 20 3/4 | 3 1/2 | 24 | 1 1/2 | 1 | 1 1/2 |
| BBCA-114-FR | 20 3/4 | 21 1/4 | 44 | 7 | 39 1/2 | 13 3/4 | 20 3/4 | 3 1/2 | 24 | 1 1/2 | 1 | 1 1/2 |
| BBCA-115-FR | 20 3/4 | 21 1/4 | 50 | 7 | 45 1/2 | 13 3/4 | 20 3/4 | 3 1/2 | 30 | 1 1/2 | 1 | 1 1/2 |
| BBCA-116-FR | 22 | 22 | 51 | 7 | 44 3/4 | 13 7/8 | 21 1/8 | 3 1/2 | 30 | 2 | 1 1/2 | 1 1/2 |
| BBCA-117-FR | 26 | 26 | 55 | 9 | 48 3/4 | 16 | 25 3/8 | 0 | 30 | 3 | 1 1/2 | 1 1/2 |
| BBCA-118-FR | 26 | 26 | 55 | 9 | 48 3/4 | 16 | 25 3/8 | 0 | 30 | 3 | 1 1/2 | 1 1/2 |
| BBCA-119-FR | 26 | 26 | 55 | 9 | 48 3/4 | 16 | 25 3/8 | 0 | 30 | 3 | 1 1/2 | 1 1/2 |

RATING DATA

BBCA

| BOILER NUMBER | BURNER CAPACITY GPH 3 | DOE HEATING CAPACITY BTUH | SBI NET RATING WATER BTUH 1 | NET RATING WATER Sq. Ft. 2 | TANKLESS HEATER GPM 4 | CHIMNEY SIZE In. x In. x Ft. | SHIPPING WEIGHT Lbs. | DOE ANNUAL EFFICIENCY % | |
|---------------|-----------------------|---------------------------|-----------------------------|----------------------------|-----------------------|------------------------------|----------------------|-------------------------|------------------|
| | | | | | | | | LESS VENT DAMPER | WITH VENT DAMPER |
| BBCA-109 | 0.85 | 94,000 | 81,700 | 545 | 3.0 | 8 x 8 x 20 | 346 | 74.00 | 78.65 |
| BBCA-110 | 0.90 | 100,000 | 87,000 | 580 | 3.0 | 8 x 8 x 20 | 350 | 73.94 | 78.67 |
| BBCA-111 | 1.00 | 113,000 | 98,300 | 655 | 3.0 | 8 x 8 x 20 | 358 | 73.80 | 78.70 |
| BBCA-112 | 1.20 | 132,000 | 114,800 | 765 | 3.0 | 8 x 8 x 20 | 370 | 73.60 | 78.74 |
| BBCA-113 | 1.40 | 157,000 | 136,500 | 910 | 4.0 | 8 x 8 x 20 | 430 | 72.56 | 77.49 |
| BBCA-114 | 1.70 | 183,000 | 159,100 | 1061 | 5.0 | 8 x 8 x 20 | 440 | 71.93 | 76.67 |
| BBCA-115 | 1.80 | 194,000 | 168,700 | 1125 | 5.0 | 8 x 8 x 20 | 518 | 72.46 | 77.16 |

BBCA-FR

| BOILER NUMBER | BURNER CAPACITY GPH 3 | DOE HEATING CAPACITY BTUH | SBI NET RATING WATER BTUH 1 | NET RATING WATER Sq. Ft. 2 | TANKLESS HEATER GPM 4 | CHIMNEY SIZE In. x In. x Ft. | SHIPPING WEIGHT Lbs. | DOE ANNUAL EFFICIENCY % | |
|---------------|-----------------------|---------------------------|-----------------------------|----------------------------|-----------------------|------------------------------|----------------------|-------------------------|------------------|
| | | | | | | | | LESS VENT DAMPER | WITH VENT DAMPER |
| BBCA-109-FR | 0.85 | 97,000 | 84,300 | 562 | 3.0 | 8 x 8 x 20 | 346 | 78.08 | 81.70 |
| BBCA-110-FR | 0.90 | 104,000 | 90,400 | 603 | 3.0 | 8 x 8 x 20 | 350 | 77.74 | 81.53 |
| BBCA-111-FR | 1.05 | 119,000 | 103,500 | 690 | 3.0 | 8 x 8 x 20 | 358 | 77.07 | 81.19 |
| BBCA-112-FR | 1.25 | 141,000 | 122,600 | 817 | 3.0 | 8 x 8 x 20 | 370 | 76.07 | 80.68 |
| BBCA-113-FR | 1.45 | 160,000 | 139,100 | 927 | 4.0 | 8 x 8 x 20 | 430 | 75.21 | 79.80 |
| BBCA-114-FR | 1.70 | 189,000 | 164,300 | 1095 | 5.0 | 8 x 8 x 20 | 440 | 75.03 | 79.49 |
| BBCA-115-FR | 1.85 | 207,000 | 180,000 | 1200 | 5.0 | 8 x 8 x 20 | 518 | 75.27 | 79.87 |

| BOILER NUMBER | BURNER CAPACITY GPH 3 | CERTIFIED GROSS OUTPUT BTU/HR | NET RATING WATER BTUH 1 | NET RATING WATER Sq. Ft. 2 | TANKLESS HEATER GPM 4 | CHIMNEY SIZE In. x In. x Ft. | SHIPPING WEIGHT Lbs. |
|---------------|-----------------------|-------------------------------|-------------------------|----------------------------|-----------------------|------------------------------|----------------------|
| BBCA-116-FR | 2.15 | 227,000 | 197,400 | 1316 | 5.0 | 8 x 12 x 20 | 525 |
| BBCA-117-FR | 2.25 | 240,000 | 208,000 | 1391 | 5.0 | 8 x 12 x 20 | 630 |
| BBCA-118-FR | 2.70 | 290,000 | 252,000 | 1681 | 5.0 | 8 x 12 x 20 | 660 |
| BBCA-119-FR | 3.15 | 340,000 | 295,000 | 1971 | 5.0 | 8 x 12 x 20 | 690 |

BBCA Ratings are based on 10½% CO₂ and -.02" WC draft in the combustion chamber.
 BBCA-FR Ratings are based on 12½% CO₂ and -.02" WC draft in the combustion chamber.

NOTES:

- 1 Net ratings shown are based on a piping and pick-up allowance of 1.15.
- 2 Net ratings in sq. ft. based on 170°F average water temperature in radiators. For higher water temperatures, select boiler on basis of net ratings in BTU/HR. Consult the manufacturer for installations having unusual piping and pick-up requirements, such as intermittent system operation, extensive piping systems, etc.

- 3 Firing rate in GPH based on oil having a heat value of 140,000 BTU/GAL.
- 4 Tankless heater ratings based on GAL/MIN. of 100°F rise and with 200°F boiler water temperature and 40°F heater inlet temperature. (Intermittent draw).

BOILER NOT FOR INSTALLATION ON COMBUSTIBLE FLOORS.

STANDARD EQUIPMENT

Oil boiler complete with enclosing two-tone blue flush jacket • Oil burner with cad cell • Combustion chamber • Triple-acting hydronic control and Protectorelay • Theraltimeter • Taco Circulator • Thermostat • A.S.M.E. Safety relief valve • Built-in tankless heater • Designed, constructed and stamped in accordance with Section IV of the A.S.M.E. Code.

OPTIONAL EQUIPMENT

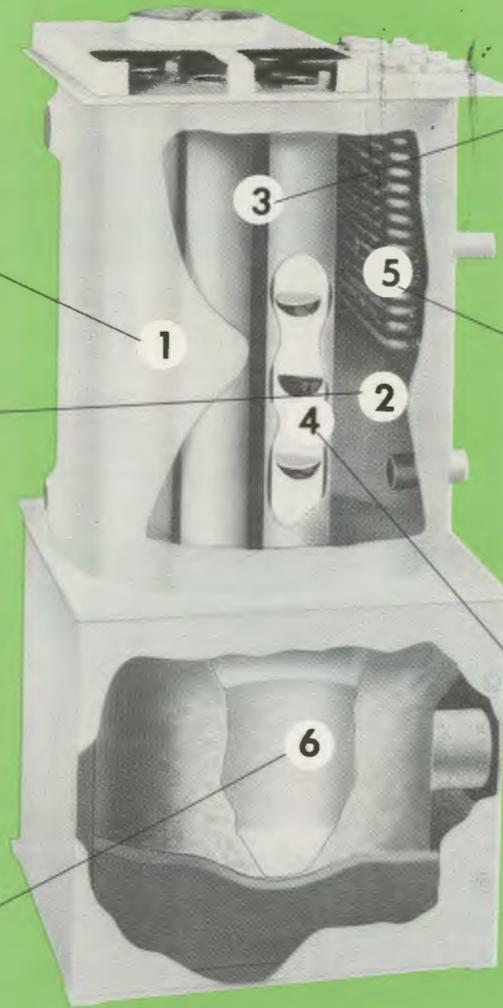
Draft Regulator • Flow-valve • #A-34A Tankless heaters (See Trade Price Sheet for details)

OUTSTANDING FEATURES

A.S.M.E. Constructed and stamped for long life.

High water volume eliminates piping changes on replacement jobs.

Large combustion area promotes heating efficiency while maintaining low base temperatures.



3" Commercial standard boiler tubes contribute to low draft loss and efficient operation under the most adverse conditions.

Built-in tankless heater for domestic hot water requirements.

Flanged turbulators designed to reduce stack temperatures and provide maximum heat transfer.

BBCA

QUIET OPERATION — A combination of the specially designed combustion chamber and standard burner provides for quiet operation at 10½% CO₂.

QUALITY CONTROLS — Equipped with controls and accessories by manufacturers you know and trust.

EASY TO INSTALL — Completely packaged, wired and assembled for quick connection to water, fuel and electrical service.

PROVEN — Over twenty years of outstanding performance in the field.

BBCA-FR

EFFICIENT — Use of most advanced burner design commercially available.

STABLE — Steady burner flame pattern offsets marginal operating conditions.

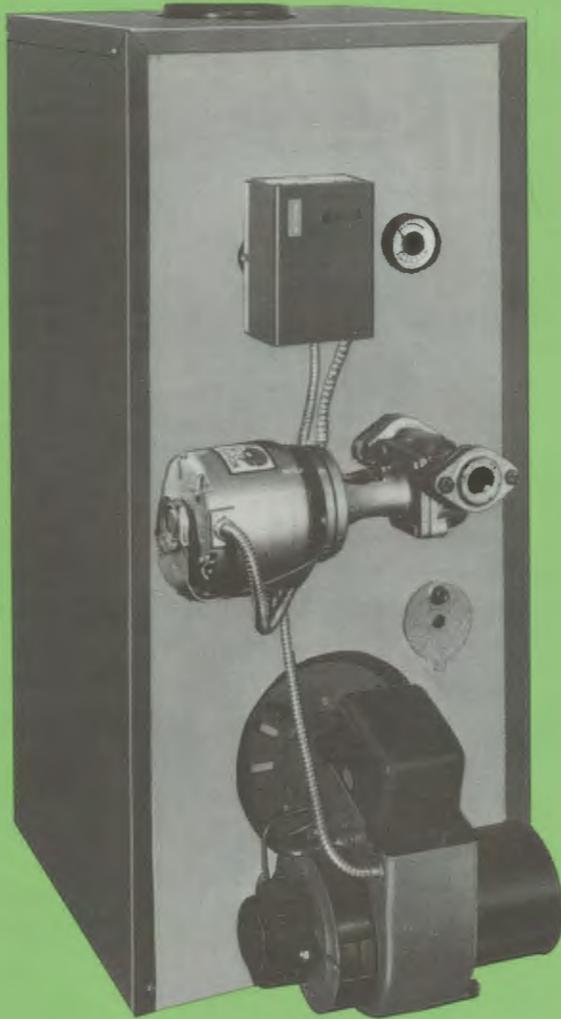
FUEL ECONOMY — 12½% CO₂ combustion adjustment yields more intense, concentrated flame temperatures and optimum efficiency for fuel economy.

RELIABILITY — Designed by Burnham Corp. — Over 100 years of hydronic experience.

