# MANUFACTURERS INDEX, SECTION 4

# Notes

Burnham by U.S. Boiler Company

# SERIES 2B GAS BOILER

- **CAST IRON PACKAGE**
- **HOT WATER**
- **DOE CAPACITIES 31 TO 244 MBH**

The series 2B hot water boiler combines the dependability of a conventional proven design with the economy of gas heat It Is completely factory assembled and fire tested and requires only minimal hook-up to put Into operation.

At the heart of every series 2B is a durable cast iron heat exchanger that enhances energy efficiency and improves boiler performance. Rugged cast iron sections designed with hundreds of heat extracting pins wiring optimal heat from gases. When equipped with a fuel saving vent damper, the Series 2B achieves annual efficiencies in excess of 82%.

**Standard Equipment:** Deluxe insulated blue jacket, circulating pump,ASME relief valve. pressure-temperature gauge, boiler drain cock, built in air eliminator, 100% shutoff redundant combination gas valve, high limit, stainless steel burners, transformer and junction box, drafthood.

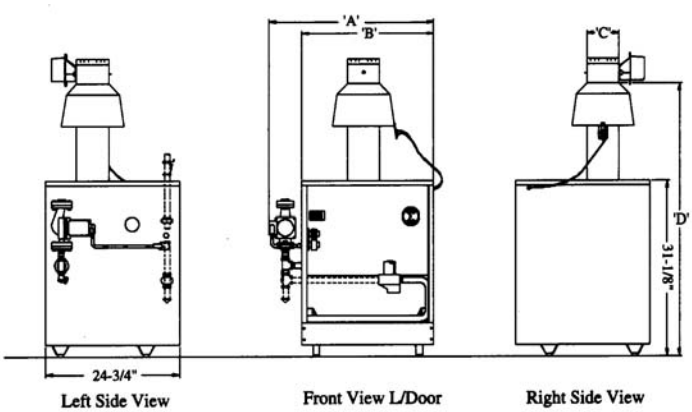
**Optional equipment:** electric ignition.

| PART # | A.G.A. & G.G.A. INPUT MBH (1) | D.O.E. HEATING CAPACITY MBH | I=B=R NET RATING MBH (2) | AFUE % | | FLUE DIA. |
|---|---|---|---|---|---|---|
| | | | | STANDING PILOT & VENT DAMPER | EI & VENT DAMPER | |
| 202B | 37.5 | 31 | 27.0 | | 81.8 | 4 |
| 203B | 62 | 52 | 45.2 | N/A | 82.2 | 4 |
| 204B | 96 | 80 | 69.6 | | 82.0 | 5 |
| 205B | 130 | 108 | 93.9 | | 81.8 | 6 |
| 206B | 164 | 136 | 118.3 | N/A | 81.6 | 6 |
| 207B | 198 | 163 | 141.7 | | 81.4 | 7 |
| 208B | 232 | 191 | 166.1 | | 81.2 | 7 |
| 209B | 266 | 218 | 189.6 | N/A | 81.0 | 8 |
| 210B | 299 | 244 | 212.2 | | 80.1 | 8 |

| Boiler Number | A | B | C | D |
|---|---|---|---|---|
| 202B | 18-3/4 | 10-3/4 | 4 | 50-3/8 |
| 203B | 20 | 12 | 4 | 50-5/8 |
| 204B | 23-1/4 | 15-1/4 | 5 | 51-7/8 |
| 205B | 26-1/2 | 18-1/2 | 6 | 53-3/4 |
| 206B | 29-3/4 | 21-3/4 | 6 | 53-3/4 |
| 207B | 33 | 25 | 7 | 56-3/4 |
| 208B | 36-1/4 | 28-1/4 | 7 | 56-3/4 |
| 209B | 39-1/4 | 31-1/2 | 8 | 59-1/4 |
| 210B | 42-3/4 | 34-3/4 | 8 | 59-1/4 |

Deluxe Insulated Jacket
Pressure Temperature Gauge
Drain Cock
Built-in Alt Elimination
High Limit
Circulator Relay
Transformer and Junction Box

100% Shut-off Combination Step Opening Gas Valve
Stainless Steel Burners
ASME Safety Relief Valve
Drafthood
Vent Damper Plug0in Connection



Burnham by U.S. Boiler Company

# SERIES 3 GAS BOILER

- **84% AFUE**
- **HOT WATER NATURAL/LP GAS**
- **DOE CAPACITIES 70 TO 280 MBH**
- **84% AFUE**

Introducing Burnham's new Series 3 Boiler. It features a proven, long-lasting, American-made cast iron heat engine, the ease & simplicity of atmospheric venting, an exclusive control system that provides features unrivaled by any boiler in the market, an 84% ef?ciency rating, and an attractive exterior which is equivalent or superior to the design of the most sophisticated condensing boilers.

**The IQ Control System**

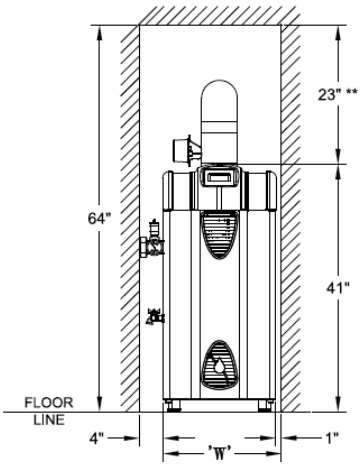
If the G3 heat exchanger is the brawn of the Series 3 Boiler, the IQ Boiler Control System is the brains. Burnham designed the IQ Control System speci?cally for the next generation of high ef?ciency cast iron boilers. It simpli?es boiler operating controls by combining all the typical boiler safety controls, including ignition, into one central control module. LED readouts clearly communicate system status updates, and The end result is a control system which is simple to read, simple to set up, and simple to diagnose.

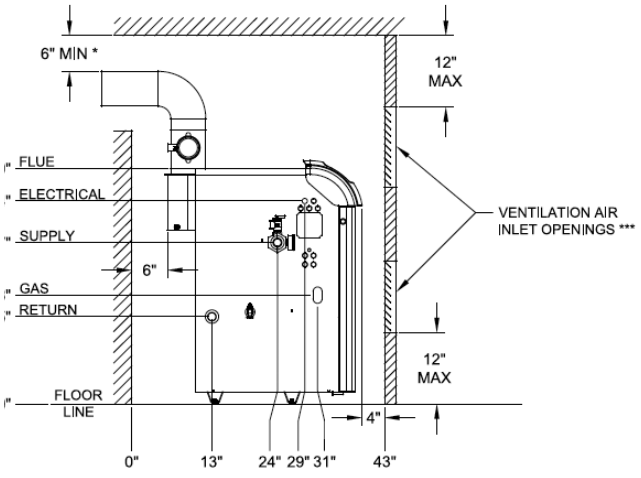
## Ratings

| MODEL # | INPUT MBH | D.O.E. HEATING CAPACITY MBH | I=B=R NET RATING MBH | AFUE% |
|---|---|---|---|---|
| 303 | 70 | 59 | 51 | 84.0 |
| 304 | 105 | 88 | 77 | 84.0 |
| 305 | 140 | 118 | 102 | 84.0 |
| 306 | 175 | 147 | 128 | 84.0 |
| 307 | 210 | 176 | 153 | 84.0 |
| 308 | 245 | 206 | 179 | 84.0 |
| 309 | 280 | 235 | 205 | 84.0 |

IQ control system

- Features Burnham IQ Control System™
- True Plug & Play Controls Utilizing Burnham IQ Option Cards;
  - Outdoor Reset (with Domestic Hot Water Priority)
  - Auxiliary High Limit
  - Low Water Cut-off
  - Optional LCD Touch Screen Display
- Improved Boiler Operation




## Specifications

| Boiler Model | Dimensions | | | Connections | | | | | Water Content | Shipping Weight |
|---|---|---|---|---|---|---|---|---|---|---|
| | Width | Height | Depth | Vent | Suppy | Return | Gas Valve | Relief Valve | | |
| 303 | 12-3/4" | 41" | 33" | 4" | 1-1/4" | 1-1/4" | 1/2" | 3/4" | 2gal. | 250 |
| 304 | 15-1/2" | 41" | 33" | 5" | 1-1/4" | 1-1/4" | 1/2" | 3/4" | 3gal. | 300 |
| 305 | 18-1/2" | 41" | 33" | 6" | 1-1/4" | 1-1/4" | 1/2" | 3/4" | 4gal | 350 |
| 306 | 21-1/2" | 41" | 33" | 6" | 1-1/4" | 1-1/4" | 1/2" | 3/4" | 5gal. | 410 |
| 307 | 24-3/4" | 41" | 33" | 7" | 1-1/4" | 1-1/4" | 3/4" | 3/4" | 6gal. | 460 |
| 308 | 24-3/4" | 41" | 33" | 7" | 1-1/4" | 1-1/4" | 3/4" | 3/4" | 7gal. | 510 |
| 309 | 24-3/4" | 41" | 33" | 8" | 1-1/4" | 1-1/4" | 3/4" | 3/4" | 8gal. | 560 |

Burnham by U.S. Boiler Company

PVG™

# DIRECT VENT GAS FIRED HOT WATER BOILER

- **94+% AFUE ENERGY STAR® Certified**
- **Natural or LP Gas**
- **70 to 280 MBH in 7 Sizes**
- **Cast Iron Sectional Design**
- **PVG - Power Vented**


## Hassle Free Service & Installation

### Long Lasting Performance

Designed and built with proven and readily available components. The PVG is designed for long lasting performance and ease of service.

### Proven Controls

Proven Honeywell controls are used on a plug and play control panel for easy access and service.

### Safe, Durable Vent System

The PVG uses a AL294C® stainless steel vent system. The durability and longevity of stainless steel ensures products of combustion are vented outside your home for the life of your boiler.

### Venting Options

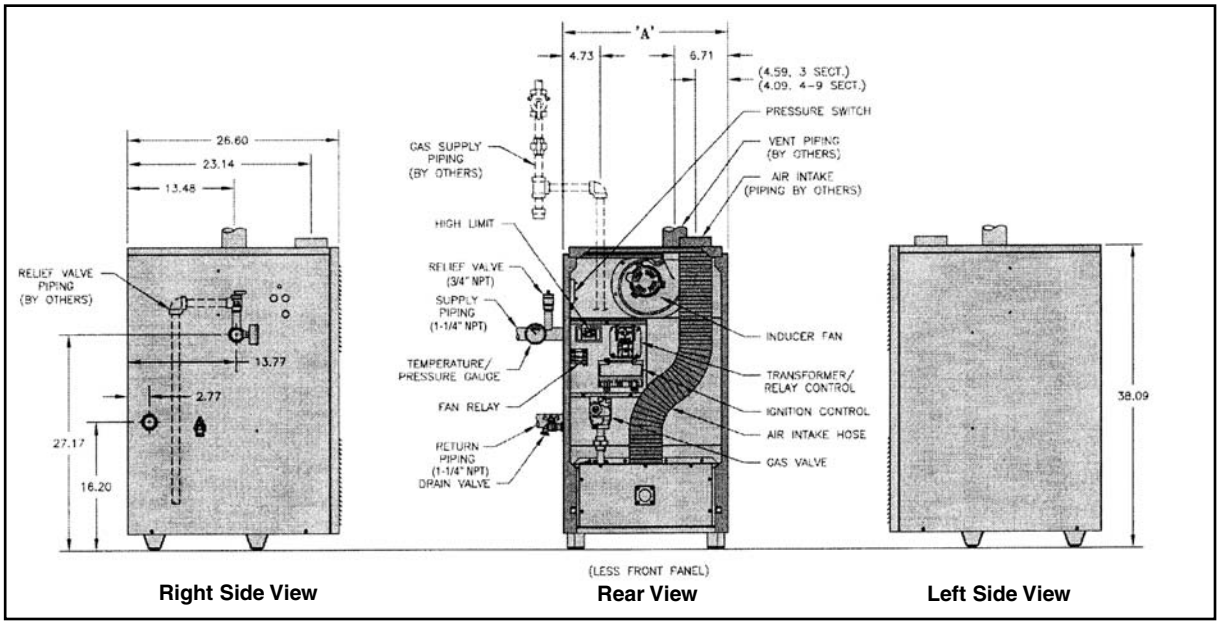
Sidewall and vertical venting options for maximum installation flexibility.

### RATINGS

| Model Number | Input | DOE Heating Capacity (MBH) | I=B=R Water Ratings | AFUE% |
|---|---|---|---|---|
| PVG3 | 70 | 60 | 52 | 85.5 |
| PVG4 | 105 | 90 | 78 | 85.4 |
| PVG5 | 140 | 120 | 104 | 85.3 |
| PVG6 | 175 | 150 | 130 | 85.2 |
| PVG7 | 210 | 179 | 156 | 85.0 |
| PVG8 | 245 | 208 | 181 | 84.5 |
| PVG9 | 280 | 238 | 207 | 84.0 |

### SPECIFICATIONS

| Model Number | Dimensions (inches) 'A' | 'B' | 'C' | Water Content (gal.) | Approx. Shipping Weight (lbs.) |
|---|---|---|---|---|---|
| PVG3 | 11.65 | 26.60 | 38.09 | 2.16 | 210 |
| PVG4 | 14.72 | 26.60 | 38.09 | 3.00 | 254 |
| PVG5 | 17.78 | 26.60 | 38.09 | 3.84 | 298 |
| PVG6 | 20.84 | 26.60 | 38.09 | 4.68 | 342 |
| PVG7 | 23.90 | 26.60 | 38.09 | 5.52 | 386 |
| PVG8 | 26.97 | 26.60 | 38.09 | 6.36 | 430 |
| PVG9 | 30.03 | 26.60 | 38.09 | 7.20 | 474 |



Burnham by U.S. Boiler Company

# INDEPENDENCE™ GAS FIRED STEAM OR HOT WATER BOILER

- **Cast Iron Knockdown**
- **Steam or Hot Water**
- **Capacities 51 to 317 MBH**

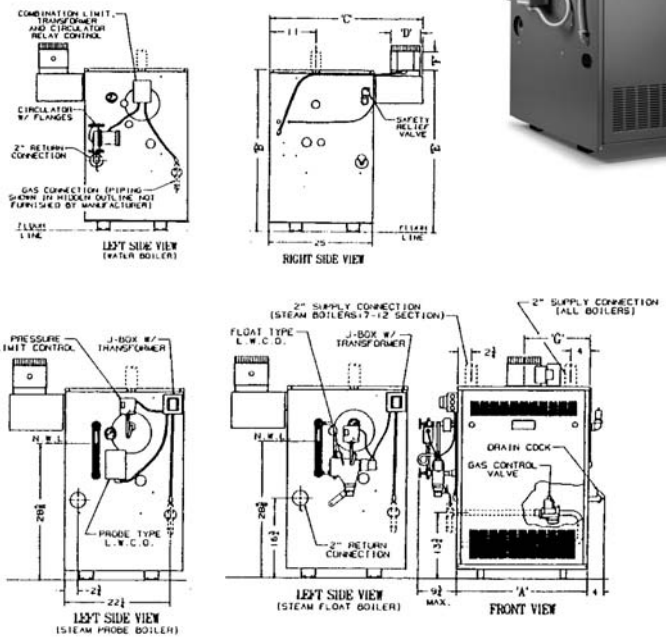
The Burnham Independence gas fired steam or hot water boiler offers several benefits to the homeowner, including safety, comfort, dependability and quality cast iron construction.

The Independence boiler is available in 10 heating capacities, from 51 to 317 MBH and can be used for natural gas or LP gas (IN3-IN9). Built-in gas safety systems provide homeowners residential security and confidence.

**Standard Equipment:** Deluxe insulated blue jacket, ASME safety relief valve, stainless steel burners, 100% shut-off redundant step opening combination gas valve, high limit (water only), flame-roll out switch, blocked vent switch (IN3-IN9), pressure control (steam only) vent damper (IN3-IN9). Packaged boiler IN3-IN9 semi-packaged IN10-IN12.

**Optional Equipment:** tankless heater and heater controls.* Circulator pump.

Order hot water and steam packages separately.
Steam trim Honeywell probe type or McDonnell Miller float type LWCO
*Not available on IN3




## SPECIFICATIONS*

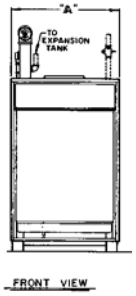
| Model No. | CGA/AG Input MBH | DOE Heating Cap. MBH | 1=B=R Rating | | | AFUE | | | | DIMENSIONS IN INCHES | | | | | | | Approx. Shipping Weight Lbs. | Min. Recommended Chimney Size Round Dia. (In.) x Ht. (Ft.) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 24V | | EI | | | | | | | | | | |
| | | | Water MBH | Steam MBH | Steam Sq. Ft. | Water | Steam | Water | Steam | A | B | C | D | E | F | G | | |
| IN3 | 62 | 51 | 44 | 38 | 158 | N/A | N/A | 83.1 | 81.9 | 14-1/2 | | 33-3/4 | 4 | | 4-3/4 | 7-1/4 | 350 | 4x15 |
| IN4 | 105 | 87 | 76 | 65 | 271 | N/A | N/A | 83.1 | 82.0 | 17-3/4 | | 34-3/4 | 5 | | | 8-7/8 | 420 | 5x15 |
| IN5 | 140 | 115 | 100 | 86 | 358 | N/A | N/A | 83.1 | 82.0 | 21 | | 35-3/4 | 6 | | 5-1/4 | 10-1/2 | 485 | 6x15 |
| IN6 | 175 | 144 | 125 | 108 | 450 | N/A | N/A | 83.2 | 82.1 | 24-1/4 | 40 | | | 40-1/4 | | 12-1/8 | 555 | 6x15 |
| IN7 | 210 | 173 | 150 | 130 | 542 | N/A | N/A | 83.2 | 82.1 | 27-1/2 | | 36-3/4 | 7 | | | 13-3/4 | 620 | 7x15 |
| IN8 | 245 | 202 | 176 | 152 | 633 | N/A | N/A | 83.2 | 82.2 | 30-3/4 | | | | | 7-1/2 | 15-3/8 | 690 | 7x15 |
| IN9 | 280 | 231 | 201 | 174 | 725 | N/A | N/A | 83.2 | 82.2 | 34 | | 37-3/4 | 8 | | | 17 | 760 | 8x15 |
| | | AGA Gross Output MBH | | | | Combustion Efficiency (%) | | | | | | | | | | | | |
| | | | | | | Water | | Steam | | | | | | | | | | |
| IN10 | 315 | 259.87 | 226 | 195 | 812 | 83.5 | | 82.5 | | 37-1/4 | | | 8 | | | 18-5/8 | 815 | 8x15 |
| IN11 | 349 | 287.92 | 250 | 216 | 900 | 83.5 | | 82.5 | | 40-1/2 | 45 | 38-3/4 | | 45-1/4 | 7-1/2 | 20-1/4 | 885 | 9x15 |
| IN12 | 385 | 317.62 | 276 | 239 | 996 | 83.5 | | 82.5 | | 43-3/4 | | | 9 | | | 21-7/8 | 955 | 9x15 |

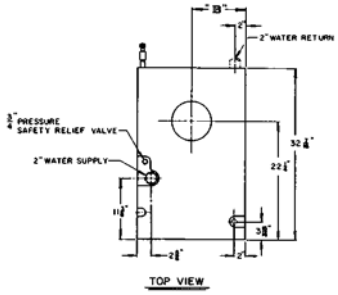
* STEAM TRIM: 6011012 with PS802 LWCO
WATER TRIM: 60110030

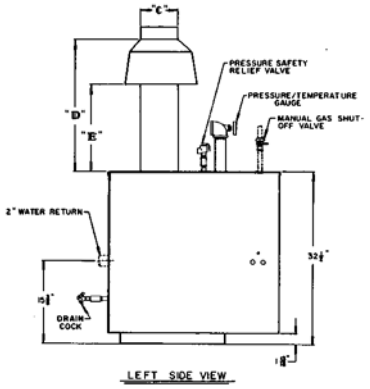
Burnham by U.S. Boiler Company

# SERIES 8HE HOT WATER GAS BOILER

- **Cast Iron, Knockdown**
- **Hot Water**
- **Capacities 340 to 505 MBH**
- **83% Efficient**




The Burnham Series 8HE gas boiler has a vertical flue design which provides for maximum heat transfer. Cast iron push nipples assure the integrity of the cast iron section assembly by expanding & contracting at the same rate and providing a water tight seal. The series 8HE boilers can be installed 1" apart making them ideally suited for modular applications.

**Standard Equipment:** deluxe insulated bluejacket, ASME safety relief valve, pressure-temperature gauge, boiler drain cock, 100% shut-off gas controls with dual valves, high limit, base burner manifold assembly, blocked vent switch, flame roll-out switch, steel burners, junction box, transformer, drafthood, vent damper.

**Optional Equipment:** electric ignition, vent damper (807HE-810HE), electronic control panel systems, water manifolds, four stage immersion type operating controls, eight stage boiler sequencing control panel system with outdoor reset.

Note: Not for direct installation on combustible flooring. A heat shield is required and available for combustible floor installation and concrete installation which is over a material that is subject to melting (PVC, Pex radiant tubing etc.).

**STANDARD EQUIPMENT**

- **Cast Iron Section Assembly**
- **Aluminized Steel Burners**
- **1" Gas Connection**
- **L4080D High Limit Control**
- **Safety Relief Valve**
- **Draft Hood**
- **Blocked Vent Switch**
- **2" Supply & Return**
- **Spark Ignition**
- **50VA Transformer**
- **Junction Box**
- **Metal Section Connectors**
- **Installed Insulation**
- **10 Year Limited Warranty**

| Boiler No. | Input (MBH) | Output (MBH) | I=B=R Net Rating MBH | DIMENSIONS** | | | | | Gas Connection (MPT) |
|---|---|---|---|---|---|---|---|---|---|
| | | | | "A" | "B" | "C" | "D" | "E" | |
| K807HE | 340 | 275 | 239 | 27-1/2" | 13-3/4" | 8" | 27-3/4" | 18" | 3/4" |
| K808HE | 410 | 328 | 285 | 31-1/4" | 15-5/8" | 9" | 30-3/4" | 20" | 3/4" |
| K809HE | 460 | 370 | 322 | 35" | 17-1/2" | 10" | 33-1/2" | 22" | 1" |
| K810HE | 505 | 406 | 353 | 38-3/4" | 19-3/8" | 10" | 33-1/2" | 22" | 1" |

TriangleTube

# Prestige Condensing High Efficiency Stainless Steel Wall Mounted Gas Boiler


## STANDARD FEATURES

- Non-prorated 10 year heat exchanger warranty
- Trimax large graphic interface
- Stainless steel fire tube heat exchanger
- Outdoor reset sensor
- Stainless steel burner
- Negative pressure regulated gas valve
- 30 psi relief valve
- Flanged Grundfos 3-speed UP15-58 system circulator (110 only)
- Drain valve
- Pressure gauge
- Condensate drain assembly
- 24 V terminal strip with removable jumpers for manual reset or automatic reset of external controls
- NTC temperature sensors on the boiler supply/return and flue

## PERFORMANCE SPECIFICATIONS

| Model | Fuel | Input Modulation MBH | AFUE | DOE Heating Capacity MBH | NET I=B=R MBH | Water Volume Gal. |
|---|---|---|---|---|---|---|
| Solo PT60 | Natural or Propane | 16 to 60 | 96% | 54 | 47 | 2.5 |
| Solo PT110 | Natural Gas | 30 to 110 | 96% | 99 | 86 | 2.5 |
| Solo PT175 | Natural or Propane | 50 to 170 | 96% | 154 | 134 | 4.6 |
| Solo PT250 | Natural or Propane | 65 to 245 | 96% | 223 | 194 | 4.1 |
| Solo PT399 | Natural or Propane | 112 to 399 | 95.1% | 379 | 330 | 7 |

## CONNECTIONS / DIMENSIONS / DATA

| Model | Supply/Return Connections | Gas Connection | Vent/Air Diameter | Dimensions D x W x H | Weight Lbs. |
|---|---|---|---|---|---|
| Solo PT60 | 1” | 1/2” | 3” | 16"x 20" x 35 1/2" | 95 |
| Solo PT110 | 1" | 1/2" | 3" | 16"x 20" x 35 1/2" | 106 |
| Solo PT175 | 1-1/4" | 3/4" | 3" | 16"x 20" x 35 1/2" | 131 |
| Solo PT250 | 1-1/4" | 3/4" | 3“ | 16"x 20" x 35 1/2" | 142 |
| Solo PT399 | 1-1/2” | 1” | 4” | 16"x 20" x 35 1/2" | 200 |

The Prestige, combined with a Phase III Smart Indirect Fired Water Heater, will provide efficient, reliable heat and an abundant supply of domestic hot water. The boiler is “indirect ready” with a separate 1” supply connection (110 only).

TriangleTube

# Stainless Steel Indirect Fired Water Heaters

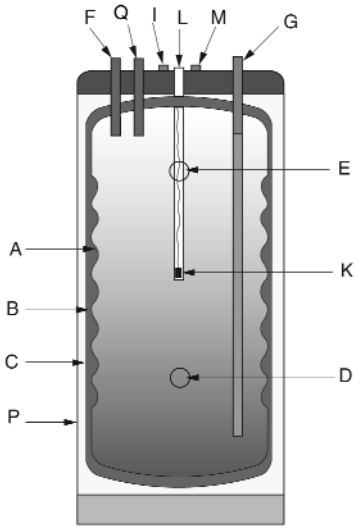
## FEATURES

- Exclusive “Tank-in-Tank” Technology
- Abundant Domestic Hot Water at the Lowest Possible Cost
- A Limited Lifetime Warranty
- 2" of Polyurethane Foam Insulation
- 8 Sizes to Choose From
- Self Cleaning/Self Descaling Heat Exchanger
- Lowest Pressure Drop in the Industry

## PERFORMANCE

| Model No. | Boiler Output Btu/hr | 1st Hour Recovery (gal.) | Continuous Flow (gal.) | Peak/Flow Gal/10 min. |
|---|---|---|---|---|
| Smart 20 | 79,000 | 120 | 105 | 35 |
| Smart 30 | 87,000 | 140 | 115 | 40 |
| Smart 40 | 112,000 | 180 | 150 | 50 |
| Smart 50 | 140,000 | 220 | 185 | 65 |
| Smart 60 | 270,000 | 410 | 360 | 100 |
| Smart 80 | 300,000 | 460 | 400 | 125 |
| Smart 100 | 337,000 | 525 | 450 | 150 |
| Smart 120 | 420,000 | 650 | 560 | 190 |

Conditions:
- 200º boiler water supply
- 90º temperature rise




A. Inner stainless steel tank
B. Outer steel tank
C. 2” Polyurethane insulation
D. Boiler water connection
E. Boiler water connection
F. Hot water outlet
G. Cold water inlet
H. Enameled steel jacket
I. Thermostat control
J. Temperature gauge
K. Thermostat remote sensing bulb
L. Air vent
M. Electrical wiring plug
N. Thermometer remote sensing bulb
P Plastic jacket
Q. Auxiliary connection

## SUPERIOR DESIGN “TANK-IN-TANK” TECHNOLOGY

**Superior Heat Exchange Surface Area**

The domestic storage tank is constructed of stainless steel and is surrounded by boiler water in the outer tank, resulting in a full “wrap around” heat exchanger.

It’s superior heat exchange surface (typically 1.5 to 2.5 times larger than a traditional coil) makes for a large volume of hot water in a short period of time. Thanks to this fast recovery, the storage capacity can be reduced, resulting in a reduced thermal loss.

**Stainless Steel Tank Construction**

The inner domestic storage tank is constructed of durable, corrosion resistant stainless steel.

**Optimal Insulation**

The Phase III®, Smart Series are insulated with 2” of either sprayed-on or injected polyurethane foam, resulting in a stand by heat loss of less than 1º/Hr.


**Self Cleaning / Self-descaling**

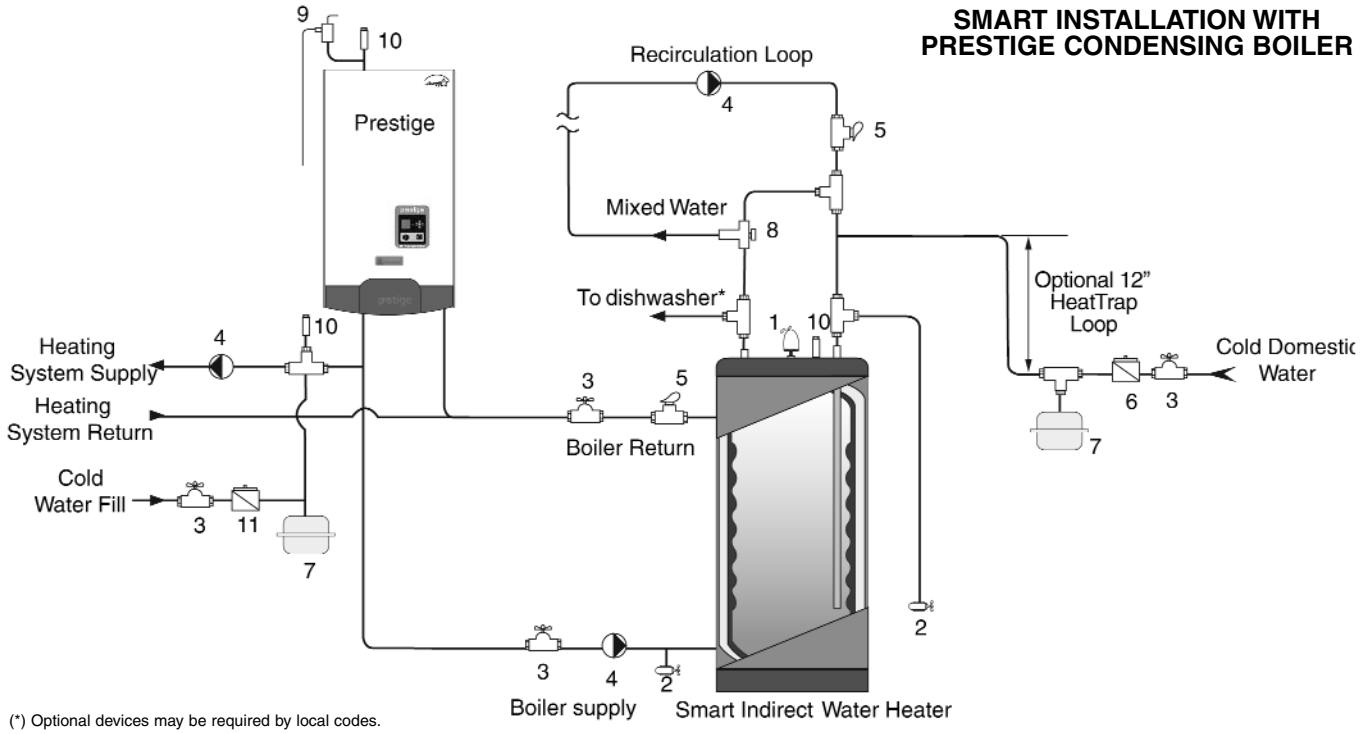
The inner, domestic tank is suspended within the outer tank so it is free to expand and contract as the pressure varies during hot water draws. Moreover, its corrugations amplify the movement and prevents the lime build up on the heat exchanger; thus maintaining its performance during the Phase III®’s life span.

**Anti-Bacteria Growth / Maintenance Free**

The “Tank-in-Tank” design allows us to store domestic water at higher temperatures preventing bacteria growth. Additionally constructed of high quality stainless steel, Phase III® does not require a protective anode.

TriangleTube

## SMART INSTALLATION WITH PRESTIGE CONDENSING BOILER




(*) Optional devices may be required by local codes.

1. Temperature & Pressure Relief Valve
2. Drain
3. Shut -off Valves
4. Circulator
5. Flow Check Valve
6. Backflow preventer or pressure reducing valve(*)
7. Expansion Tank
8. Mixing Valve
9. Pressure Relief Valve
10. Air Vent
11. Automatic Fill Valve

### PRODUCT SPECIFICATIONS

| Model No. | Dimension | Height | Boiler/Supply Return | Domestic Inlet/Outlet | 3rd Domestic Connection* | Domestic Capacity (gal.) | Heating Water Capacity (gal.) | Heat Surface (sq. ft.) | Empty Weight (lbs) |
|---|---|---|---|---|---|---|---|---|---|
| Smart 20 | 22" dia. | 32" | 1" | 3/4" | 3/4" | 22 | 5 | 11 | 100 |
| Smart 30 | 22" dia. | 38" | 1" | 3/4" | 3/4" | 28 | 5 | 13 | 115 |
| Smart 40 | 22" dia. | 46" | 1" | 3/4" | 3/4" | 36 | 6 | 16 | 135 |
| Smart 50 | 22" dia. | 57" | 1-1/4" | 3/4" | 3/4" | 46 | 8 | 20 | 165 |
| Smart 60 | 22" dia. | 66" | 1-1/4" | 3/4" | 3/4" | 56 | 8 | 24 | 190 |
| Smart 80 | 26" dia. | 61" | 1-1/2" | 1-1/2" | 1-1/2" | 70 | 14 | 28 | 271 |
| Smart 100 | 26" dia. | 78" | 1-1/2" | 1-1/2" | 1-1/2" | 95 | 25 | 36 | 362 |
| Smart 120 | 32" dia. | 72" | 2" | 1-1/2" | 1-1/2" | 119 | 43 | 42 | 479 |

(*) This fitting can be used as a return connection if circulated domestic water is required or can be used as a connection for the T&P Relief Valve.