BEFORE PURCHASING THIS APPLIANCE READ IMPORTANT ENERGY COST AND EFFICIENCY INFORMATION AVAILABLE FROM YOUR CONTRACTOR.

Burnham
HYDRONICS DIVISION
Lancaster, PA 17604

Form No. 4415-12-79-40Ma



HE-FR *Series*

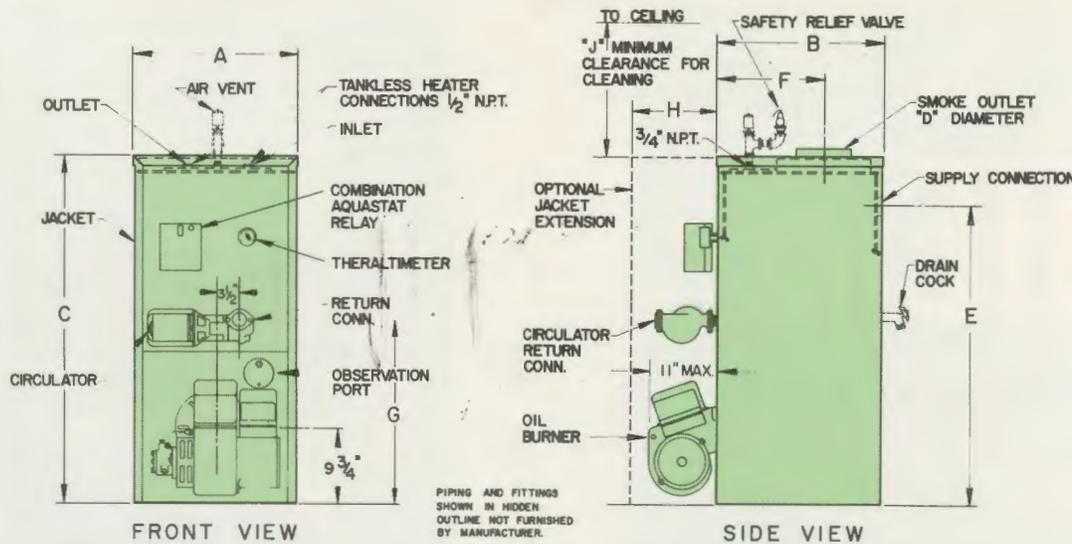
**RESIDENTIAL STEEL
OIL FIRED
HYDRONIC
PACKAGES**



FLAME RETENTION

**SEVEN MODELS
GROSS OUTPUTS:
100,000 to 318,000 BTU/HR**

 **BURNHAM
AMERICA**



Not For Installation on Combustible Flooring Unless Equipped with Special Floor Shield

| BOILER NO. | DIMENSIONS (In inches) | | | | | | | | | SUPPLY CONN. | RETURN | |
|------------|------------------------|--------|----|---|--------|--------|--------|----|----|--------------|--------|-------|
| | A | B | C | D | E | F | G | H | J | | CIR. | BLR. |
| HE-22-FR | 20 3/4 | 21 1/4 | 44 | 7 | 39 1/2 | 13 3/4 | 20 3/4 | 12 | 24 | 1 1/2 | 1 | 1 1/2 |
| HE-24-FR | 20 3/4 | 21 1/4 | 44 | 7 | 39 1/2 | 13 3/4 | 20 3/4 | 12 | 24 | 1 1/2 | 1 | 1 1/2 |
| HE-26-FR | 20 3/4 | 21 1/4 | 44 | 7 | 39 1/2 | 13 3/4 | 20 3/4 | 12 | 24 | 1 1/2 | 1 | 1 1/2 |
| HE-27-FR | 20 3/4 | 21 1/4 | 50 | 7 | 45 1/2 | 13 3/4 | 20 3/4 | 12 | 30 | 1 1/2 | 1 | 1 1/2 |
| HE-28-FR | 26 | 26 | 55 | 9 | 48 3/4 | 16 | 25 3/4 | 12 | 30 | 3 | 1 1/2 | 1 1/2 |
| HE-29-FR | 26 | 26 | 55 | 9 | 48 3/4 | 16 | 25 3/4 | 12 | 30 | 3 | 1 1/2 | 1 1/2 |
| HE-30-FR | 26 | 26 | 55 | 9 | 48 3/4 | 16 | 25 3/4 | 12 | 30 | 3 | 1 1/2 | 1 1/2 |

RATING DATA — 30 lb. W.P. (water)

| BOILER NO. | GROSS SBI OUTPUT (MBH) | NET SBI RATING (1) (MBH) | NET RATING (1) (SQ. FT. WATER) | SBI BURNER CAPACITY (2) (GPH) | BURNER WAYNE | | NOZZLE DELAVAN (3) (GPH-ANGLE-TYPE) | SBI (4) NOMINAL CHIMNEY SIZE (IN. X IN. X FT.) | TANKLESS HEATER (5) | | SHIPPING WEIGHT (LBS.) |
|------------|------------------------|--------------------------|--------------------------------|-------------------------------|--------------|-----------|-------------------------------------|--|---------------------|----------|------------------------|
| | | | | | MODEL | SPEC. NO. | | | NO. | CAPACITY | |
| HE-22-FR | 100 | 87.0 | 580 | 0.90 | MH | 132-23 | 1.00-80°-A | 8 x 8 x 20 | A-24 | 3.5 | 400 |
| HE-24-FR | 130 | 113.0 | 753 | 1.15 | MH | 132-23 | 1.10-80°-A | 8 x 8 x 20 | A-24 | 3.5 | 420 |
| HE-26-FR | 156 | 135.7 | 904 | 1.40 | MH | 132-25 | 1.35-80°-A | 8 x 8 x 20 | A-24 | 4.0 | 440 |
| HE-27-FR | 168 | 146.1 | 974 | 1.50 | MH | 132-25 | 1.50-80°-A | 8 x 8 x 20 | A-32 | 5.0 | 518 |
| HE-28-FR | 219 | 190.4 | 1269 | 1.95 | EHA | 132-35 | 2.00-80°-B | 8 x 12 x 20 | A-32 | 5.0 | 630 |
| HE-29-FR | 268 | 233.0 | 1553 | 2.40 | EHA | 132-37 | 2.50-80°-B | 8 x 12 x 20 | A-32 | 5.0 | 660 |
| HE-30-FR | 318 | 276.5 | 1843 | 2.85 | EHA | 132-37 | 3.00-80°-B | 8 x 12 x 20 | A-32 | 5.0 | 690 |

- (1) — HE Series Boiler Ratings are based on 12% CO₂. Net ratings for water square feet are based on 170°F average temperature in radiators. For higher water temperatures, select boiler on basis of I-B=R net rating, BTU/HR. Net I-B=R ratings shown are based on a piping and pick-up allowance of 1.15. Consult manufacturer for installations having unusual piping and pick-up requirements, such as intermittent system of operation, extensive piping systems, etc.
- (2) — The I-B=R Burner Capacity is based on oil having a heat value of 140,000 BTU/GAL.
- (3) — "A" Nozzles are hollow spray. "B" Nozzles are solid spray.
- (4) — Chimney sizes and heights shown are selected in accordance with the Hydronic Institute Testing and Rating Standard for cast iron and steel heating boilers. Such chimneys will produce sufficient draft under normal conditions and are based on using short, direct breeching into chimney. When necessary to use more than one elbow in breeching, five (5) feet of chimney should be added to the catalogued chimney height for each additional 90° elbow used.
- (5) — Tankless Heater Ratings are based on 40°-140° F rise with boiler temperature at 200°F—intermittent draw.

STANDARD EQUIPMENT

Oil boiler complete with enclosing flush jacket • Oil burner with cad cell • Combustion chamber • Triple-acting hydronic control and Protectorelay • Thermal altitude gauge • Circulator • Thermostat • A.S.M.E. Safety relief valve • Built-in tankless heater • Designed, constructed and stamped in accordance with Section IV of the A.S.M.E. Code.

OPTIONAL EQUIPMENT

Draft Regulator • Flow Valve • Jacket extension to conceal controls and burner • A-34 Tankless heaters (See Trade Price Sheet for details) • Combustible Floor Base (HE-22-FR thru HE-27-FR only).

RETENTION

N MODELS

S OUTPUTS:

318,000 BTU/HR

BURNHAM
AMERICA

QUALITY FEATURES



SBI RATINGS

Based on tests conducted in accordance with the Hydronic Institute's Testing and Rating Standard for Cast Iron and Steel Heating Boilers.



3" COMMERCIAL GRADE TUBING

Contributes to low draft loss and efficient operation even under adverse conditions.

1/4" STEEL PLATE

A.S.M.E. constructed and stamped. Heavy duty construction provides for long life.



EXCLUSIVE FLANGED TURBULATORS

They direct flue travel, reduce stack temperature and provide maximum efficiency.

LIGHTWEIGHT COMBUSTION CHAMBER

Provides an expanded combustion area which promotes heating efficiency while maintaining low base temperatures.



OUTSTANDING EFFICIENCY

Improved design with increased heating surface and lower draft loss resulting in thermal efficiency of over 79% and combustion efficiency of over 83%.

HE-FR

STABLE — steady burner flame pattern offsets marginal operating conditions.

RELIABLE — Certified by over 100 years of hydronic experience.

EASY TO INSTALL — Completely packaged, wired and assembled for quick connection to water, fuel, and electrical service.



BURNHAM CORPORATION
HYDRONICS DIVISION
LANCASTER, PA. 17604



HWS *Series*

**INDIRECT FIRED
PACKAGED
HOT WATER
SUPPLY
BOILER**



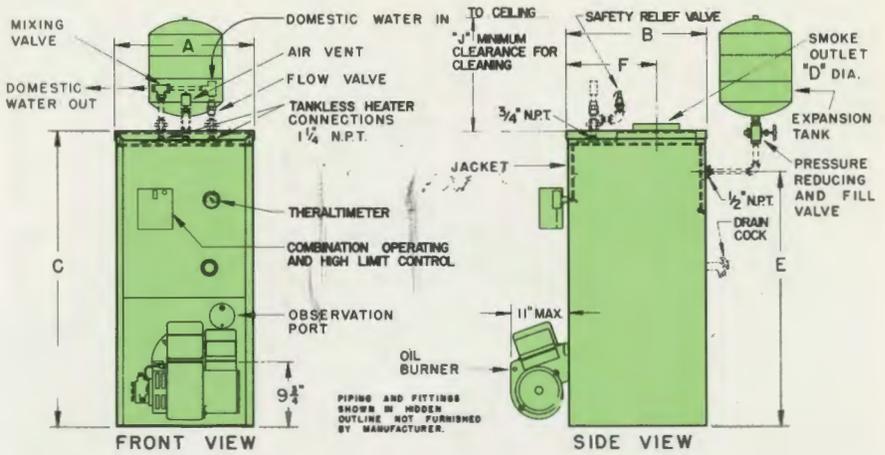
- **A.S.M.E. CONSTRUCTED
AND STAMPED**
- **PACKAGED UNITS**
- **OIL FIRED**

 **BURNHAM
AMERICA**

BURNHAM AMERICA

HWS Series

PACKAGED HOT WATER SUPPLY BOILER



DIMENSIONS (In Inches)

| BOILER NO. | A | B | C | D | E | F | J |
|------------|--------|--------|----|---|--------|--------|----|
| HWS-2-FR | 20 3/4 | 21 1/4 | 44 | 7 | 39 1/2 | 13 3/4 | 24 |
| HWS-4-FR | 20 3/4 | 21 1/4 | 44 | 7 | 39 1/2 | 13 3/4 | 24 |
| HWS-8A-FR | 26 | 26 | 55 | 9 | 48 3/4 | 16 | 30 |
| HWS-9A-FR | 26 | 26 | 55 | 9 | 48 3/4 | 16 | 30 |

RATING DATA — 30 lb. W.P.

| BOILER NO. | CERTIFIED GROSS OUTPUT BTU/HR | TANKLESS HEATER CAPACITY Gal/Hr. 100°F Rise | FIRING RATE OIL GPH | CHIMNEY SIZE In. x In. x Ft. | SHIPPING WEIGHT Lbs. | TANKLESS HEATER CAPACITY Gal/Hr. | | |
|------------|-------------------------------|---|---------------------|------------------------------|----------------------|----------------------------------|------------|------------|
| | | | | | | 75°F Rise | 100°F Rise | 125°F Rise |
| HWS-2-FR | 127,000 | 125 | 1.20 | 8 x 8 x 20 | 400 | 165 | 125 | 100 |
| HWS-4-FR | 158,000 | 150 | 1.50 | 8 x 8 x 20 | 420 | 200 | 150 | 120 |
| HWS-8A-FR | 240,000 | 235 | 2.25 | 8 x 12 x 20 | 630 | 310 | 235 | 190 |
| HWS-9A-FR | 290,000 | 300 | 2.70 | 8 x 12 x 20 | 660 | 400 | 300 | 250 |

* Tankless heater ratings are based on Gal. per hour with 40°F inlet water and 200°F boiler water temperature. (Continuous draw)

BOILER NOT FOR INSTALLATION ON COMBUSTIBLE FLOOR.