# SERIES MI
# RESIDENTIAL GAS BOILERS

PeerlessBoilers.com

## FEATURES

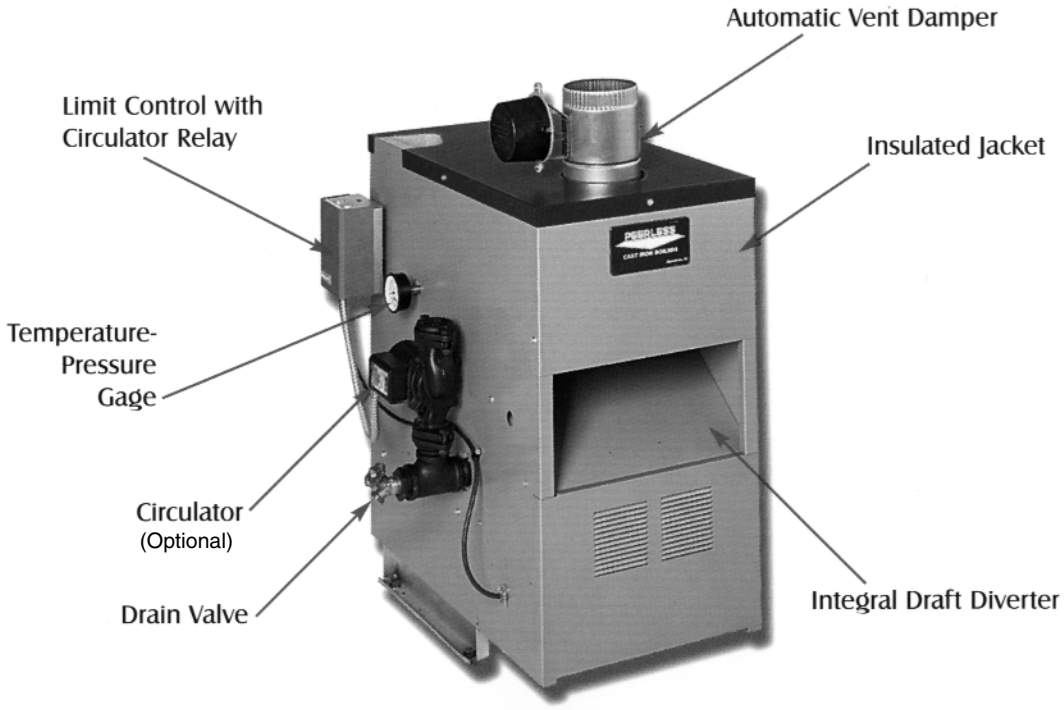
- Packaged Residential Hot Water Boilers
- Natural or LP Gas
- Natural Draft Venting
- Standing Pilot or Intermittent Ignition
- Low-Profile Design

## STANDARD EQUIPMENT

- Cast Iron Sections – Factory Tested and Assembled with Steel Push Nipples
- Deluxe Insulated Enameled Steel Jacket
- 30 PSI Safety Relief Valve
- Standing Pilot or Honeywell SmartValve® Intermittent Ignition
- Limit Control with Circulator Relay
- Drain Valve
- Temperature-Pressure Gage
- Electrically Operated Automatic Vent Damper
- Flame Rollout Safety Shutoff Switch
- Vent Safety Shutoff Switch

## SERIES MI OPTIONAL EQUIPMENT

- Bell & Gossett Circulator
- Non-Combustible Floor Pan

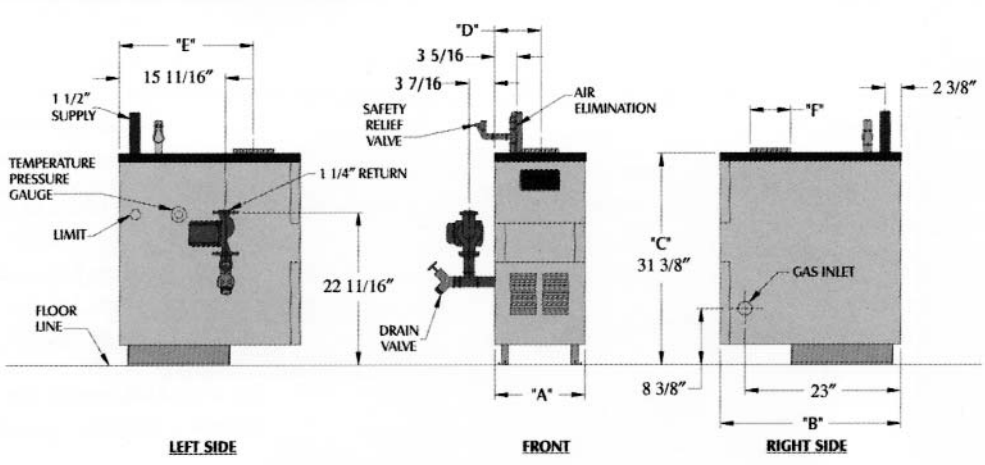


PeerlessBoilers.com

# SERIES MI
# RESIDENTIAL GAS BOILERS

| Boiler Model Number | Input MBH | DOE Heating Capacity MBH[1] | Net I=B=R Ratings Water MBH[1, 2] | Standing Pilot Seasonal Efficiency (AFUE)[3] | Intermittent Ignition Seasonal Efficiency (AFUE)[3] | Water Content (Gallons) |
|---|---|---|---|---|---|---|
| MI-03 | 70 | 58 | 50 | 80.2% | 82.2% | 4.72 |
| MI-04 | 105 | 86 | 75 | 80.2% | 82.1% | 6.00 |
| MI-05 | 140 | 115 | 100 | 80.2% | 82.0% | 7.28 |
| MI-06 | 175 | 143 | 124 | 80.3% | 82.0% | 8.56 |
| MI-07 | 195 | 160 | 139 | 80.5% | 82.0% | 9.84 |
| MI-08 | 227.5 | 186 | 162 | 80.3% | 82.0% | 11.12 |
| MI-09 | 260 | 211 | 183 | 80.1% | 82.0% | 12.40 |

1. Net I=B=R water ratings based on an allowance of 1.15.
2. Consult factory before selecting a boiler for installations having unusual piping and pickup requirements such as intermittent system operations, extensive piping systems etc.
3. Heating Capacity and AFUE ratings are based on U.S. Government tests. Before purchasing this appliance, read important information about it's estimated annual energy consumption or energy efficiency rating that is available from your retailer.




## Boiler Dimensions

| Boiler Model Number | Jacket | | | Left jacket to c/l of "D" | Rear Jacket to c/l of "E" | Vent "F" |
|---|---|---|---|---|---|---|
| | Width "A" | Depth "B" | Top to Floor "C" | | | |
| MI-03 | 12-1/2" | 26-5/8" | 31-3/8" | 6-1/4" | 20-13/16" | 5" |
| MI-04 | 15-7/8" | 26-5/8" | 31-3/8" | 7-11/16" | 20-13/16" | 5" |
| MI-05 | 19-1/4" | 26-5/8" | 31-3/8" | 9-5/8" | 21-13/16" | 6" |
| MI-06 | 22-5/8" | 26-5/8" | 31-3/8" | 11-5/16" | 21-13/16" | 6" |
| MI-07 | 26" | 26-5/8" | 31-3/8" | 13" | 21-13/16" | 7" |
| MI-08 | 29-3/8" | 29-5/8" | 31-3/8" | 14-11/16" | 23-5/16" | 8" |
| MI-09 | 32-3/4" | 29-5/8" | 31-3/8" | 16-3/8" | 24-5/16" | 8" |

## Crate Dimensions & Shipping Weights

| Boiler Model Number | Width | Depth | Height | Approximate Shipping Weight (lbs) |
|---|---|---|---|---|
| MI-03 | 28-1/2" | 30-7/8" | 40-1/4" | 315 |
| MI-04 | 28-1/2" | 30-7/8" | 40-1/4" | 375 |
| MI-05 | 35-1/2" | 30-7/8" | 40-1/4" | 435 |
| MI-06 | 35-1/2" | 30-7/8" | 40-1/4" | 505 |
| MI-07 | 42-1/4" | 33-7/8" | 40-1/4" | 575 |
| MI-08 | 42-1/4" | 33-7/8" | 40-1/4" | 630 |
| MI-09 | 45-1/2" | 33-7/8" | 40-1/4" | 685 |

# 4-12

# Series 63

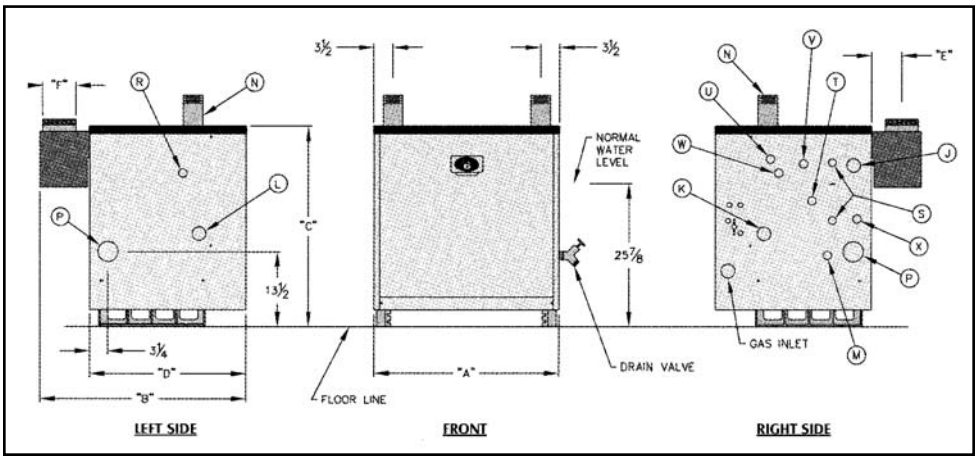
- Residential Gas
  Packaged or Knockdown
- Natural Draft Venting
- Standing Pilot or Spark Ignition
- Steam or Hot Water Boilers
- Natural or LP Gas

PeerlessBoilers.com

**Steam**

**Water**

The Series 63 boiler is a residential, gas-fired boiler for hot water or steam systems. Shipped as knockdown (factory assembled sections), the boiler comes in seven sizes ranging from three to six sections (steam boilers are also available as packaged units). The Series 63 boiler is available for either natural or LP gas and has AFUE ratings of up to 82%. A single vent draft hood allows for natural draft (chimney) venting.The significant water content of the Series 63 boiler makes it ideal for large volume hot water applications. Standard equipment on the Series 63 boiler includes steel push nipples that provide a permanent, watertight seal between sections. A float type, low water cutoff is standard on steam boilers only. All Series 63 boilers include standard standing pilot ignition (spark ignition is available as an option), Honeywell operating controls, vent damper and a slide-in, pre-assembled burner tray. A deluxe, insulated, enameled steel jacket completely encloses gas valves and burners, and reduces boiler heat loss. The low profile design of the Series 63 boiler works well for limited clearance installations.




## Series 63 Standard Equipment

- Deluxe Insulated Enameled Steel jacket
- Cast Iron Sections - Factory Tested & Assembled (3-6) or Split-Assembled (7-12)
- Pre-assembled Wiring Harnesses
- Vent Damper (Series 63 Only)
- Blocked Vent Switch
- Flame Roll-out Switch
- Drain Valve

**Water**

- 30 PSI Safety Relief Valve
- Limit Control
- Temperature-Pressure Gage
- Manual Reset Limit Control (9-12)
- Circulator Relay

**Steam**

- 15 PSI Safety Valve
- Pressure Gage
- Gage G/ass
- Float Type Low Water Cut-off
- Pressure Control
- Tappings for Primary & Secondary Probe Low Water Cutoff
- Skim Tapping
- Manual Reset Limit Control (9-12)

## Tapping Locations

| Tap ID | Size N.P.T. | Steam | Water |
|---|---|---|---|
| J | 1 1/4" | Skim Tapping | Skim Tapping |
| K | 1" | Tank Supply/Limit | N/A |
| L | 1" | Tank Return | N/A |
| M | 3/4" | Boiler Drain | Boiler Drain |
| N | 3" | Supply | Supply |
| P | 2 1/2" | Return | Return |
| R | 3/4" | Safety Valve | Relief Valve |
| S | 1/2" | Gauge Glass | N/A |
| T | 3/4" | Primary Probe Low Water Cut-Off | N/A |
| U | 3/4" | Primary Limit | Primary Limit |
| V | 3/4" | Secondary Limit | Pressure/ Temperature Gauge |
| W | 3/4" | Pressure Gauge | Secondary Limit |
| x | 3/4" | Secondary Probe Low Water Cut-Off | N/A |

## Boiler Dimensions

| Boiler Model | Width "A" | Depth "B" | Top to Floor "C" | Jacket Depth "D" | Rear of Jacket to c/l of Flue "E" | Flue Size "F" |
|---|---|---|---|---|---|---|
| 63-03 | 16 1/8" | 371/4" | 36 3/8" | 28 1/8" | 5 5/8" | 6" |
| 63-04L<br>63-04 | 20 3/8" | | | | 5 1/8" | 7" |
| 63-05L<br>63-05 | 24 5/8" | 39 1/4" | | | 6 5/8" | 8" |
| 63-06 | 28 7/8" | | | | 6 1/8" | 9" |

**Series 63 Boiler Ratings**

| Boiler Model Number | Input MBH | DOE Heating Capacity MBH | | Net I=B=R Ratings | | | Standing Pilot w/Damper Seasonal Efficiency (AFUE) | | Spark Ignition w/Damper Seasonal Efficiency (AFUE) | | Water Content (Gal.) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Water | Steam | Steam Sq. Ft. | Steam MBH | Water MBH | Water | Steam | Water | Steam | Water | Steam |
| 63-03L | 88.5 | 73 | 74 | 231 | 64 | 55 | 80.9% | 80.6% | 82.4% | 83.0% | 13.2 | 9.3 |
| 63-03 | 118.0 | 99 | 98 | 306 | 86 | 73 | 82.1% | 81.2% | 83.5% | 82.6% | 13.2 | 9.3 |
| 63-04L | 147.5 | 123 | 123 | 384 | 107 | 92 | 81.4% | 80.6% | 82.7% | 82.6% | 15.6 | 10.8 |
| 63-04 | 177.0 | 148 | 147 | 459 | 129 | 110 | 82.1% | 81.0% | 83.4% | 82.4% | 15.6 | 10.8 |
| 63-05L | 206.5 | 172 | 171 | 536 | 150 | 129 | 81.9% | 80.7% | 82.9% | 82.3% | 18.0 | 12.4 |
| 63-05 | 236.0 | 198 | 196 | 612 | 172 | 147 | 82.2% | 80.9% | 83.3% | 82.2% | 18.0 | 12.4 |
| 63-06 | 287.5 | 241 | 238 | 744 | 209 | 179 | 82.3% | 80.7% | 83.2% | 82.0% | 20.4 | 13.9 |

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# Series 64

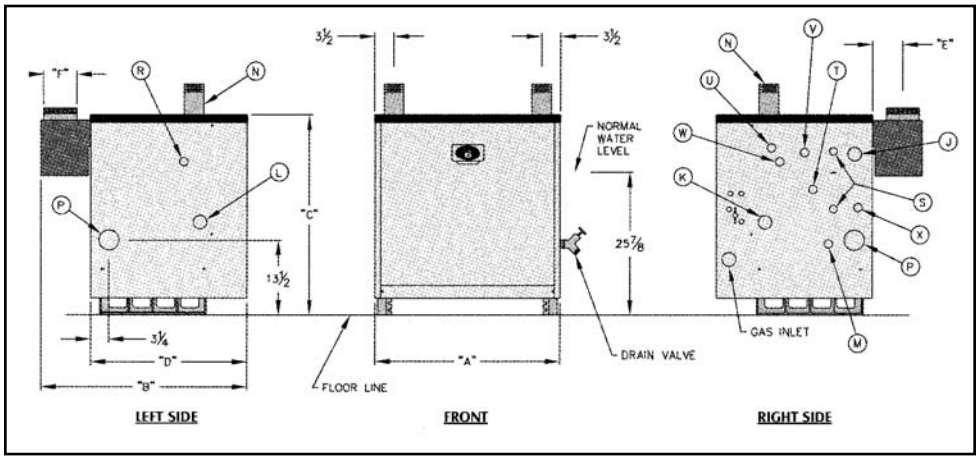
PeerlessBoilers.com

- Semi-Commercial Gas Packaged or Knockdown
- Natural Draft Venting
- Standing Pilot or Spark Ignition
- Steam or Hot Water Boilers
- Natural or LP Gas

**Water**

**Steam**

The Series 64 boiler is a semi-commercial, atmospheric, gas-fired boiler for hot water or steam systems. Ranging from seven to 12 sections in six sizes, the Series 64 boiler has an 81% combustion efficiency and an input of 345 to 632.5 MBH. The Series 64 boiler is offered as either a packaged unit or knockdown with factory assembled split block sections for ease of handling. The boiler is available for either natural or LP gas with spark ignition (seven and eight section boilers are also available with standing pilot ignition). A single vent draft hood allows for natural draft (chimney) venting. The Series 64 boiler features a sizeable water content ideal for steam and large volume, hot water jobs. All boilers have steel push nipples that provide a permanent, watertight seal between sections, and a manual reset high limit control. Steam boilers offer a float type low water cut-off and skim tapping for thorough cleaning.Standard equipment on the Series 64 boiler include Honeywell operating controls and a deluxe, insulated, enameled steel jacket that completely encloses gas valves and burners, to reduce boiler heat loss. The low profile design of the boiler allows it to be used in limited clearance installations.




## Series 64 Standard Equipment

- Deluxe Insulated Enameled Steel jacket
- Cast Iron Sections - Factory Tested & Assembled (3-6) or Split-Assembled (7-12)
- Pre-assembled Wiring Harnesses
- Vent Damper (Series 63 Only)
- Blocked Vent Switch
- Flame Roll-out Switch
- Drain Valve

**Water**

- 30 PSI Safety Relief Valve
- Limit Control
- Temperature-Pressure Gage
- Manual Reset Limit Control (9-12)
- Circulator Relay

**Steam**

- 15 PSI Safety Valve
- Pressure Gage
- Gage G/ass
- Float Type Low Water Cut-off
- Pressure Control
- Tappings for Primary & Secondary Probe Low Water Cutoff
- Skim Tapping
- Manual Reset Limit Control (9-12)

## Tapping Locations

| Tap ID | Size N.P.T. | Steam | Water |
|---|---|---|---|
| J | 1 1/4" | Skim Tapping | Skim Tapping |
| K | 1" | Tank Supply/Limit | N/A |
| L | 1" | Tank Return | N/A |
| M | 3/4" | Boiler Drain | Boiler Drain |
| N | 3" | Supply | Supply |
| P | 2 1/2" | Return | Return |
| R | 3/4" | Safety Valve | Relief Valve |
| S | 1/2" | Gauge Glass | N/A |
| T | 3/4" | Primary Probe Low Water Cut-Off | N/A |
| U | 3/4" | Primary Limit | Primary Limit |
| V | 3/4" | Secondary Limit | Pressure/ Temperature Gauge |
| W | 3/4" | Pressure Gauge | Secondary Limit |
| x | 3/4" | Secondary Probe Low Water Cut-Off | N/A |

## Boiler Dimensions

| Boiler Model | Width "A" | Depth "B" | Top to Floor "C" | Jacket Depth "D" | Rear of Jacket to c/l of Flue "E" | Flue Size "F" |
|---|---|---|---|---|---|---|
| 64-07 | 33 1/8" | 39 1/4" | 36 3/8" | 30 1/8" | 6 1/8" | 9" |
| 64-08 | 37 3/8" | 43 1/8" | | | 7 1/2" | 10" |
| 64-09 | 41 5/8" | | | | | |
| 64-10 | 45 7/8" | 45 1/8" | | | 8 1/2" | 12" |
| 64-11 | 50 1/8" | | | | | |
| 64-12 | 54 3/8" | | | | | |

**Series 64 Boiler Ratings**

| Boiler Model Number | Input MBH | DOE Heating Capacity MBH | | Net I=B=R Ratings | | | Thermal Efficiency (AFUE) | | Combustion Efficiency (AFUE) | | Water Content (Gal.) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Water | Steam | Steam Sq. Ft. | Water MBH | Steam MBH | Water | Steam | Water | Steam | Water | Steam |
| 64-07 | 345.0 | 286 | 279 | 873 | 249 | 210 | 81% | 79.4% | 83% | 82.5% | 22.8 | 15.5 |
| 64-08 | 399.0 | 331 | 323 | 1,010 | 288 | 242 | 81% | 79.6% | 83% | 82.5% | 25.2 | 17.0 |
| 64-09 | 460.0 | 382 | 373 | 1,165 | 332 | 280 | 81% | 79.7% | 83% | 82.5% | 27.6 | 18.6 |
| 64-10 | 517.5 | 430 | 419 | 1,310 | 374 | 314 | 81% | 79.8% | 83% | 82.5% | 30.0 | 20.1 |
| 64-11 | 575.0 | 477 | 466 | 1,456 | 415 | 349 | 81% | 79.8% | 83% | 82.5% | 32.4 | 21.7 |
| 64-12 | 632.5 | 525 | 512 | 1,601 | 457 | 384 | 81% | 79.9% | 83% | 82.4% | 34.8 | 23.2 |

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# SERIES 211A
# COMMERCIAL
# ATMOSPHERIC GAS BOILER

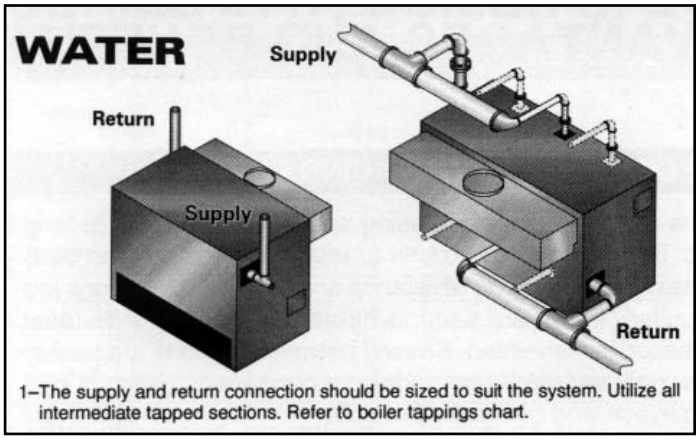
PeerlessBoilers.com

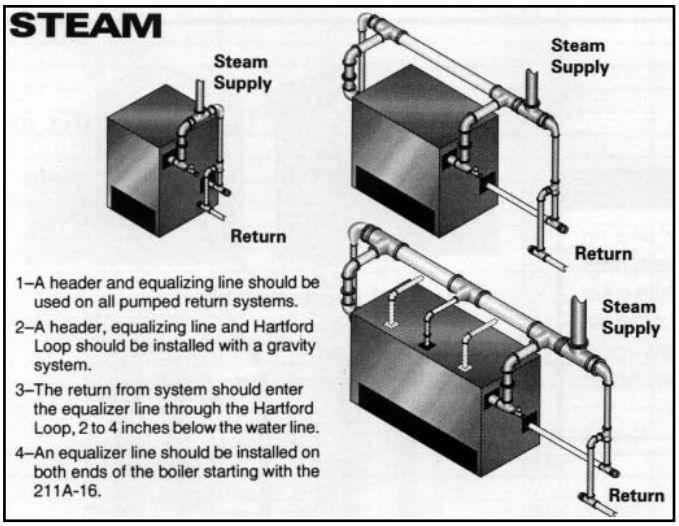
## 211A FEATURES

- **Knocked Down**
- **Natural Draft Venting**
- **630 9,450 MBH Input**
- **Steam or Hot Water Boilers**
- **Natural or LP Gas**

- **Combustion Efficiency** meets the 80% ASHRAE 90.1 minimum as required by the federal standards for commercial boilers.
- Optional **Mod-U-Pak** unique three stage firing system provides improved boiler response and fuel economy.
- Built-in horizontal to verticle draft hood and aluminized steel flue collector provide a low boiler profile to allow installation in areas with low head room.
- The unique **finned, tubular sections** are spaced evenly using spacing rings which allow the sections to maintain their as-cast skin, providing maximum corrosion resistance and longer life.
- The Peerless **Flow Port flexible seals** assure a **water-tight fit** while providing faster boiler assembly and allow the sections to expand and contract independently.
- The exclusive Peerless access design, from both ends, allows easy accessibility to the fluways for inspection and cleaning, without removing the entire jacket.
- **Optional tankless coils** can be used to assure adequate domestic hot water production.

INSULATED BASE including pre-assembled gas train and manifold with orifice adapters to simplify field assembly.
MULTIPLE FINNED WATER TUBE SECTIONS are a unique "closed H" design which provides strength without unnecessary weight. Thirteen staggered flue passages per boiler section force the hot gasses through, and around finned water tubes for greater heat absorption.
ACCESS DOORS AT BOTH ENDS provide easy access for inspection and cleaning.
ALUMINIZED STEEL FLUE COLLECTORS and horizontal-to-vertical draft diverters maintain a predetermined height of the flue outlet regardless of boiler size. while aluminized steel provides extra long life.
PRECISION GROUND SPACING RINGS permit even spacing of sections. but avoid long iron-to-iron contact to provide maximum corrosion protection.
FLOW PORT GASKET SEALING is achieved by machined surfaces which compress the gasket, assuring a water-tight seal and faster boiler assembly.



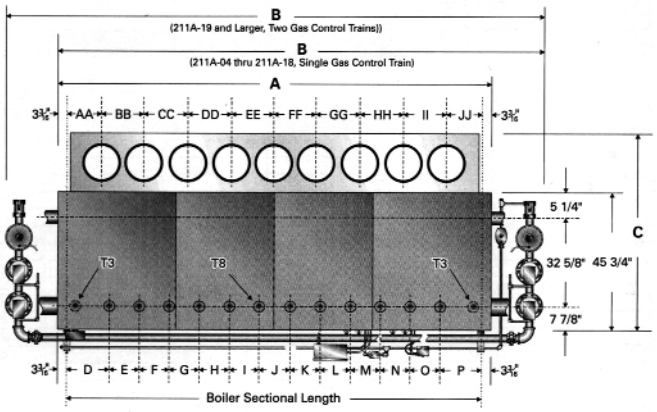
PeerlessBoilers.com

# SERIES 211A
# COMMERCIAL
# ATMOSPHERIC GAS BOILER

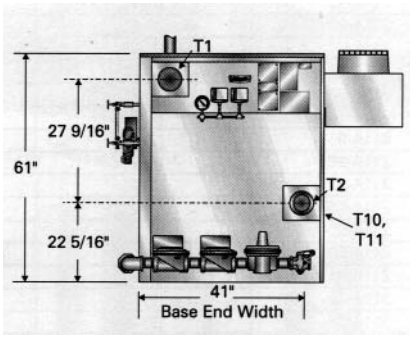
## SERVICE AND COMBUSTIBLE CLEARANCES:

1. THE DESIGN OF THIS BOILER 1S CERTIFIED FOR THE FOLLOWING CLEARANCES TO COMBUSTIBLE CONSTRUCTION
   A. 48" BETWEEN THE FRONT, SIDES, AND REAR OF THE JACKET.
   B. 7'6" FLOOR TO CEILING.
   C. 6" FROM STEAM AND HOT WATER PIPES.
   D. 6" FROM VENT CONNECTOR.

| Boiler Model No. | Length And Width Dimensions | | | Boiler Sectional Length |
|---|---|---|---|---|
| | A | B | C | |
| 211A-04 | 28-1/2" | 38-3/8" | 63" | 21-3/4" |
| 211A-05 | 33-3/4" | 44" | 63" | 27-3/8" |
| 211A-06 | 39-3/8" | 50-1/4" | 65" | 33" |
| 211A-07 | 45" | 55-7/8" | 63" | 38-5/8" |
| 211A-08 | 50-5/8" | 61-3/4" | 63" | 441/4" |
| 211A-09 | 56-1/4" | 67-5/8" | 63" | 49-7/8" |
| 211A-10 | 61-7/8" | 73-1/4" | 65" | 55-1/2" |
| 211A-11 | 67-1/2" | 80-3/4" | 65" | 61-1/8" |
| 211A-12 | 73-1/8" | 86-3/8" | 63" | 66-3/4" |
| 211A-13 | 78-3/4" | 91-1/2" | 63" | 72-3/8" |
| 211A-14 | 84-3/8" | 97-1/8" | 65" | 78" |
| 211A-15 | 90" | 102-3/4" | 65" | 83" |



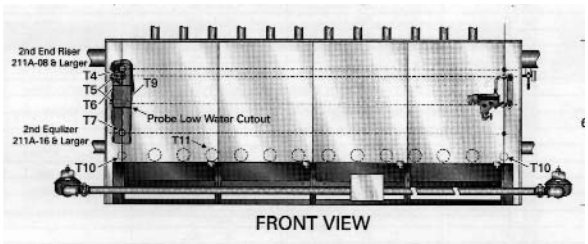

| Boiler Model No. | Center Line Dimensions Draft Diverters | | | | Draft Hoods No. And Size | Flue Size To Stack | Size Chimney |
|---|---|---|---|---|---|---|---|
| | AA | BB | CC | JJ | | | |
| 211A-04 | 10-7/8" | | | 10-7/8" | 1-12" | 12" | 12" x 20' |
| 211A-05 | 13-3/4" | | | 13-5/8" | 1-12" | 12" | 12" x 20' |
| 211A-06 | 16-1/2" | | | 16-1/2" | 1-14" | 14" | 14" x 20' |
| 211A-07 | 10-7/8" | 16-7/8" | | 10-7/8" | 2-12" | 14" | 14" x 20' |
| 211A-08 | 13-3/4" | 19-5/8" | | 10-7/8" | 2-12" | 15" | 15" x 20' |
| 211A-09 | 13-3/4" | 22-1/2" | | 13-5/8" | 2-12" | 16" | 16" x 20' |
| 211A-10 | 16-1/2" | 25-3/8" | | 13-5/8" | 2-14" | 17" | 17" x 20' |
| 211A-11 | 16-1/2" | 28-1/8" | | 16-1/2" | 2-14" | 18" | 18" x 20' |
| 211A-12 | 13-3/4" | 22-1/2" | 19-5/8" | 10-7/8" | 3-12" | 18" | 18" x 20' |
| 211A-13 | 13-3/4" | 22-1/2" | 22-1/2" | 13-5/8" | 3-12" | 19" | 19" x 20' |
| 211A-14 | 16-1/2" | 25-3/8" | 22-1/2" | 13-5/8" | 3-14" | 20" | 20" x 20' |
| 211A-15 | 16-1/2" | 25-3/8" | 25-1/2" | 16-1/2" | 3-14" | 21" | 21' x 20' |




### NATURAL GAS RATINGS*

| BOILER MODEL NO. | A.G.A. INPUT M.B.H. | A.G.A. OUTPUT M.B.H. | NET I.B.R. RATING STEAM SQR. FT. | STEAM M.B.H. | WATER M.B.H. | STEAM PIPING FACTOR |
|---|---|---|---|---|---|---|
| 211A-04 | 630 | 504 | 1575 | 378 | 438 | 1.333 |
| 211A-05 | 840 | 672 | 2100 | 504 | 584 | 1.333 |
| 211A-06 | 1050 | 840 | 2625 | 630 | 730 | 1.333 |
| 211A-07 | 1260 | 1008 | 3150 | 756 | 877 | 1.333 |
| 211A-08 | 1470 | 1176 | 3675 | 882 | 1023 | 1.333 |
| 211A-09 | 1680 | 1344 | 4229 | 1015 | 1169 | 1.324 |
| 211A 10 | 1890 | 1521 | 4808 | 1154 | 1315 | 1.310 |
| 211A-11 | 2100 | 1680 | 5392 | 1294 | 1461 | 1.298 |
| 211A-12 | 2310 | 1848 | 5971 | 1433 | 1607 | 1.290 |
| 211A-13 | 2520 | 2016 | 6521 | 1565 | 1753 | 1.288 |
| 211A-14 | 2730 | 2184 | 7067 | 1696 | 1899 | 1.288 |
| 211A-15 | 2940 | 2352 | 7608 | 1826 | 2045 | 1.288 |

*AVAILABILITY OF 5" W.C. GAS TRAIN ON SOME MODELS
LARGER SIZES AVAILABLE. PLEASE CALL FOR QUOTE.



# TC Series
# Pressurized Wet Base Steam/Water Boiler

PeerlessBoilers.com

Designed to provide the highest efficiencies possible with forced draft firing, this line of Smith cast iron boilers is available in fifteen basic sizes, with gross output ratings from 900 to 4,629 MBH. Series 28A boilers may be used in either water or steam systems, and may be fired with light oil, gas or gas/light oil.

## Series TC Boilers Include:

- Rugged cast-iron construction
- Integral flue gas collector
- Cast-in heat extraction pins for increased performance
- Wet-Base design for top performance
- Hi-Temp Hydronic port seals, rather than conventional push nipples for ease of installation
- Short, individual section draw rods to simplify assembly, reduce stress
- Front and rear observation ports
- Aluminized steel breeching damper which can be easily adjusted and locked in position
- Easy access side cleaning
- Obround shaped upper port for improved internal circulation and dry steam
- Wide variety of tankless heater options

That's the Peerless Series TC boiler... an efficient, rugged boiler designed specifically for apartments, schools, offices and other commercial and institutional buildings.

## STANDARD EQUIPMENT

### All Boilers

- Cast iron wet-base sections
- Insulated metal jacket
- Cast iron smokehood with integral damper
- Burner mounting plate with insulation block
- Front and rear flame observation ports
- Steel angle floor rails
- Ceramic fiber rope seal between sections
- Hi-Temp hydronic port seals
- Flue brush

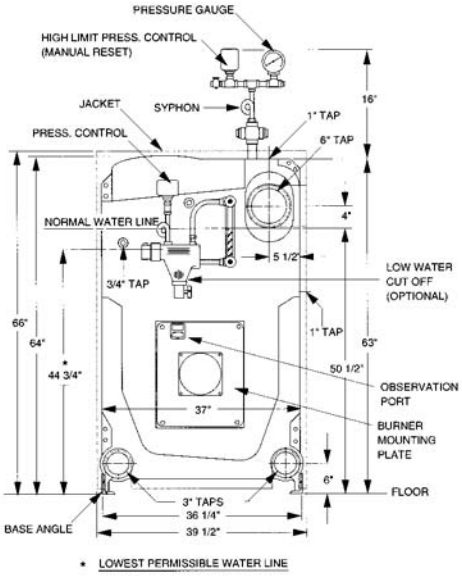
### Water Boilers

80 psi working pressure sections
ASME relief valve, 40 psi
Theraltimeter
Return yoke with flexible seals
Manual reset, Hi-Limit control (Boiler/Burner units only)
Operating control (Boiler/Burner units only)

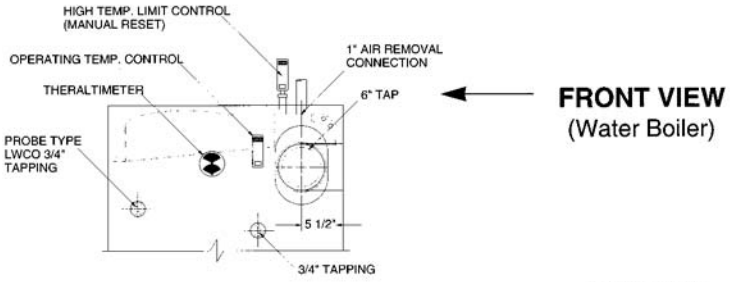
### Steam Boilers

ASME side outlet safety valve, 15 psi
Steam gauge
Gauge glass with gauge cocks and guards
Manual reset, Hi-Limit control (Boiler/Burner units only)
Operating control (Boiler/Burner units only)

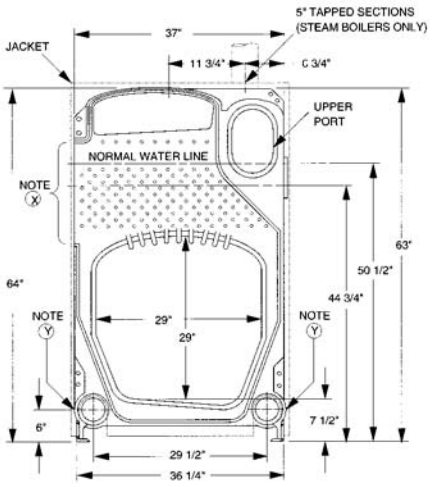
## LIGHT OIL, GAS, OR GAS/LIGHT OIL




**FRONT VIEW**
(Steam Boiler)




**FRONT VIEW**
(Water Boiler)




**INTERMEDIATE SECTION**

Note X - Flue cleanout opening. Allow 36" clear work space for using flue brush
Note Y - 1-1/2" Inspection tappings when ordered.

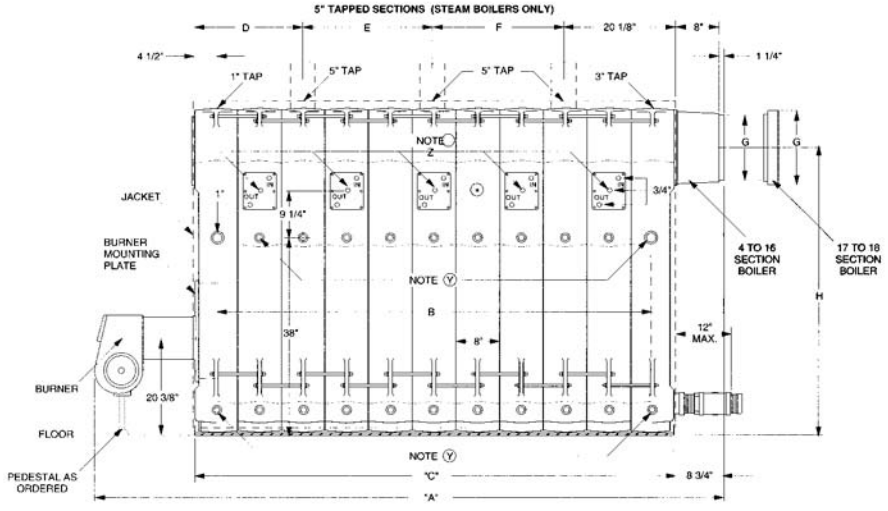
PeerlessBoilers.com

# TC Series
# Pressurized Wet Base Steam/Water Boiler

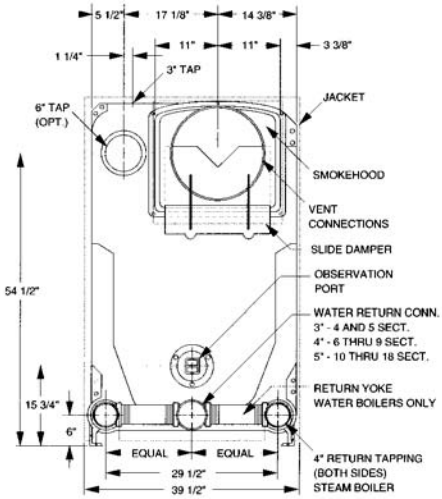
| Boiler Number (Note 1) | Boiler Horse-power | I=B=R Gross Output (MBH) | Net I=B=R Ratings (Note 2) | | | | | Water Contents (Gals.) | | Water Working Weight (Lbs.) | Length Overall "A" | Boiler Length "C" | Steam Uptake Locations (Note 9) | | | Dia. Vent Conn. "G" | Note (7) Height Vent Conn. "H" |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Steam | | Water | I=B=R Burner Capacity | | | | | | | | | | | |
| | | | Sq. Ft. | MBH | MBH | Oil GPH (Note 3) | Gas MBH (Note 4) | Steam | Water | | Power Flame | | "D" | "E" | "F" | | |
| †TC-³-4 | 27 | 900 | 2813 | 675 | 783 | 8.0 | 1154 | 103.8 | 123.4 | 4,215 | 71-5/8 | 33 | 12-1/2 | ___ | ___ | 10 | 57-5/8 |
| †TC-³-5 | 35 | 1166 | 3646 | 875 | 1014 | 10.4 | 1491 | 125.8 | 150.3 | 5,038 | 83-1/8 | 41 | 20-1/2 | ___ | ___ | 10 | 57-5/8 |
| †TC-³-6 | 43 | 1433 | 4538 | 1089 | 1246 | 12.6 | 1827 | 147.8 | 177.2 | 5,861 | 91-1/8 | 49 | 12-1/2 | 16 | ___ | 10 | 56-5/8 |
| †TC-³-7 | 51 | 1699 | 5458 | 1310 | 1477 | 15.0 | 2163 | 169.8 | 204.1 | 6,684 | 99-1/8 | 57 | 12-1/2 | 24 | ___ | 12 | 56-5/8 |
| †TC-³-8 | 59 | 1965 | 6358 | 1526 | 1709 | 17.4 | 2499 | 191.8 | 231.0 | 7,507 | 107-1/8 | 65 | 12-1/2 | 32 | ___ | 12 | 55-5/8 |
| †TC-³-9 | 67 | 2232 | 7221 | 1733 | 1941 | 19.6 | 2836 | 213.8 | 257.9 | 8,331 | 115-1/8 | 73 | 12-1/2 | 40 | ___ | 14 | 55-5/8 |
| †TC-³-10 | 75 | 2498 | 8079 | 1939 | 2172 | 22.0 | 3172 | 235.8 | 284.8 | 9,169 | 128 | 81 | 20-1/2 | 40 | ___ | 14 | 55-5/8 |
| †TC-³-11 | 83 | 2764 | 8942 | 2146 | 2403 | 24.5 | 3508 | 257.8 | 311.7 | 9,992 | 137-1/8 | 89 | 20-1/2 | 24 | 24 | 14 | 55-5/8 |
| †TC-³-12 | 91 | 3031 | 9804 | 2353 | 2636 | 26.5 | 3844 | 279.8 | 338.6 | 10,815 | 145-1/8 | 97 | 20-1/2 | 24 | 32 | 14 | 54-5/8 |
| †TC-³-13 | 98 | 3297 | 10667 | 2560 | 2867 | 29.0 | 4180 | 301.8 | 365.5 | 11,649 | 153-1/8 | 105 | 20-1/2 | 32 | 32 | 14 | 54-5/8 |
| †TC-³-l4 | 106 | 3563 | 11525 | 2766 | 3098 | 31.5 | 4517 | 323.8 | 392.4 | 12,467 | 161-1/8 | 113 | 20-1/2 | 32 | 40 | 16 | 54-5/8 |
| †TC-³-15 | 114 | 3830 | 12392 | 2974 | 3330 | 33.5 | 4853 | 345.8 | 419.3 | 13,511 | 169-1/8 | 121 | 20-1/2 | 40 | 40 | 16 | 54-5/8 |
| †TC-³-16 | 122 | 4096 | 13250 | 3180 | 3562 | 36.0 | 5189 | 367.8 | 446.2 | 14,375 | 177-1/8 | 129 | 20-1/2 | 48 | 40 | 16 | 54-5/8 |
| †TC-³-17 | 130 | 4362 | 14113 | 3387 | 3793 | 38.5 | 5525 | 389.8 | 473.1 | 15,239 | 191-1/8 | 137 | 20-1/2 | 48 | 48 | 18 | 54-5/8 |
| †TC-³-18 | 138 | 4629 | 14975 | 3594 | 4025 | 40.5 | 5862 | 411.8 | 500.0 | 16,103 | 199-1/8 | 145 | 20-1/2 | 56 | 48 | 18 | 54-5/8 |

**(Note 1)** Important Ordering information
(†) Add Prefix for type of fuel to be burned. "LO" for light oil, "G" for Gas or "GO" for gas/oil.
(³) Insert "S" for steam, "W" for water.
Example: LO-28A-S-6 is the model no. for a six section steam boiler firing light oil.
**(Note 2)** Net I=B=R Water Ratings are based on an allowance of 1.15. Net I=B=R Ratings for steam boilers are based on piping and pick-up factor as follows: 4 and 5 section = 1.333, 6 section = 1.305, 8 section and larger =1.288.
**(Note 3)** Light oil having a heat content of 140,000 BTU/Gal.
**(Note 4)** Gas having a heat content of 1,000 BTU/Cu. Ft., 0.60 specific gravity
**(Note 5)** Burner operation: Low-fire start, high-fire run, two position air.
**(Note 6)** Burner operation: On-off, (4 sect.); Low-fire start, high-fire run, two position air (5-14 sect.).
* When 5th heater is required—relocate steam uptake and dimensions "E" = 32 in. and "F" = 16 in.
**(Note 7)** When unit is assembled or packaged, add 6" to heights for 4-14 sect., 8" to heights for 15-18 sect.
**(Note 8)** Add 2-3/4" to sect. 14 thru 18 for smoke hood adaptor.
†† Based on 0.10 ins. W.C. pressure at boiler outlet. If vent sizing results in a back pressure greater than 0.10 ins. W.C., consult Smith
**(Note 9)** These measurements are approximate.

The Smith representative should be consulted before selecting boilers for installation having unusual piping and pick-up requirements, such as intermittent system operation, extensive piping systems, etc. The boiler ratings have been determinied under previous governing forced draft units.



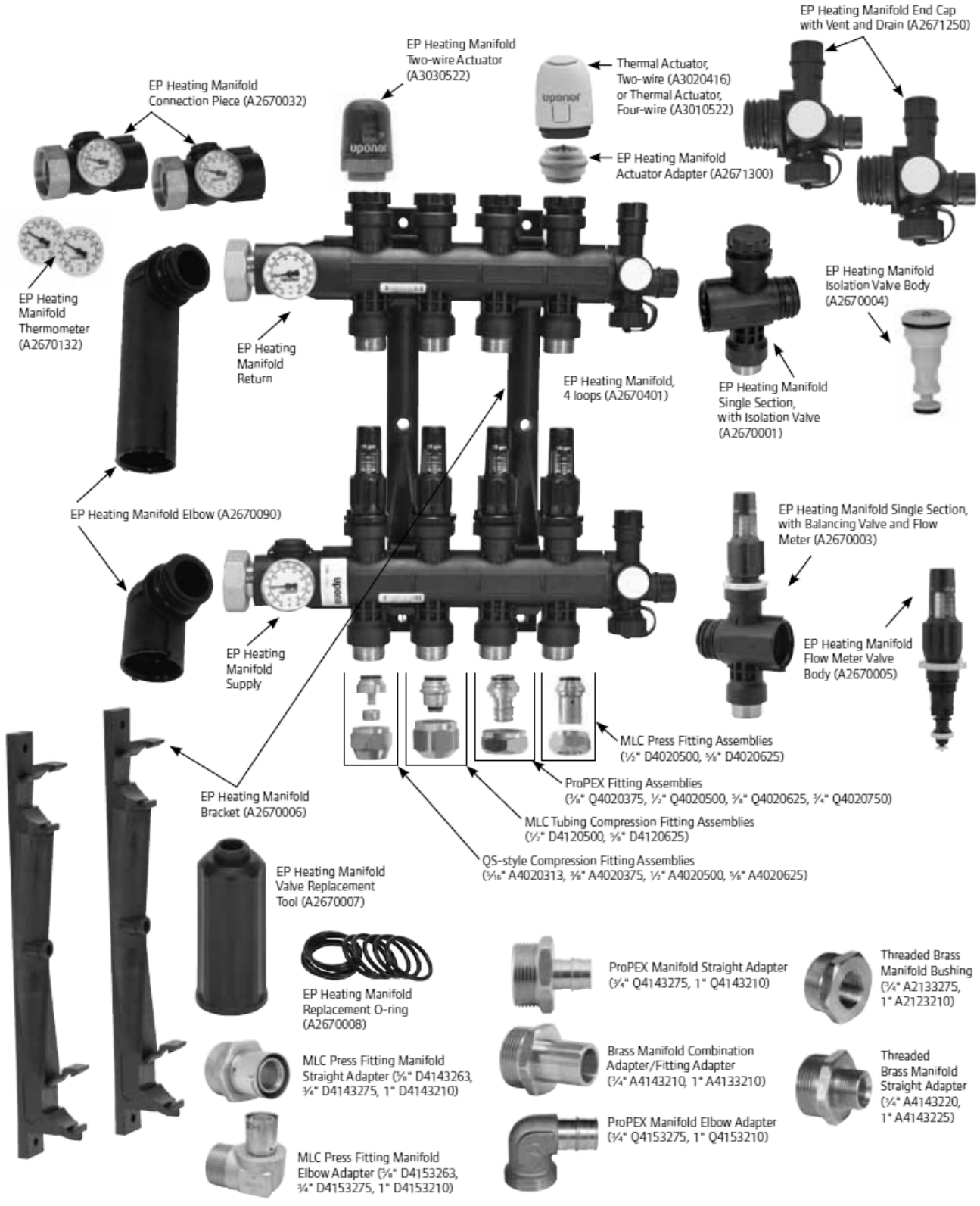

SIDE VIEW




REAR VIEW

Note Z - Tankless heater sections when ordered. Allow 36" clear space for heater withdrawal.

## *Engineered Polymer (EP) Heating Manifold Exploded View*



## hePEX Barrier Tube


WIRSBO-hePEX (cross-linked polyethylene) is heat transfer tubing with an EVOH oxygen diffusion barrier. Wirsbo-hePEX tubing is rated and listed by the Hydrostatic Design Stress Board of PPI at: 73.4ºF at 160 psi, 180ºF at 100 psi and 200ºF at 80º psi.

| Description | Part No. |
|---|---|
| 5/16" nom. hePex 250 ft. coil | A1180313* |
| 5/16" nom. hePex 1000 ft. coil | A1220313* |
| 3/8" nom. hePEX 400 ft. coil | A1210375 |
| 3/8" nom. hePEX 1000 ft. coil | A1220375 |
| 1/2" nom. hePEX 300 ft. coil | A1250500 |
| 1/2" nom. hePEX 1000 ft. coil | A1220500 |
| 5/8" nom. hePEX 300 ft. coil | A1250625 |
| 5/8" nom. hePEX 1000 ft. coil | A1220625 |
| 3/4" nom. hePEX 300 ft. coil | A1250750 |
| 1" nom, hePEX 300' ft. coil | A1251000 |

***For use with Wirsbo Quik Track only.***

## Assembled EP Heating Manifolds

The EP Heating Manifold Assemblies feature isolation valves and balancing valves with flow meters, and come fully assembled, ready for installation. The manifolds are available in 2- through 8-loop configurations with a maximum flow of 15.4 gpm.

| Description | Part No. |
|---|---|
| 2 loop, Supply & Return | A2670201 |
| 3 loop, Supply & Return | A2670301 |
| 4 loop, Supply & Return | A2670401 |
| 5 loop, Supply & Return | A2670501 |
| 6 loop, Supply & Return | A2670601 |
| 7 loop, Supply & Return | A2670701 |
| 8 loop, Supply & Return | A2670801 |

## Manifold Extension Kit

The EP Heating Manifold Single Section with Isolation Valve is a single loop add-on used on the return side for EP Heating Manifold Assemblies.

| Description | Part No. |
|---|---|
| Single section w/ isolation valve | A2670001 |

The EP Heating Manifold Single Section with Balancing Valve and Flow Meter is a single loop add-on used on the supply side for EP Heating Manifold Assemblies.

| Description | Part No. |
|---|---|
| Single section w/ balancing valve & flow meter | A2670003 |

## Quik Trak®

Quik Pac™, Wirsbo's pre-assembled Quik Trac panels, consist of six panels fastened together with strapping tape.
**Note:** For use with 5/16" hePEX tubing only.

| Description | Part No. |
|---|---|
| Quik Trac 7" x 48" x 6" panels | A5060761 |

## Quik Trak Return Panels

Quik Return Panels are designed with a "U" groove to complete to complete tubing turns.

| Description | Part No. |
|---|---|
| Quik Trac 7" x 48" panels | A5060702 |

## Quick Drive Sealant

Quik Trak Sealant is 100% silicone and provides good thermal transfer. Use to adhere 5/16" Wirsbo hePEX plus tubing in the Quik Trak groove.

| Description | Part No. |
|---|---|
| Quick Drive Sealant | E6050010 |

## Quik Trak Fitting Assembly

Quik Return Panels are designed with a "U" groove to complete to complete tubing turns.

| Description | Part No. |
|---|---|
| Fitting Assembly | A4020313 |


## Joist Trak™ Heat-Transfer Panel

Joist Trak heat transfer panels enable fast, effective installation of 3/8" and 1/2" hePEX tube in virtually any application for floors, walls, and ceilings. The rigid channel construction makes it easy for hePEX tube to be "snapped" into place tightly and securely.

| Description | Part No. |
|---|---|
| 3/8" Joist Trak 4" x 48" | A5080375 |
| 1/2" Joist Trak 4" x 48" | A5080500 |

## ProPEX® Ring


ProPEX Rings slide over ebd of tubing to make a ProPEX fitting connection.

**Note**: ProPEX expander tool required.

| Description | Part No. |
|---|---|
| ProPEX Ring 3/8" | Q4690302 |
| ProPEX Ring 1/2" | Q4690512 |
| ProPEX Ring 5/8" | Q4680625 |
| ProPEX Ring 3/4" | Q4690752 |

## ProPEX Fitting Assembly

ProPEX Rings slide over ebd of tubing to make a ProPEX fitting connection.

**Note**: ProPEX expander tool required.

| Description | Part No. |
|---|---|
| 3/8" ProPEX Fitting | Q4020375 |
| 1/2" ProPEX Fitting | Q4020500 |
| 5/8" ProPEX Fitting | Q4020625 |
| 3/4" ProPEX Fitting | Q4020725 |

## ProPEX Brass Coupling

ProPEX couplings make PEX to PEX connections.

**Note**: ProPEX expander tool required.

| Description | Part No. |
|---|---|
| 1/2" ProPEX coupling | Q4545050 |
| 5/8" ProPEX coupling | Q4546363 |
| 3/4" ProPEX coupling | Q4547575 |

## ProPEX PEX to Male NPT

ProPEX couplings make PEX to NPT connections.

**Note**: ProPEX expander tool required.

| Description | Part No. |
|---|---|
| 1/2" ProPEX x 1/2" NPT | Q4525050 |
| 5/8" ProPEX x 3/4" NPT | Q4526375 |
| 3/4" ProPEX x 3/4" NPT | Q4527575 |

## ProPEX Copper Adapter

ProPEX couplings make PEX to NPT connections.

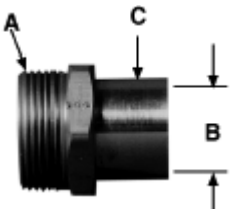
**Note**: ProPEX expander tool required.

| Description | Part No. |
|---|---|
| 1/2" ProPEX x 1/2" CU | Q4515050 |
| 5/8" ProPEX x 3/4" CU | Q4516375 |

## ProPEX Expander Tool

The ProPEX expander tool is required when installing the ProPEX tube. Comes with the sturdy expansion case.

| Description | Part No. |
|---|---|
| ProPEX Hand Expander Tool with 1/2", 3/4", 1" heads | Q6295075 |
| ProPEX Hand Expander Tool w/o heads | Q6275075 |
| 1/2" Head | Q6310500 |
| 5/8" Head | Q6310625 |
| 3/4" Head | Q6310750 |
| 1" Head | Q6311000 |




## Manifold Adapter Copper

Adapter for 1-1/4" brass manifolds. Use R32 adapter to transition 1-1/4" manifold union nut to 1" copper pipe or 1-1/4" copper fittings and valves.

| Description | Part No. |
|---|---|
| R32 x 3/4" CU adapter / 1" fitting adapter | A4143210 |
| R32 x 1" CU adapter / 1-1/4" fitting adapter | A4133210 |

| Control No. | A | B | C |
|---|---|---|---|
| A4143210 | R32 | 3/4" | 1-1/8" |
| A4133210 | R32 | 1" | 1-1/4" |


## Manifold Bushing

| Control No. | A | B |
|---|---|---|
| A21232I0 | R32 | 1" NPT |

Manifold Bushing for 1-1/4" brass manifolds. Use to transition 1-1/4" manifold union nut to 1" NPT female thread.

| Description | Part No. |
|---|---|
| Bushing | A21232I0 |


## End Cap with Vent

End Cap with vent for 1-1/4" brass manifolds. Complete with drain valve and manual air vent. Required gasket included.

| Description | Part No. |
|---|---|
| End cap with vent | A2803250 |

## QS Fitting Assemblies

Compression Fitting Assembly with O-ring. Connects 5/8" PEX tubing products to Wirsbo manifold* (brass) outlets, R20 and R25 components (5/8" currently only available as old style R20, less O-ring). Sold as a three piece component. Compression rings also sold separately.

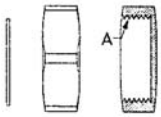
| Description | Part No. |
|---|---|
| 5/16" QS20 Fitting Assembly | A4020313 |
| 3/8" QS20 Fitting Assembly | A4020375 |
| 1/2" QS20 Fitting AssemblY | A4020500 |
| 5/8" QS20 Fitting Assembly | A4020625 |
| 3/4" QS25 Fitting Assembly | A4020750 |

## Basic End Cap


Basic end cap for 1-1/4" brass manifolds. Required gasket included.

| Description | Part No. |
|---|---|
| Basic end cap | A2080032 |

## 3/4" End Cap




3/4" End Cap. End cap for 1-1/4" manifold loop outlets. Required gasket included.

| Description | Part No. |
|---|---|
| 3/4" end cap, optional, 10/pkg | A2080020 |

## Manifold Gaskets

A2403232 Manifold union and End cap w/vent

A2400020 3/4" End cap

A2400032 Basic End cap

Gasket for 1-1/4" manifold and manifold parts, spare part.

| Description | Part No. |
|---|---|
| Manifold/End cap w/vent gasket, spare part, 10/pkg | A2403232 |
| Basic end cap gasket, spare part, 10/pkg | A2400032 |
| 3/4" end cap gasket, spare part, 10/pkg | A2400020 |

## Repair Coupling

Use 5/16" Repair Coupling to connect 5/16" Wirsbo hePEX plus together. Note: One-piece Repair Coupling comes as an assembly. No other fittings are necessary.

| Description | Part No. |
|---|---|
| Repair Coupling | A4010313 |

## QS Coupling Nipple

QS20 Coupling Nipple (brass). Use coupling nipple and the appropriate fitting assembly to connect PEX to PEX (33/8", 1/2", 5/8" and 3/4").

| Description | Part No. |
|---|---|
| Coupling Nipple, R20 X R20, 10/pkg | A4322020 |
| Coupling Nipple, R25 X R25, 10/pkg | A4322525 |

## QS Conversion Nipple

QS20 Conversion Nipple (brass). Use conversion nipple and the appropriate fitting to connect 5/8" PEX tubing to 1/2", 3/4" and 1" NPT.

| Description | Part No. |
|---|---|
| Conversion Nipple, R20 x1/2" NPT, 10/pkg | A4322050 |
| Conversion Nipple, R20 x 3/4" NPT, 10/pkg | A4322075 |
| Conversion Nipple, R20 x 3/4" NPT, 10/pkg | A4322075 |
| Conversion Nipple, R25 x 3/4" NPT, 10/pkg | A4322575 |
| Conversion Nipple, R25 x 1" NPT, 10/pkg | A4322510 |

## QS Adapters

Adapter. Use R20 or R25 adapter and appropriate QS20 fitting assembly to transition REX tubing to 3/4" copper pipe.

| Description | Control No. |
|---|---|
| Adapter R20 x 1/2" CU, 10/pkg | A4332050 |
| Adapter R20 x 3/4" CU, 10/pkg | A4332075 |
| Adapter R25 x 3/4" CU, 10/pkg | A4332575 |

## QS Fitting Adapters

QS20 Fitting Adapter. Use R20 adapter and appropriate Q520 fitting assembly to transition PEX tubing to 1/2" and 3/4" copper fittings.

| Description | Part No. |
|---|---|
| Fitting Adapter R20 x 1/2" CU, 10/pkg | A4342050 |
| Fitting Adapter R20 x 3/4" CU, 10/pkg | A4342075 |

## QS Compression Rings

QS Compression Ring (brass). Replacement part. The QS20 compression ring is designed and tested for use with Wirsbo-hePEX and Wirsbo-PEX. Do Not substitute similar compression rings.

| Description | Part No. |
|---|---|
| 1/2" Compression Ring, spare part, 10/pkg | A4160050 |
| 5/8" Compression Ring, spare part, 10/pkg | A4160625 |

## Metal Bend Supports

Metal Bend Support (zinc plated).
Provides rigid 90º bend for nominal PEX tubing.

| Description<br>Part No. | |
|---|---|
| 3/8" Metal Bend supports | A5110325 |
| 5/8" Metal Bend supports | A5110625 |
| 3/4" Metal Bend supports | A5110750 |

## Plastic Bend Supports

PVC bend support provides rigid 90º bend for nominal PEX tubing runs exiting a concrete slab.

| Description | Part No. |
|---|---|
| 1/2" PVC Bend Support | A5500500 |
| 5/8" PVC Bend Support | A5500625 |
| 3/4" PVC Bend Support | A5500750 |

## Drop Ear Bend Supports

Drop ear bend supports provide a rigid 90º bend and the ability to secure Wirsbo tubing where it exits a stud wall or wood subfloor.

| Description | Part No. |
|---|---|
| 1/2" Metal Bend Supports | F5120500 |
| 1/2" Plastic Bend Supports | F5200500 |

## PEX Clip

Plastic PEX clips are used to secure tubing products to the underside of wood flooring for joist application installations. Design of clip prevents direct contact with wood subfloor. Wood screw suitable as fastening hardware (not included).

| Description | Part No. |
|---|---|
| PEX Clip (1/2" & 5/8"), 100/pkg. | F7051258 |

## PEX Tubing Cutter

PEX Tubing Cutter (3/8" to 1" tube size capacity). Cutter has a reversible double blade.

| Description | Part No. |
|---|---|
| Tube cutter | E6081125 |

## Fixing Wire Twister

| Description | Part No. |
|---|---|
| Fixing wire twister | E6090005 |

## PEX Rail

Plastic rail used to secure 1/2" and 5/8" PEX tubing products to concrete floors and wooden subfloors. Suitable fastening hardware not included. 6'6" L x 1" H. 2" between channels.

| Description | Part No. |
|---|---|
| 5/8" Pex Rail | A5700625 |

## Tube Fastener

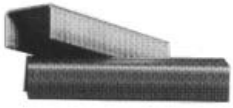
U Shaped Tube Fastener. Galvanized staple used to manually secure PEX tubing products to wood subflooring.

| Description | Part No. |
|---|---|
| U shaped tube fasteners, 250/pkg | A7040250 |

## Foam Staple

Tubing staples for manual stapler (#E6025075). Plastic staple used tto secure 1/2" and 5/8" PEX to rigid insulation.

| Description | Part No. |
|---|---|
| Foam Staple, 1-1/2", 300/pkg | A7015050 |
| Foam Staple, 2-1/2", 300/pkg | A7015075 |



## Staples

Tubing Staples. Use 1-1/4" staples in staple down installations to secure 1/2" and 5/8" PEX to wood subfloors. Use the Pneumatic Stapler (#E6021620) with 2-1/2" staples to secure PEX tubing in joist and rigid foam insulation applications.

| Description | Part No. |
|---|---|
| 1-1/4", 10,000/pkg | A7011250 |
| 2-1/2", 4500/pkg | A7012500 |

## Fixing Wire

Fixing Wire. 6" galvanized steel tie used to secure PEX tubing products to wire mesh or rebar. **Use with fixing wire twister or auto fixing wire twister (rachet style).**

| Description | Part No. |
|---|---|
| Fixing wire, 1000/pkg | A7031000 |

## Ratchet Style Fixing Wire Twister

Use Ratchet-style Fixing Wire Twister with Fixing Wire (A7031000).

| Description | Part No. |
|---|---|
| Fixing Wire Twister | E609005 |

## SetPoint Controller Thermostat

The SetPoint 501s is a single-stage, non-programmable setpoint controller designed to sense air, floor or both temperatures with the ability to select one or the other as the primary sensing point (floor sensor included).

| Description | Part No. |
|---|---|
| SetPoint 501 | A3041501 |

## Radiant Thermostat

Different from other industry power-sharing thermostats, these eliminate any need for a third wire or battery, which makes the thermostats simple to install, wire and service.

| Description | Part No. |
|---|---|
| 2 Wire Thermostat | A3030101 |
| 3 Wire Thermostat | A3030103 |

## Wirsbo MVA Motorized Valve Actuator


Quick opening motorized valve head mounts directly on the 1-1/4" valved manifolds and the open/close indicator allows for easy visual inspection. Provides individual flow control (per loop) on a multi-zoned manifold. Dedicated end switch completes circuit for circulator or heat plant relay. 2"x3-3/4".