STANDARD EQUIPMENT

A.S.M.E. Code Boiler; Flush Jacket; Insulation; Combustion Chamber; Flow Valve; Draft Regulator; Flame Retention Oil Burner with R-8184-G Primary Control; Combination Operating and High Limit Aquastat; Model 110 Filtrol Expansion Tank; Thermostimeter Gauge; A.S.M.E. Safety Relief Valve; Adjustable Water Mixing Valve; heavy duty two pass Tankless Heater with float type Air Vent.

FEATURES

- Heavy duty two-pass copper tankless heater
- Constructed in accordance with A.S.M.E. Code
- Abundant-clean hot water . . . instantly, economically . . . for homes, motels, schools, laundries, restaurants and other light commercial applications
- 4 Models with capacities to heat from 125 to 300 gallons of water per hour at a temperature rise of 100 degrees
- Heavy boiler plate construction with all surfaces in water. Water contained in boiler shell provides fast, efficient heat transfer to large tankless heater
- Boiler heat transfer surfaces remain clean for long, trouble free service. Tankless heater may be cleaned or replaced, should it ever be required, at much lower cost than replacing a direct fired water heater
- Package units, ready to operate. Complete with flame retention burner, controls and combustion chamber
- Attractive baked enamel steel jacket, completely insulated.

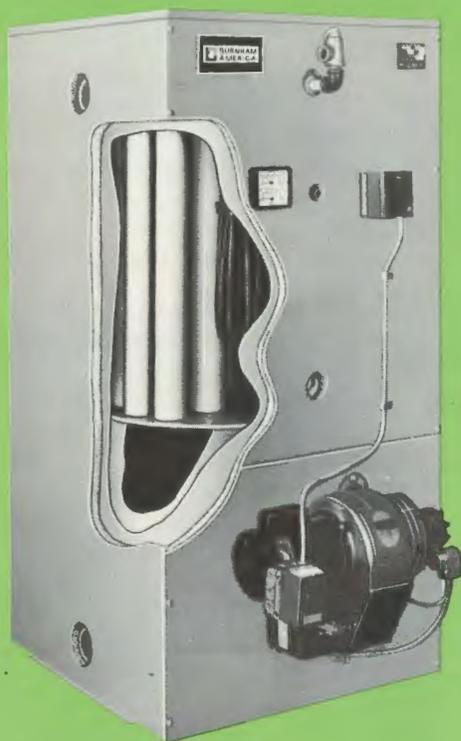
BURNHAM CORPORATION
HYDRONICS DIVISION
Lancaster, Pa. 17604

high efficiency hydronics

ED Series

**STEEL
HYDRONIC
PACKAGE**

**OIL, GAS OR COMBINATION
GAS-OIL FIRING**



**VERTICAL APPLICATIONS
ELEVEN SIZES**

GROSS OUTPUTS 250,000 to 1,512,000 BTU/HR

**HORIZONTAL APPLICATIONS
EIGHT SIZES**

GROSS OUTPUTS 396,000 to 1,512,000 BTU/HR

FEATURES

- Forced Draft • A.S.M.E. constructed and stamped
- Pressure sealed—wet leg refractory base • Domestic water coils available
- No chimney required (vent only) • Ideal for use as hot water supply boiler



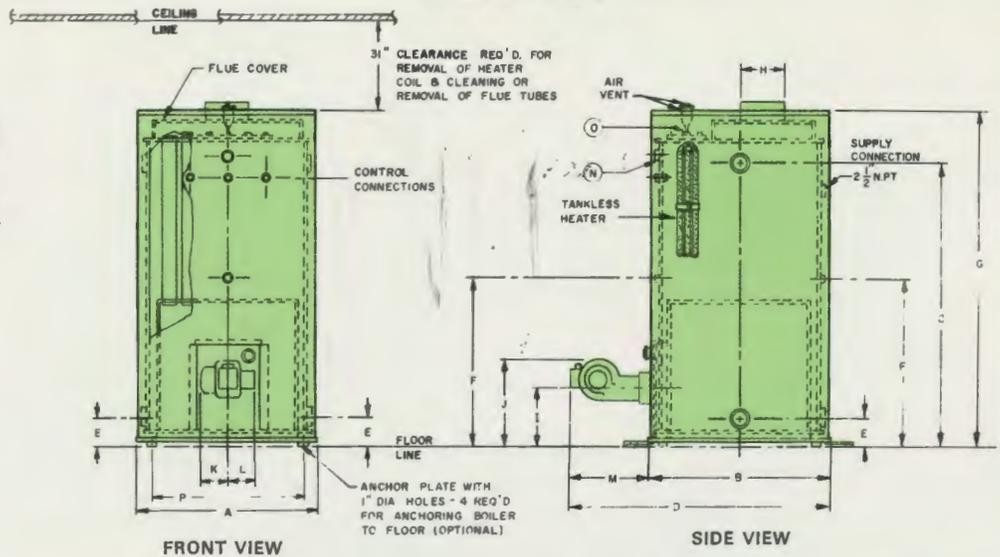
**BURNHAM
AMERICA**

VERTICAL

**BURNHAM
AMERICA**

**FD
Series**

STEEL BOILERS



DIMENSIONS (In Inches) CAUTION: THIS BOILER IS NOT FOR INSTALLATION ON COMBUSTIBLE FLOORS.

| BOILER MODEL NO. | FD | 7 | 9 | 10 | 12 | 14 | 15 | 19 | 24 | 30 | 38 | 45 |
|---|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| A Boiler Width | | 28 | 28 | 28 | 32 | 32 | 32 | 35 | 38 | 44½ | 48 | 48 |
| B Boiler Depth | | 28 | 28 | 28 | 32 | 32 | 32 | 35 | 38 | 44½ | 48 | 48 |
| C Supply Connection Height (2)* | | 50 | 50 | 56 | 56 | 56 | 56 | 61¼ | 61¼ | 65½ | 71¾ | 71¾ |
| D Overall Boiler-Burner Length | Oil | 40 | 40 | 40 | 44½ | 44½ | 44½ | 47 | 51½ | 57¾ | 69½ | 69½ |
| | Gas | N/A | N/A | N/A | 50½ | 50½ | 50½ | 53½ | 56½ | 63 | 66½ | 66½ |
| | Gas/Oil | N/A | N/A | N/A | 54 | 54 | 54 | 57 | 60 | 66½ | 70 | 70 |
| E Return Connection Height (3)* | | 5½ | 5½ | 5½ | 5½ | 5½ | 5½ | 5½ | 5½ | 5½ | 5½ | 5½ |
| F 1½" N.P.T. Inspection (2) | | 31½ | 31½ | 31½ | 28½ | 28½ | 28½ | 34¼ | 33¼ | 38 | 44 | 44 |
| G Boiler Height | | 57½ | 57½ | 63¼ | 64 | 64 | 64 | 69 | 70 | 74 | 80 | 80 |
| H Flue Vent Diameter | | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 9 | 10 | 10 | 12 |
| I Boiler Tube Height | | 12¼ | 12¼ | 12¼ | 12 | 12 | 12 | 12 | 12 | 12 | 16¼ | 16¼ |
| J Overall Burner Height | Oil | 18½ | 18½ | 18½ | 21 | 21 | 21 | 21 | 23 | 23 | 27½ | 27½ |
| | Gas | N/A | N/A | N/A | 22½ | 22½ | 22½ | 22½ | 22½ | 24 | 28¼ | 28¼ |
| | Gas/Oil | N/A | N/A | N/A | 24 | 24 | 24 | 24 | 24 | 24 | 28¼ | 28¼ |
| K Burner Width—Left Side | | 8¾ | 8¾ | 8¾ | 12 | 12 | 12 | 12 | 12 | 12 | 13 | 13 |
| L Burner Width—Right Side | | 8 | 8 | 8 | 12 | 12 | 12 | 12 | 13 | 13 | 13 | 13 |
| M Overall Burner Length | Oil | 12 | 12 | 12 | 12¼ | 12¼ | 12¼ | 12¼ | 13¼ | 13¼ | 21¼ | 21¼ |
| | Gas | N/A | N/A | N/A | 18½ | 18½ | 18½ | 18½ | 18½ | 18½ | 18½ | 18½ |
| | Gas/Oil | N/A | N/A | N/A | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 |
| N Safety Relief Valve Connections (FPT) | | ¾ | ¾ | ¾ | ¾ | ¾ | ¾ | ¾ | ¾ | 1 | 1 | 1¼ |
| O Tankless Heater Connections—Pipe Size (MPT) | | ¾ | ¾ | ¾ | 1¼ | 1¼ | 1¼ | 2 | 2 | 2 | 2 | 2 |

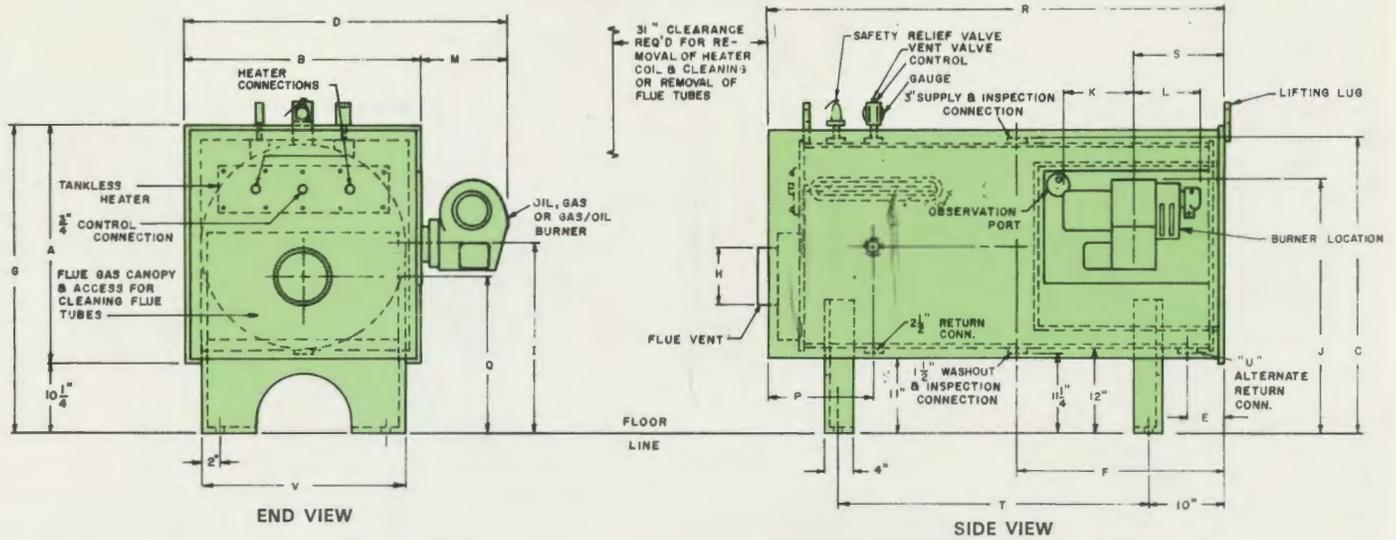
RATING DATA

| | | | | | | | | | | | |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Gross Output—M.B.H. | 250 | 300 | 350 | 396 | 453 | 504 | 648 | 792 | 1,008 | 1,260 | 1,512 |
| Gross Output—B.H.P. | 7 | 9 | 10 | 12 | 14 | 15 | 19 | 24 | 30 | 38 | 45 |
| Gross Output—Water Sq. Ft. | 1,667 | 2,000 | 2,333 | 2,640 | 3,020 | 3,360 | 4,320 | 5,280 | 6,720 | 8,400 | 10,080 |
| Net Rating—Water M.B.H.** | 217 | 260 | 304 | 344 | 394 | 438 | 563 | 689 | 877 | 1,096 | 1,315 |
| Net Rating—Water Sq. Ft. | 1,447 | 1,733 | 2,027 | 2,295 | 2,626 | 2,906 | 3,753 | 4,593 | 5,846 | 7,306 | 8,766 |
| Firing Rate—No. 2 Oil G.P.H. (140,000 Btu/Gal.) | 2.30 | 2.75 | 3.10 | 4.0 | 4.5 | 5.0 | 6.0 | 7.5 | 9.5 | 12.0 | 14.0 |
| Firing Rate—Gas M.B.H. | N/A | N/A | N/A | 528 | 604 | 672 | 864 | 1,056 | 1,344 | 1,680 | 2,015 |
| Max. Tankless Heater Capacity G.P.M. (Based on 40°F to 140°F rise with boiler water at 200°F continuous draw). | 5 | 6 | 7 | 8 | 9 | 10 | 12 | 16 | 20 | 24 | 28 |
| Water Content of Boiler—Gal. | 47 | 44 | 52 | 83 | 80 | 77 | 93 | 112 | 155 | 194.5 | 183.2 |
| O.D. of Tubes—12 Ga. (Equipped with Turbulators) | 3" | 3" | 3" | 3" | 3" | 3" | 3" | 3" | 3" | 3" | 3" |
| Maximum Allowable Working Pressure (P.S.I. Water) | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 |