| Description | Part No. |
|---|---|
| MVA, 4 wire | A3020522 |

## Thermal Actuator


Slow-opening Thermal Actuator (24VAC) mounts directly onto TruFLOW Valved Manifolds. It provides individual loop flow control on a multi-zoned manifold (manifold serving more than one zone).

| Description | Part No. |
|---|---|
| Thermal Actuator | A3010522 |

## Service Wrench

Lightweight, compact design. Use the 1-3/16" wrench to tighten 3/4" female NPT compression nut to 1-1/4" manifold. Use the 1-7/8" wrench to tighten manifold union nuts.

| Description | Part No. |
|---|---|
| 1-7/8" Service wrench | E6111875 |
| 1-3/16" Service wrench | E6111188 |

## 4 Zone Control Module

The Zone Control Module provides connection to the power supply transformer; interconnections between the individual thermostats and their respective MVAs; thermal actuators or zone valves; and the connection between the end switches and the pump or boiler relay.

| Description | Part No. |
|---|---|
| Zone Control Module | A3030004 |

## Powered Zone Controller

Four- and Six-zone Controllers include transformers for low-voltage operations and relays to operate line-voltage controls. Fully fuse-protected, they also include an isolated end switch and built-in DHW priority switch. The indicator lights show full functionality of the products wired to the Powered Zone Controllers.

| Description | Part No. |
|---|---|
| Powered 4 Zone Control | A3080404 |
| Powered 6 Zone Control | A3080606 |

## Pneumatic Stapler Kit

Pneumatic Stapler Kit fires 5/8" through 1¹/4" staples with a 1-inchcrown. Kit includes stapler, walking stick and conventional nose piece for attaching ¹/2" and 5/8" Uponor PEX to subfloors.

| Description | Part No. |
|---|---|
| Pneumatic Stapler | E6021638 |

## Manual Foam Stapler

Use Manual Foam Stapler with Plastic Foam Staples (A7015050, A7015075) to attach3/8", 1/2" and 5/8" Uponor PEX to rigid insulation.

| Description | Part No. |
|---|---|
| Foam Stapler | E6025075 |

## Pressure Test Kit

Brass Manifold Pressure Test Kit contains R32 x 3/4" manifold bushing, R32 solid brass plug, ³/4" brass nipple and pressure gauge assembly (100 psi). Schraeder valveis included. Note:This fitting is not compatible with the TruFLOW Sr.

| Description | Part No. |
|---|---|
| Pressure Test KIt | E6122000 |

## Multi-Layer Composite Tubing (MultiCor)

Uponor's MLC tubing is a multi-layered composite tubing consisting of an interioraluminum tubing lined with inner and outer layers of PEX. Layers are bonded to thealuminum by a special adhesive. MLC tubing offers 100% oxygen diffusion, protectsagainst corrosion and can be embedded in concrete and installed in walls, floors and ceilings.The flexibility of MLC tubing results in easy rollouts.The stay-in-place rigid feature of the tubing works great for hydronic baseboard, radiator, unit heaters, air handlers or manifold connections.

| Description | Part No. |
|---|---|
| 1/2" MLC Tubing 1000' | D1220500 |
| 5/8" MLC Tubing 300' | D1250625 |
| 3/4" MLC Tubing 500' | D1240750 |
| 1" MLC Tubing 300' | D1141000 |

## MLC Press Fitting Manifold Adapter

MLC Press Fitting Manifold Adapter transitions R32 manifold connection to 5/8", 3/4" and 1" MLC tubing.Note:The Mini-Press Battery Tool or MLC Press Fitting Manual Tool is required. This fitting is not compatible with the TruFLOW Sr.

| Description | Part No. |
|---|---|
| Manifold Adpater 3/4" x R32 Angle | D4153275 |
| Manifold Adpater 3/4" x R32 Straight | D4143275 |
| Manifold Adpater 1" x R32 Angle | D4153210 |
| Manifold Adpater 1" x R32 Angle | D4153210 |

## MLC Press Fitting Brass Sweat Adapter

MLC Press Fitting Brass Sweat Adapter transitions MLC tubing to copper pipe. Fittings come disassembled for sweating. Note: The Mini-Press Battery Tool or MLC Press Fitting Manual Tool is required.

| Description | Part No. |
|---|---|
| Sweat Adpater 3/4" x 3/4" | D4517575 |
| Sweat Adpater 1" x 1" | D4511010 |

## MLC Press Fitting Brass MPT Adapter

MLC Press Fitting Brass Male NPT Threaded Adapter connects MLC tubing to male NPT threads. Note: The Mini-Press Battery Tool or MLC Press Fitting Manual Tool is required.

| Description | Part No. |
|---|---|
| MPT Adpater 3/4" x 3/4" | D4527575 |
| MPT Adpater 1" x 1" | D4521010 |

## MLC Press Fitting Adapter

MLC Press Fitting Brass Coupling connects two pieces of MLC tubing. Note:The Mini-Press Battery Tool or MLC Press Fitting Manual Tool is required.

| Description | Part No. |
|---|---|
| Fitting Adapter 3/4" | D45417575 |
| Fitting Adapter 1" | D45411010 |

## MLC Press Fitting Brass Elbow

Press Fitting Elbow makes 90-degree connections for MLC tubing.

| Description | Part No. |
|---|---|
| Fitting Elbow 3/4" | D4710750 |
| Fitting Elbow 1" | D4711000 |

## MLC Chamfering Tool

The MLC Tubing T-handle Chamfering Tool bevels the ends of MLC tubing in preparation for making a fitting connection. The T-handle is removable to use the tool with a drill for multiple chamfering.

| Description | Part No. |
|---|---|
| Chamfering Tool 3/4" | D6100750 |
| Chamfering Tool 1" | D6101000 |

## Multi-Press BatteryTool

The MLC Battery Tool is a electro-hydraulic tool that makes easy connection to MultiCor tubing. Eliminates the need for air compressors and generators.

| Description | Part No. |
|---|---|
| Battery Tool | D6251500 |

## Mini-Press BatteryTool

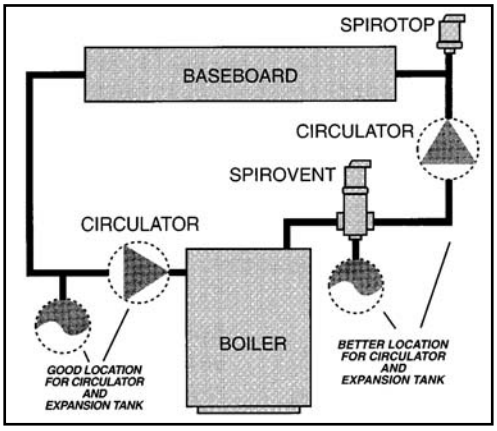
The Mini-Press Battery Tool Kit provides an electro-hydraulic tool that makes fast, easy connections from 1/2" through 1" MLC.

| Description | Part No. |
|---|---|
| Battery Tool | D6261632 |

# SPIROVENT®

## A Complete Product Line

Spirovent Junior: Use the "Junior" for residential and light commercial jobs. It comes in 3/4", 1", 1/4", and 1-1/2" female-threaded sizes and is made of solid brass for long life. All models except for the 3/4" model are tapped 1/2" at the bottom to accommodate a bladder-type compression tank.



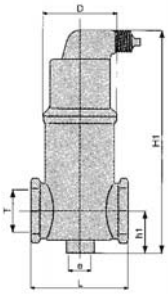

## Applications:

If you want to avoid air-related callbacks, use a Spirovent on every new hot- and/or chilled-water system. You'll be amazed at the ease with which the system starts up.

You can also solve any air-related problems in an existing system with a Spirovent. It's a simple retrofit. Just locate the Spirovent in the common piping at the boiler. This is the point where the water is hottest. The sketches show you the best locations for the Spirovent.

| SPIROVENT | | JUNIOR (Brass) | | | |
|---|---|---|---|---|---|
| T/Pipe Size | | 3/4" | 1" | 1-1/4" | 1-1/2" |
| O.D. | Inch | | | | |
| Thread | NPT | 3/4* | 1* | 1-1/4* | 1-1/2* |
| D | Inch | 2.6 | 2.6 | 2.6 | 2.6 |
| DF | Inch | | | | |
| H1 | Inch | 6.0 | 7.0 | 7.8 | 9.1 |
| H2 | Inch | | | | |
| h1 | Inch | 0.8 | 1.4 | 1.5 | 1.6 |
| h2 | Inch | | | | |
| L | Inch | 3.4 | 3.5 | 3.5 | 3.5 |
| LF | Inch | | | | |
| Plug e (JUNIOR/SENIOR) | | | 1/2" | 1/2" | 1/2" |
| Valve e (DIRT/DRAIN) | | | | | |
| Volume (JR/SR) | Gal. | 0.05 | 0.06 | 0.07 | 0.09 |
| Volume (DT/DN) | Gal. | | | | |
| Weight† (JR/SR) | Lbs. | 3.1 | 3.4 | 3.8 | 4.4 |
| Weight† (DIRT) | Lbs. | | | | |
| Weight† (DRAIN) | Lbs. | | | | |
| Cv Rating | | 14 | 22 | 40 | 55 |
| Maximum Flow | GPM | 6 | 10 | 15 | 30 |

JUNIOR




| Part # | Size |
|---|---|
| VTP050TM | 1/2" |
| VJR750FT | 3/4" |
| VJR100TM | 1" |

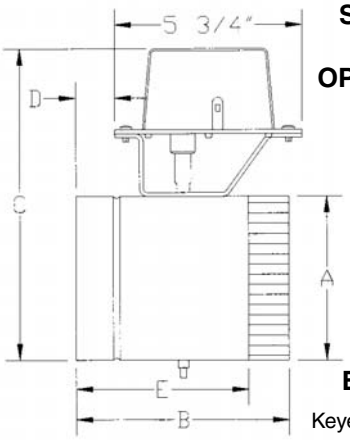
| Part # | Size |
|---|---|
| VJR125TM | 1-1/4" |
| VJR150TM | 1-1/2" |
| VKR200MT | 2" |

Maximum pressure 150 psi.
Maximum temperature 270F

# EFFIKAL PRODUCTS

# RVGP-KS SERIES VENT DAMPER

**Standard 5 Year Warranty**




### OPERATIONAL FEATURES

Ambient temperature change to 32ºF - 135ºF. Available in diameters 4" thru 12".

### COMPATIBILITY

Works with all 24 VAC Ignition Systems.

### EASE OF INSTALLATION

Keyed Wiring Connector can only be installed one way.

### SAFETY FEATURES

Dual Interlocking Switches allow burner to fire only if damper is in open position. Service switch eliminates midnight service calls.

### ACCESSORIES

Wiring Harnesses are available to fit most applications.

### ELECTRICAL

MINIMUM WIRING REQUIREMENTS
24VAC. 18 gauge 105C
THERMOSTAT HEAT ANTICIPATION
O.IA plus current draw for control circuit
POWER PLAN REQUIREMENT
3W at 24 VAC when opening or closing
TIMING
Opens in 15 seconds
Closes in 15 seconds
CHARACTERISTICS
Power open
Power close

| RVGP-KS (pipe size) BKF DIMENSIONS | | | | |
|---|---|---|---|---|
| DIM. A PIPE SIZE | DIM. E LENGTH | DIM. C HEIGHT | DIM. D | DIM. E |
| 4" | 6-1/16" | 8-7/8" | 15/16" | 4-13/16" |
| 5" | 6-1/16" | 9-7/8" | 15/16" | 4-13/16" |
| 6" | 6-1/2" | 10-7/8" | 1-3/16" | 5-1/4" |
| 7" | 7-1/16" | 11-7/8" | 1-7/16" | 5-13/16" |
| 8" | 8-1/16" | 12-7/8" | 1-15/16" | 6-13/16" |
| 9" | 10-1/8" | 13-7/8" | 3" | 8-7/8" |
| 10" | 12-1/8" | 14-7/8" | 4" | 10-7/8" |
| 12" | 12-1/8" | 16-7/8" | 4" | 10-7/8" |

R&D Electronics

# Microprocessor Heating Controls

## Model RD K1404 Steam System

### 3 Indoor 1 Outdoor Sensor Temperature Averaging

Zone Sensor

Outdoor Sensor

**Design Highlights**

- Reliable all in one Motorola™ MC68HC11 processor
- Operator setpoints saved in permanent memory
- Warm Weather Shutdown or outdoor override
- Select sensors individually for inclusion in average
- Removes warmest or coldest extreme sensors
- Increases setpoints during cold weather (weather anticipation)
- One knob operation, no interlaced and confusing program menus
- Sensor fault indicators on front panel, rather than buried in menus
- Includes second relay to control an air damper or additional boiler
- Manual bypass switch operates any backup control device
- Removable main panel doesn't disturb backup device operation
- 16 gauge lockable steel enclosure

**Two Year Warranty**

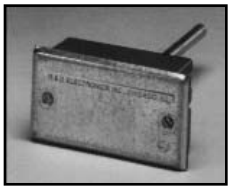
The RD1400 is warranted to be free from defects in material and workmanship for a period of two (2) years from the date of installation. We will repair or replace the system or its components at our discretion as a result of defects arising during the warranty period without charge. Damage to the RD1400 system or any of its components due to misuse, improper installation, or caused by power failures, fire, flood, or lightning is not covered by this warranty. This warranty is limited to repair or replacement of the unit or any of its components. We assume no liability for indirect of consequential damages. The company will issue a return authorization before the control or any of its components may be returned.

---

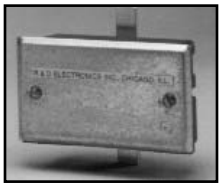
## Model RD 1430 Hot Water System

### Up to 3 Boiler Stage Operation

Outdoor Sensor



Immersion (Well) Sensor



Water (Strap-on) Sensor

**Design Highlights**

- Reliable all in one Motorola™ MC68HC11 processor
- Operator setpoints saved in permanent memory
- Warm Weather Shutdown or outdoor override
- 5-day 2-day programmable setback timer, NiCad battery reserve
- Controls main circulating pump
- Water temperature night setback decreases as outdoor temperature decreases.
- Adjustable morning boost period
- One knob operation, no interlaced and confusing program menus
- Auto boiler rotation (Models RD1432 and RD1433 only)
- Sensor fault indicators on front panel, rather than buried in menus
- Instead of the confusing "Reset Ratio" parameter, the operator sets the "Final Temperature", the maximum water temperature at -10 °F outdoors
- Manual bypass switches operate any stage individually
- Removable main panel doesn't disturb manual bypass operation
- 16 gauge lockable steel enclosure

**Two Year Warranty**

The RD1400 is warranted to be free from defects in material and workmanship for a period of two (2) years from the date of installation. We will repair or replace the system or its components at our discretion as a result of defects arising during the warranty period without charge. Damage to the RD1400 system or any of its components due to misuse, improper installation, or caused by power failures, fire, flood or lightning is not covered by this warranty. This warranty is limited to repair or replacement of the unit or any of its components. We assume no liability for indirect of consequential damages. The company will issue a return authorization before the control or any of its components may be returned.

EMBASSY INDUSTRIES Inc.

# FIN TUBE BASEBOARD RADIATION

## PANEL-TRACK®

### KPT- D® HYDRONIC BASEBOARD PANEL-TRACK

Panel-Track baseboard heating is superior in every way! From modern design to maximum heating output. From the patented heating element to the rugged support brackets. From the finger-tip controlled pivot damper to the newly designed, contoured accessory line. Panel-Track is attractive, economical and easy to install Which means no costly callbacks. Ideal for residential and light commercial applications.

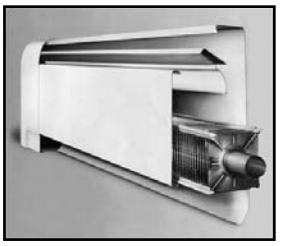
### EMBASSY'S PATENTED PANEL-TRACK HEATING ELEMENT

Continuous rails of tough polypropylene line the entire length of the heating element, enclosing all four corners and preventing injury. This eliminates all metal to metal contact and guarantees the ultimate in quiet, trouble-free performance.

**AVERAGE WATER TEMPERATURE – 65° Entering air**

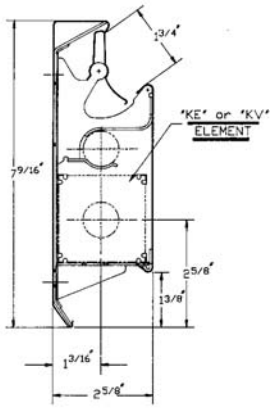
| GPM | lb/hr. | 170° | 180° | 190° | 200° | 210° | 220° | 230° | 240° |
|---|---|---|---|---|---|---|---|---|---|
| 4 | 2000 | 510 | 580 | 640 | 710 | 770 | 850 | 910 | 970 |
| 1 | 500 | 480 | 550 | 610 | 670 | 730 | 800 | 860 | 920 |

| PART # | DESCRIPTION |
|---|---|
| KRP-* | Baseboard/Ft. (Complete) |
| KE-* | Element/Ft. |
| KCA-* | Cover/Ft. |
| KHCL | 6" Hinged end cap, left |
| KHCR | 6" Hinged end cap, right |
| KVEL | 9" Valve enclosure left |
| KVER | 9" Valve enclosure right |
| KEX7 | 7" Extension set |
| KCCL | 3" End cap, left |
| KCCR | 3" End cap, right |



| PART # | DESCRIPTION |
|---|---|
| KDJ | 2" Damper joiner |
| KWJ-3 | 3" Wall joiner |
| KWJ-5 | 5" Wall Joiner |
| KIC | 90° Inside corner |
| KIC-45 | 45°/135° Inside corner |
| KRB | U-bends |
| KOC | 90° Outside corner |
| KOC-45 | 45°/135° Outside corner |
| KSP | Splicer set |

*Lengths available: 2, 3, 4, 5, 6, 7, 8, 10




## SYSTEM6™

### RESIDENTIAL/LIGHT COMMERCIAL BASEBOARD

System 6 is a heavy-duty baseboard the provides contractors a choice of six different interchangeable high output heating elements in one low profile enclosure. With more flexibity than any competitor, System6's low profile makes it ideal where space is at a premium.

System 6's 18 gauge steel front panel makes it ideal for high ttraffic areas while baked on white enamel finish blends with any decor.

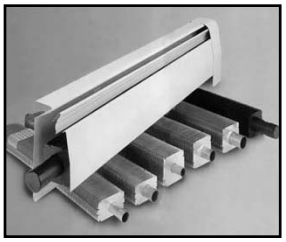
Hot Water Ratings in SEN Enclosure

| Model | Flow Rate | 170° | 180° | 190° | 200° | 210° | 220° | 230° | 240° |
|---|---|---|---|---|---|---|---|---|---|
| SCE-632 | 4 GPM | 710 | 800 | 890 | 970 | 1070 | 1150 | 1250 | 1330 |
| SCE-632 | 1 GPM | 670 | 760 | 840 | 920 | 1010 | 1090 | 1180 | 1260 |
| SCE-633 | 4 GPM | 770 | 870 | 970 | 1070 | 1160 | 1270 | 1360 | 1460 |
| SCE-633 | 1 GPM | 730 | 820 | 920 | 1010 | 1100 | 1200 | 1290 | 1380 |
| SCE-642 | 4 GPM | 680 | 760 | 850 | 930 | 1030 | 1110 | 1190 | 1280 |
| SCE-642 | 1 GPM | 640 | 720 | 800 | 880 | 970 | 1050 | 1130 | 1210 |
| SCE-643 | 4 GPM | 740 | 840 | 930 | 1040 | 1130 | 1230 | 1320 | 1420 |
| SCE-643 | 1 GPM | 700 | 790 | 880 | 980 | 1070 | 1160 | 1250 | 1340 |
| SCE-653 | 4 GPM | 710 | 800 | 900 | 990 | 1090 | 1180 | 1290 | 1380 |
| SCE-653 | 1 GPM | 670 | 760 | 850 | 940 | 1030 | 1120 | 1220 | 1310 |
| SCE-655* | 4 GPM | 610 | 690 | 770 | 850 | 930 | 1010 | 1090 | 1170 |
| SCE-655* | 1 GPM | 580 | 650 | 730 | 800 | 880 | 960 | 1030 | 1110 |

*1-1/4 steel pipe.

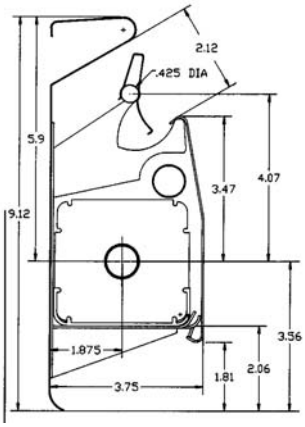
Stock Models

| PART # | DESCRIPTION |
|---|---|
| SCP632-* | Baseboard/Ft. (Complete) |
| SCE632-* | 3/4" Element/Ft. |
| SCE643-* | 1" Element/Ft. |
| SEN-* | Cover only |
| SCCL | 3" End cap, left |
| SCCR | 3" End cap, right |
| SVEL | 9" Valve enclosure left |
| SVER | 9" Valve enclosure right |



| PART # | DESCRIPTION |
|---|---|
| SHB | Hanger Brackets |
| SWJ-5 | 5" Wall Joiner |
| SIC-90 | 90° Inside corner |
| SIC-135 | 45°/135° Inside corner |
| SRB | U-bends |
| SOC-90 | 90° Outside corner |
| SOC-135 | 45°/135° Outside corner |
| SSP | Splicer set |

*Lengths available: 2, 3, 4, 5, 6, 7, 8, 10



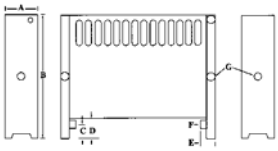
Burnham™
HYDRONICS DIVISION
Lancaster, PA 17604

# CAST-IRON RADIATION

## RADIANT

DIMENSIONS

| A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|
| 5" | 20" | 2-3/4" | 4-1/2" | 1-7/8" | 1-1/4" | 1/8" |



All Air Vent Tappings 1/8"
All Bottom Tappings 1-1/4"
Recess should be 1/2" longer and 1/4" higher than radiator

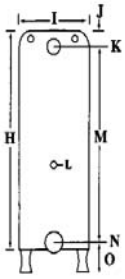
Maximum working pressure: 15 lb. steam, 30 lb. water.
GRILLES AVAILABLE

| PART # | LENGTH | SQR. FT. PER SECTION 2.25 |
|---|---|---|
| R20-4 | 9" | 9.0 |
| R20-6 | 13-1/2" | 13.5 |
| R20-8 | 18" | 18.0 |
| R20-10 | 22-1/2" | 22.5 |
| R20-12 | 27" | 27.0 |
| R20-14 | 31-1/2" | 31.5 |
| R20-16 | 36" | 36.0 |
| R20-18 | 40-1/2" | 40.5 |
| R20-20 | 45" | 45.0 |
| R20-22 | 49-1/2" | 49.5 |

| PART # | LENGTH | SQR. FT. PER SECTION 2.25 |
|---|---|---|
| R20-24 | 54" | 54.0 |
| R20-26 | 58-1/2" | 58.5 |
| R20-28 | 63" | 63.0 |
| R20-30 | 67-1/2" | 67.5 |
| R20-32 | 72" | 72.0 |
| R20-34 | 76-1/2" | 76.5 |
| R20-36 | 81" | 81.0 |
| R20-38 | 85-1/2" | 85.0 |
| R20-40 | 90" | 90.0 |
| R20-42 | 94-1/2" | 94.5 |

Radiant
Grille sold separately.
Order part # G20 + size.

## SLENDERIZED



Tappings – Top 1",
Bottom 1-1/4"
All Air Vent Tappings 1/8"
Maximum working pressure: 15 lb. steam, 30 lb. water.

| PART #* | LENGTH | EDR* 6-TUBE 25" HIGH |
|---|---|---|
| 25-6-4 | 7" | 12 |
| 25-6-6 | 10-1/2" | 18 |
| 25-6-8 | 14" | 24 |
| 25-6-10 | 17-1/2" | 30 |
| 25-6-12 | 21" | 36 |
| 25-6-14 | 24-1/2" | 42 |
| 25-6-16 | 28" | 48 |
| 25-6-18 | 31-1/2" | 54 |
| 25-6-20 | 35" | 60 |
| 25-6-22 | 38-1/2" | 66 |
| 25-6-24 | 42" | 72 |
| 25-6-26 | 45-1/2" | 78 |

| PART # | LENGTH | EDR* 6-TUBE 25" HIGH |
|---|---|---|
| 25-6-28 | 49" | 84 |
| 25-6-30 | 52-1/2" | 90 |
| 25-6-32 | 56" | 96 |
| 25-6-34 | 59-1/2" | 102 |
| 25-6-36 | 63" | 108 |
| 25-6-38 | 66-1/2" | 114 |
| 25-6-40 | 70" | 120 |
| 25-6-42 | 73-1/2" | 126 |
| 25-6-44 | 77" | 132 |
| 25-6-46 | 80-1/2" | 138 |
| 25-6-48 | 84" | 144 |

19" high x 4 tube available in above lengths

Slenderized

Rough in dimensions

| Size | H | I | J | K | L | M | N | O |
|---|---|---|---|---|---|---|---|---|
| 25-6 | 24" | 7" | 1" | 1" | 1/8" | 21-1/2" | 1-1/4" | 2-1/2" |
| 19-4 | 17-1/2" | 4-1/2" | 1" | 1" | 1/8" | 15-1/4" | 1-1/4" | 2-1/2" |

**Heat Emmision Chart (Based on room temp. of 70°F)**

| Avg. water temp. in Radiators °F. | 150 | 160 | 170 | 180 | 190 | 200 | 210 | 215 |
|---|---|---|---|---|---|---|---|---|
| Heat emission BTU/hr. per Sq. Ft. | 110 | 130 | 150 | 170 | 190 | 210 | 230 | 240 |

*HEATING SURFACE BASED UPON THE STANDARD HEAT EMISSION OF 240 BTU PER SQUARE FOOT/HOUR.

---

# BASERAY

**Baseray Cast Iron Baseboard**

## RATING DATA PRICE PER LINEAL FOOT

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

## ACCESSORIES

| PART # | DESCRIPTION |
|---|---|
| 9A-AFP | ADJ. FILLER STRIPS |
| 9A-9010 | INSIDE CORNER 10-5/8" |
| 9A-904 | INSIDE CORNER 4-5/8" |
| 9A-90S | CONNECTOR 4-5/8" |
| 9A-90XL | CONNECTOR 10-5/8" |
| 9A-AF | ALUMINUM FOIL TAPE |
| 9A-AT | ASSEMBLY TOOL |
| 9A-BCS | BOTTOM CENTER SUPPORT |

| PART # | DESCRIPTION |
|---|---|
| 9A-LAEC | END CAP LEFT |
| 9A-LHV | VALVE ENCLOSURE LEFT |
| 9A-PN | PUSH NIPPLE 3/4" |
| 9A-RAEC | END CAP RIGHT |
| 9A-RHV | VALVE ENCLOSURE RIGHT |
| 9A-SP | SPLICE PLATE 4" |
| 9A-TBN | TIE BOLT W/NUT |
| 9A-TCS | TOP CENTER SUPPORT |

# RADIATION DATA

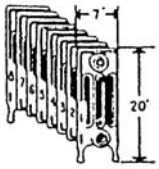
## SQUARE FEET OF RADIATION PER SECTION

OLD STYLE COLUMN RADIATORS

| | NO. OF TUBES OR COLUMNS | | | | | |
|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| Width | 4-1/2" | 7-3/8" | 9" | 11-1/2" | 12-1/2" | 12-1/2" |
| Height In. | | | | | | |
| 45 | 3-1/2 | 5 | 6 | 10 | --- | --- |
| 38 | 3 | 4 | 5 | 8 | 10 | --- |
| 32 | 2-1/2 | 3-1/3 | 4-1/2 | 6-1/2 | 8-1/2 | --- |
| 26 | 2 | 2-2/3 | 3-3/4 | 5 | 7 | 7 |
| 23 | 1-2/3 | 2-1/3 | 3-1/4 | 4-1/2 | --- | --- |
| 22 | 1-2/3 | 2-1/4 | 3 | 4 | 6 | 6 |
| 20 | 1-1/2 | 2 | 2-3/4 | 3-1/2 | 5 | 5 |
| 18 | 1-1/3 | 1-3/4 | 2-1/4 | 3 | 5 | 4-1/3 |
| 17 | --- | --- | --- | --- | --- | 4 |
| 16 | --- | --- | --- | --- | 4 | 3-3/4 |
| 15 | --- | 1-1/2 | --- | --- | --- | --- |
| 14 | --- | --- | --- | --- | 4 | 3 |
| 13 | --- | --- | --- | --- | 3 | 3 |

TUBE TYPE RADIATORS

| | NO. OF TUBES | | | | |
|---|---|---|---|---|---|
| | 3 | 4 | 5 | 6 | 7 |
| Width | 5" | 7" | 8-3/4" | 9-3/4" | 12-1/2" |
| Height In. | | | | | |
| 38 | 3-1/2 | 4-1/4 | 5 | 6 | --- |
| 36 | 3-1/2 | 4-1/4 | 5 | 6 | 7 |
| 32 | 3 | 3-1/2 | 4'/3 | 5 | 6 |
| 26 | 2-1/3 | 2-3/4 | 3 12 | 4 | 5 |
| 23 | 2 | 2-1/2 | 3 | 3-1/2 | 4-1/2 |
| 22 | --- | --- | --- | --- | 4-1/2 |
| 20 | 1-3/4 | 2-1/4 | 2-2/3 | 3 | 3-2/3 |
| 16 | --- | --- | --- | --- | 3-1/2 |
| 17 | --- | --- | --- | --- | 3 |
| 16 | --- | --- | --- | --- | 3 |
| 14 | --- | --- | --- | --- | 2-1/2 |

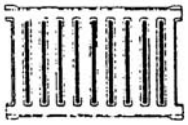



**EXAMPLE:**

Figure 7 is a tube type radiator, 20" high by 7" wide. There are 4 tubes per section and 8 sections. Table F shows this size tube type radiator has 21/4 square feet of radiation per section. 21/4 times 8 (the number of sections) equals 18 square feet of direct radiation. 18 times 240 (BTU/hr.) equals 4320 BTU/hr. for this radiator.