*2½" N.P.T. for models FD-12 through FD-19. 3" N.P.T. for models FD-24 through FD-45. ** Net ratings shown are based on a piping and pickup allowance of 1.15

For forced hot water heating systems where the boiler and all the piping are within the area to be heated, the boiler may be selected on the basis of its gross output.

HORIZONTAL



DIMENSIONS (In Inches)

NOTE: STANDARD BURNER LOCATION "LEFT" (SHOWN), OPTIONAL BURNER LOCATION "RIGHT."

| BOILER MODEL NO. | FD | 12-H | 14-H | 15-H | 19-H | 24-H | 30-H | 38-H | 45-H |
|--|---------|---------|---------|---------|--------|--------|--------|--------|---------|
| A Boiler Shell Height (Jacketed) | | 32 | 32 | 32 | 35 | 38 | 44½ | 48 | 48 |
| B Boiler Shell Width (Jacketed) | | 32 | 32 | 32 | 35 | 38 | 44½ | 48 | 48 |
| C Supply Connection Height | | 40¾ | 40¾ | 40¾ | 43¾ | 46¾ | 52¾ | 57 | 57 |
| D Overall Boiler-Burner Width | Oil | 44¾ | 44¾ | 44¾ | 47 | 51¼ | 57¾ | 69¼ | 69¼ |
| | Gas | 50½ | 50½ | 50½ | 53½ | 56½ | 63 | 66½ | 66½ |
| | Gas/Oil | 54 | 54 | 54 | 57 | 60 | 66½ | 70 | 70 |
| E Center of Alternate Return Conn. from End of Boiler | | 4¼ | 4¼ | 4¼ | 4¼ | 4¼ | 4¼ | 4¾ | 4¾ |
| F Center of Supply and Washout Conn. from End of Boiler | | 27½ | 27½ | 27½ | 33¾ | 32¾ | 36¾ | 42⅞ | 42⅞ |
| G Overall Boiler Height | | 42¼ | 42¼ | 42¼ | 45¼ | 48¼ | 54¾ | 58¼ | 58¼ |
| H Flue Vent Diameter | | 8 | 8 | 8 | 8 | 9 | 10 | 10 | 12 |
| I Burner Tube Height | | 26 | 26 | 26 | 27½ | 29 | 32 | 34⅞ | 34⅞ |
| J Overall Burner Height | Oil | 35 | 35 | 35 | 36½ | 40 | 43 | 44⅞ | 44⅞ |
| | Gas | 36½ | 36½ | 36½ | 38 | 39½ | 44 | 46⅞ | 46⅞ |
| | Gas/Oil | 38 | 38 | 38 | 39½ | 41 | 44 | 46⅞ | 46⅞ |
| K Burner Width—Left Side | | 12 | 12 | 12 | 12 | 12 | 12 | 13 | 13 |
| L Burner Width—Right Side | | 12 | 12 | 12 | 12 | 13 | 13 | 13 | 13 |
| M Overall Burner Length | Oil | 12¾ | 12¾ | 12¾ | 12¾ | 13¼ | 13¼ | 21¼ | 21¼ |
| | Gas | 18½ | 18½ | 18½ | 18½ | 18½ | 18½ | 18½ | 18½ |
| | Gas/Oil | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 |
| N Safety Relief Valve Connection Sizes | | ¾" FPT | ¾" FPT | ¾" FPT | ¾" FPT | ¾" FPT | 1" FPT | 1" FPT | 1¼" FPT |
| O Tankless Heater Connections—Pipe Size | | 1¼" MPT | 1¼" MPT | 1¼" MPT | 2" MPT | 2" MPT | 2" MPT | 2" MPT | 2" MPT |
| P Center of Return & Inspection Conn. from End of Boiler | | 15 | 15 | 15 | 15 | 15¾ | 15¾ | 18⅞ | 18⅞ |
| Q Flue Outlet Height | | 22⅞ | 22⅞ | 22⅞ | 24⅞ | 24¾ | 27½ | 30⅞ | 30⅞ |
| R Overall Length of Boiler | | 63 | 63 | 63 | 68 | 69 | 73 | 79 | 79 |
| S Burner Tube Opening From End of Boiler | | 11¼ | 11¼ | 11¼ | 11¼ | 11¼ | 11¼ | 16 | 16 |
| T Distance Between Legs (Center to Center) | | 44 | 44 | 44 | 49 | 49¼ | 53¼ | 59⅞ | 59⅞ |
| U Alternate Return Connection | | 2½ | 2½ | 2½ | 2½ | 3 | 3 | 3 | 3 |
| V Width of Support Legs | | 28 | 28 | 28 | 31 | 34 | 40 | 44¼ | 44¼ |

RATING DATA

| | | | | | | | | |
|---|-------|-------|-------|-------|-------|-------|-------|--------|
| Gross Output—M.B.H. | 396 | 453 | 504 | 648 | 792 | 1,008 | 1,260 | 1,512 |
| Gross Output—B.H.P. | 12 | 14 | 15 | 19 | 24 | 30 | 38 | 45 |
| Gross Output—Water Sq. Ft. | 2,640 | 3,020 | 3,360 | 4,320 | 5,280 | 6,720 | 8,400 | 10,080 |
| Net Rating—Water M.B.H.* | 344 | 394 | 438 | 563 | 689 | 877 | 1,096 | 1,315 |
| Net Rating—Water Sq. Ft. | 2,295 | 2,626 | 2,906 | 3,753 | 4,593 | 5,846 | 7,306 | 8,766 |
| Firing Rate—No. 2 Oil G.P.H. (140,000 Btu/Gal.) | 4.0 | 4.5 | 5.0 | 6.0 | 7.5 | 9.5 | 12.0 | 14.0 |
| Firing Rate—Gas M.B.H. | 528 | 604 | 672 | 864 | 1,056 | 1,344 | 1,680 | 2,015 |
| Max. Tankless Heater Capacity G.P.M. (Based on 40°F to 140°F rise with boiler water at 200°F (continuous draw). | 8 | 9 | 10 | 12 | 16 | 20 | 24 | 28 |
| Water Content of Boiler—Gal. | 83 | 80 | 77 | 93 | 112 | 155 | 194.5 | 183.2 |
| O.D. of Tubes—12 Ga. (Equipped with Turbulators) | 3" | 3" | 3" | 3" | 3" | 3" | 3" | 3" |
| Maximum Allowable Working Pressure (P.S.I. Water) | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 |

*Net ratings shown are based on a piping and pickup allowance of 1.15.

For forced hot water heating systems where the boiler and all the piping are within the area to be heated, the boiler may be selected on the basis of its gross output.



FOR CAR WASHES

ADDED FEATURE

USE OUR ^{FD series} STEEL BOILER AS AN INDIRECT HOT WATER SUPPLY BOILER

You can get from 300 to 1,680 gallons of hot water per hour for any of the applications illustrated or for other unique operations such as cement mixing operations and dry cleaning establishments. This boiler can also supply the domestic hot water requirements of motels, hotels or apartment houses, along with their heating needs.

For continuous hot water supply just install the boiler as it is or if control of both flow and temperature is required simply add a mixing valve or temperature regulator along with a flow regulator.



FOR LAUNDRIES



FOR COMMERCIAL SWIMMING POOLS



FOR RESTAURANTS

STANDARD EQUIPMENT

FORCED DRAFT VERTICAL OR HORIZONTAL TUBE TYPE STEEL BOILER—A.S.M.E. constructed and stamped; heavy gauge insulated steel flush jacket; thermostat; A.S.M.E. safety relief valve; L-4081-A high limit and operating aquastat with or without tankless heater. M & M #764 low water cut off 10 h.p. and up.

OIL FIRING—Flange mounted forced draft oil burner for #2 fuel oil; burner mounted two-stage fuel pump; ignition transformer; oil valve; cad cell and Protectorelay.

GAS FIRING—Flange mounted inshot type forced draft burner for all gases; ignition transformer; flame rod sensor; air flow safety switch; flame safeguard control; gas valve & gas pressure regulator.

OIL/GAS COMBINED FIRING—Gordon & Piatt Gas/Oil forced draft burner; ignition transformer; ultra violet flame sensor; air flow safety switch; R-4795-A relay; dual gas valves; gas pressure regulator and manually operated fuel switch for fuel change-over.

HOT WATER SUPPLY RATINGS

| BOILER MODEL NUMBER | *GALLONS PER HOUR BASED ON 100°F RISE | PRESSURE DROP P.S.I. AT FLOW RATE FOR 100°F RISE |
|---------------------|---------------------------------------|--|
| FD-7 | 300 | 10.5 |
| FD-9 | 360 | 15.3 |
| FD-10 | 420 | 20.8 |
| FD-12 | 480 | 19.2 |
| FD-14 | 540 | 27.0 |
| FD-15 | 600 | 11.0 |
| FD-19 | 720 | 18.8 |
| FD-24 | 960 | 8.5 |
| FD-30 | 1200 | 2.9 |
| FD-38 | 1440 | 2.9 |
| FD-45 | 1680 | 6.3 |

* Based on continuous draw with 40°F inlet water
Contact "Application Engineering" for inlet temperatures in excess of 70°F, or if a temperature rise other than 100°F is desired. If pressure drops are found to be excessive, heaters can be oversized.