THIN TUBE RADIATORS

| | NO. OF TUBES | | | | |
|---|---|---|---|---|---|
| | 2 | 3 | 4 | 5 | 6 |
| Width | 3-1/2" | 4" | 4-3/4" | 6" | 7-7/8" |
| Height In. | | | | | |
| 38 | 2-1/2 | 2-2/3 | --- | --- | --- |
| 32 | 2 | 2-1/3 | --- | --- | 3-2/3 |
| 26 | --- | --- | 2-1/3 | 3 | 3 |
| 25 | 1-1/2 | 1-2/3 | 2 | --- | 3 |
| 23 | --- | --- | --- | 2 | --- |
| 22 | 1-1/3 | 1-1/3 | 1-4/5 | --- | --- |
| 20 | --- | --- | 1-4/5 | --- | 2-1/3 |
| 19 | 1 | 1-1/4 | 1-2/3 | --- | 2-1/3 |
| 17 | --- | --- | --- | 2 | --- |



WALL TYPE RADIATORS

| Size | Sq. Ft. Per Radiator |
|---|---|
| 13-1/2" x 17" x 3" | 5 |
| 13-1/2" x 21" x 3" | 6 |
| 13-1/2" x 22" x 3" | 7 |
| 13-1/2" x 29" x 3" | 9 |

SECTIONAL WALL TYPE RADIATORS

| Height | 37" | 26-1/2" | 21-1/2" | 15" | 13-7/8" |
|---|---|---|---|---|---|
| Sq. Ft. Radiation Per Section | 2-1/2 | 1-4/5 | 1-1/2 | 1 | 3/4 |

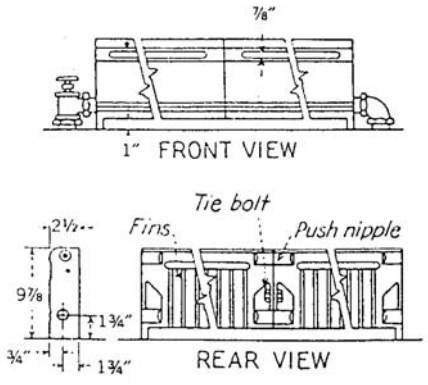
**NOTE: 240 BTU/H only applies to steam.**
**To Figure hot water BTU's multiply by 150 to get BTU/H rating at 170° water.**

## BASE-RAY SUB-ASSEMBLY CHART

| ASSEMBLY LENGTH | L. H. | CENTER | R. H. | ASSEMBLY LENGTH | L. H. | CENTER | R. H. |
|---|---|---|---|---|---|---|---|
| 6-1/2 FT. | 5-1/2 FT. | --- | 1 FT. | 15-1/2 FT. | 5-1/2 FT. | 6 FT. | 4 FT. |
| 7 FT. | 6 FT. | --- | 1 FT. | 16 FT. | 6 FT. | 6 FT. | 4 FT. |
| 7-1/2 FT. | 5-1/2 FT. | --- | 2 FT. | 16-1/2 FT. | 5-1/2 FT. | 6 FT. | 5 FT. |
| 8 FT. | 6 FT. | --- | 2 FT. | 17 FT. | 6 FT. | 6 FT. | 5 FT. |
| 8-1/2 FT. | 5-1/2 FT. | --- | 3 FT. | 17-1/2 FT. | 5-1/2 FT. | 6 FT. | 6 FT. |
| 9 FT. | 6 FT. | --- | 3 FT. | 18 FT. | 6 FT. | 6 FT. | 6 FT. |
| 9-1/2 FT. | 5-1/2 FT. | --- | 4 FT. | 18-1/2 FT. | 5-1/2 FT. | 2-6 FT. | 1 FT. |
| 10 FT. | 6 FT. | --- | 4 FT. | 19 FT. | 6 FT. | 2-6 FT. | 1 FT. |
| 10-1/2 FT. | 5-1/2 FT. | --- | 5 FT. | 19-1/2 FT. | 5-1/2 FT. | 2-6 FT. | 2 FT. |
| 11 FT. | 6 FT. | --- | 5 FT. | 20 FT. | 6 FT. | 2-6 FT. | 2 FT. |
| 11-1/2 FT. | 5-1/2 FT. | --- | 6 FT. | 20-1/2 FT. | 5-1/2 FT. | 2-6 FT. | 3 FT. |
| 12 FT. | 6 FT. | --- | 6 FT. | 21 FT. | 6 FT. | 2-6 FT. | 3 FT. |
| 12-1/2 FT | 5-1/2 FT. | 6 FT. | 1 FT. | 21-1/2 FT | 5-1/2 FT. | 2-6 FT. | 4 FT. |
| 13 FT | 6 FT. | 6 FT. | 1 FT. | 22 FT. | 6 FT. | 2-6 FT. | 4 FT. |
| 13-1/2 FT. | 5-1/2 FT. | 6 FT. | 2 FT. | 22-1/2 FT. | 5-1/2 FT. | 2-6 FT | 5 FT. |
| 14 FT. | 6 FT. | 6 FT. | 2 FT. | 23 FT. | 6 FT. | 2-6 FT. | 5 FT. |
| 14-1/2 FT. | 5-1/2 FT | 6 FT | 3 FT. | 24 FT. | 5-1/2 FT. | 2-6 FT. | 6 FT. |
| 15 FT. | 6 FT | 6 FT | 3 FT. | 24-1/2 FT. | 6 FT. | 2-6 FT. | 6 FT. |

**BASE-RAY TAPPINGS** —Tapped 3/4" top and bottorn of end sections.

**AIR VENT TAPPINGS** — Air Vent Tappings are located on the face of 18" and 24" left end sections and on 18" and 24"' Panels. A 3/4" vented plug is furnished with each Base-Ray Assembly. Only one air vent need be used.



TURBONICS INC.

# KICKSTER 3+/4+*
# UNDERCOUNTER HYDRONIC
# FAN COIL HEATING UNIT

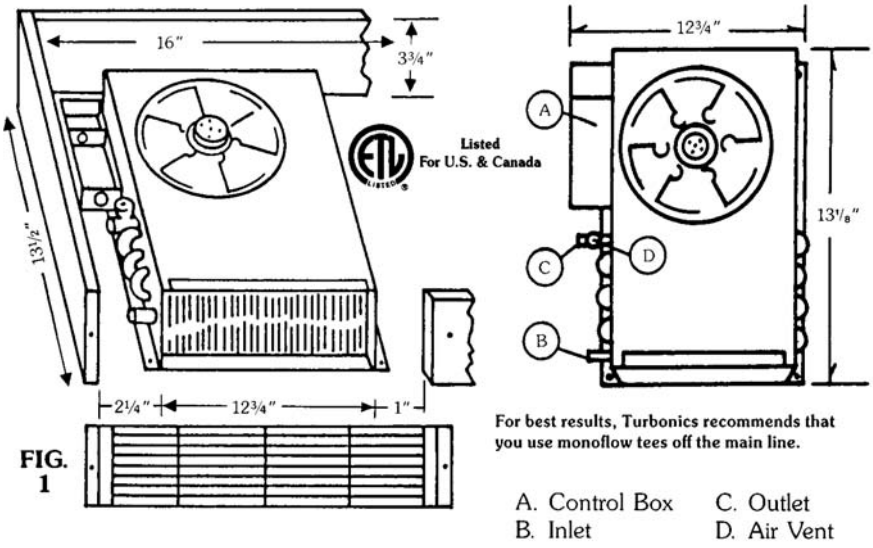



FIG. 1

## GENERAL DATA

### KICKSTER 3+ HEATING OUTPUTS

| RATING DATA | | | BTUH @ 2 GPM | OUTPUTS @ INLET WATER TEMPERATURE | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| AMPS | RPM | LPM | FAN CONTROL | 120° | 140° | 160° | 170° | 180° | 200° |
| .6 | 1600 | 65 | HIGH | 1800 | 2300 | 3000 | 3400 | 3600 | 4200 |
| .4 | 1300 | 45 | LOW | 1300 | 1900 | 2600 | 3000 | 3200 | 3600 |

1 GPM multiply by .95
4 GPM multiply by 1.05

Pressure Drop: .3' @ 1 GPM
1.0' @ 2 GPM

### KICKSTER 4+ HEATING OUTPUTS

| RATING DATA | | | BTUH @ 2 GPM | OUTPUTS @ INLET WATER TEMPERATURE | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| AMPS | RPM | LPM | FAN CONTROL | 120° | 140° | 160° | 170° | 180° | 200° |
| .6 | 1600 | 65 | HIGH | 2100 | 2800 | 3700 | 4100 | 4500 | 5200 |
| .4 | 1300 | 45 | LOW | 1700 | 2400 | 3200 | 3600 | 4000 | 4500 |

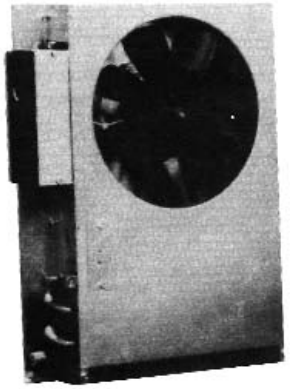
Ratings based on 65° entering air.
Piping - Standard 1/2" copper tubing.
Electrical - 120 volt single phase.
*Non-stock Item.

1 GPM multiply by .95
4 GPM multiply by 1.05

Pressure Drop: .5' @ 1 GPM
1.5' @ 2 GPM

TURBONICS INC.

# TOESTERS 4/5 Thru 16/19 UNDERCOUNTER HYDRONIC FAN COIL UNITS



**Toester 4/5**
**Toester 6/8**

Listed For U.S. & Canada

## TOESTER FEATURES

1. **"PURR-FECT" AIR WHEEL** - Ultra-low profile air handler that draws air from a 360 degree radius. Over eight years in development this wheel is truly an industry first.
2. **SHADED 4 POLE 2 SPEED MOTOR** - This rugged encased motor runs at 850 and 650 RPM. Because the **"PURR-FECT"** Air Wheel is balanced optimally on the large shaft, motor life is double that of a tangential blower motor.
3. **REVERSE ACTING THERMOSTAT** - Built in thermostat senses the temperature of the water and determines when the unit should run. No secondary controls are needed.
4. **UP TO 19,000 BTUH FROM UNDER THE COUNTER - TOESTER'S** come in a variety of sizes ranging from 4,000 to 19,000 BTUH's, the **TOESTER 16/19** has a greater heating capacity than any other undercounter fan coil on the market.
5. ALL PARTS MANUFACTURED AND ASSEMBLED IN THE USA.

### ALL RATINGS BASED ON 65° ENTERING AIR

**Model TOESTER 4/5 BTU Output Per Hour**

| BTUH @ 2 GPM | Inlet Water Temperature | | | | | | |
|---|---|---|---|---|---|---|---|
| Fan Control | 100° | 120° | 140° | 160° | 180° | 200° | 220° |
| High | 2000 | 3000 | 3900 | 4800 | 5700 | 6500 | 7300 |
| Low | 1400 | 2200 | 3100 | 4000 | 4800 | 5600 | 6400 |

1 GPM multiply by .95
4 GPM multiply by 1.05

Pressure Drop: .33' @ 1 GPM
1.0' @ 2 GPM
3.0' @ 4 GPM

**Model TOESTER 6/8 BTU Output Per Hour**

| BTUH @ 2 GPM | Inlet Water Temperature | | | | | | |
|---|---|---|---|---|---|---|---|
| Fan Control | 100° | 120° | 140° | 160° | 180° | 200° | 220° |
| High | 2350 | 3800 | 5150 | 6600 | 7700 | 9100 | 10,600 |
| Low | 1850 | 2900 | 4050 | 5200 | 6100 | 7200 | 8200 |

1 GPM multiply by .95
4 GPM multiply by 1.05

Pressure Drop: .5' @ 1 GPM
1.5' @ 2 GPM
4.0' @ 4 GPM

**Model TOESTER 10/12 BTU Output Per Hour**

| BTUH @ 2 GPM | Inlet Water Temperature | | | | | | |
|---|---|---|---|---|---|---|---|
| Fan Control | 100° | 120° | 140° | 160° | 180° | 200° | 220° |
| High | 2700 | 4100 | 6200 | 8100 | 10,000 | 12,000 | 14,500 |
| Low | 2200 | 3200 | 4800 | 6500 | 7800 | 9500 | 11,500 |

1 GPM multiply by .95
4 GPM multiply by 1.05

Pressure Drop: .6' @ 1 GPM
1.8' @ 2 GPM
4.5' @ 4 GPM

**Model TOESTER 11/13 BTU Output Per Hour**

| BTUH @ 2 GPM | Inlet Water Temperature | | | | | | |
|---|---|---|---|---|---|---|---|
| Fan Control | 100° | 120° | 140° | 160° | 180° | 200° | 220° |
| High | 3500 | 5800 | 8200 | 10,900 | 13,200 | 16,200 | 19,100 |
| Low | 2500 | 4000 | 6200 | 8800 | 10,900 | 13,800 | 16,700 |

1 GPM multiply by .95
4 GPM multiply by 1.05

Pressure Drop: .6' @ 1 GPM
1.8' @ 2 GPM
4.5' @ 4 GPM

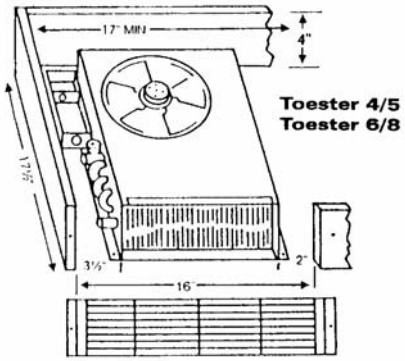
**Model TOESTER 16/19 BTU Output Per Hour**

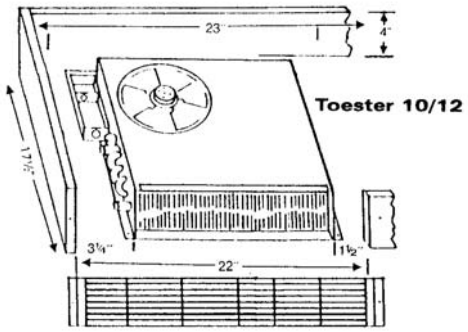
| BTUH @ 2 GPM | Inlet Water Temperature | | | | | | |
|---|---|---|---|---|---|---|---|
| Fan Control | 100° | 120° | 140° | 160° | 180° | 200° | 220° |
| High | 4340 | 6900 | 9900 | 13,250 | 16,200 | 19,100 | 21,800 |
| Low | 3050 | 4900 | 7500 | 10,600 | 14,000 | 16,900 | 19,300 |

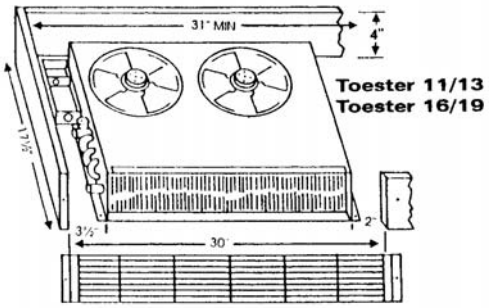
1 GPM multiply by .95
4 GPM multiply by 1.05

Pressure Drop: .33' @ 1 GPM
1.0' @ 2 GPM
3.0' @ 4 GPM

## ROUGH IN DIMENSIONS & OUTPUTS



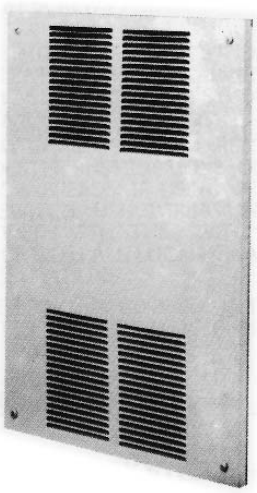



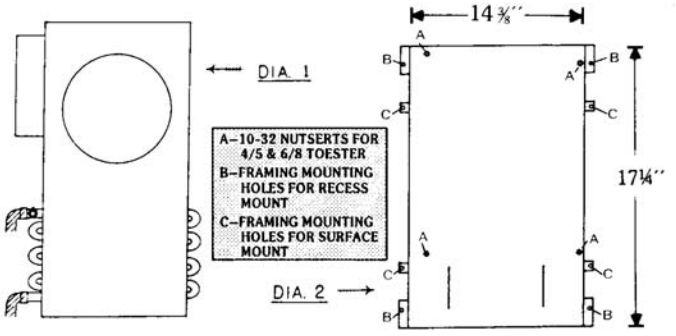

**For best results, Turbonics recommends that you use monoflow tees off the main line.**

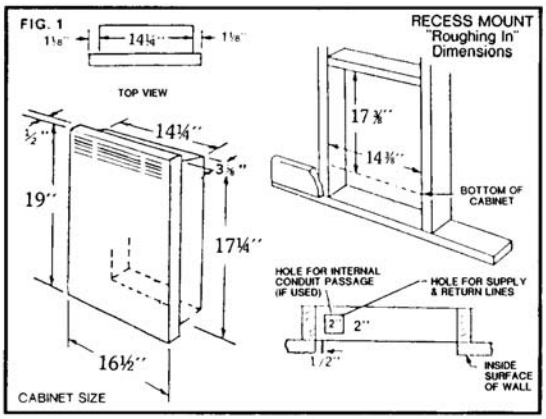
TURBONICS INC.

# KICKSTER 3+/4+*
# CABINET HEATERS



**MODEL KC-34AR**
**(Recess Flush Mount)**




## INSTALLATION INSTRUCTIONS

**STEP 1-** Solder elbows onto Toester inlet & outlet **before** placing unit in cabinet. (See Diagram 1). Make sure elbows are fully seated or the Toester **will not fit into the cabinet.**

**STEP 2-** Place unit in cabinet & center over appropriate nuts (See Diagram 2). Use 4 - 10 x 32 x 3/8" semsscrews provided to lock the Toester into the Toester cabinet.

**STEP 3- Recess Flush Mount** - Cut hole in wall between studs, 14-3/8" wide by 17-3/8" high. Place cabinet, with Toester in place, into hole. Secure cabinet to studs with 4 wood screws provided (See Diagram 2}.

**STEP 4- Surface Mount** - Locate studs & mark for installation. Center cabinet with Toester in place & secure to studs with 4 screws provided (See Diagram 2).

**STEP 5-** Wire in switch (if used) or direct wire unit per Toester instructions on either high or low speeds. If using optional 2-speed switch use wiring instructions provided with the switch. Wire in accordance with all local & national codes & regulations.

**STEP 6-** Complete piping. ¢ and bleed unit for five (5) minutes with systems pump operating.

**STEP 7-** Install front cover with 4 - 10 x 32 x 5/8" cover bolts provided.

**For best results, Turbonics recommends that you use monoflow tees off the main line.**

**STANDARD LIMITED PRODUCT WARRANTY - ONE YEAR**

## KICKSTER 3+ HEATING OUTPUTS

| RATING DATA | | | BTUH @ 2 GPM | OUTPUTS @ INLET WATER TEMPERATURE | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| AMPS | RPM | LPM | FAN CONTROL | 120º | 140º | 160º | 170º | 180º | 200º |
| .6 | 1600 | 65 | HIGH | 1800 | 2300 | 3000 | 3400 | 3600 | 4200 |
| .4 | 1300 | 45 | LOW | 1300 | 1900 | 2600 | 3000 | 3200 | 3600 |

1 GPM multiply by .95
4 GPM multiply by 1.05

Pressure Drop: .3' @ 1 GPM
1.0' @ 2 GPM

## KICKSTER 4+ HEATING OUTPUTS

| RATING DATA | | | BTUH @ 2 GPM | OUTPUTS @ INLET WATER TEMPERATURE | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| AMPS | RPM | LPM | FAN CONTROL | 120º | 140º | 160º | 170º | 180º | 200º |
| .6 | 1600 | 65 | HIGH | 2100 | 2800 | 3700 | 4100 | 4500 | 5200 |
| .4 | 1300 | 45 | LOW | 1700 | 2400 | 3200 | 3600 | 4000 | 4500 |

Ratings based on 65º entering air.
Piping - Standard 1/2" copper tubing.
Electrical - 120 volt single phase.
*Non-stock item.

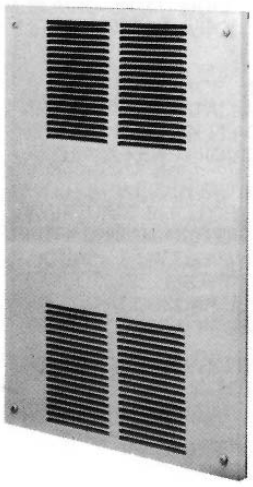
1 GPM multiply by .95
4 GPM multiply by 1.05

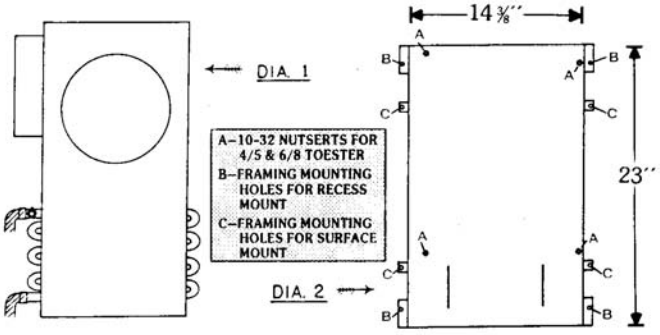
Pressure Drop: .5' @ 1 GPM
1.5' @ 2 GPM

TURBONICS INC.

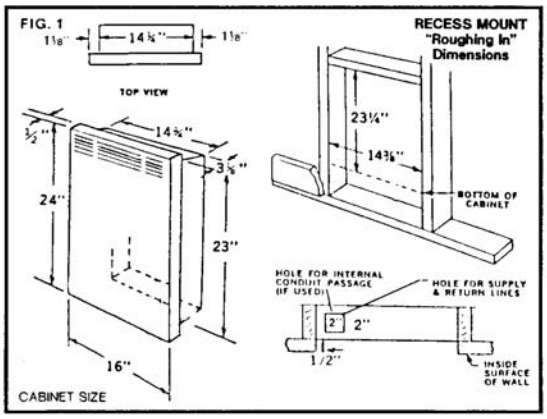
# TOESTER 4/5-6/8*
# CABINETS HEATERS

**MODEL TC-58-AR**
**(Recess Flush Mount)**






**For best results, Turbonics recommends that you use monoflow tees off the main line.**




## INSTALLATION INSTRUCTIONS

**STEP 1-** Solder elbows onto Toester inlet & outlet **before** placing unit in cabinet. (See Diagram 1). Make sure elbows are fully seated or the Toester **will not fit into the cabinet.**

**STEP 2-** Place unit in cabinet & center over appropriate nuts (See Diagram 2). Use 4 - 10 x 32 x 3/8" semsscrews provided to lock the Toester into the Toester cabinet.

**STEP 3- Recess Flush Mount** - Cut hole in wall between studs, 14-1/4" wide by 23-1/4" high. Place cabinet, with Toester in place, into hole. Secure cabinet to studs with 4 wood screws provided (See Diagram 2).

**STEP 4- Surface Mount** - Locate studs & mark for installation. Center cabinet with Toester in place & secure to studs with 4 screws provided (See Diagram 2).

**STEP 5-** Wire in switch (if used) or direct wire unit per Toester instructions on either high or low speeds. If using optional 2-speed switch use wiring instructions provided with the switch. Wire in accordance with all local & national codes & regulations.

**STEP 6-** Complete piping. ¢ and bleed unit for five (5) minutes with systems pump operating.

**STEP 7-** Install front cover with 4 - 10 x 32 x 5/8" cover bolts provided.

**STANDARD LIMITED PRODUCT WARRANTY - ONE YEAR**

## TOESTER 4/5 — IMPROVED OUTPUTS

| RATING DATA | | | BTUH @ 2 GPM | INLET WATER TEMPERATURE | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| AMPS | RPM | LPM | FAN CONTROL | 100º | 120º | 140º | 160º | 180º | 200º | 220º |
| .6 | 1350 | 75 | HIGH | 2200 | 3100 | 4000 | 4900 | 5800 | 6500 | 7400 |
| .18 | 900 | 55 | LOW | 1700 | 2400 | 3300 | 4100 | 5000 | 5700 | 6600 |

Rating based on 65º entering air.

1 GPM multiply by .95
4 GPM multiply by 1.05

Pressure Drop: .5' @ 1 GPM
1.5' @ 2 GPM
6.0' @ 4 GPM

## TOESTER 6/8

| RATING DATA | | | BTUH @ 2 GPM | INLET WATER TEMPERATURE | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| AMPS | RPM | LPM | FAN CONTROL | 100º | 120º | 140º | 160º | 180º | 200º | 220º |
| .6 | 1350 | 90 | HIGH | 2850 | 4300 | 5750 | 7200 | 8600 | 10,000 | 11,700 |
| .18 | 900 | 65 | LOW | 2450 | 3400 | 4650 | 5800 | 7000 | 8100 | 9300 |

Rating based on 65º entering air.

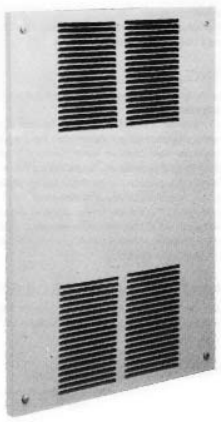
1 GPM multiply by .95
4 GPM multiply by 1.05

Pressure Drop: .33' @ 1 GPM
1.0' @ 2 GPM
4.0' @ 4 GPM

*Non-stock Item.

TURBONICS INC.

# WALL MOUNTED HYDRONIC FAN COILS
# TOESTER 11/13 WALL MOUNT*



**MODEL T13-WM-AR**

**(Recess flush mount shown)**

**STANDARD LIMITED PRODUCT WARRANTY - ONE YEAR**

**For best results, Turbonics recommends that you use monoflow tees off the main line.**

**I. INSTALLATION - GENERAL**

A. The Toester 11/13 WM unit heater is a forced air hot water space heater suitable for connection to hot water supply at any pressure up to 125 P.S.I. Maximum water temperature should not exceed 200ºF. The amount and temperature of water flowing through the unit determine heating output.

B. Building codes and plumbing regulations may vary. Check local codes and regulations before determining proper application and installation.

**II. PIPING**

A. The piping to the unit will usually be either 1/2 or 3/4 I.D. type L copper. Valves in supply and return lines are recommended.

B. Where the heater is located more than a few feet above the boiler or hot water main, some gravity, thermal circulation will occur even when the unit pump is not running. Lowering the supply water temperature when possible, either manually or with an automatic outside temperature control will minimize this condition. Restricting the heater circuit by partially closing one of the valves - within the limits needed for the heater output - will also reduce this circulation.

C. As with any system employing circulated water, the pipes passing through unheated spaces should be insulated. With the unit presumably operating only in periods when space heating is needed, the heat given off from the water pipes which pass through heated areas would not be a loss. Insulation on the pipes reduces heat loss in piping maximum water temperature available at the unit and maximum unit output.

**III. PIPING - HOT WATER BOILER**

A. The unit supply line should be taken from the boiler side beyond of any flo-control valve. On a gravity hot water system the unit supply and return can be connected to the existing piping nearest the unit location.

**IV. PIPING - WATER HEATER**

A. Where the unit is connected to a water heater and a separate pump is installed, several alternate piping arrangements may be used. The normal method is for water to be taken from the top of the tank by connecting to the pipe supplying the domestic water. The return water from the unit is brought back to the tank preferably at a point about half way between the top and bottom of the tank. (Normal location of water supply drop pipe in tank will provide for this). This location of the return line in the hot water tank is one of the most important points in the piping of the unit.

B. The return line from the unit must not be attached to any drain tapping at the bottom of the tank, since sediment will be stirred up with this connection.

C. The supply line for the unit can be taken from the existing hot water supply line at a point most convenient or closest to the unit. The return line from the unit, however, must go back to the water heater.

**V. SETTING UP THE UNIT**

A. A bleed valve opened with a screw driver is provided on the unit at the left side above the water coil. A short piece of 1/8" I.D. rubber tubing may be slipped on the bleed valve, emptying into a small container while bleeding the air. The lines should be purged with water pressure on the system, but with the unit motor shut off.

B. The valve on the return is first closed, the valve on the supply line opened. The bleed valve should be opened until water flows out steadily. Then, with the valve in the supply line closed and the valve in the return line opened, air is removed in the same manner from the return line.

C. The time required for air removal will be 5 to 10 minutes for each leg of piping.

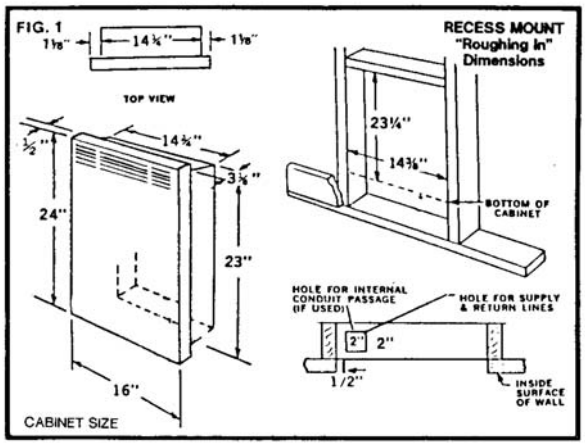
NOTE: The bleed valve is designed to vent the unit. If the unit in not located at the high point of a system, or if fresh water is continually introduced to the system, an additional automatic air vent may be required.

DO NOT attempt to bleed air with both lines open or with the unit running.

**VI. MOUNTING THE UNIT**

A. Brackets are provided on the surface mount units. The brackets are on 15" centers and should be lined up with studs.

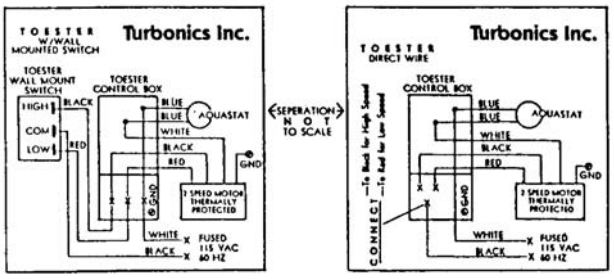
B. Recess mount dimensions Fig. #1.




**VII. WIRING THE UNIT**

A. A field wiring box is provided in the lower right hand corner of the unit. Connect wires at this point only.

B. The unit is manufactured with a built-in aqua-stat that DOES NOT allow the unit to run until the water temp is 120°, the unit turns off when water temp drops below 105°.




| RATING DATA | | | BTUH @ 2 GPM | INLET WATER TEMPERATURE | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| AMPS | RPM | CFM | FAN CONTROL | 100º | 120º | 140º | 160º | 180º | 200º | 220º |
| 1.2 | 1350 | 110 | HIGH | 3500 | 5800 | 8200 | 10,900 | 13,200 | 16,200 | 19,100 |
| .36 | 900 | 80 | LOW | 2500 | 4000 | 6200 | 8800 | 10,900 | 13,800 | 16,700 |

Rating based on 65° entering air.

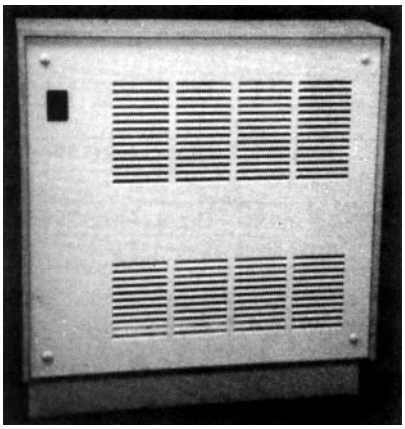
1 GPM multiply by .95
4 GPM multiply by 1.05

Pressure Drop: .5' @ 1 GPM
1.5' @ 2 GPM
6.0' @ 4 GPM

*Non-stock Item.

TURBONICS INC.

# DUAL-AIRE*



**STANDARD LIMITED PRODUCT WARRANTY - ONE YEAR**

**I. INSTALLATION - GENERAL**

A. The DUAL-AIRE unit heaters are a forced air hot water space heater suitable for connection to hot water supply at any pressure up to 125 P.S.I. Maximum water temperature should not exceed 200°F. The amount and temperature of water flowing through the unit determine heating output.

B. Building codes and plumbing regulations may vary. Check local codes and regulations before determining proper application and installation.

**II. PIPING**

A. The piping to the unit will usually be either 1/2 or 3/4 I.D. type copper. Valves in supply and return lines are recommended.

B. Where the heater is located more than a few feet above the boiler or hot water main, some gravity thermal circulation will occur even when the unit pump is not running. Lowering the supply water temperature when possible, either manually or with an automatic outside temperature control will minimize this condition. Restricting the heater circuit by partially closing one of the valves - within the limits needed for the heater output - will also reduce this circulation.

C. As with any system employing circulated water, the pipes passing through unheated spaces should be insulated. With the unit presumably operating only in periods when space heating is needed, the heat given off from the water pipes which pass through heated areas would not be a loss. Insulation on the pipes reduces heat loss in piping maximum water temperature available at the unit and maximum unit output.

**III. PIPING - HOT WATER BOILER**

A. The unit supply line should be taken from the boiler side beyond of any flo-control valve. On a gravity hot water system the unit supply and return can be connected to the existing piping nearest the unit location.

**IV. PIPING - WATER HEATER**

A. Where the unit is connected to a water heater, and a separate pump is installed, several alternate piping arrangements may be used. The normal method is for water to be taken from the top of the tank by connecting to the pipe supplying the domestic water. The return water from the unit is brought back to the tank preferably at a point about half way between the top and bottom of the tank. (Normal location of water supply drop pipe in tank will provide for this). This location of the return line in the hot water tank is one of the most important points in the piping of the unit.

B. The return line from the unit must not be attached to any drain tapping at the bottom of the tank, since sediment will be stirred up with this connection.

C. The supply line for the unit can be taken from the existing hot water supply line at a point most convenient or closest to the unit. The return line from the unit, however, must go back to the water heater.

**V. SETTING UP THE UNIT**

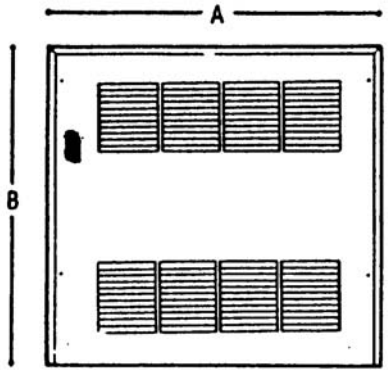
A. A bleed valve opened with a screw driver is provided on the unit at the left side above the water coil. A short piece of 1/8" I.D. rubber tubing may be slipped on the bleed valve, emptying into a small container while bleeding the air. The lines should be purged with water pressure on the system, but with the unit motor shut off.

B. The valve on the return is first closed, the valve on the supply line opened. The bleed valve should be opened until water flows out steadily. Then, with the valve in the supply line closed and the valve in the return line opened, air is removed in the same manner from the return line.

C. The time required for air removal will be 5 to 10 minutes for each leg of piping.

NOTE: The bleed valve is designed to vent the unit. If the unit in not located at the high point of a system, or if fresh water is continually introduced to the system, an additional automatic air vent may be required.

DO NOT attempt to bleed air with both lines open or with the unit running.




FRONT VIEW

SIDE VIEW

**VI. MOUNTING THE UNIT**

A. Brackets are provided on the surface mount units. Make sure brackets are adequately secured with thru the wall mollys or into studs.