BURNHAM CORPORATION
HYDRONICS DIVISION
Lancaster, Pa. 17604

high efficiency hydronics

GA *Series*

**STEEL
GAS-FIRED
HYDRONIC
PACKAGE**



NATURAL OR LP GAS

- Large Water Capacity
- Slide out Burner Tray
- High Heater Rating
- Easily Converted — Natural to LP gas or vice versa

Four Sizes

Gross Outputs — 84,000 to 168,000 BTU/HR



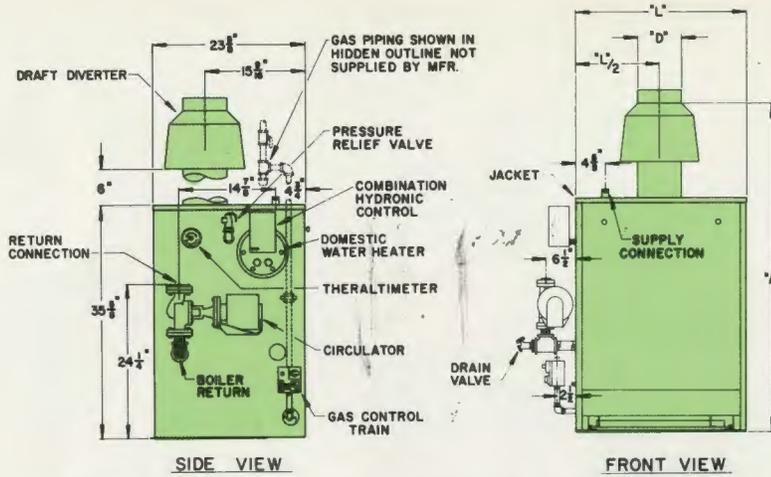
BURNHAM AMERICA



GA Series

STEEL GAS-FIRED HYDRONIC PACKAGE

DIMENSIONS (In Inches)



SIDE VIEW

FRONT VIEW

FULLY APPROVED FOR ALCOVE (3 SIDES ENCLOSURE) INSTALLATION

| Boiler Model | Dim. "A" | Dim. "D" | Dim. "L" | Dim. "L"/2 | Return Conn. | | Supply Conn. | Gas Conn. for Combination Gas Valve |
|--------------|--------------------------------|----------|--------------------------------|---------------------------------|--------------|-------------------------------|-------------------------------|-------------------------------------|
| | | | | | Cir. | Blr. | | |
| 105-GA | 48 ³ / ₈ | 5 | 16 ¹ / ₈ | 8 ¹ / ₁₆ | 1 | 1 ¹ / ₂ | 1 ¹ / ₂ | 1/2 |
| 140-GA | 49 ¹ / ₈ | 6 | 19 ⁵ / ₈ | 9 ¹³ / ₁₆ | 1 | 1 ¹ / ₂ | 1 ¹ / ₂ | 1/2 |
| 175-GA | 50 ³ / ₈ | 7 | 23 ¹ / ₈ | 11 ⁷ / ₁₆ | 1 | 1 ¹ / ₂ | 1 ¹ / ₂ | 1/2 |
| 210-GA | 50 ³ / ₈ | 7 | 26 ⁵ / ₈ | 13 ³ / ₁₆ | 1 | 1 ¹ / ₂ | 1 ¹ / ₂ | 1/2 |

RATING DATA — 30 lbs. W.P. (water)

| Boiler No. ▲ | *** A. G. A. Ratings | | * S. B. I. Net Water Rating BTU/Hr. | ** Net Rating Water Sq. Ft. | † Recommended Chimney Size | | †† Tankless Water Heater Rating Intermittent GPM | |
|------------------------|----------------------|----------------------|-------------------------------------|-----------------------------|----------------------------|------------------------|--|------|
| | Input BTU/Hr. | Gross Output BTU/Hr. | | | Round In. Dia. x Ht. Ft. | Square In. x In. x Ft. | | |
| NATURAL OR PROPANE GAS | 105-GA | 105,000 | 84,000 | 73,000 | 485 | 5x15 | 8x8x15 | 2.75 |
| | 140-GA | 140,000 | 112,000 | 97,400 | 650 | 6x15 | 8x8x15 | 3.50 |
| | 175-GA | 175,000 | 140,000 | 121,700 | 810 | 7x15 | 8x8x15 | 4.00 |
| | 210-GA | 210,000 | 168,000 | 146,100 | 975 | 7x15 | 8x8x15 | 4.50 |

* Net SBI ratings shown are based on normal SBI piping and pick-up allowance of 1.15. Consult the manufacturer for installations having unusual piping and pick-up requirements such as intermittent system of operation, extensive piping systems, and so forth.

** Net rating water sq. ft. based on 170°F average water temperature in radiators (heat emission rate of 150 BTU/Hr. per sq. ft.). For higher water temperatures select boiler or basis of net rating in BTU/Hr.

*** AGA ratings shown are for installations at sea level and elevations up to 2,000 ft. For elevations above 2,000 ft. ratings should be reduced at the rate of 4% for each 1,000 ft. above sea level.

▲ Use prefix "PH" for boiler with heater.
Use prefix "P" for boiler less heater.

† Recommended chimneys based on year-around use with breaching of 6 ft. length and with not more than one elbow. Chimney height is measured from installation floor level to the top of chimney. Flue size is based on nominal size of unlined chimney. Flues lined with largest flue liner which will fit within these dimensions are construed to have the same equivalent effective flue area. Boilers equipped with an individual vertical vent riser of the same size as flue outlet on draft diverter should not be less than 5 ft. height as measured from the top of draft diverter. For other chimney and breaching recommendations consult the manufacturer.

†† Intermittent water heater rating based on GPM of 40 to 140°F rise with 200°F boiler water temperature.

STANDARD EQUIPMENT

All units for natural and propane gas are factory assembled and wired — shipped in a skid bottom crate necessitating only hookup to water system piping, fuel, chimney and electrical service. All units are equipped with flush jacket in two-tone Blue.

Steel gas burners installed on a base slide burner tray • Combination Gas Valve • Combination Water Temperature Control with Transformer and Circulator Relay • Theraltimeter • Circulator • Drain Cock • ASME Safety Relief Valve • Safety Pilot — 100% Shutoff • Vertical Draft Diverter • Room Thermostat

OPTIONAL EQUIPMENT

Tankless Water Heater • Sub-base for Combustible Floor Installations

CONTROL SETS

Standard—Intermittent circulator operation with and without tankless coil

Optional—Constant circulator operation without tankless coil

GAS TRAIN

Standard— 24V Optional— Millivolt



high efficiency hydronics

BASE-RAY

THE ORIGINAL
CAST-IRON
BASEBOARD



FRONT VIEW



REAR VIEW

RADIANT HYDRONIC HEATING AT ITS BEST



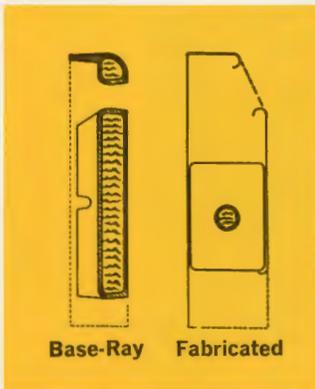
**BURNHAM
AMERICA**



**BURNHAM
AMERICA**

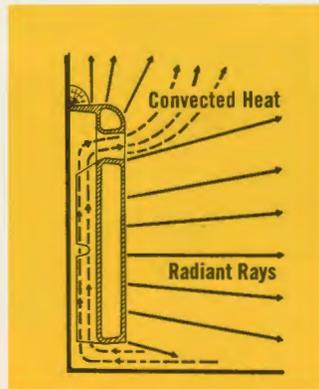
BASE-RAY

**ONLY CAST-IRON HYDRONIC HEATING WITH BASE-RAY
CAN GIVE YOU ALL THESE IMPORTANT ADVANTAGES**



CONSTANT COMFORT

BASE-RAY is filled with heated water from top to bottom. It cools slowly, providing comfort long after the boiler has shut down... not "all on" or "all off." That's why BASE-RAY provides the most balanced heating available. Fabricated sheet metal baseboards hold only a small volume of water and temperatures reduce quickly when the boiler shuts down.



**TWICE THE SUNNY
RADIANT HEAT**

BASE-RAY's warm "live" front emits more than twice as much radiant heat as fabricated sheet metal baseboards. There's no sheet metal front to block the radiant rays.



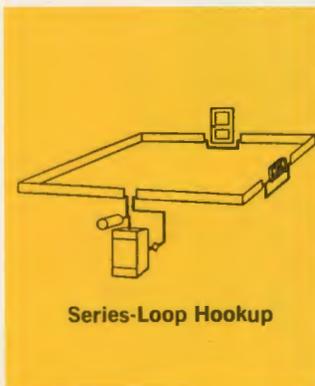
**CAN'T DENT,
LASTS A LIFETIME**

BASE-RAY is of one-piece cast-iron construction... even the fins are a permanent part of the casting. Can't dent, rattle or come apart like fabricated sheet metal baseboards which are assemblies of many parts. And cast iron is corrosion-resistant—it is called "the life-time metal."



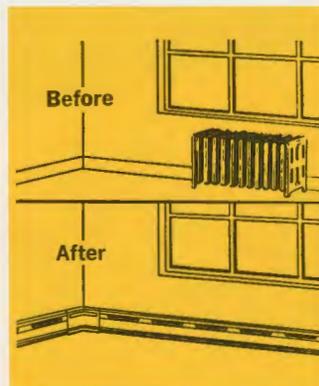
QUIET HEAT

Because BASE-RAY is 100% cast iron, it is quiet in operation. Fabricated sheet metal baseboards have different metals with varying expansion rates which cause expansion cracks and groans. No "pings" either.



**CUT INSTALLATION COST
ALMOST IN HALF**

BASE-RAY can serve as part of the main, saving substantially on pipe, fittings and labor. The series-loop system makes no compromise with quality. Ideal for ranch-type homes. Series-loop systems can also make large savings in two-story or split level homes with two or three loops.



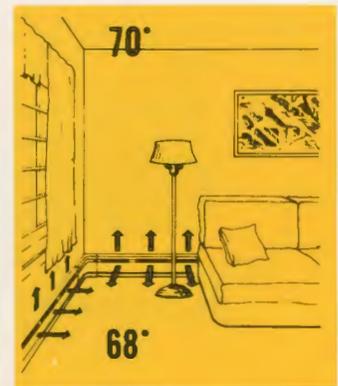
IDEAL FOR MODERNIZATION

In remodeling where old-fashioned radiators are installed, BASE-RAY can be installed one room at a time. What's more, no expensive piping alterations are necessary, whether you remodel one room or the whole house!



**COMFORT AND HEALTH IN
THE "CHILD ZONE"**

BASE-RAY radiant rays comfortably warm the floor level—the child zone—with healthful radiant sunshine warmth. You never have cold drafty floors—the result of heating systems that depend on convected heat.

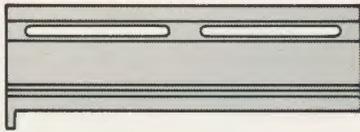


EVEN HEAT

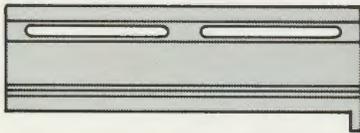
The design and construction of Base-Ray provides for both horizontal and vertical heat emission. This insures the luxuriously even room heating that has made Base-Ray so desirable. Actual tests have confirmed a maximum floor-to-ceiling temperature variation of less than 2° in Base-Ray heated rooms.

ASSEMBLY CHART

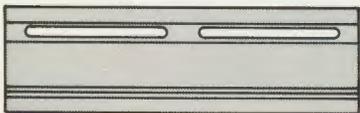
BASE-RAY Assemblies up to and including 6 lineal ft. are shipped in one piece. Longer Assemblies are shipped in two or more pieces or sub-assemblies, none of which exceeds 6 lineal ft.



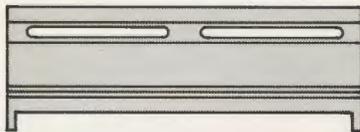
LEFT END SECTIONS
18" or 24"



RIGHT END SECTIONS
12" or 24"



INTERMEDIATE SECTIONS
24"



PANEL
18" or 24"

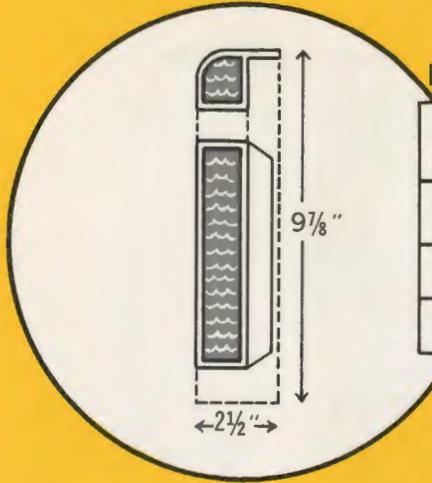
SUB-ASSEMBLY CHART

| ASSEMBLY LENGTH | L. H. | CENTER | R. H. |
|-----------------|--------|---------|-------|
| 6½ Ft. | 5½ Ft. | — | 1 Ft. |
| 7 Ft. | 6 Ft. | — | 1 Ft. |
| 7½ Ft. | 5½ Ft. | — | 2 Ft. |
| 8 Ft. | 6 Ft. | — | 2 Ft. |
| 8½ Ft. | 5½ Ft. | — | 3 Ft. |
| 9 Ft. | 6 Ft. | — | 3 Ft. |
| 9½ Ft. | 5½ Ft. | — | 4 Ft. |
| 10 Ft. | 6 Ft. | — | 4 Ft. |
| 10½ Ft. | 5½ Ft. | — | 5 Ft. |
| 11 Ft. | 6 Ft. | — | 5 Ft. |
| 11½ Ft. | 5½ Ft. | — | 6 Ft. |
| 12 Ft. | 6 Ft. | — | 6 Ft. |
| 12½ Ft. | 5½ Ft. | 6 Ft. | 1 Ft. |
| 13 Ft. | 6 Ft. | 6 Ft. | 1 Ft. |
| 13½ Ft. | 5½ Ft. | 6 Ft. | 2 Ft. |
| 14 Ft. | 6 Ft. | 6 Ft. | 2 Ft. |
| 14½ Ft. | 5½ Ft. | 6 Ft. | 3 Ft. |
| 15 Ft. | 6 Ft. | 6 Ft. | 3 Ft. |
| 15½ Ft. | 5½ Ft. | 6 Ft. | 4 Ft. |
| 16 Ft. | 6 Ft. | 6 Ft. | 4 Ft. |
| 16½ Ft. | 5½ Ft. | 6 Ft. | 5 Ft. |
| 17 Ft. | 6 Ft. | 6 Ft. | 5 Ft. |
| 17½ Ft. | 5½ Ft. | 6 Ft. | 6 Ft. |
| 18 Ft. | 6 Ft. | 6 Ft. | 6 Ft. |
| 18½ Ft. | 5½ Ft. | 2-6 Ft. | 1 Ft. |
| 19 Ft. | 6 Ft. | 2-6 Ft. | 1 Ft. |
| 19½ Ft. | 5½ Ft. | 2-6 Ft. | 2 Ft. |
| 20 Ft. | 6 Ft. | 2-6 Ft. | 2 Ft. |
| 20½ Ft. | 5½ Ft. | 2-6 Ft. | 3 Ft. |
| 21 Ft. | 6 Ft. | 2-6 Ft. | 3 Ft. |
| 21½ Ft. | 5½ Ft. | 2-6 Ft. | 4 Ft. |
| 22 Ft. | 6 Ft. | 2-6 Ft. | 4 Ft. |
| 22½ Ft. | 5½ Ft. | 2-6 Ft. | 5 Ft. |
| 23 Ft. | 6 Ft. | 2-6 Ft. | 5 Ft. |
| 23½ Ft. | 5½ Ft. | 2-6 Ft. | 6 Ft. |
| 24 Ft. | 6 Ft. | 2-6 Ft. | 6 Ft. |

ASSEMBLIES AND SUB-ASSEMBLIES ARE MADE UP OF FOLLOWING SECTIONS

| ASSEMBLIES | 18" Left End | 24" Left End | 24" Int. | 24" Right End | 12" Right End | 18" Panel | 24" Panel |
|---------------------------|--------------|--------------|-----------------|---------------|---------------|-----------|-----------|
| 1½ Ft. Assembly | — | — | — | — | — | 1 | — |
| 2 Ft. Assembly | — | — | — | — | — | — | 1 |
| 2½ Ft. Assembly | 1 | — | — | — | 1 | — | — |
| 3 Ft. Assembly | — | 1 | — | — | 1 | — | — |
| 3½ Ft. Assembly | 1 | — | — | 1 | — | — | — |
| 4 Ft. Assembly | — | 1 | — | 1 | — | — | — |
| 4½ Ft. Assembly | 1 | — | 1 | — | 1 | — | — |
| 5 Ft. Assembly | — | 1 | 1 | — | 1 | — | — |
| 5½ Ft. Assembly | 1 | — | 1 | 1 | — | — | — |
| 6 Ft. Assembly | — | 1 | 1 | 1 | — | — | — |
| SUB-ASSEMBLIES | | | | | | | |
| 5½ Ft. L.H. Sub-Assembly | 1 | — | 2 | — | — | — | — |
| 6 Ft. L.H. Sub-Assembly | — | 1 | 2 | — | — | — | — |
| 6 Ft. Center Sub-Assembly | — | — | 3 | — | — | — | — |
| All R.H. Sub-Assemblies | — | — | Required Number | 1 or 1 | — | — | — |

RADIANT HYDRONIC HEATING AT ITS BEST



RATING DATA / I=B=R STEAM AND HOT WATER RATINGS

| FLOW RATE | STEAM RATING | | * WATER RATINGS BTUH Per Lineal Foot At Average Water Temperatures Indicated | | | | | | |
|-----------|--------------|---------------------|--|-------|-------|-------|-------|-------|-------|
| | | | 170°F | 180°F | 190°F | 200°F | 210°F | 220°F | 230°F |
| Lbs./Hr. | Sq. Ft. | BTU/Hr. At 215°F | | | | | | | |
| 2000 | 3.40 | 820 | 550 | 620 | 690 | 750 | 810 | 880 | 940 |
| 500 | 3.40 | 820 | 520 | 590 | 650 | 710 | 770 | 830 | 890 |

NOTES:

1. The Hot Water Ratings at 2000 lb. flow rate are limited to installations where the water flow rate through the Base-Ray is equal to or greater than 2000 lbs. per hour (4 GPM).
 2. Where the water flow rate through the Base-Ray is not known, the rating at the standard flow rate of 500 lbs. (1 GPM) per hour must be used.
 3. When Base-Ray is equipped with damper, there is no change in the rating when damper is in the open position.
 4. Add 1/2" to length for each bushing.
 5. I=B=R Ratings are determined from tests made in accordance with the I=B=R Testing and Rating Code for baseboard type radiation, including an allowance of 15% for heating effect permitted by the Code.
 6. Ratings based on active length. Active length same as total length.
 7. Maximum allowable working pressure — 30 PSI.
- *For ratings and temperatures lower than those listed refer to installation manual.*

FRONT VIEW

The low trim lines of BASE-RAY blend into a decorative scheme. It's as inconspicuous as floor molding and can be painted to match the color of your walls.



REAR VIEW

For high efficiency and maximum output, fins are cast as an integral part of the BASE-RAY unit. Your guarantee of outstanding performance.




BURNHAM CORPORATION
 HYDRONICS DIVISION
 Lancaster, Pa. 17604

high efficiency hydronics

Radiators



QUALITY FEATURES

- Provides natural, gentle uniform heat.
- No cold zones at windows and outside walls.
- No hot spots from forced circulation of heat.
- Clean heat.
- Durable cast iron lasts for life of the house.
- Heat retaining ... holds heat. No "all off" or "all on" periods.
- Ideal for remodeling or modernization. No ducts to install.

**RADIANT and
SLENDERIZED**

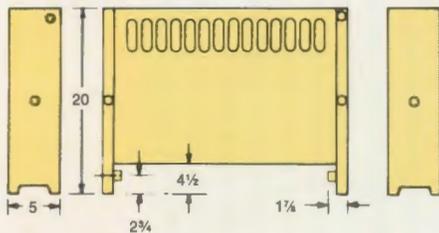
 **Burnham**
AMERICA'S BOILER COMPANY

RADIANT

IMPORTANT

When recessed, add 10% to room requirements before selecting size radiator.

DIMENSIONS



All Air Vent Tappings 1/8".

All Bottom Tappings 1-1/4". Wall Type Top Tappings 1".

Recess should be 1/2" longer and 1/4" higher than radiator.

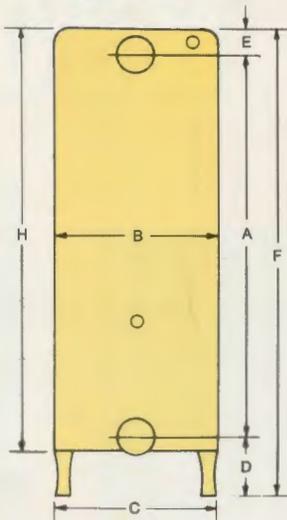
| RATINGS | | |
|-------------------------|-----------------------------------|---|
| SIZE No. of Sections | LENGTH 2 1/4" PER SECTION † | FREE STANDING *Square Feet per section 2.25 |
| 4 | 9" | 9.0 |
| 6 | 13 1/2" | 13.5 |
| 8 | 18" | 18.0 |
| 10 | 22 1/2" | 22.5 |
| 12 | 27" | 27.0 |
| 14 | 31 1/2" | 31.5 |
| 16 | 36" | 36.0 |
| 18 | 40 1/2" | 40.5 |
| 20 | 45" | 45.0 |
| 22 | 49 1/2" | 49.5 |
| 24 | 54" | 54.0 |
| 26 | 58 1/2" | 58.5 |
| 28 | 63" | 63.0 |
| 30 | 67 1/2" | 67.5 |
| 32 | 72" | 72.0 |
| 34 | 76 1/2" | 76.5 |
| 36 | 81" | 81.0 |
| 38 | 85 1/2" | 85.5 |
| 40 | 90" | 90.0 |
| 42 | 94 1/2" | 94.5 |
| 44 | 99" | 99.0 |

Furnished only in even number sections up to 44 sections

*Increase radiator size 10% when recessed.

†Add 1/2" for each bushing.

SLENDERIZED



| DIMENSIONS | | | | | | |
|------------|----------|---------|--------|---------|-----|-----------|
| Size | A | B&C | D | E | F | *H |
| 25-6 | 21 7/16" | 6 1/16" | 2 1/2" | 1 1/16" | 25" | 23 13/16" |
| 25-4 | 21 7/16" | 4 7/16" | 2 1/2" | 1 1/16" | 25" | 23 13/16" |
| 19-4 | 15 7/16" | 4 7/16" | 2 1/2" | 1 1/16" | 19" | 17 13/16" |

*Legless—overall height. Tappings—Top-1" Bottom-1 1/4"

| RATINGS | | | | |
|-------------------------|------------------------------|----------|----------|----------|
| SIZE No. of Sections | LENGTH 1 3/4" Per Section | 4-TUBE | | 6-TUBE |
| | | 19" High | 25" High | 25" High |
| 4 | 7" | 6.4 | 8 | 12 |
| 6 | 10 1/2" | 9.6 | 12 | 18 |
| 8 | 14" | 12.8 | 16 | 24 |
| 10 | 17 1/2" | 16.0 | 20 | 30 |
| 12 | 21" | 19.2 | 24 | 36 |
| 14 | 24 1/2" | 22.4 | 28 | 42 |
| 16 | 28" | 25.6 | 32 | 48 |
| 18 | 31 1/2" | 28.8 | 36 | 54 |
| 20 | 35" | 32.0 | 40 | 60 |
| 22 | 38 1/2" | 35.2 | 44 | 66 |
| 24 | 42" | 38.4 | 48 | 72 |
| 26 | 45 1/2" | 41.6 | 52 | 78 |
| 28 | 49" | 44.8 | 56 | 84 |
| 30 | 52 1/2" | 48.0 | 60 | 90 |
| 32 | 56" | 51.2 | 64 | 96 |
| 34 | 59 1/2" | 54.4 | 68 | 102 |
| 36 | 63" | 57.6 | 72 | 108 |
| 38 | 66 1/2" | 60.8 | 76 | 114 |
| 40 | 70" | 64.0 | 80 | 120 |
| 42 | 73 1/2" | 67.2 | 84 | 126 |
| 44 | 77" | 70.4 | 88 | 132 |
| 46 | 80 1/2" | 73.6 | 92 | 138 |
| 48 | 84" | 76.8 | 96 | 144 |
| 50 | 87 1/2" | 80.0 | 100 | 150 |
| 52 | 91" | 83.2 | 104 | 156 |
| 54 | 94 1/2" | 86.4 | 108 | 162 |
| 56 | 98" | 89.6 | 112 | 168 |

Center leg section furnished on 30 section and larger.