B. See special instructions enclosed for use of floor support/ceiling-bottom plate bracket.

**VII. WIRING THE UNIT**

A. A field wiring box is provided on the left side of the unit. Connect wires at this point only.

B. The unit is manufactured with a built-in aqua-stat that DOES NOT allow the unit to run until the water temp is 140°, the unit turns off when water temp drops below 110°.

| UNITS / DIMENSIONS | A | B | C |
|---|---|---|---|
| DUAL-AIRE 90/30-AS-H | 17.0" | 19.8" | 5.5" |
| DUAL-AIRE 120/40-AS-H | 21.0" | 19.8" | 5.5" |
| DUAL-AIRE 170/50-AS-H | 28.0" | 19.8" | 5.5" |
| DUAL-AIRE 220/70-AS-H | 35.0" | 19.8" | 5.5" |

**FANSPEED** **BTUH OUTPUTS @ 65° ENTERING AIR @ 2 GPM**

| AMPS | | | 140 DEG | 160 DEG | 180 DEG | 200 DEG | CFM @ FA |
|---|---|---|---|---|---|---|---|
| .5 | DUAL-AIRE 90/30 | LO | 3700 | 4800 | 6300 | 8400 | 88 |
| .55 | | HI | 4900 | 6400 | 7800 | 9900 | 110 |
| .59 | DUAL-AIRE 120/40 | LO | 5400 | 6200 | 8700 | 10,500 | 120 |
| .62 | | HI | 6300 | 8800 | 10,700 | 12,900 | 160 |
| .65 | DUAL-AIRE 170/50 | LO | 6400 | 8300 | 12,200 | 15,400 | 165 |
| .67 | | HI | 8300 | 11,800 | 14,900 | 17,900 | 195 |
| 1.2 | DUAL-AIRE 220/70 | LO | 8500 | 12,000 | 15,000 | 18,300 | 220 |
| 1.4 | | HI | 10,500 | 15,000 | 19,000 | 22,900 | 300 |

*Non-stock Item.

TURBONICS INC.

# CHILL Chaser™ II *

**Hydronic fan coil with built-in circulator connects directly to your domestic hot water supply (or any hot water source)**

**Chill Chaser Surface Mount**

MADE IN THE U.S.A.

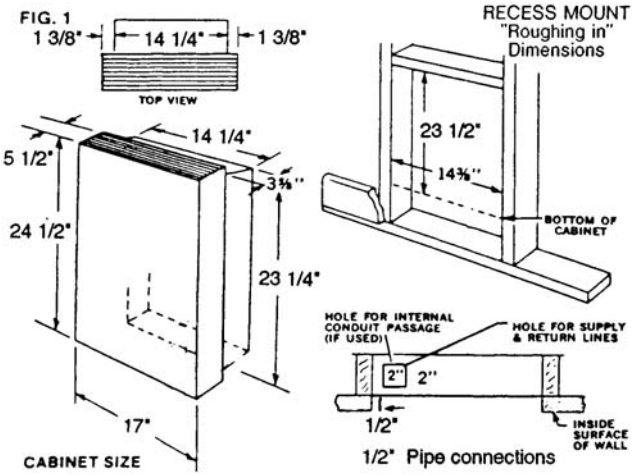
If you are adding on a room, converting a dormer or finishing your basement, the Chill Chaser is the perfect add-on solution. Chill Chaser's have no flames, flues or fumes. Pipe the Chill Chaser to your hot water tank (or any hot water source) and you have instant zoned safe heat. The Chill Chaser's dark oak cover adds stately beauty and warmth to any room.

THE CHILL CHASER II IS A UNIQUE CONCEPT FOR WARMING ROOMS. Each Chill Chaser II is a packaged system able to move hot water from a hot water tank and extract heat to provide room warmth. It is easy to install, requiring only piping from the hot water source, return piping and electrical connection. The built-in circulator & thermostat allows the unit to regulate the heat to keep an area at the temperature you desire.

CHILL CHASER II PROVIDES SAFETY AND EFFICIENCY - no flames, no flues or vents, no high temperature elements or high current wiring is added - since Chill Chaser II can only add to room warmth. No heat is lost during off-cycles.

CHILL CHASER II IS IDEAL FOR SUPPLEMENTAL HEATING OF UNHEATED OR HARD-TO-HEAT AREAS, SUCH AS KITCHENS, BEDROOMS, FAMILY ROOMS AND ADDITIONS. Multiple units heat entire dwellings. Independent zone control facilitates energy conserving "between-season" use and warm areas when central temperatures are lowered.

CHILL CHASER II PROVIDES SUBSTANTIAL ENERGY SAVINGS THROUGH IT'S ABILITY TO UTILIZE HEAT FROM ANY CLEAN ECONOMICAL HOT WATER SOURCE - domestic hot water heaters, boilers, heat pumps, solar storage or tempering tanks and waste heat recovery systems



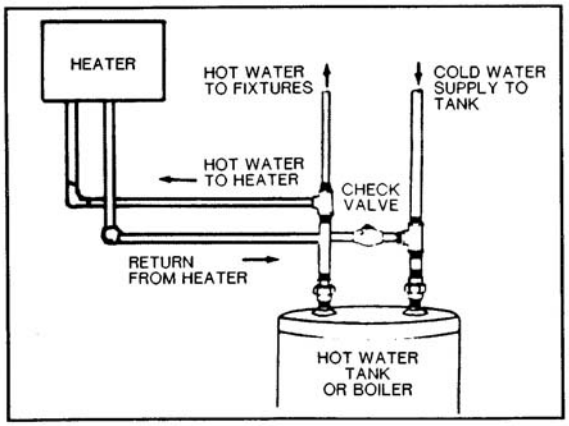

## RATING DATA @ 2 GPM 65 Degree Entering Air

### Chill Chaser 140 BTU Output per Hour

| | | | Entering Water Temperature | | | | | |
|---|---|---|---|---|---|---|---|---|
| AMPS | CFM | Fan Control | 120° | 140° | 160° | 180° | 200° | 220° |
| .46 | 90 | Low | 4500 | 6300 | 8400 | 10300 | 12200 | 13700 |
| .70 | 130 | High | 5800 | 8100 | 10200 | 11900 | 13500 | 15300 |

### Chill Chaser 210 BTU Output per Hour

| | | | Entering Water Temperature | | | | | |
|---|---|---|---|---|---|---|---|---|
| AMPS | CFM | Fan Control | 120° | 140° | 160° | 180° | 200° | 220° |
| .60 | 105 | Low | 5600 | 7500 | 9800 | 12500 | 15100 | 17400 |
| .95 | 145 | High | 7200 | 9100 | 12100 | 15000 | 17200 | 20100 |




**Chill Chaser piping diagram**

TURBONICS INC.

# TURBO-TOEST 140 / 210*

The Turbo-Toests are wall mounted hydronic fan coils. These attractive units are beautifully designed to provide quick, safe, quiet warmth to any area. The Turbo-Toests compact size minimizes their intrusion into a room. If you have a boiler, heat pump, or hot water tank the simple designer solution is the Turbo-Toest 140 or Turbo-Toest 210.

## Turbo-Toest Features

HIGH BTU OUTPUT - The Turbo-Toest cores come in a 32 and 24 pass configuration, which provides for exceptionally good heat transfer.

QUIET OPERATION - Transflow fan blades gently move air through these units.

FILTERED AIR - Fan coil stays cleaner, and room air stays warmer.

EASY TO INSTALL - Recessed unit fits between the studs. Easy access to pipes.

BUILT TO LAST - Stay brite solder at all pipe joints. Rugged 30 gauge galvanized and coated steel chassis.

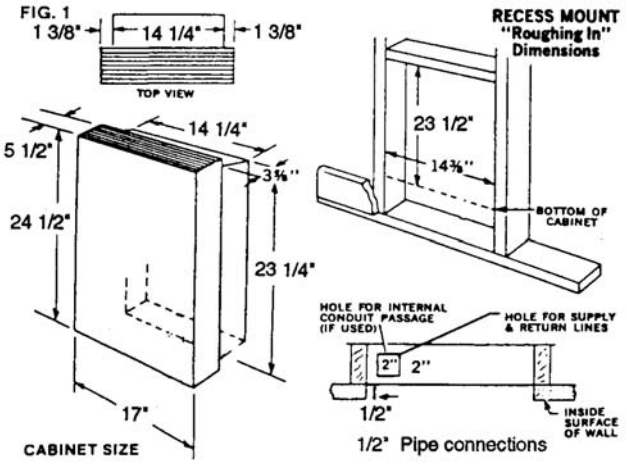
NEUTRAL COLOR - Almond white cover blends with almost any decor.

BUILT-IN THERMOSTAT - Regulates maximum output of the unit.

RELIABILITY & CUSTOMER SERVICE - The best in the industry. Call 1(216)-741-8300 if you have any questions regarding our products.

**Turbo-Toest Surface Mount**

MADE IN THE U.S.A.




## RATING DATA @ 2 GPM 65 Degree Entering Air

### Turbo-Toest 140 BTU Output per Hour

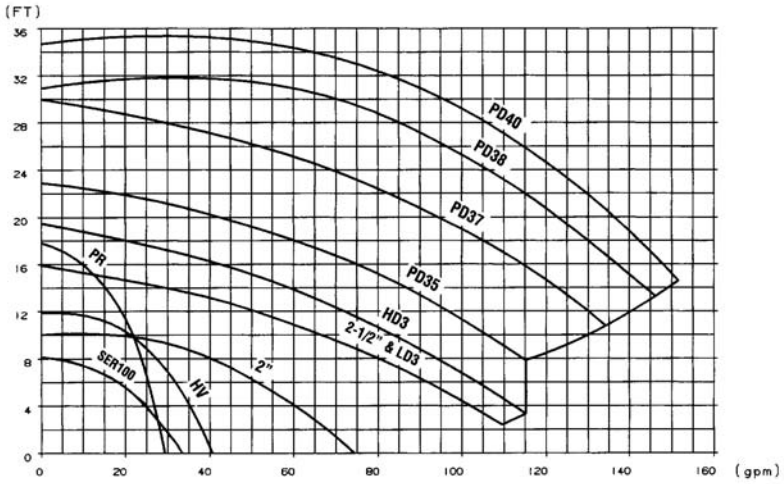
| | | | Entering Water Temperature | | | | | |
|---|---|---|---|---|---|---|---|---|
| AMPS | CFM | Fan Control | 120° | 140° | 160° | 180° | 200° | 220° |
| .46 | 90 | Low | 4500 | 6300 | 8400 | 10300 | 12200 | 13700 |
| .70 | 130 | High | 5800 | 8100 | 10200 | 11900 | 13500 | 15300 |

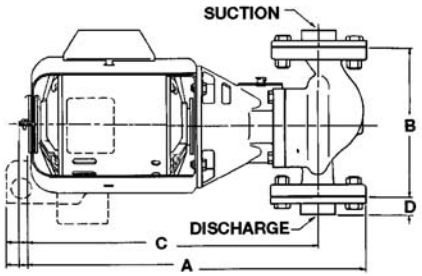
### Turbo-Toest 210 BTU Output per Hour

| | | | Entering Water Temperature | | | | | |
|---|---|---|---|---|---|---|---|---|
| AMPS | CFM | Fan Control | 120° | 140° | 160° | 180° | 200° | 220° |
| .60 | 105 | Low | 5600 | 7500 | 9800 | 12500 | 15100 | 17400 |
| .95 | 145 | High | 7200 | 9100 | 12100 | 15000 | 17200 | 20100 |

*Non-stock Item.

# BELL & GOSSETT
# Oil Lubricated Circulators



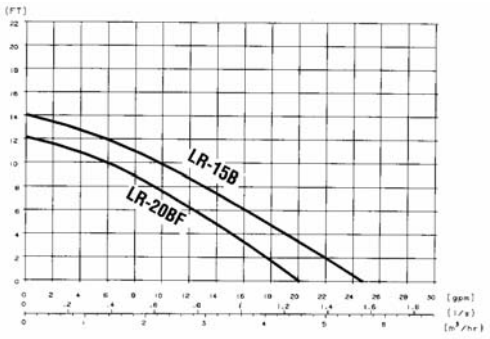

**Dimensions & Weights**

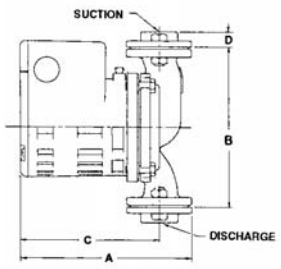
| Model No. | Cast Iron Model No. | Bronze Model No. | Flange Size Inches (NPT) | Motor Characteristics @ 60 Hz | | | Dimensions In Inches | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | HP | Ø | Voltage | A | B | C | D |
| Series 100 | 100L | B100L | 3/4<br>1 & 1-1/4<br>1-1/2 | 1/12 | | | 14-7/8 | 6-3/8 | 12-3/4 | 9/16<br>3/4<br>15/16 |
| Series PR | PR | 102208 | 3/4<br>1 & 1-1/4<br>1-1/2 | 1/6 | | 115 - with built-in overload protection | 15-1/4 | 8-1/2 | 12-3/4 | 9/16<br>3/4<br>15/16 |
| Series HV | HV | BHV | 1<br>1-1/4 & 1-1/2 | 1/6 | | | 15-3/8 | 8-1/2 | 13 | 5/8<br>3/4 |
| 2" | 2X | B2 | 2 | 1/6 | 1 | | 16-5/8 | 8-1/2 | 14 | 13/16 |
| 2-1/2" | 2-1/2 | B2-1/2 | 2-1/2 | 1/4 | | | 17-1/4 | 10 | 14 | 1-1/16 |
| LD3 | LD3 | 102224 | 3 | 1/4 | | | 17-1/4 | 10 | 14 | 1-1/16 |
| HD3 | HD3 | HDB3 | 3 | 1/3 | | 115/230 | 17-1/2 | 10 | 14-1/4 | 1-1/16 |
| PD-35S | PD35S | PDB35SBI | 3 | 1/2 | | 115/230 | 20-1/4 | 12 | 16-7/8 | 1-1/16 |
| PD-35T | PD35T | 105096 | 3 | 1/2 | 3 | 208-230/460 | 20-1/4 | 12 | 16-7/8 | 1-1/16 |
| PD-37S | PD37S | 105100 | 3 | 3/4 | 1 | 115/230 | 20-1/4 | 12 | 16-7/8 | 1-1/16 |
| PD-37T | PD37T | PDB37T | 3 | 3/4 | 3 | 206-230/460 | 20-1/4 | 12 | 16-7/8 | 1-1/16 |
| PD-38S | PD38S | 105123 | 3 | 1 | 1 | 115/230 | 24 | 14-1/2 | 19-1/2 | 1-1/4 |
| PD-38T | PD38T | 105135 | 3 | 1 | 3 | 208-230/460 | 24-1/4 | 14-1/2 | 19-3/4 | 1-1/4 |
| PD-40S | PD40S | 105153 | 3 | 1-1/2 | 1 | 115/230 | 24-5/8 | 14-1/2 | 20-1/8 | 1-1/4 |
| PD-40T | PD40T | 105139 | 3 | 1-1/2 | 3 | 208-230/460 | 25-1/8 | 14-1/2 | 20-5/8 | 1-1/4 |

Dimensions are approximate and subject to changes

# BELL & GOSSETT

## Oil Lubricated Circulators / LR



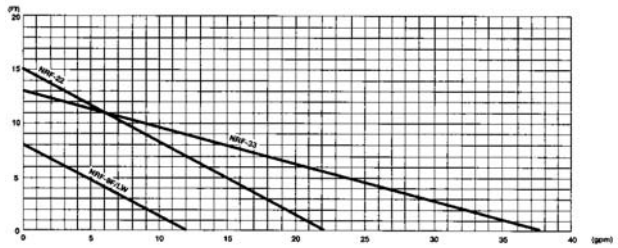



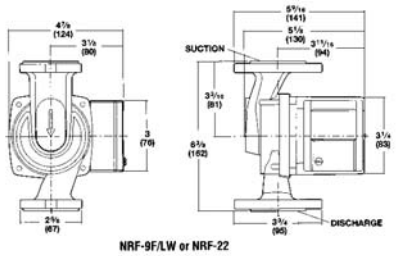

### Dimensions & Weights

| Model No. | Construction | Flange Size Inches (NPT) | Motor Charactenstics* @ 60 Hz HP | Ø | Voltage | Dimensions in Inches A | B | C | D |
|---|---|---|---|---|---|---|---|---|---|
| LR-20BF | Cast Iron | 3/4<br>1 & 1-1/4<br>1-1/2 | 1/20 | 1 | 115 - With Built-in Thermal Overload Protection | 6-15/16 | 6-3/8 | 5-5/8 | 9/16<br>3/4<br>15/16 |
| LR-15B | Bronze | 3/4<br>1 & 1-1/4<br>1-1/2 | 1/12 | | | 7-15/16 | | 6-5/8 | 9/16<br>3/4<br>15/16 |

230/60/1 motors available upon request. Dimensions are approximate and subject to change. Contact factory for certified dimensions.

## Cast Iron & Bronze Wet Rotor / NRF




NRF-9F/LW or NRF-22

### Cast Iron Circulators

| Model No. | Flange Sizes Inches - NPT | Standard 60 Cycle Motor Characteristics** Watts | Ø | Voltage | F.L. AMPS | RPM |
|---|---|---|---|---|---|---|
| NBF12*<br>NRF-22<br>NBF-22* | 3/4, 1,1-1/4,1-1/2 | 92 | 1 | 115 | .80 | 2940 |
| NRF-9F/LW | 3/4, 1,1-1/4,1-1/2 | 41 | 1 | 115 | .40 | 2950 |

*Bronze
**230/60/1 motors available upon request. Impedance protected.

### Flanges for Cast Iron Circulators

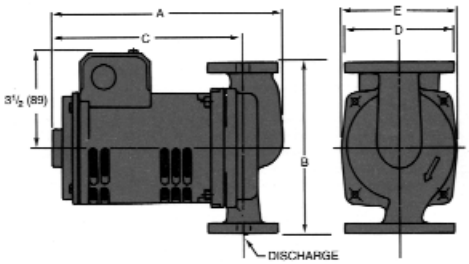
| Models Where Used | Size (NPT) | Part No. |
|---|---|---|
| Series 100, PR, NRF-22, NRF-9F/LW, NRF-33, PL-30, PL-36, PL-55 | 3/4"<br>1"<br>1-1/4"<br>1-1/2" | 101001<br>101002<br>101003<br>101004 |
| Series HV, PL45, PL-50 | 1"<br>1-1/4"<br>1-1/2" | 101005<br>101006<br>101007 |

### Flanges for Bronze Circulators

| Models Where Used | Size (NPT) | Part No. |
|---|---|---|
| Series 100B, PRAB, NBF-22, NBF-12F/LW, NBF-33, PL-30B, PL-36B | 3/4"<br>1"<br>1-1/4"<br>1-1/2" | 101011<br>101012<br>101013<br>101014 |
| Series HVB, PL-45B, PL-50B | 1"<br>1-1/4"<br>1-1/2" | 101015<br>101016<br>101017 |

# BELL & GOSSETT

## SERIES PL™

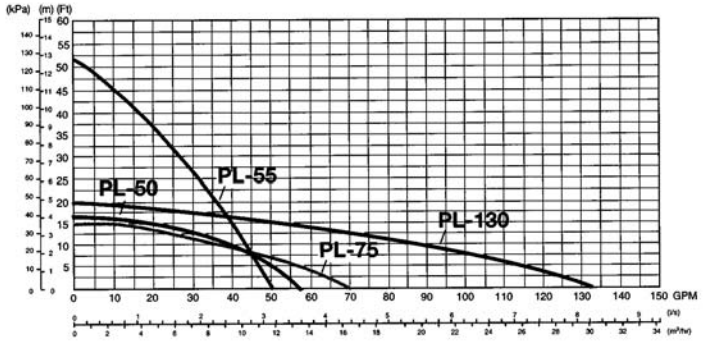


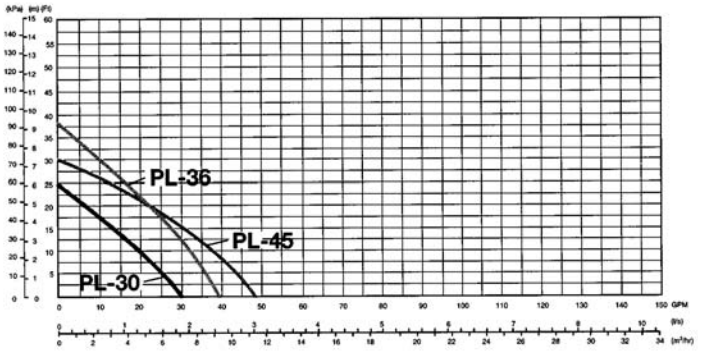

**A superior alternative to large wet rotor pumps.**

### Dimensions & Weights

| Cast Iron Model No. | Bronze Model No. | Flange Size Inches - NPT | Motor Characteristics* | | | | Dimensions in inches @ 60 Hz (Open Drip-Proof) | | | | | Approx. Shipg. Wt. lbs. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | HP | Ø | Voltage | RPM | A | B | C | D | E | |
| PL-30 | PL-30B | 3/4<br>1 & 1-1/4<br>1-1/2 | 1/12 | 1 | 115 | 2650 | 8-5/8 | 6-3/8 | 7-1/8 | 4-3/16 | 4-3/8 | 11.6 |
| PL-36 | PL-36B | 3/4<br>1 & 1-1/4<br>1-1/2 | 1/6 | | | 3300 | 8-5/8 | 6-3/8 | 7-1/8 | 4-3/16 | 4-3/8 | 13.1 |
| PL-45 | PL-45B | 1<br>1-1/4 & 1-1/2 | 1/6 | | | 3300 | 9-1/8 | 8-1/2 | 7-1/4 | 4-5/8 | 4-3/8 | 14.5 |
| PL-50 | PL-50B | 1<br>1-1/4 & 1-1/2 | 1/6 | | | 3300 | 9-1/8 | 8-1/2 | 7-1/4 | 4-5/8 | 4-3/8 | 14.5 |
| PL-55 | N/A | 3/4<br>1 & 1-1/4<br>1-1/2 | 2/5 | | | 3250 | 9-9/16 | 6-3/8 | 7-15/16 | 4-3/16 | 4-3/4 | 13.1 |

* 230/60/1 motors available upon request. Models PL-75 and PL-130 has a four bolt hole flange connection, all others have two bolt hole flange connectors. Dimensions are approximate and subject to changes. Contact factory for certified dimensions.




**1** B&G's powerful, dry-motor design delivers exceptional performance… 25% more efficient than competition.

**2** Precision-machined and balanced alloy steel rotor for superior performance.

**3** Quick-connect wire nut leads and dual knock-outs make for fast, sure hook-ups.

**4** Solid "Stiff-Shaft" design is constructed of high-strength alloy steel impervious to cracking caused by thermal stresses.

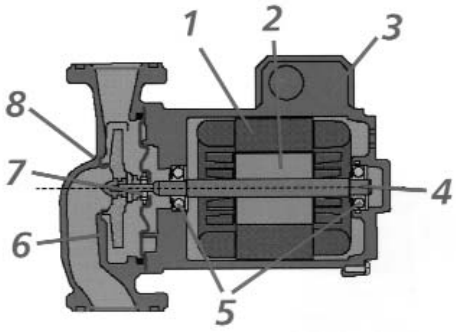
**5** XL-11™ Precision-Crafted Bearing System… is permanently oil lubricated… completely maintenance free… precisely positioned for long-life and isolated for quiet operation.

**6** Advanced close-coupled design increases pump life and efficiency, assures dependable seasonal start-ups and can easily handle difficult water conditions.

**7** Tough, durable seal system features a carbon/silicon carbide seal on a stainless steel shaft sleeve for long life and rugged operation.

**8** Double sided I-Seal™design for optimum efficiency.

c UL us LISTED



# BELL & GOSSETT
# Relief and Reducing Valves

## REDUCING VALVES

- Reducing Valves fill the system to a preset pressure for optimum performance.
- Convenient cleanable strainer is designed tp prevent dirt and sediment from entering system.
- Brass body construction.
- Fast fill feature reduces start-up time and labor.

### Low Pressure Reducing Valves With Fast Fill Feature

| PART # | SIZE | PSI | DESCRIPTION |
|---|---|---|---|
| BG FB38 | 1/2" | 12 | BRASS |
| BG FB38TU | 1/2" | 12 | W/TAIL UNION |

### LOW PRESSURE REDUCING VALVES

| PART # | SIZE | PSI | DESCRIPTION |
|---|---|---|---|
| BG B7-12 | 3/4" | 12 | BRASS |

### HIGH PRESSURE REDUCING VALVES

| PART # | SIZE | PSI | DESCRIPTION |
|---|---|---|---|
| BG 7VALVE | 3/4" | 45 | BRASS |

## DUAL UNIT VALVES

**Reducing Valve Set @ 12 lb.**

**Relief Valve Set @ 30 lb.**

| PART # | SIZE | DESCRIPTION |
|---|---|---|
| BG 8 | 1/2" | IRON |

### With Fast Fill

| PART # | SIZE | DESCRIPTION |
|---|---|---|
| BG F8 | 1/2" | IRON |
| BG F8TU | 1/2" | W/TAIL UNION |

## FLO-CONTROL VALVES

**Straight Angle Pattern**
**3/4" - 1" - 1-1/4" - 1-1/2" - 2"***
*Flanged one end on horizontal run

**Bronze Straight Pattern 3/4"**

| PART # | PATTERN/CAST |
|---|---|
| BG SA3/4 | STRAIGHT ANGLE/IRON |
| BG SB3/4 | STRAIGHT BRONZED, SWEAT |
| BG SA1 | STRAIGHT ANGLE/IRON |
| BG SA1-1/4 | STRAIGHT ANGLE/IRON |
| BG SA1-1/2 | STRAIGHT ANGLE/IRON |
| BG SA2 | STRAIGHT ANGLE/IRON |

## MONOFLO FITTINGS

| PART # | SIZE |
|---|---|
| BG 108119 | 3/4 x 1/2 |
| BG 108120 | 1 x 1/2 |
| BG 108121 | 1 x 3/4 |
| BG 108122 | 1-1/4 x 1/2 |
| BG 108123 | 1-1/4 x 3/4 |
| BG 108124 | 1-1/2 x 3/4 |
| BG 108125 | 1-1/2 x 1 |

## Automatic Air Vents

No. 7 AUTOMATIC AIR VENT — An improved valve for automatically removing air from the piping of any type of hot water heating system. 75 P.S.I.G. Working Pressure — Maximum 240ºF Operating Temperature

| PART # | SIZE |
|---|---|
| BG 7VENT | 1/8" FPT |
| BG 67 | 1/8" MPT |

Dole®

# AIR VENTS

## For Hydronic Heating Systems
### Automatic Hygroscopic Valves

**No. 20 JR Disc Type Air Valve**
For radlators and convectors. Provision for manual or automatic venting. 1/8" connection. Max. pressure 30 psi. Packed 6 per box. Net shipping weight 1.2 oz. each.

**No. 20 SR Disc Type Air Valve**
For radiators or convectors. Provision for manual shut-off, manual and automatic venting 1/8" connection. Max. pressure 30 psi. Packed 6 per box. Net shipping weight 1.6 oz. each.

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## Manual Vents

**No. 9 Coin Valve**
1/8" NPT connection. Packed 24 per box. Net shipping weight 0.6 oz. each.

**No. 9BX Special Coin Valve**
For baseboard radiators.1/8" NPT connection. Packed 24 per box. Net shipping weight 0.5 oz. each.

**No. 27-202-02 Key Vent**
1/8" NPT connection. Packed 24 per box with 4 keys. Net shipping weight 0.6 oz. each.

**No. H-2404-00 Key**

**No. 14 Key Air Valve Assembly**
Vent outlet is on inside of enclosure. Tubing 20" long x 3/16" O.D. 1/8" NPT connection. Packed 12 per box with two keys. 144 per master shipping carton. Net shipping weight, 4.0 oz. each.

**No. 14A Coin Air Valve Assembly**
Vent outlet is outside of enclosure. Tubing 20" long x - 3/16" O.D. 1/8" NPT connection. Packed 12 per box. 144 per master shipping carton. Net shipping weight, 4.3 oz. each.

Gorton
HEATING CORPORATION
"THE SURE CURE FOR COLD RADIATORS"

# STEAM VENTS

## FOR RADIATORS

Use **No. 4 Gorton Vapor Equalizing Valve** on radiators in room in which thermostat is located and on radiators that affect the operation of the thermostat.

Use **No. 5 Gorton Vapor Equalizing Valve** (venting capacity equal to 4 ordinary type air valves) on radiators near the boiler and in warm rooms; for example, on first floor radiators.

Use **No. 6 Gorton Vapor Equalizing Valve** (venting capacity equal to 8 ordinary type air valves) on radiators farther from the boiler and in cold rooms; for example, on second-floor radiators.

Use **"C" Gorton Vapor Equalizing Valve** (venting capacity equal to 15 ordinary type air valves) on radiators farthest from the boiler and in coldest rooms; for example, on third-floor radiators and above.

Use **"D" Gorton Vapor Equalizing Valve** (venting capacity equal to 27 ordinary type air valves) in cases where a large amount of air must be vented; for example, on radiators having particularly long branches and on very large radiators. (Not to be used on hand-fired systems unless radiator supply valves are left "on" all the time).

Use "1965" vent when you're looking for a cost effective vent that delivers the venting capacity of five or six ordinary vents. It will equal msot adjustable type air vents on the market today.

**NO. 4**

| PART # | DESCRIPTION |
|---|---|
| 4X | 1/8" ANGLE |

**NO. 5**

| PART # | DESCRIPTION |
|---|---|
| 5X | 1/8" ANGLE |

**NO. 6**

| PART # | DESCRIPTION |
|---|---|
| 6X | 1/8" ANGLE |

**NO. C**

| PART # | DESCRIPTION |
|---|---|
| C | 1/8" ANGLE |
| C-Verticle | 1/8" STRAIGHT |

**NO. D**

| PART # | DESCRIPTION |
|---|---|
| D | 1/8" ANGLE |
| D-Verticle | 1/8" STRAIGHT |

**NO. 1965**

| PART # | DESCRIPTION |
|---|---|
| 1965ANGLE | 1/8" ANGLE |
| 1965SS1/8 | 1/8" STRAIGHT |
| 1965SS1/4 | 1/4" STRAIGHT |


1/8" Side Connection


1/8" or 1/4" Vertfcal Connection


## FOR MAINS

Install 1 or more **No. 1 Gorton AIr Eliminators** with 3/8" or 3/4" x 1/2" vertical connection at the end of the short main or the main running to the warm side of the building.

Install 2 or 3 **No. 1** or 1 or more **No. 2 Gorton Air Eliminators** with 1/2" vertical connection at the end of the long main or the main running to the cold side of the building, depending upon the size of the building. The venting capacity of 1 No. 2 Gorton Air Eliminator Is equal to that of 4 No. 1 Gorton Air Eliminators.

**NO. 1**

| PART # | DESCRIPTION |
|---|---|
| 1X | 3/4" x 1/2" STRAIGHT |

**NO. 2**

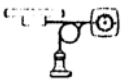
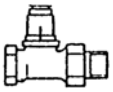
| PART # | DESCRIPTION |
|---|---|
| 2XXX | 1/2" STRAIGHT |


Over-all height 6-3/8"
1/2" Vertical Connection

3/8" or 3/4" by 1/2"
Vertical Connection

# THERMOSTATIC RADIATOR VALVES

## RA 2000
## QUICK SELECTION CHART

| Valves* For use on hot water (max 250°F) and 2-pipe LPS (max.15 psig) | | | Operators | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Cap tube lengths | | | | | |
| | | | --- | --- | 6-1/2" | 3' + 3' | 6' | 16' |
| | | |  |  |  |  |  |  |
| Configuration | Connection FPT x MPT | $C_v$ | 013G8250 | 013G8240 | 013G8252 | 013G8233 | 013G8564 | 013G8565 |
|  | 1/2" NPT | 1.6 | 013G8015 | | | | | |
| | 3/4" NPT | 2.7 | 013G8020 | | | | | |
| | 1" NPT | 2.8 | 013G8025 | | | | | |
| | 1-1/4" NPT | 2.8 | 013G8032 | | | | | |
|  | 1/2" NPT | 1.6 | | | 013G8014 | | | |
| | 3/4" NPT | 2.7 | | | 013G8019 | | | |
| | 1" NPT | 2.8 | | | 013G8024 | | | |
| | 1-1/4" NPT | 2.8 | | | 013G8031 | | | |
|  | 1/2" NPT | 1.6 | 013G8013 | | | | | |
| | 3/4" NPT | 2.7 | 013G8018 | | | | | |
| | 1" NPT | 2.8 | 013G8023 | | | | | |
| | 1-1/4" NPT | 2.8 | 013G8030 | | | | | |

*1/2" & 3/4" straight solder unions also available

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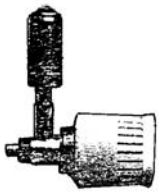
### 1 PIPE LPS SYSTEM

A one pipe steam heating system equipped with DANFOSS thermostatic radiator valve type 013G0140 with an 013L8011vent.