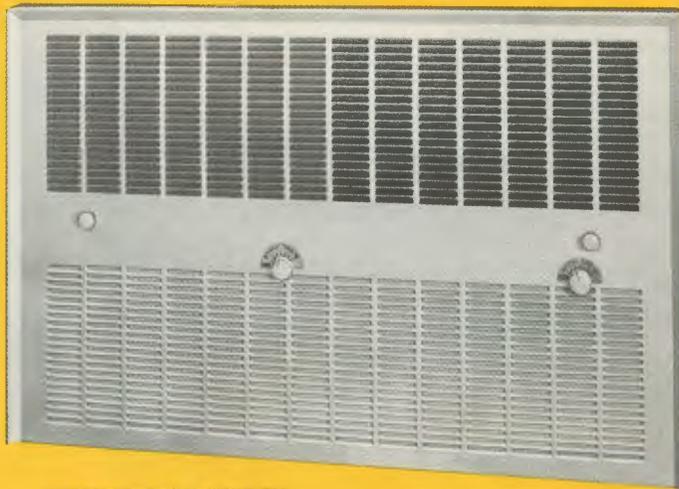
Heating surface based upon the standard heat emission of 240 BTU per square foot per hour.

Duo-Rad

**FAN COIL
UNIT**



FREE STANDING MODEL



RECESSED MODEL

**RESIDENTIAL and COMMERCIAL
APPLICATIONS**

YEAR ROUND HEATING—COOLING

 **BURNHAM
AMERICA**



**BURNHAM
AMERICA**

Duo-Rad

COMBINES LUXURIOUS HYDRONIC HEATING AND COOLING IN ONE SMARTLY STYLED HEAT DISTRIBUTOR

Check these advantages offered by Duo-Rad

Heating and cooling from one unit without changing a single pipe.

Duo-Rad units operate equally well on economical one-pipe or conventional two-pipe systems.

A water chiller need not be included with original installation but may be added later when desired.

Duo-Rad units are true air conditioners, not just air blowers. They remove undesirable humidity as they cool and clean the air.

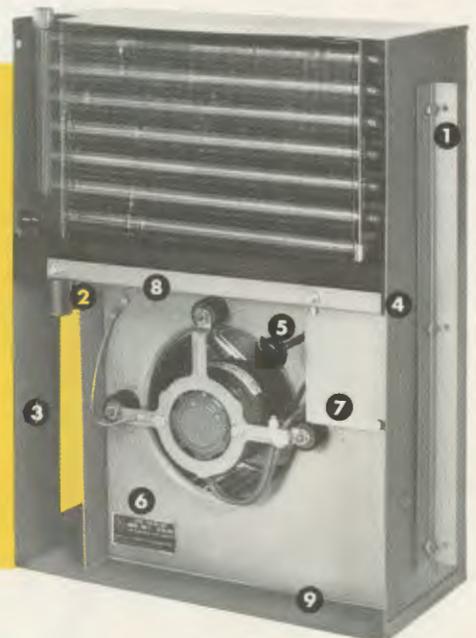
Automatic individual room or zone temperature control is yours for the cost of installing a thermostat. No changes in piping are required. Any number of thermostats may be installed for heating or cooling or both.

Fractional cooling is an added advantage with Duo-Rad and permits great savings in the original cost of the air conditioning unit. While a 3-ton refrigeration unit is required to completely air-condition the average 6-room house, a 2-ton unit is sufficient to cool any 4 rooms equipped with single Duo-Rad units or any two rooms with double units. Turning fan motors on or off transfers the full output of the refrigeration unit from one room to another.



COMPACT—EASY TO INSTALL PACKAGED UNIT

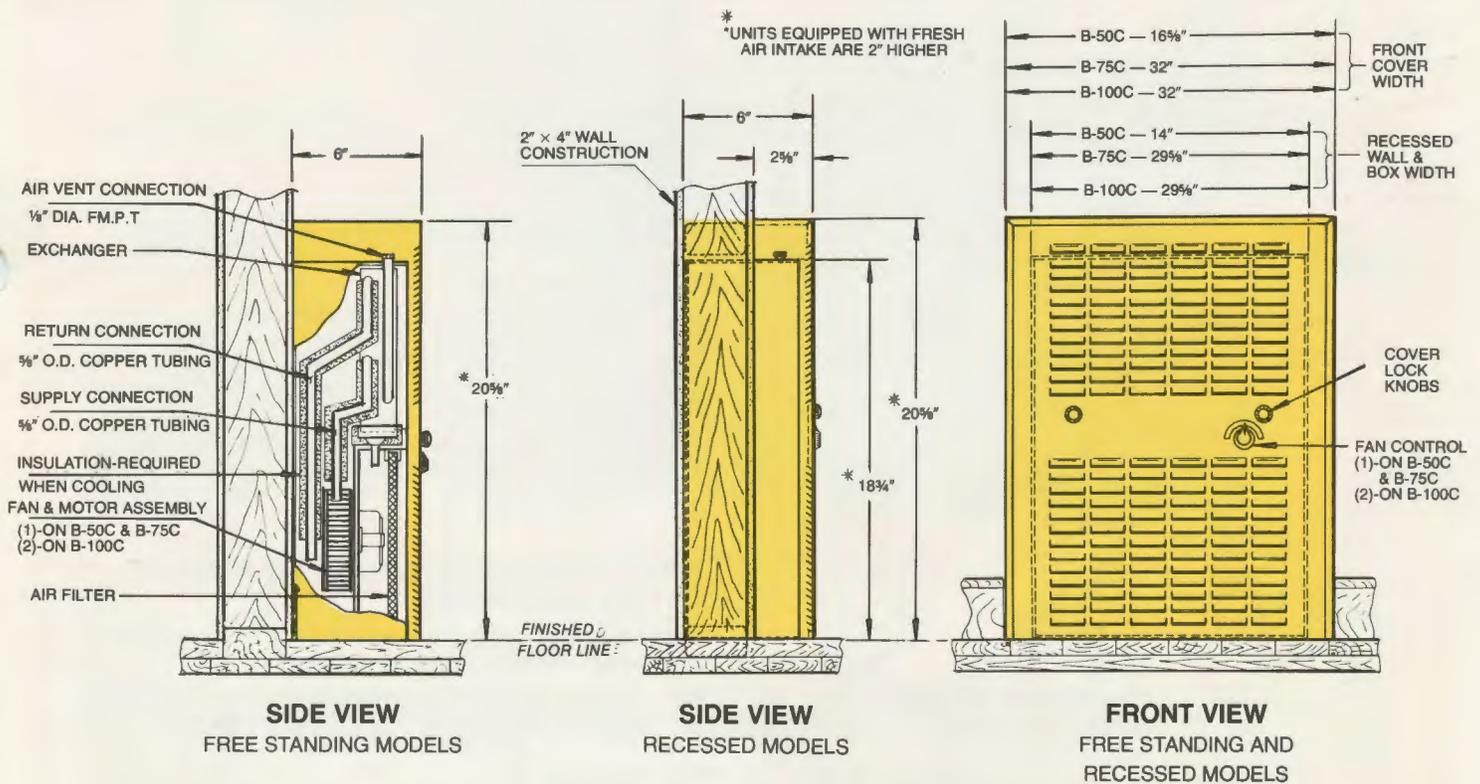
1 The right size to fit between standard studs. No carpentry is required—the unit is simply set into place and fastened to the studding. They are adjustable for varying wall depths. 2 $\frac{5}{8}$ " copper tube supply and return. Staggered for easy installation. Tie-in lines can be soldered before installation. 3 Rigid welded construction. Rust proof and sound deadened. The front cover is held in place by two quick-opening fasteners. 4 No interference with draperies or other furnishings—they extend only $2\frac{3}{4}$ " from the wall. 5 Convenient manual rheostat adjustment allows individual room control. 6 Units are listed with Underwriter's Laboratories, Inc. 7 Built-in electrical connections are easily accessible. 8 Built-in condensate pan is resistant to corrosion. Copper drain tube is soldered to pan. 9 Filter unit covers entire air inlet opening.



| RATINGS AND SPECIFICATIONS | | MODEL B-50C | MODEL B-75C | MODEL B-100C |
|----------------------------|---|--------------------------------|---|---|
| CAPACITY | *Max. Heating Btu/Hr. 200°F. Water **Max. Cooling Btu/Hr.—42°F. Water | 10,000 5,000 | 15,000 7,500 | 22,000 10,000 |
| MOTOR | Shaded Pole 1.4 Amps (Max.)—115/60—1 Phase | 1 | 1 | 2 |
| CONTROL | Variable Speed 80 Ohms—300 Volts—50 Watts | 1 | 1 | 2 |
| BLOWER WHEEL | Aluminum 6 $\frac{3}{8}$ " Diameter Max. CFM | 1 140 | 1 225 | 2 300 |
| EXCHANGER | Copper Tube Aluminum Length Fins 12 per inch Width Tested to 300 PSI Height | 14" 2" 7 $\frac{1}{2}$ " | 29 $\frac{1}{2}$ " 2" 7 $\frac{1}{2}$ " | 29 $\frac{1}{2}$ " 2" 7 $\frac{1}{2}$ " |
| HEADERS | Copper Tube-Fitting Size Outside Diameter | $\frac{5}{8}$ " | $\frac{5}{8}$ " | $\frac{5}{8}$ " |

*Heating output based on 650 RPM.

**Cooling output based on 950 RPM.



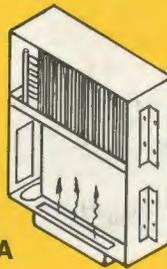
| DIMENSIONS | | MODEL B-50C | MODEL B-75C | MODEL B-100C |
|--------------------|---|--|--|--|
| WALL BOX | 22 Ga. Steel Height Width Depth | 18 $\frac{3}{4}$ " 14" 6" | 18 $\frac{3}{4}$ " 29 $\frac{1}{2}$ " 6" | 18 $\frac{3}{4}$ " 29 $\frac{1}{2}$ " 6" |
| COVER PANEL | 18 Ga. Steel Height Width | 20 $\frac{1}{2}$ " 16 $\frac{1}{2}$ " | 20 $\frac{1}{2}$ " 32" | 20 $\frac{1}{2}$ " 32" |
| FILTERS | Throw-Away Type | 9 $\frac{3}{4}$ " x 14" | 9 $\frac{3}{4}$ " x 29 $\frac{1}{2}$ " | 9 $\frac{3}{4}$ " x 29 $\frac{1}{2}$ " |



**BURNHAM
AMERICA**

Duo-Rad

RECESSED MODELS



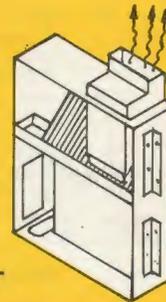
FA

FOR FRESH AIR INTAKE FROM REAR



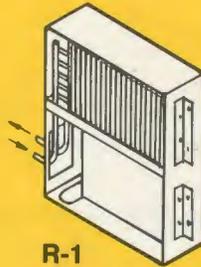
ST

FOR SPLIT TOP AIR OUTLET



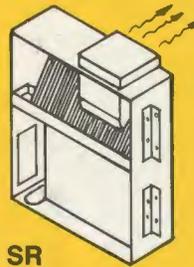
R-1

FOR DOWN FEED PIPING



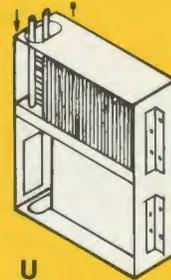
R-1

FOR SIDE FEED PIPING
(Elbows furnished by installer)



SR

FOR SPLIT REAR AIR OUTLET



U

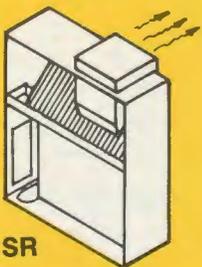
FOR UP FEED PIPING
(Not applicable with split air units)

FREE STANDING MODELS



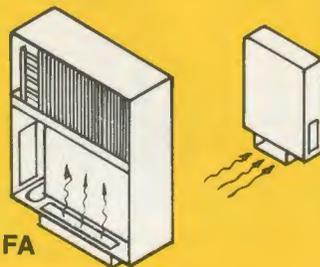
R-1

FOR DOWN FEED PIPING



SR

FOR SPLIT REAR
AIR OUTLET



FA

FOR FRESH AIR INTAKE
FROM REAR

DUO-RAD OPTIONAL FEATURES

FRESH AIR INTAKE

The Duo-Rad is available as a FA unit for fresh air intake. Fresh air volume may be regulated up to approximately 20% of the capacity of the Duo-Rad. When fresh air is used, allowance should be made for lower inlet air temperature. The rated output of the Duo-Rad is based on a 70° F. inlet air temperature.

The fresh air inlet box is installed at the floor level and the Duo-Rad wall box is installed on top of this fresh air intake wall box. The overall combined height is increased 2". The fresh air inlet provision also includes a manual damper.

"SPLIT" TYPE DUO-RAD FOR TWO ROOM HEATING AND COOLING

The Duo-Rad is available for two room heating and cooling with a "split" feature installed at the factory. (SR and ST).

When sizing the Duo-Rad for two rooms, approximately 20% of the output of the unit can be utilized for the second room. Return air to the Duo-Rad is provided from one room only.



**BURNHAM
AMERICA**

**BURNHAM CORPORATION
HYDRONICS DIVISION
LANCASTER, PA. 17604**

RADIATORS

ROUGHING-IN DATA



RADIANT AND SLENDERIZED
INCLUDING OBSOLETE SIZES

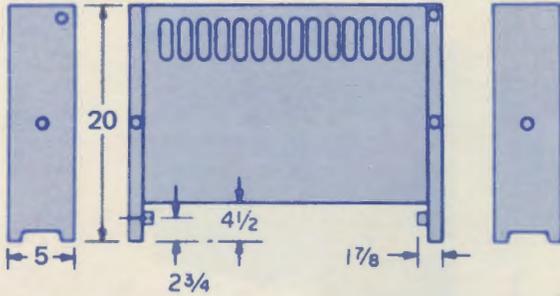


RADIANT DIMENSIONS

IMPORTANT

When recessed, add 10% to room requirements before selecting size radiator.

DIMENSIONS



All Air Vent Tappings 1/8"
All Bottom Tappings 1 1/4". Wall Type Top Tappings 1"
Recess should be 1/2" longer and 1/4" higher than radiator.

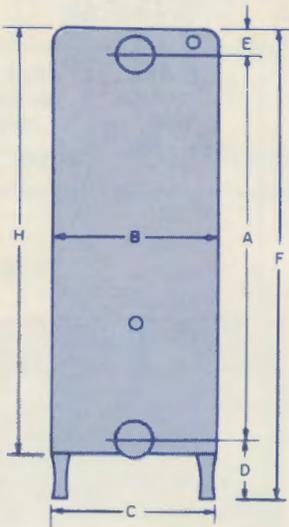
RATINGS

| SIZE No. of Sections | LENGTH 2 1/4" PER SECTION † | FREE STANDING OR WALL HUNG *Square Feet per section 2.25 |
|----------------------------|---|--|
| 4 | 9" | 9.0 |
| 6 | 13 1/2" | 13.5 |
| 8 | 18" | 18.0 |
| 10 | 22 1/2" | 22.5 |
| 12 | 27" | 27.0 |
| 14 | 31 1/2" | 31.5 |
| 16 | 36" | 36.0 |
| 18 | 40 1/2" | 40.5 |
| 20 | 45" | 45.0 |
| 22 | 49 1/2" | 49.5 |
| 24 | 54" | 54.0 |
| 26 | 58 1/2" | 58.5 |
| 28 | 63" | 63.0 |
| 30 | 67 1/2" | 67.5 |
| 32 | 72" | 72.0 |
| 34 | 76 1/2" | 76.5 |
| 36 | 81" | 81.0 |
| 38 | 85 1/2" | 85.5 |
| 40 | 90" | 90.0 |
| 42 | 94 1/2" | 94.5 |
| 44 | 99" | 99.0 |

* Increase radiator size 10% when recessed.
† Add 1/2" for each bushing.

SLENDERIZED

1 1/4" CENTERS



Four-Tube
4-7/16" wide

Six-Tube
6-15/16" wide

RATINGS

| SIZE No. of Sections | LENGTH 1 1/4" Per Section | 4-TUBE | | 6-TUBE |
|----------------------------|------------------------------------|-------------|-------------|-------------|
| | | 19" High | 25" High | 25" High |
| 4 | 7" | 6.4 | 8.0 | 12.0 |
| 6 | 10 1/2" | 9.6 | 12.0 | 18.0 |
| 8 | 14" | 12.8 | 16.0 | 24.0 |
| 10 | 17 1/2" | 16.0 | 20.0 | 30.0 |
| 12 | 21" | 19.2 | 24.0 | 36.0 |
| 14 | 24 1/2" | 22.4 | 28.0 | 42.0 |
| 16 | 28" | 25.6 | 32.0 | 48.0 |
| 18 | 31 1/2" | 28.8 | 36.0 | 54.0 |
| 20 | 35" | 32.0 | 40.0 | 60.0 |
| 22 | 38 1/2" | 35.2 | 44.0 | 66.0 |
| 24 | 42" | 38.4 | 48.0 | 72.0 |
| 26 | 45 1/2" | 41.6 | 52.0 | 78.0 |
| 28 | 49" | 44.8 | 56.0 | 84.0 |
| 30 | 52 1/2" | 48.0 | 60.0 | 90.0 |
| 32 | 56" | 51.2 | 64.0 | 96.0 |
| 34 | 59 1/2" | 54.4 | 68.0 | 102.0 |
| 36 | 63" | 57.6 | 72.0 | 108.0 |
| 38 | 66 1/2" | 60.8 | 76.0 | 114.0 |
| 40 | 70" | 64.0 | 80.0 | 120.0 |
| 42 | 73 1/2" | 67.2 | 84.0 | 126.0 |
| 44 | 77" | 70.4 | 88.0 | 132.0 |

DIMENSIONS

| Size | A | B & C | D | E | F | *H |
|------|----------|----------|--------|---------|-----|-----------|
| 25-6 | 21-7/16" | 6-15/16" | 2-1/2" | 1-1/16" | 25" | 23-13/16" |
| 25-4 | 21-7/16" | 4-7/16" | 2-1/2" | 1-1/16" | 25" | 23-13/16" |
| 19-4 | 15-7/16" | 4-7/16" | 2-1/2" | 1-1/16" | 19" | 17-13/16" |

* Legless - overall height. Tappings - Top-1" Bottom-1 1/4"

Center leg section furnished on 30 section and larger.
Heating surface based upon the standard heat emission
of 240 B.T.U. per square foot per hour.

OBSOLETE SIZES ALL TYPES

BURNHAM RADIANT

| | |
|-----------------------|-----------------------|
| 23 x 7½ | Wall |
| 3.40 sq. ft. per sec. | 2.25 sq. ft. per sec. |

BURNHAM SLENDERIZED

RATING — Square Feet Per Section

| Height | RATING — Square Feet Per Section | | | |
|--------------------|----------------------------------|--------|--------|--------|
| | 3 Tube | 4 Tube | 5 Tube | 6 Tube |
| 1½" Centers | | | | |
| 14" | ... | ... | ... | 1.5 |
| 17" | ... | ... | ... | 1.8 |
| 19" | 1.1 | 1.4 | ... | ... |
| 20" | ... | ... | 1.8 | 2.2 |
| 22" | 1.3 | 1.6 | ... | ... |
| 23" | ... | ... | 2.1 | ... |
| 25" | 1.5 | 1.8 | ... | ... |
| 26" | ... | ... | 2.4 | 2.9 |
| 32" | ... | ... | 3.0 | ... |

1¾" Centers

| | | | | |
|-----|-----|-----|-----|-----|
| 14" | ... | ... | ... | 1.6 |
| 17" | ... | ... | ... | 2.0 |
| 19" | ... | ... | ... | 2.3 |
| 22" | ... | 1.8 | 2.1 | ... |
| 25" | 1.6 | ... | 2.4 | ... |
| 32" | ... | ... | 3.0 | 3.7 |

FERO — 2½" CENTERS

RATING — Square Feet Per Section

| Height | RATING — Square Feet Per Section | | | | |
|--------|----------------------------------|--------|--------|--------|--------|
| | 3 Tube | 4 Tube | 5 Tube | 6 Tube | 7 Tube |
| 14" | .... | .... | .... | .... | 2.67 |
| 17" | .... | .... | .... | .... | 3.25 |
| 20" | 1.75 | 2.25 | 2.67 | 3.0 | 3.67 |
| 23" | 2.00 | 2.50 | 3.00 | 3.5 | .... |
| 26" | 2.33 | 2.75 | 3.50 | 4.0 | 4.75 |
| 32" | 3.00 | 3.50 | 4.33 | 5.0 | 5.50 |
| 38" | 3.50 | 4.25 | 5.00 | 6.0 | 6.75 |

FEDERAL — Old Style Column Radiation

RATING — Square Feet Per Section

| Height | RATING — Square Feet Per Section | | | | |
|--------|----------------------------------|-----------------------|-----------------------|----------------------|----------------------|
| | 1 Col. 2½" Centers | 2 Col. 2½" Centers | 3 Col. 2½" Centers | 4 Col. 3" Centers | 5 Col. 3" Centers |
| 14" | .... | .... | .... | .... | 4.00 |
| 17" | .... | .... | .... | .... | 4.00 |
| 18" | .... | .... | 2.25 | 3.00 | 5.00 |
| 20" | 1.50 | 2.00 | ... | ... | 5.00 |
| 22" | ... | ... | 3.00 | 4.00 | 6.00 |
| 23" | 1.67 | 2.33 | ... | ... | ... |
| 26" | 2.00 | 2.67 | 3.75 | 5.00 | ... |
| 32" | 2.50 | 3.33 | 4.50 | 6.50 | ... |
| 38" | 3.00 | 4.00 | 5.00 | 8.00 | ... |
| 44" | .... | .... | .... | 10.00 | .... |
| 45" | .... | 5.00 | 6.00 | .... | .... |

RADIATOR TAPPING LIST

ONE-PIPE STEAM

| | |
|-----------------------|----|
| Up to 28 sq. ft. | 1 |
| Up to 62 sq. ft. | 1½ |

HOT WATER—Two-Pipe Forced Circulation

| | |
|------------------------------|---|
| Up to 100 sq. ft. | ½ |
| 101 sq. ft. and larger | ¾ |

**HOT WATER
Two-Pipe
Gravity System
FIRST FLOOR**

| | |
|------------------------|----|
| Up to 20 sq. ft. . . | ½ |
| 21 to 50 sq. ft. . . | ¾ |
| 51 to 100 sq. ft. . . | 1 |
| 101 to 175 sq. ft. . . | 1½ |

SECOND FLOOR

| | |
|------------------------|----|
| Up to 30 sq. ft. . . | ½ |
| 31 to 70 sq. ft. . . | ¾ |
| 71 to 120 sq. ft. . . | 1 |
| 121 to 250 sq. ft. . . | 1½ |

THIRD FLOOR

| | |
|------------------------|----|
| Up to 40 sq. ft. . . | ½ |
| 41 to 100 sq. ft. . . | ¾ |
| 101 to 175 sq. ft. . . | 1 |
| 175 to 300 sq. ft. . . | 1½ |

**HOT WATER
Two-Pipe
Closed System
FIRST FLOOR**

| | |
|------------------------|----|
| Up to 70 sq. ft. . . | ¾ |
| 71 to 125 sq. ft. . . | 1 |
| 126 sq. ft. and larger | 1½ |

SECOND FLOOR

| | |
|-----------------------|---|
| Up to 25 sq. ft. . . | ½ |
| 26 to 90 sq. ft. . . | ¾ |
| 91 sq. ft. and larger | 1 |

THIRD FLOOR

| | |
|------------------------|---|
| Up to 40 sq. ft. . . | ½ |
| 41 to 120 sq. ft. . . | ¾ |
| 121 sq. ft. and larger | 1 |

The last connection taken off the main should be run to a first floor radiator. Radiators in which mains terminate should have one size larger valves.

NOTE: All above sizes based on steel pipe.

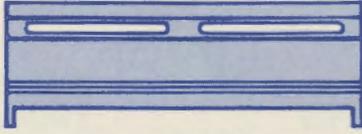
Vapor tapplings, top and bottom opposite ends; Supply ¾ inch, Return ½ inch.

For tapplings on One-Pipe Hot Water Systems, see I-B-R Installation Guide.

FOR MODERNIZATION OR REPLACEMENT

BASE-RAY

Cast Iron Radiant Baseboard



**COSTS A LITTLE MORE
WORTH A LOT MORE**

 **BURNHAM CORPORATION**
HYDRONICS DIVISION
Lancaster, Pa. 17604

Printed in U.S.A.

Form No. 4910A-1-78-25Mc

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