This valve type Is designed for low pressure steam systems, max 15 psig connected to a boiler with time cycling mode of control. Changing temperature around the operator sensor effects a modulating action of air venting through the radiator, convector etc. When the operator calls for heat the steam enters the radiator and pushes the air through the valve and out the vent. When setting temp. is reached valve will close and venting stops.

| PART # |
|---|
| 013G0140 |



### RA 2000 VALVE FOR 1-PIPE LPS

**NOTE:** If the boiler is cycled by a space t-stat in a room no valve should be Installed. Otherwise improper boiler control may result. Don't use valves if vacuum operation exists.

A LEADER IN VALVE TECHNOLOGY
WATTS® REGULATOR
Since 1874 — Watts Industries, Inc.

# HYDRONIC ACCESSORIES

## NO. 740 SERIES

**A.S.M.E. Water Pressure Relief ValveE.**
Iron body relief valve with expanded outlets for hot water space heating boiloers.
FEMALE INLET AND OUTLET.

| MODEL # | INLET | OUTLET | HEIGHT | STEAM DISCHARGE CAPACITIES | | | |
|---|---|---|---|---|---|---|---|
| | | | | 30 LBS | 45 LBS | 50 LBS | 75 LBS |
| WV 740-3/4 | 3/4" | 1" | 5-7/8" | 925,000 | 1,245,000 | 1,352,000 | 1,886,000 |
| WV 740-1 | 1" | 1-1/4" | 7-1/4" | 1,300,000 | 1,750,000 | 1,899,000 | 2,649,000 |
| WV 740-1-1/4 | 1-1/4" | 1-1/2" | 8-3/4" | 2,105,000 | 2,830,000 | 3,075,000 | 4,285,000 |
| WV 740-1-1/2 | 1-1/2" | 2" | 9-1/4" | 2,900,000 | 3,903,000 | 4,237,000 | 5,909,000 |
| WV 740-2 | 2" | 2-1/2" | 11-5/8" | 5,250,000 | 7,067,000 | 7,672,000 | 10,700,000 |

## 009 REDUCED PRESSURE ZONE (RPZ) BACKFLOW PREVENTERS

DESIGNED TO PROTECT POTABLE WATER SUPPLIES IN ACCORDANCE WITH NATIONAL PLUMBING CODES AND WATER UTILITY AUTHORITY REQUIREMENTS.

| PART # | SIZE |
|---|---|
| 009QTS-1/2 | 1/2" |
| 009QTS-3/4 | 3/4" |
| 009QTS-1 | 1" |

## SERIES 909AG AIR GAP

FOR USE ON HORIZONTAL INSTALLATIONS OF SERIES 009 BACKFLOW PREVENTERS.

| PART # | SIZE |
|---|---|
| 909AG-A | 1/2" & 3/4" |
| 909AG-C | 1" |

## NO. 9D BACKFLOW PREVENTER

BACKFLOW PREVENTER CONTINUOUS PRESSURE TYPE WITH INTERMEDIATE ATMOSPHERIC VENT.
FEMALE UNION INLET AND OUTLET CONNECTIONS.

| PART # | SIZE |
|---|---|
| 9D-1/2 | 1/2" |
| 9D-3/4 | 3/4" |

## NO. 27 STRAINER

"V" TYPE WATER STRAINER.
#40 SCREEN MESH.

| PART # | SIZE |
|---|---|
| 27-40 | 1/8" |


## NO. 1450F

**IRON BODY DUAL CONTROL**
COMBINES CONSTRUCTION FEATURES OF NO. 1156F AND RUGGED IRON BODY DIAPHRAGM RELIEF VALVE.
SET 30 LBS.

| PART # | SIZE | HEIGHT |
|---|---|---|
| WV 1450F | 1/2" | 5-3/8" |

## NO. N170, N170L SERIES

TEMPERING VALVES FOR LARGE COMMERCIAL AND INSTITUTIONAL INSTALLATIONS.

**TEMPERATURE RANGE:**

**100°-130°**

| MODEL # | SIZE |
|---|---|
| N170L-3/4 | 3/4" |
| N170L-1 | 1" |
| N170L-1-1/4 | 1-1/4" |
| N170L-1-1/2 | 1-1/2" |
| N170L-2 | 2" |

**130°-160°**

| MODEL # | SIZE |
|---|---|
| N170-3/4 | 3/4" |
| N170-1 | 1" |
| N170-1-1/4 | 1-1/4" |
| N170-1-1/2 | 1-1/2" |
| N170-2 | 2" |

## NO. 36A

**VACUUM RELIEF VALVES**
AUTOMATICALLY VENTS SYSTEM IF VACUUM OCCURS.

| PART # | SIZE | HEIGHT |
|---|---|---|
| N36A-1/2 | 1/2" | 2" |
| N36A-3/4 | 3/4" | 2" |

Hoffman SPECIALTY

# Float & Thermostatic Steam Traps

| PART # | SIZE |
|---|---|
| IFT-3/4 | 3/4" |
| IFT-1 | 1" |
| IFT-1-1/4 | 1-1/4" |

| PART # | SIZE |
|---|---|
| IFT-1-1/2 | 1-1/2" |
| IFT-2 | 2" |

## Series H, Series C

Float & Thermostatic Traps are used with a variety of steam equipment to readily release condensate and air but close to prevent steam loss. Hoffman Float & Thermostatic Traps function in “zero” to full capacity conditions and are well suited for intermittent service applications.

The Series 55 Float & Thermostatic Traps are available in sizes 3/4" through 2" and pressures up to 175 psi.

The Series 59 High Capacity Float & Thermostatic Traps are available in sizes 3/4" through 2-1/2" with pressures up to 175 psi and capacities to 55,600 pph.

## “Y” STRAINERS*

Strainers are designed for steam, oil or water lines. Strainers should be installed ahead of temperature regulating and/or pressure reducing valves and steam traps to protect their moving parts, especially on new installations.

**Model KEC**
Cast iron body; maximum working pressure 250 psi for steam service, 400 psi for water service. Available in sizes 1/2" through 3".

*1/2" - 1-1/4" bronze water strainers available. Call for details.

| PART # | SIZE |
|---|---|
| KEC-Y-3/4 | 3/4" |
| KEC-Y-1 | 1" |
| KEC-Y-1-1/4 | 1-1/4" |
| KEC-Y-1-1/2 | 1-1/2" |
| KEC-Y-2 | 2" |

## VENTING VALVES for Water Applications

**No. 79 Water Main Vent**
Designed for use on hot or cold water mains and process applications. Tapped at top for 1/8" NPT. Safety drain connection for discharging moisture entrained in the vented air. Built-in Check Valve. 1/2" NPT female and 3/4" NPT male straight shank. Maximum operating pressure 75 psi. Will withstand hydrostatic pressures of 200 psi.

**#401488**

**No. 790 Water Valve.**
Especially designed for removing air from convectors, baseboard and wall radiation. Safety drain connection at the top for discharging moisture entrained in the vented air. Fitting and ferrule for 3/16" OD tubing. Telescopic Siphon Tube. 1/8" NPT straight shank. Maximum operating pressure 30 psi.

**#401479**

**No. 74 Quick Vent**
Designed for sream unit heaters. Max. pressure 35 lbs. 3/4" male x 1/2" female connection. Non-adjustable port.

**#401428**

## VENTING VALVES for Steam Applications

Model 41
Air Valve (non-vacuum)
- Single non-adjustable port
- For small steam systems
- Telescopic siphon tube wit angle cut assures drainage
- 1/8" (4mm) NPT straight shank
- Maximum operating pressure 6 psig
- Maximum pressure 10 psig

#401455

Model 71A
Air Valve (non-vacuum)
- Float-type vent
- Single non-adjustable port
- Telescopic siphon tube with with angle cut assures drainage
- 1/8" (4mm) NPT straight shank
- Maximum operating pressure 11 psig
- Maximum pressure 15 psig

#401470

## Hoffman
### Vacuum Breakers

**Model 62 Part No.401446**
- For use on closed vessels and piping systems tocontrol induced vacuum within safe limits
- Adjustable from 1/4" to 20" (8-508mm) Hg vacuum
- 3/4" (20mm) NPT straight shank
- Maximum operating temperature 3660F (186ºC)
- Maximum operating pressure 150 psig (10.3 bar)

# Thermostatic Steam Traps

Hoffman SPECIALTY

## Low Pressure

**No. 17-C Angle Steam Trap.**
1/2" NPT pipe connections.

| PART # | DESCRIPTION |
|---|---|
| HN 401536 | ANGLE |
| HN 401545 | SWIVEL |
| HN 600084 | THERMOSTAT |

**No. 8-C Angle Steam Trap.**
3/4" NPT pipe connections.

**No. 17-C Swivel Steam Trap.**
1/2" NPT pipe connections. Can be as right hand, left hand, or straightway trap where radiator or convector locations will not permit the use of an angle trap.

**No. 8-C Straightway Steam Trap.**
3/4" NPT pipe connections. For radiator or convector locations which will not permit the use of an angle trap.

| PART # | DESCRIPTION |
|---|---|
| HN 402003 | ANGLE |
| HN 402004 | STRAIGHTWAY |
| HN 600205 | THERMOSTAT |

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## VENTING VALVES for Steam Applications

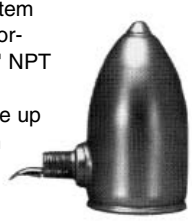
### Radiator Steam Vents

**No.1-A Air Valve.**
A float-type vent with adjustable port for true proportional venting. Port settings from (#1) slow to (#6) fast venting. 1/8" NPT angle connection. Operating pressure up to 1-1/2 psi. Maximum pressure 10 psi.

#401422

**No. 40 Air Valve.**
A float-type vent with a single non-adjustable port. For use on ordinary one-pipe system not requiring proportional venting. 1/8" NPT angle connection. Operating pressure up to 6 psi. Maximum pressure 10 psi.

#401440



**No. 4 Quick Valve.**
Thermostatic air vent for steam systems and process equipment. Operates on temperature changes only; does not close against water. Quick vent must be installed on a nipple 6" to 10" above horizontal return, which must be at least 18" above the boiler water line. 1/2" NPT female and 3/4" NPT male straight shank. Maximum operating pressure 25 psi.

#401416

### Main Steam Vents

**No. 4-A Air Valve.**
A float-type vent with single non-adjustable port for use as a main vent on residential and other small one-pipe or two-pipe systems. 1/2" NPT female and 3/4" NPT male straight shank. Operating pressure up to 2 psi.

#401413

**No. 75, 75-H Air Valves.**
Float-type vents, each with single non-adjustable port for relieving air from the mains of medium and large systems. 1/2" N PT female and 3/4" NPT male straight shank. Operating pressure up to 3 psi (75) and up to 10 psi (75-H). Maximum pressure 15 psi.

75 - #401434
75H - #401437

**No. 76 Vacuum Valves.**
Float-type vents, each with single non-adjustable port for relieving air from the mains of medium and large size one-pipe vacuum systems. 1/2" NPT female and 3/4" NPT male straight shank. Operating pressure up to 3 psi. Maximum pressure 15 psi.

#401431

**IF WE DON'T HAVE IT, WE'LL GET IT FOR YOU.**

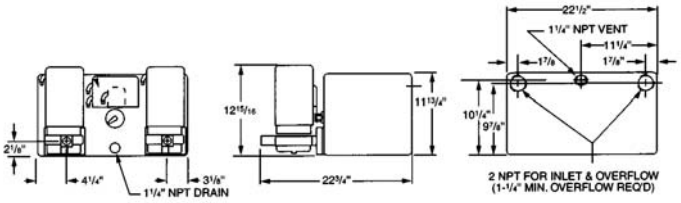
Hoffman SPECIALTY

# CONDENSATE PUMPS

## WATCHMAN® SERIES WC™ CAST IRON RECEIVER

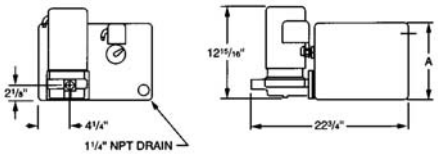
- For 6,000, 8,000 and 12,000 sq. ft. EDR systems
- Available with pumps in simplex or duplex design
- Low height NPT inlet for easy return line piping
- Separate NPT connections provide a secondary for safe operation (continued below)

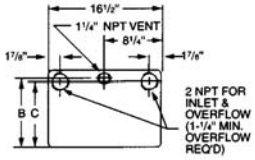
Dimensions WC-12




| EDR | Style | Rec.Cap | A | B | C |
|---|---|---|---|---|---|
| 6,000 | Single | 6 | 8-9/16 | 7-1/16 | 6-11/16 |
| 8,000 | Single | 9 | 10-7/8 | 9-3/8 | 9 |

Dimensions WC-6/8

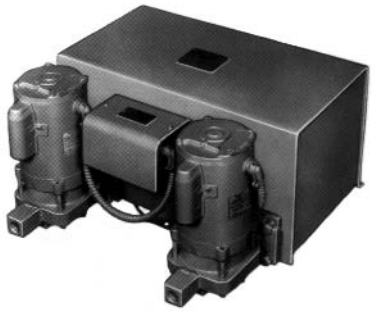



| PART # | MODEL # | # OF EDR | DISCH. PUMPS | PUMP PRESS. | PUMP CAP/GPM | REC. CAP. | HP |
|---|---|---|---|---|---|---|---|
| HN 160029 | WC-6-20-B | 6000 | 1 | 22 | 9 | 6 | 1/3 |
| HN 160030 | WC-8-20-B | 8000 | 1 | 21 | 12 | 9 | 1/3 |
| HN 160031 | WC-12-20-B | 12000 | 1 | 20 | 18 | 14 | 1/3 |
| HN 160032 | WC-12-20-BMA | 12000 | 2 | 20 | 18 | 14 | 1/3 |

WCS Duplex shown

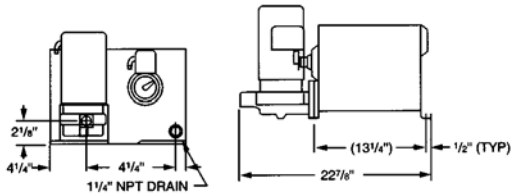
## WATCHMAN® SERIES WCS™ STEEL RECEIVER

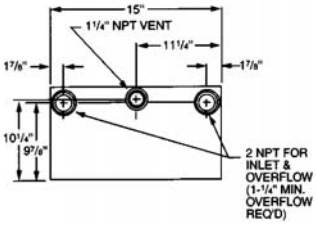


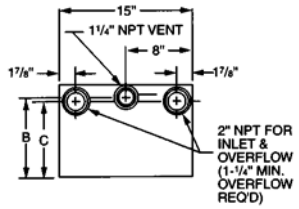
- NPT drain connection
- Double pole float switch - simplex models
- Mechanical alternator - duplex models
- Easy to install
- Easy to service with vertical pull out pumps
- 100% factory tested as a complete unit
- Series WC includes cast iron receiver with 20 year warranty against corrosion

Dimensions WCS-12

Dimensions WCS-6/8




| EDR | Style | Rec. Cap | A | B | C |
|---|---|---|---|---|---|
| 6,000 | Single | 6 | 8-9/16 | 7-1/16 | 6-11/16 |
| 8,000 | Single | 9 | 10-7/8 | 9-3/8 | 9 |

| PART # | MODEL # | # OF EDR | DISCH. PUMPS | PUMP PRESS. | REC. CAP. | CAP. | HP |
|---|---|---|---|---|---|---|---|
| HN 160010 | WCS-6-20-B | 6000 | 1 | 22 | 9 | 6 | 1/3 |
| HN 160011 | WCS-8-20-B | 8000 | 1 | 21 | 12 | 9 | 1/3 |
| HN 160012 | WCS-12-20-B | 12000 | 1 | 20 | 15 | 14 | 1/3 |
| HN 160013 | WCS-12-20-BMA | 12000 | 2 | 20 | 15 | 14 | 1/3 |

# CONDENSATE PUMPS

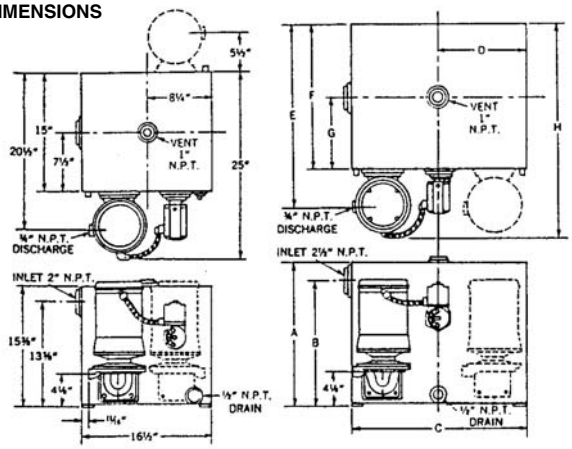
## 4100 SERIES
## HEAVY GAUGE STEEL RECEIVERS

The 4100-G Series Condensate Pumps come with standard features such as, Heavy Duty 3/16" steel receivers, Simplex or Duplex construction, Bronze fitted centrifugal pumps, Energy Efficient 3450 RPM Motors, Automatic venting, Heavy Duty float switch and the SterlSealTM Ceramic pump seal.

### Optional Features:

- Mechanical and electrical alternators available on duplex models
- Gauge glass
- Thermometer
- Discharge pressure gauges
- Special motor construction, explosion proof available.

**DIMENSIONS**




15 GALLON TANK — 30-95 GALLON TANKS

**DIMENSIONS/ENGINEERING DATA**

| Rec. Size Gal. | A | B | C | D | E | F | G | H |
|---|---|---|---|---|---|---|---|---|
| 30 | 18-3/8 | 16-1/8 | 22 | 11 | 23-1/2 | 18 | 9 | 28 |
| 45 | 26-3/8 | 24-1/8 | 22 | 11 | 23-1/2 | 18 | 9 | 28 |

| MODEL # | DISCH. PRESS. | # OF PUMPS | PUMP CAP./GPM | MOTOR HP | REC/ GAL | SQR. FT. EDR |
|---|---|---|---|---|---|---|
| SL 4128G | 20 | 1 | 12 | 1/3 | 15 | 8,000 |
| SL 41215G | 20 | 1 | 22.5 | 1/2 | 30 | 15,000 |
| SL 41215GD* | 20 | 2 | 22.5 | 1/2 | 30 | 15,000 |
| SL 41230B | 20 | 1 | 45 | 1 | 45 | 30,000 |
| SL 41230BD* | 20 | 2 | 45 | 1 | 45 | 30,000 |

*Denotes duplex motors.

## BOILER FEED UNITS

### Optional Features:

- Isolation valves
- Hot-dipped galvanized receivers
- Electric alternator for duplex units
- Solenoid operated make-up water valve with reverse acting float switch, and much more
- NEMA 1 or 12-control panel includes; circuit breaker or fuse disconnect switch with cover interlock, magnetic motor starter with three overloads, control transformer, pilot light and H-O-A switch. All completely assembled and wired to the terminal.

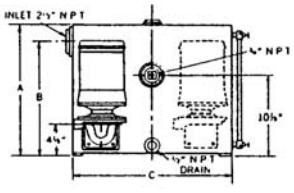
**ENGINEERING DATA**

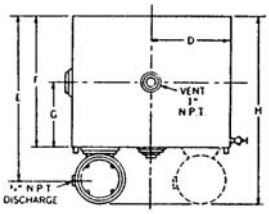
| MODEL # | BOILER HP | DISCH. PRESS. | # OF PUMPS | PUMP CAP. /GPM | MOTOR HP | REC/ GAL |
|---|---|---|---|---|---|---|
| SL 4128GF | 60 | 20 | 1 | 12 | 1/3 | 60 |
| SL 4128GDF* | 60 | 20 | 2 | 12 | 1/3 | 60 |
| SL 41215GF | 100 | 20 | 1 | 20 | 1/2 | 95 |
| SL 41215GDF* | 100 | 20 | 2 | 20 | 1/2 | 95 |

***Includes mechanical alternator.**
**Denotes duplex motors.**

**DIMENSIONS/INCHES**

| REC/ GAL | A | B | C | D | E | F | G | H |
|---|---|---|---|---|---|---|---|---|
| 60 | 28-3/8 | 26-1/3 | 28 | 14 | 23-1/2 | 18 | 9 | 28 |
| 95 | 28-3/8 | 26-1/8 | 28 | 14 | 33-1/2 | 28 | 14 | 38 |



McDonnell & Miller

# Boiler Water Feeders and Feeder Cut-Off Combinations

McDONNELL & MILLER Boiler Water Feeders and Feeder Cut-off Combinations are used to provide automatic operation, and to safeguard steam and hot water boilers against the hazards of a low water condition.

A feeder cut-off combination mechanically adds water as needed to maintain the required minimum water level and electrically stops the firing device in case of an emergency. McDONNELL & MILLER Feeder Cut-off Combinations include time-proven features such as—

- Packless Construction
- Cool Feed Valve
- Straight Thrust Valve Action
- Stainless Steel Valve and Seat

**NOTE:** All McDONNELL & MILLER products must be installed by qualified personnel in accordance with all applicable codes.

**NOTE:** Maintenance and periodic testing procedures packaged with each product must be followed.

## HOW TO SELECT

### FOR STEAM BOILERS

**Steam Heating Boilers** are classified as boilers in closed heating systems where all condensate is returned to boiler. Best recommendation for all automatically fired boilers is a feeder cut-off combination. It adds water as needed to maintain a safe operating level, and stands by to interrupt circuit to burner if water level drops into emergency zone.

**Steam Process Boilers** are classified as boilers in systems where not all the condensate is returned, and some make-up water is needed. A separate feeder and separate cut-off are recommended, so operating levels can be set for the wider differential required in such service.

**How to Select**. Selection of the correct feeder cut-off combination, or feeder, depends upon:

1. Maximum boiler pressure.
2. Differential between water supply pressure and the pressure setting of the steam pop safety valve.
3. Boiler size. (See chart below.)

**Helpful Conversion Formulas Based on Sq. Ft. of Steam**

$$\text{Boiler Horsepower} = \frac{\text{Sq. Ft. of Steam}}{138}$$

$$\text{Lbs. of Water Per Hour} = \frac{\text{Sq. Ft. of Steam}}{4}$$

$$\text{Gallons per Minute} = \frac{\text{Sq. Ft. of Steam}}{2000}$$

$$\text{Btu. per Hour} = \text{Sq. Ft. of Steam} \times 250$$

| Boiler Size-Mfr. Gross Rating Sq. Ft. of EDR | | | | | | | McDONNELL & MILLER Products to Use | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Differential Pressure* 10 psi | Differential Pressure* 20 psi | Differential Pressure* 30 psi | Differential Pressure* 40 psi | Differential Pressure* 50 psi | Differential Pressure* 60 psi | Differential Pressure* 70 psi | Maximum Boiler Pressure | Heating Boilers | | Process Boilers | |
| | | | | | | | | Automatic Fired Jobs | Hand Fired Jobs | Boiler Water Feeder | Low Water Cut-off |
| | | All Boilers up to 5000 sq. ft. | | | | | 25 psi | No. 47-2 | No. 47 | | |
| | | Alt Boilers up to 5000 sq. ft. | | | | | 30 psi | No. 247-2 | No. 247 | No. 247 | No. 63 |
| 8,600 | 12,000 | 15,000 | 17,600 | 20,000 | 21,800 | 23,400 | 35 psi | No. 51-2 | No. 51 | No. 51 | No. 63 |
| 10.500 | 17,500 | 22,400 | 26.500 | 30,000 | 32,600 | 35,000 | 35 psi | No. 51-S-2 | No. 51-S | No. 51-S | No. 63 |
| 8,600 | 11,600 | 14,600 | 17,000 | 18,800 | 20,600 | 22,100 | 75 psi | No. 53-2 | No. 53 | No. 53 | No. 150 |

*Differential pressure should be based on water supply pressure at boiler, minus pressure setting of steam pop safety valve.

### FOR HOT WATER SPACE HEATING BOILERS

Best recommendation for all automatically-fired boilers is a feeder cut-off combination. It adds water if needed to match the discharge capacity of the relief valve, and stands by to interrupt circuit to burner if water level drops into emergency zone.

**How to Select**. Selection of the correct feeder cut-off combination, or feeder, depends upon:

1. Maximum boiler pressure.
2. Differential between water supply pressure and the pressure setting of the safety relief valve.
3. Boiler size.

| Boiler Size Btu/hr. Output Capacity | | | | | McDONNELL & MILLER Products to Use | | |
|---|---|---|---|---|---|---|---|
| Differential Pressure* 10 psi | Differential Pressure* 20 psi | Differential Pressure* 30 psi | Differential Pressure* 40 psi | Differential Pressure* 50 psi | Maximum Boiler Pressure | Automatically Fired Jobs | Hand Fired Jobs |
| 1,000,000 | 1,400,000 | 1,800,000 | 2,100,000 | 2,350,000 | 30 psi | No. 247-2 | No. 247 |
| 2,000,000 | 3,000,000 | 3,750,000 | 4,400,000 | 5,000,000 | 35 psi | No. 51-2 | No. 51 |
| 2,800,000 | 4;300,000 | 5,600,000 | 6,700,000 | 7,500,000 | 35 psi | No. 51-S-2 | No. 51-S |
| 2,100,000 | 2,800.000 | 3,300,000 | 4,200,000 | 4,750,000 | 75 psi | No. 53-2 | No. 53 |

For larger size boilers, the McDONNELL & MILLER No.93 and a motorized valve of adequate size may be used instead of a feeder cut-off combination.

*Differential pressure should be based on water supply pressure at boiler, minus pressure setting of safety relief valve.

McDonnell & Miller

## Low Water Cut-Offs — Probe Type

### For Steam Boilers
### Series PS-800
### Low Water Cut-Offs

- For residential and commercial applications
- Electronic operation
- Delay on Make (DOM) feature
- Delay on Break (DOB) feature
- LED low water indicator light Test switch and LED indicator light
- Optional manual reset switch available
- Optional remote sensor available - Model PS-801 -RX2
- Meets ANSI specification Z21 .13a - Model PS-802
- No lock out with loss of power (if probe is in water)
- No blow down required
- No moving parts
- Maximum ambient temperature 120ºF (49ºC)
- Voltage across probe to ground 14 VAC
- Probe sensitivity 3,000 ohms at 120 or 24 VAC supply
- Power consumption 3 VA
- Maximum water temperature 250ºF (121ºC)
- Maximum steam pressure 15 psi (1 kg/cm$^2$)

**Ordering Information**

| Model Number | Part Number | Description |
|---|---|---|
| PS801-U120 | 153876 | 120V w/ext. barrel |
| PS802-U-24 | 153906 | 24V w/ext. barrel |

**Water Boilers**

| Model Number | Part Number | Description |
|---|---|---|
| PS851-120 | 153895 | 120V |
| PS852-24V | 153919 | 24V |

## Water Feeders — Electric Uni-Match® Electric Water Feeders

- For low pressure steam boilers (1,000,000 BTU/hr. max.)
- Three position slide switch allows the timing cycle to be matched to that of the major low water cut-off manufacturers
- Field adaptable feed rate - 1, 2, or 4 gpm (3.8, 7.6, or 15.1 lpm)
- Field selectable delay compensates for slow condensate return rates and prevents flooding
- Electronic operation provides consistent, accurate cycle to-cycle repeatability
- Universal design simplifies selection and reduces stock
- Can be used with mechanical or electronic low water cut-off controls
- Manual feed button
- Includes 3/8" x 1/2" (9.5 x 12.7mm) sweat adapters for quick installation with 1/2" (13mm) copper tubing
- Easy to clean strainer
- Maximum water pressure 150 psi (10.5 kg/cm$^2$)
- Maximum boiler pressure 15 psi (1 kg/cm$^2$)
- Maximum water temperature 175ºF (79ºC)
- Maximum ambient temperature 100ºF (38ºC)
- Maximum power consumption (during water feed only)
  -15 watts at 24 VAC
  -20 watts at 120 VAC

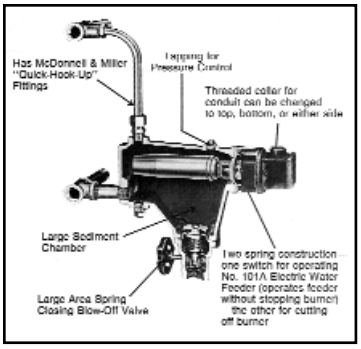
**Ordering Information**

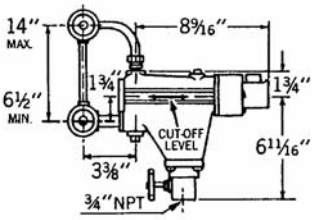
| Model Number | Part Number | Description |
|---|---|---|
| WF-2-U-24 | 169550 | Electric Water Feeder, 24V |
| WF-2-U-120 | 169560 | Electric Water Feeder, 120V |

McDonnell & Miller

# Low Water Cut-offs for Low Pressure Steam Boilers

## No. 67 Series




330 N

This is the most widely used control of its kind. It interrupts electrical service to the burner when the water level falls below the prescribed cut-off level.

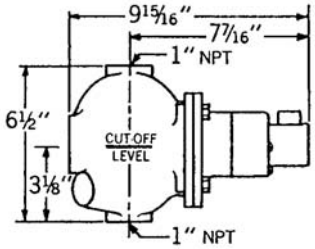
The time-saving "Quick Hook-up" fittings permit installation in the boiler gauge glass tappings, a feature which positions the control properly and provides correct reproduction of the boiler water level in the float chamber and gauge glass. Other features include deep sediment chamber, large area self-closing blow-off valve, adjustable conduit outlet, and 1/4" NPT pressure control tapping.

The twin switch construction provides an extra switch which closes on small drop in water level without stopping burner, and which can be used to operate low water alarm or to control the McDonnell No. 101A

For boilers of any size.
Maximum steam pressure, 20 psi.

## No. 61

330 N




For installation on boilers where "Quick Hook-up" fittings cannot be used. Installed with 1" steam and water equalizing lines, and requires a separate blow-off valve.

For boilers of any size.
Maximum steam pressure, 20 psi.

**AMPERE RATING**

| Motor Duty | 120 VAC | 240 VAC |
|---|---|---|
| Full Load | 7.4 | 3.7 |
| Locked Rotor | 44.4 | 22.2 |

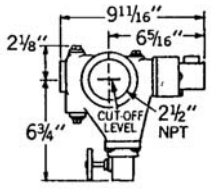
Pilot Duty: 120-240 VAC. 125 VA

**NO. 61 REPLACEMENT PARTS**

| | |
|---|---|
| 61HD | HEAD MECHANISM |
| 11X | SWITCH |
| 11MV | SWITCH MILLIVOLT |
| CO-12 | HEAD GASKET |
| 67-12 | SYPHON GASKET |
| SA67-2 | FLOAT & BELLOWS |

## No. 767

330 N



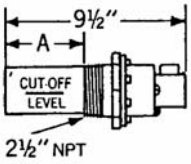

Self-contained cut-oft for side, close nipple, connection to 2-1/2" NPT boiler tapping. Has extra deep sediment chamber, integral self-closing blow-off valve, and 1/4" NPT pressure control tapping.

For boilers of any size.
Maximum steam pressure, 20 psi.

## "Built-in" Low Water Cut-offs

## 69 Series

330 N




For installation in 2-1/2" NPT tappings provided by some boiler manufacturers. Selection of the particular model depends upon the insertion length into the boiler. Order the "Built-in" that provides maximum insertion length within the boiler.

| Product Number | 69 | 169 | 269 | 369 | 469* |
|---|---|---|---|---|---|
| Insertion Length (Dimension "A") | 4-1/8" | 3-1/8" | 2-1/4" | 1-3/4" | 1-3/16" |

*No.569 same as 469 but includes 1/4" pressure control tapping.

**NOS. 67 & 767 REPLACEMENT PARTS**

| | |
|---|---|
| 6667 | COMPLETE MECHANISM |
| 11X | SWITCH |
| 11MV | SWITCH MILLIVOLT |
| 14B | BLOW OFF VALVE |
| 16 | BLOW OFF VALVE, ALT. |
| 37-39 | BLOW OFF VLV. GSKT. |
| 67-12 | FLOAT GASKET |
| SA67-2 | FLOAT & BELLOWS |

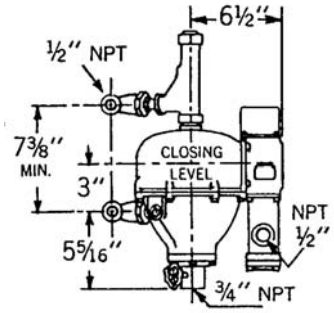
**NO. 69 REPLACEMENT PARTS**

| | |
|---|---|
| 6667 | REPL.. HEAD ' |
| 11X | SWITCH |
| 11MV | SWITCH, MILLI |
| SA67-2 | FLOAT & BELLOWS |

McDonnell & Miller

# Boiler Water Feeders and Feeder Cut-Off Combinations

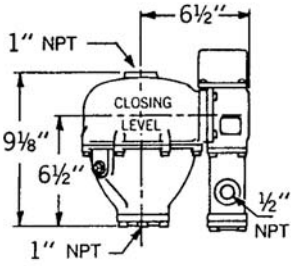
## No. 47-2 and No. 47




Most widely used feeder cut-off combination for the closed steam heating system boiler up to 5000 sq. ft. capacity. Has time-saving Quick Hook-up Fittings for installation in gauge glass tappings, and Self-Closing Blow-off Valve. No.47 is boiler feeder only, without cut-off switch.

Maximum boiler pressure, 25 psi.
Maximum water supply pressure, 150 psi.

## No. 247-2 and No. 247




For steam heating and process boilers up to 5000 sq. ft. and small hot water boilers. Similar to No. 47-2 but without Quick Hook-up Fittings or Self-Closing Blow-off Valve. No. 247 is boiler feeder only, without cut-off switch.

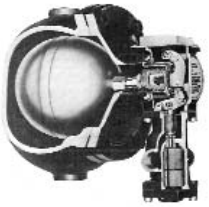
Maximum boiler pressure, 30 psi.
Maximum water supply pressure, 150 psi.

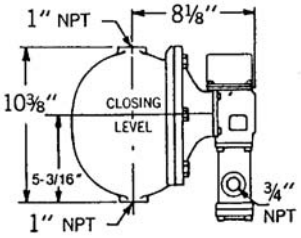
**SERIES 47/51 REPLACEMENT PARTS**

| MODEL # | DESCRIPTION | SERIES |
|---|---|---|
| 2 | SWITCH ASSY. | 47/51 |
| 211 | SWITCH WI MAN. RESET | 47/51 |
| CO-106 | CAM | 47/51 |
| 14B | BLOW OFF VLV. ASSY. | 47 |
| 37-26 | BODY GASKET | 47 |
| 37-39 | BLOW OFF VLV. GSKT. | 47 |
| 59-18 | PACKING WASHER | 47 |
| 59-27 | LEAD PACKING RING | 47 |
| A259 | QUICK HOOKUP FITTINGS | 47 |
| SA37-30 | FLOAT | 47 |
| SA47-4 | BELLOWS ASSY. | 47 |
| SA47-101-102 | VALVE W/ STRAINER ASSY. | 47 |
| SA51-101-102 | VALVE W/ STRAINER ASSY. | 51 |
| SA101-38 | STRAINER BSKT. ASSY. | 47/51 |
| 51-2HD | HEAD MECH. W/ SWITCH | 51 |
| 51HD | HEAD MECH. W/ SWITCH | 51 |
| SA51-4 | SYPHON ASSY. | 51 |
| F-26 | HEAD GASKET | 51/518 |
| 37-27 | VALVE GASKET ASSY. | 51 |

*Call for Additional Parts

## No. 51-2 and No. 51

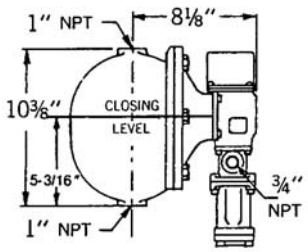





Has larger feeding capacity than the No. 47-2, for steam boilers above 5000 sq. ft. capacity, and for hot water boilers. No.51 is a boiler feeder only, without cut-off switch.

Maximum boiler pressure, 35 psi.
Maximum water supply pressure, 150 psi.

## No. 51-S




Largest feeding capacity of all McDonnell Feeder Cut-off Combinations, for low pressure service. Used on steam and hot water boilers. No. 51-S is boiler feeder only, without cut-oft switch.

Maximum boiler pressure, 35 psi.
Maximum water supply pressure, 100 psi.

## No. 2 and No. 2M
## Cut-off and Alarm Switch (Model 2)

Used to add electrical low water cut-off to mechanical water feeder. Supplied as a part of the feeder cut-off combinations above (Nos. 47-2, 247-2, 51-2, 51-S-2 and 53-2) or can be purchased separately and added to boiler feeders. Has high voltage terminals for low water cut-off and for low water alarm. Order No. 2 for automatic reset, No. 2M for manual reset.

ELECTRICAL RATINGS (Underwriters Listed)

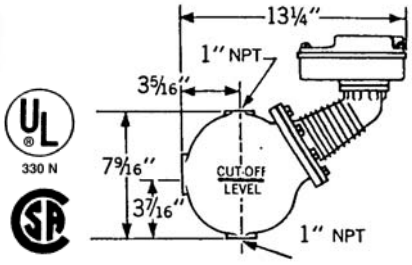
| | AMPERE RATING | |
|---|---|---|
| Motor Duty | 120 VAC | 240 VAC |
| Full Load | 10.2 | 5.1 |
| Locked Rotor | 61.2 | 30.6 |

Pilot Duty: 120-240 VAC. 60 Hertz 125 VA
pr 115 VDC, 0.5 Amps

McDonnell & Miller

# Pump Controllers and Low Water Cut-offs

## No. 150 and 150-M




The most widely used control of its kind. Packless construction utilizes Monel bellows. Has mercury tube type switches. Can also be used as a cut-off and alarm on many higher pressure hot water space heating boilers. Available with manual reset on cut-off switch; order No. 150-M. For boilers of any size.
Maximum boiler pressure, 150 psi.

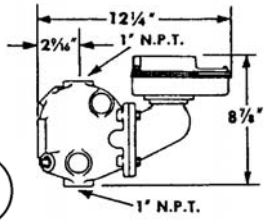
| MODEL # | DESCRIPTION |
|---|---|
| 150 | LOW WATER CUT OFF |
| 150M | W/ MAN. RESET |

*150-MD
(Max. Differential)
ALSO AVAILABLE

**REPLACEMENT PARTS**

| PART # | DESCRIPTION | SERIES |
|---|---|---|
| 150-HD | HEAD MECHANISM | 150 |
| 150-HD-MD | HEAD MECHANISM | 150M |
| SA150-11 | FLOAT & ROD | BOTH |
| 150-14 | HEAD GASKET | BOTH |
| SA150-124 | 3 WIRE CUT OFF AND ALARM | BOTH |
| SA150-125 | 2 WIRE PUMP SWITCH | BOTH |

## No. 42



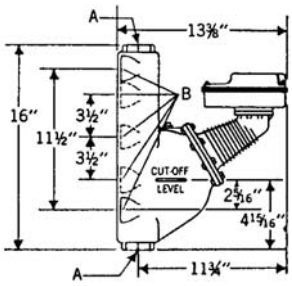

This is a float operated controller, with two mercury switches operating at different levels, to control the boiler feed pump according to the boiler water level itself, and cut off electrical current to the burner in event of any emergency low water condition. Switches are single pole, single throw mercury type. Construction is completely packless. Installed with 1" NPT equalized pipes. Electrical ratings same as for No. 150.

For boilers of any size.
Maximum boiler pressure, 50 psi.

**REPLACEMENT PARTS**

| PART # | DESCRIPTION | SERIES |
|---|---|---|
| 42HD | HEAD ASSEMBLY | BOTH |
| SA150-125 | 2 WIRE BURNER SWITCH | BOTH |
| CO-12 | GASKET | BOTH |

## No. 157, 157-M




No. 157 is basically the same as the No. 150, but has integral water column type of float chamber that simplifies installation and includes all necessary tappings for gauge glass and tricocks.

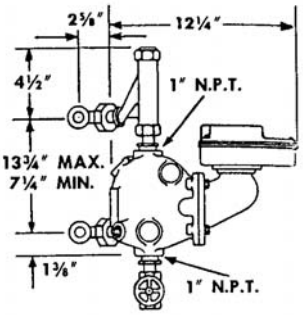
| MODEL # | DESCRIPTION |
|---|---|
| 157 | LOW WATER CUT OFF |
| 157M | W/ MAN. RESET |

*157-MD
(Max. Differential)
ALSO AVAILABLE

**REPLACEMENT PARTS**

| PART # | DESCRIPTION | SERIES |
|---|---|---|
| 150HD | HEAD MECHANISM | 157 |
| 150MHD | HEAD MECHANISM | 157M |
| SA150-11 | FLOAT & ROD | BOTH |
| 150-14 | HEAD GASKET | BOTH |
| SA150-124 | 3 WIRE CUT OFF AND ALARM | BOTH |
| SA150-125 | 2 WIRE PUMP SWITCH | BOTH |

## No. 42-A




Same construction and operation as No. 42 at left, but fitted with "Quick Hook-up" fittings for installation right in gauge glass tappings. Electrical ratings same as No. 150.

For boilers of any size.
Maximum boiler pressure, 50 psi.

ELECTRICAL RATINGS
(Underwriters Listed)
For 150 Series, 157 Serles, and 42 Serles
Ampere Rating for Pump and Cut-off Circuits

| Motor Duty | 120 VAC | 240 VAC | 120VDC | 240VDC |
|---|---|---|---|---|
| Full Load | 7.4 | 3.7 | 2.4 | 1.2 |
| Locked Rotor | 44.4 | 22.2 | 24.0 | 12.0 |

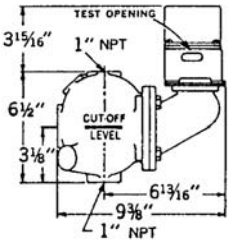
Pilot Duty Service: 345VA, 120 and 240 VAC

McDonnell & Miller

# Low Water Cut-offs for Hot Water Boilers

## No. 63

330 N




This is the control that pioneered the use of low-water cut-offs on hot water boilers. Heavy duty construction throughout. Uses the No. 2 Switch shown on page 3. Installed with 1" NPT equalizing pipes.

The No. 63 offers two operating advantages not available in other McDonnell float-operated low pressure cut-offs:

1. A test opening is provided directly below the switch housing, so that a screwdriver may be inserted to manipulate the float to a lower position. This provides a check on the switch operation.

2. The No. 63 is available with a “manual reset” type switch. If desired, specify No. 63M.

The No. 63 can also be used on steam boilers.

ELECTRICAL RATINGS
(Underwriters Listed)
**AMPERE RATING** 115 VDC, 0.5 Amps

| Motor Duty | 120 VAC | 240 VAC |
|---|---|---|
| Full Load | 10.2 | 5.1 |
| Locked Rotor | 61.2 | 30.6 |

Pilot Duty: 120-240 VAC. 60 Hertz 125 VA

For boilers of any size.
Maximum boiler pressure, 50 psi.

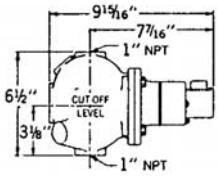
### NO. 63 LOW WATER CUT-OFF

| PART # | DESCRIPTION |
|---|---|
| 63 | LOW WATER CUT OFF |

### REPLACEMENT PARTS

| | |
|---|---|
| 2 | SWITCH W/ COVER |
| 2M | SWITCH W/ MAN.RESET |
| 63HD | REPL. HEAD ASSY. |
| CO-12 | HEAD GASKET |

## No. 64




These controls are compact in size and built for the pressures encountered in hot water service. They utilize the McDonnell No. 11 Switch, which provides an extra switch, operating at a different level, for low water alarm. Both controls can be used for steam service, and differ only in method of Installation. No. 64 requires 1" NPT equalizing pipes; No. 64-A has “Quick Hook-Up” fittings to permit installation right in the gauge glass tappings of low and medium pressure steam boilers.

Electrical ratings are shown below.

For boilers of any size.
Maximum boiler pressure, 50 psi.

ELECTRICAL RATINGS
(Underwriters Listed)
**AMPERE RATING**

| Motor Duty | 120 VAC | 240 VAC |
|---|---|---|
| Full Load | 7.4 | 3.7 |
| Locked Rotor | 44.4 | 22.2 |

Pilot Duty: 120-240 VAC, 125 VA

### NO. 64 LOW WATER CUT-OFF

| PART # | DESCRIPTION |
|---|---|
| 64 | LOW WATER CUT OFF |

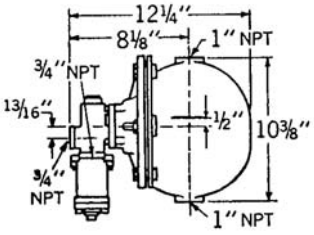
### REPLACEMENT PARTS

| | |
|---|---|
| 64HD | HEAD ASSY. |
| 11 | SWITCH |
| 11MV | SWITCH MILLIVOLT |
| CO-12 | HEAD GASKET |
| 67-12 | SYPHON GASKET |

McDonnell & Miller

# Make-up Water Feeders

### No. 25A



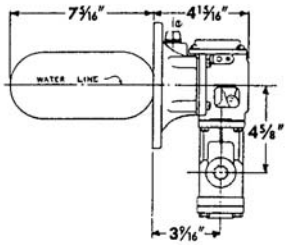

A dependable float-operated feeder used to add make-up water to condensate receiving tanks. It is mounted to the tank with 1" NPT top and bottom equalizing lines and feeds water through a separate pipe, permitting anti-syphon air gap. Has large capacity, with composition valve disc and Monel seat.

Maximum body pressure, 35 psi.
Maximum water supply pressure, 100 psi.

**NO. 25A REPLACEMENT PARTS**

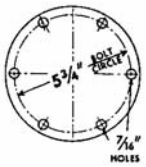
| MODEL # | DESCRIPTION |
|---|---|
| 25AHD | HEAD |
| SA25-A-6 | VALVE ASSEMBLY |

### No. 847




These make-up water feeders mount directly on the receiver, need no equalizing connections. They feed water through a separate line, permitting anti-syphon air gap in discharge into receiver. Operating mechanisms and capacities same as standard No. 47, 51 and 51-S feeders. Features include completely packless construction; isolated cool feed valve; straight-thrust valve action; and large built-in strainer. Mounting flanges have six 7/16" bolt holes, on 5-3/4" diameter circle.

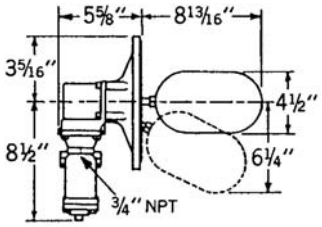
| | |
|---|---|
| Product Number | No. 847 |
| Maximum Receiver Pressure | 25 psi |
| Maximum Supply Pressure | 150 psi |
| Feed Water Tappings, NPT | 1/2" |




**NO. 847 REPLACEMENT PARTS**

| MODEL # | DESCRIPTION |
|---|---|
| 847-26 | HEAD GASKET |
| 37-27 | VALVE BRKT GSKT. |
| 37-29 | STRAINER GASKET |
| SA47-101-102 | STRAINER BASKET ASSY |

### No. 21




For supplying make-up water to condensate receivers. Flange mounts on side of receiver with six bolts—saves space and simplifies piping. Make-up water is fed through an integral strainer, through valve, and directly into tank. Flange bolt circles: No. 21—5-3/4"

Maximum receiver pressure, 35 psi.
Maximum water supply pressure, 150 psi.

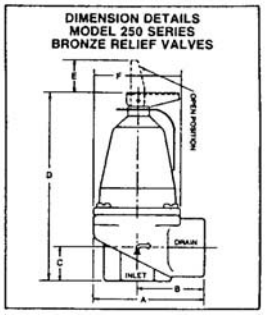
**NO. 21 REPLACEMENT PARTS**

| MODEL # | DESCRIPTION |
|---|---|
| 51-14 | VALVE SEAT |
| 847-26 | GASKET |

# Pressure Relief Valves

### 250 Series Bronze Relief Valves

### • 3/4" Inlet and Discharge Models




CONSTRUCTION (WETTED PARTS)
Body and Seat: Bronze
Seat Retainer: Bronze Diaphragm and Seat Disc: EPT Rubber.
Maximum working Pressure: 125 psi, 30 psi setting.
Maximum working Temperature: 250° F.

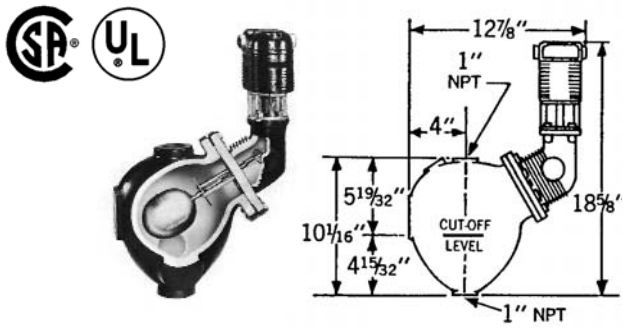
**DIMENSIONS**

| Model (All in Series) | Dimensions Inches | | | | | | | Approx. Shipping weight (LBS) |
|---|---|---|---|---|---|---|---|---|
| | Inlet & Outlet | A | B | C | D | E | F | |
| 250 | 3/4 | 2-9/16 | 1-1/2 | 3/4 | 4-9/16 | 1-1/32 | 2-3/32 | 1.2 |

McDonnell & Miller

# Pump Controllers and Low Water Cut-offs

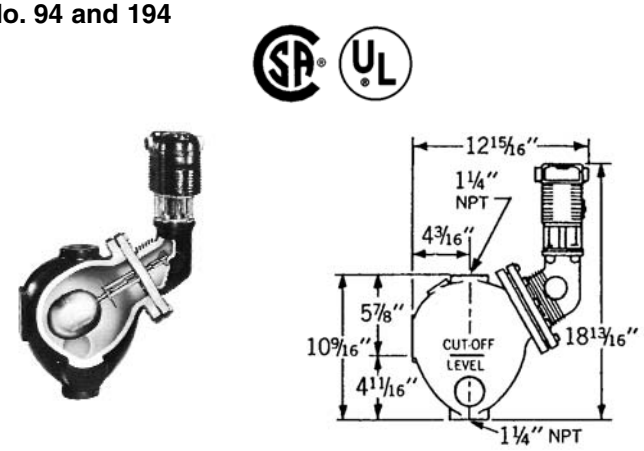
**No. 93**

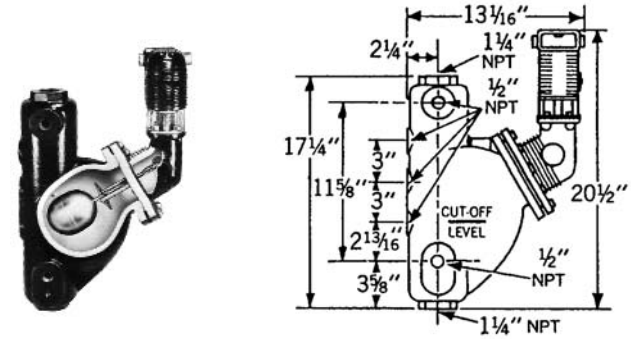



Utilizes the principle of repulsion magnetic operation for positive opening and closing. Permits wider adjustment of operating levels between pump switch and cut-off switch. No.93 is for boilers with separate water columns.

For boilers of any size.
Maximum boiler pressure, 150 psi.

**No. 94 and 194**



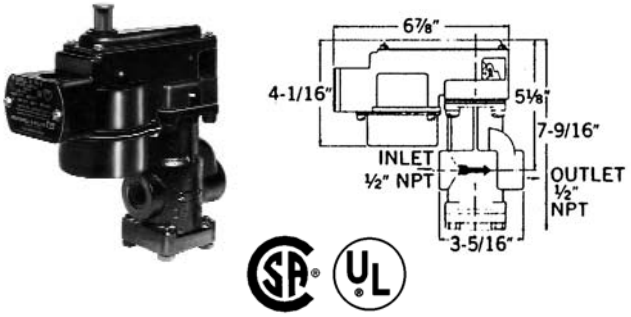

Magnetic switching controls for high pressure boilers, up to 250 psi. Permit wide adjustment of operating levels. No. 94 is for boilers with separate water columns. No. 194 has water column type body with integral tappings for gauge glass and tricocks. For manual reset of cut-off switch order No. 94-M and No. 194-M.

For boilers of any size.
Maximum boiler pressure, 250 psi.

# Water Feeders, Mechanical

**Electric Water Feeders**

**No. 101A**




The No. 101A Electric
Water Feeder has the same packless construction, straight-thrust valve action and built-in strainer perfected in other McDonnell Feeders. It closes tight against supply pressures up to 150 psi.

For Oil Boilers —The standard No. 101A Electric Water Feeder is furnished with 120VAC coil.

For Gas Boilers —The No. 101A is also available with low voltage coil and companion transformer for use on gas fired boilers having 24 volt control circuits. Order No. 101A-24 V (includes transformer).

Maximum boiler size, 5000 sq. ft. steam.
Maximum water pressure, 750 psi.
Maximum boiler pressure, 25 psi.

**REPLACEMENT PARTS NOS. 93, 94, 194**

| PART # | DESCRIPTION | SERIES |
|---|---|---|
| 51 | SWITCH ASSEMBLY | ALL |
| 92-68 | HEAD GASKET | 94/194 |
| 150-14 | HEAD GASKET | 93 |

**ELECTRIC WATER FEEDER/PARTS**

| MODEL # | DESCRIPTION |
|---|---|
| 101A-120V | FEEDER-120 volt |
| 101A-24V | FEEDER-24 volt |
| 346650 | COIL 120v |
| 347010 | COIL 24v |
| SA101-38 | STRAINER |
| SA101-102 | VALVE/STRAINER |

AMTROL INC.

# EXPANSION TANKS

## EXTROL TANKS

| MODEL NO. | TANK VOLUME (Gallons) | ACCEPT VOLUME (Gallons) | DIAMETER (Inches) | LENGTH (Inches) | SHIPPING WT. (Lbs.) |
|---|---|---|---|---|---|
| 15 | 2 | .9 | 8 | 12-5/8 | 5 |
| 30X | 4.4 | 2.4 | 11 | 15-1/2 | 9 |
| 60X | 7.6 | 2.4 | 11 | 23 | 14 |
| 90X | 14 | 11.3 | 15-3/8 | 21 | 23 |

## Larger Closed Heating Systems

| MODEL NO. | TANK VOLUME (Gallons) | ACCEPTANCE VOLUME (Gallons) | "A" DIM. (Height) Inches | "B" DIM. (Dia.) Inches | SYSTEM CONN. (NPT) | SHIPPING WEIGHT (Lbs.) |
|---|---|---|---|---|---|---|
| SX-30V | 14 | 11.5 | 23-13/16 | 15 | 1" | 24 |
| SX-40V | 20 | 11.5 | 31-9/16 | 15 | 1" | 32 |
| SX-60V | 32 | 11.5 | 46-7/16 | 15 | 1" | 42 |
| SX-90V | 44 | 34 | 36 | 22 | 1-1/4" | 69 |
| SX110-V | 62 | 34 | 46-3/4 | 22 | 1-1/4" | 92 |

SPECIFICATIONS-ALL MODELS
- Maximum Working Pressure . . . . . .100 PSI
- Maximum Operating Temperature . . . . . .240ºF
- Standard Charge Pressure . . . . . .12 PSIG
(unless otherwise specified)

## FILL-TROL® Tank

A specially adapted EXTROL with an automatic pressure reducing valve.

| MODEL NO. | TANK VOLUME (Gallons) | ACCEPT VOLUME (Gallons) | DIAMETER (Inches) | LENGTH (Inches) | SHIPPING WT. (Lbs.) |
|---|---|---|---|---|---|
| 109 | 2 | .9 | 8 | 14-3/4 | 6 |
| 110 | 4.4 | 2.4 | 11 | 17-3/8 | 10 |
| 111 | 7.6 | 2.4 | 11 | 24-5/8 | 15 |
| 112 | 14 | 11.3 | 15 | 23 | 24 |

• Standard EXTROL cannot be used with FILL-TROL.

## Compression Tanks

| PART # | DIMENSION |
|---|---|
| G818008 | 9" x 32" |
| G818015 | 12" x 30" |
| G818018 | 12" x 36" |
| G818024 | 12" x 48" |
| G818030 | 12" x 60" |
| G818040 | 14" x 60" |
| G818182 | 20" x 60" |
| G818220 | 24" x 60" |

## Dimensions & Weights

| Model No. | Tank Dia. Inches | Connection (NPT) Tank | Connection (NPT) Boiler | Approx. Shpg. Wt. (Lbs) |
|---|---|---|---|---|
| ATF-9 | 9 | 1/2" M | 3/4" M | 2-1/4 |
| ATF-12 | 12 - 14 | | | 2-1/2 |
| ATF-16 | 16 - 18 | | | 2-3/4 |
| ATF-20 | 20 - 22 | | | |
| ATF-24 | 24 | | | |
| ATFL | >100 gal | 1" F | 1" F | 14 |

**EXTROL SIZING TABLE**
**FILL PRESSURE 12 PSI RELIEF PRESSURE 30 PSI**
**AVERAGE SYSTEM TEMPERATURE 200°F.**

| BOILER NET OUTPUT IN 1000's OF BTU HR. | TYPE OF RADIATION: FINNED TUBE BASEBOARD OR RADIANT PANEL | CONVECTORS OR UNIT HEATERS | RADIATORS CAST IRON | BASEBOARD CAST IRON |
|---|---|---|---|---|
| 25 | 15 | 15 | 15 | 15 |
| 50 | 15 | 15 | 30 | 30 |
| 75 | 30 | 30 | 30 | 60 |
| 100 | 30 | 30 | 60 | 60 |
| 125 | 30 | 60 | 60 | 90 |
| 150 | 30 | 60 | 90 | 90 |
| 175 | 60 | 60 | SX-30 | SX-30 |
| 200 | 60 | 60 | SX-30 | SX-30 |
| 250 | 60 | 90 | Sx-30 | SX-40 |
| 300 | 90 | SX-30 | SX-30 | SX-40 |
| 350 | SX-30 | SX-30 | SX-40 | SX-60 |
| 400 | SX-30 | SX-40 | SX-40 | SX-60 |

**EXTROL CAPACITY AT VARIOUS SYSTEM OPERATING TEMPERATURES**
**RELIEF PRESSURE 30 PSI FILL TEMPERATURE 40-70ºF**
**AND FILL PRESSURE 12 PSI**

| AVERAGE SYSTEM TEMP. ºF | SYSTEM CONTENT IN GALLONS: EXTROL MODEL 15 | EXTROL MODEL 30 | EXTROL MODEL 60 | EXTROL MODEL 90 |
|---|---|---|---|---|
| 100 | 140 | 308 | 417 | 980 |
| 110 | 104 | 230 | 311 | 731 |
| 120 | 80 | 177 | 240 | 564 |
| 130 | 65 | 143 | 193 | 454 |
| 140 | 53 | 118 | 160 | 376 |
| 150 | 45 | 99 | 134 | 315 |
| 160 | 38 | 84 | 114 | 269 |
| 170 | 33 | 73 | 99 | 233 |
| 180 | 29 | 64 | 87 | 204 |
| 190 | 25 | 56 | 76 | 180 |
| 200 | 22 | 50 | 68 | 160 |
| 210 | 20 | 45 | 61 | 144 |
| 220 | 18 | 40 | 55 | 130 |
| 230 | 16 | 37 | 50 | 118 |
| 240 | 15 | 34 | 46 | 108 |

MAXIMUM WORKiNG PRESSURE 100 PSI — OPERATING TEMP. 40º-240º
#15 EXTROL = 109 FILL-TROL #60 EXTROL = 111 FILL-TROL
#30 EXTROL = 110 FILL.TROL #90 EXTROL = 112 FILL-TROL

AMTROL INC.

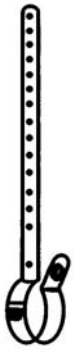
# ACCESSORIES

## Flexible Connector

| PART | SIZE | PRESSURE | DESCRIPTION |
|---|---|---|---|
| 335-1 | 1/2" | 55 PSI | 7" COPPER |
| 335-2 | 3/4" | 40 PSI | THREADED |
| 347-1 | 1/2" | 55 PSI | 7" COPPER |
| 347-2 | 3/4" | 40 PSI | SWEAT |

## Natick Strap Hanger

| Model No. | Pipe Size | Hanger Length |
|---|---|---|
| 603-1/2 x 6 | 1/2" | 6" |
| 603-3/4 x 6 | 3/4" | 6" |
| 603-1 x 6 | 1" | 6" |
| 603-1-1/4 x 6 | 1-1/4" | 6" |

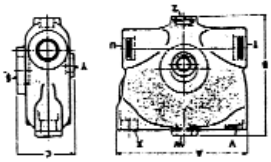


## Air Vents

| Model | Type | Maximum Pressure | Maximum Temperature | SIze |
|---|---|---|---|---|
| 700-C | Float | 45 psi | 240ºF | 1/8" MPS (NPTM) |
| 701-C | Float | 100 psi | 240ºF | 1/4" MPS (NPTM) |
| 702 | Float | 45 psi | 240ºF | 1/4" MPS (NPTM) |
| 703 | Float | 100 psi | 240ºF | 1/4" MPS (NPTM) |
| 706 | Float | 150 psi | 240ºF | 3/4" MPS (NPTM) |

## Inso-line Strap Hanger

| Model No. | Pipe Size | Hanger Length |
|---|---|---|
| 602-1/2 x 6 | 1/2" | 6" |
| 602-3/4 x 6 | 3/4" | 6" |
| 602-1 x 6 | 1" | 6" |
| 602-1-1/4 x 6 | 1-1/4" | 6" |



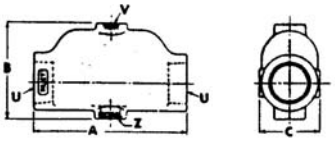
## Angle Types

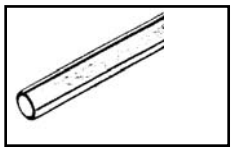
| Model No. | Size | Dimensions | | | Typical Tappings - NPT | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | A | B | C | S | T | U | V | W | X | Y | Z |
| 438-2 | 1" | 7-3/8" | 6-5/8" | 3-1/4" | 1-1/4" | 1" | 1" | 1/8" | 3/4" | 3/4" | 1/2" | 1/2" |
| 439-1 | 1-1/4" | 7-3/8" | 6-5/8" | 3-1/4" | 1-1/2" | 1-1/4" | 1-1/4" | 1/8" | 3/4" | 3/4" | 1/2" | 1/2" |

Other tapping combinations available.

## Air Purgers

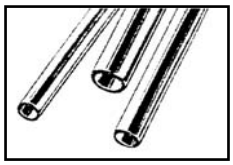
| Model No. | Size | Dimensions | | | Tappings - NPT | | |
|---|---|---|---|---|---|---|---|
| | | A | B | C | U | V | Z |
| 443X | 1" | 6" | 4" | 2-1/2" | 1" | 1/8" | 1/2" |
| 444-1 | 1-1/4" | 6" | 4" | 2-1/2" | 1-1/4" | 1/8" | 1/2" |
| 445X | 1-1/2" | 8" | 5" | 3-1/2" | 1-1/2" | 1/8" | 1/2" |
| 446 | 2" | 8" | 5" | 3-1/2" | 2" | 1/2" | 1/2" |
| 447 | 2-1/2" | 10" | 6" | 5" | 2-1/2" | 3/4" | 1/2" |
| 448 | 3" | 10" | 6" | 5" | 3" | 3/4" | 1/2" |





## SQUEEZE AND SNAP GAUGE GLASS CUTTER
## CUTS UP TO 3/4" GAUGE GLASS

PART # 997



## STANDARD GAUGE GLASS

| PART # | LENGTH | MAXIMUM RECOMMENDED WORKING PRESSURE, PSI | |
|---|---|---|---|
| | | TEMP. TO 150ºF NO CORROSION | STEAM BOILER SERV. UP TO 425ºF |
| 5812 | 12" | 200 PSI | 100 PSI |
| 5818 | 18" | 190 | 100 |
| 5824 | 24" | 175 | 100 |
| 5836 | 36" | 165 | 100 |
| 3412 | 12" | 200 PSI | 100 PSI |
| 3418 | 18" | 190 | 100 |
| 3424 | 24" | 185 | 100 |
| 3436 | 36" | 165 | 100 |

## RED-LINED GAUGE GLASS

| PART # | LENGTH | MAXIMUM RECOMMENDED WORKING PRESSURE, PSI | |
|---|---|---|---|
| | | TEMP. TO 150ºF NO CORROSION | STEAM BOILER SERV. UP TO 425ºF |
| 5812RL | 12" | 335 PSI | 295 PSI |
| 5818RL | 18" | 305 | 280 |
| 5824RL | 24" | 265 | 270 |
| 5836RL | 36" | 205 | 260 |
| 3412RL | 12" | 330 PSI | 280 PSI |
| 3418RL | 18" | 300 | 265 |
| 3424RL | 24" | 260 | 255 |
| 3436RL | 36" | 240 | 245 |