Job: ­­­

# MVB® - Type H

## Heating Boilers Models 504A-2004A

Engineer:

Contractor:

Prepared By:       Date:

Model:       Indoor/Outdoor:



84% Thermal Efficiency at Full Rate

100% Factory Fire-Tested

VERSA IC® Modulating Controller with 7” color touchscreen display

Raymote™ remote connectivity provided standard

Electronic Modulation, 60% Minimum Fire

Full Safety Diagnostics with History

Status Display Lights

Modbus RTU BMS Port

Maximum Outlet Water Temperature: 235°F

Minimum Acceptable Inlet Water Temperature: 120°F

Limited Twenty-Five-Year Thermal Shock Warranty

Limited Ten-Year Heat Exchanger Warranty

Proudly Assembled in the USA

flag%201Ultra Low NOx – Less than 20PPM

#### Heat Exchanger

* Headers

Cast Iron – Standard

A-1 Bronze

* ASME H Stamped  
  160 PSIG MAWP
* National Board Approved
* Fin Tubing

Copper – Standard

A-3 Cupronickel

* ASME Powder-Coated Tube Sheet
* Silicone High-Temp O-Rings
* ASME Pressure Relief Valve

60 PSIG – Standard

    PSIG – Optional

* Temperature and Pressure Gauge,  
  Shipped Loose
* Stainless Steel Evaporator Plate
* Four-pass heat exchanger

#### Control

* 120V, 60Hz, 1Ø, Power Supply
* 120/24V 60Hz Transformer
* VERSA IC® built-in control
* 7” color HD touchscreen display
* Raymote™ Wi-Fi remote connectivity
* Cascade up to 4 Boilers
* Ignition Module

3-Try – Standard

C-6 Single-Try

* Remote Flame Sensor
* Freeze Protection
* High Limit, Manual Reset, Fixed, 240ºF
* On/Off Power Switch
* Flow Switch
* Blocked Vent Pressure Switch
* Programmable Pump Time Delays
* Pump Outputs
* Boiler pump
* DHW Indirect – Pilot Duty
* System – Pilot Duty

#### Control (cont.)

* Water Temperature Sensors (7)
* Modbus RTU BMS Port

B-85 Gateway – BACnet MS/TP, BACnet IP, N2 Metasys or Modbus TCP

B-86 Gateway - LonWorks

* Cold Water Protection Function

Optional Variable Speed Pump

Optional Proportional Valve

#### Burner

* Hot Surface Ignition (HSI)
* Radially-Fired Knitted Burner

#### Gas Train

* Fuel

Natural Gas

Propane (Minimum Grade HD-5)

* Dual-Seat Combination Firing Valve
* Manual Shut-Off Valve

#### Construction

* Indoor/Outdoor Construction
* Enclosed Front Controls
* PolyTuf Powder Coat Finish
* Rear Connections (Water, Electrical, Gas, Vent, Combustion Air)
* Combustion Air Filter – Inline
* Design Certified ANSI Z21.13/CSA 4.9
* CSA Low Lead Certified ≤.25% Lead

#### Venting

* Vent Termination

D-11 Outdoor

 D-15 Indoor, Horizontal

Indoor, Vertical (by others)

* Combustion Air

D-16 Air Intake Elbow

* Extractor – Optional

By others

Not required

**Options**

A-30 Air Vent, Auto, 150 PSI (Loose)

B-31 Dry-Well Assembly

B-32 Outdoor Air Sensor

F-10 Low Water Cut-Off, Remote Probe

I-1 High Limit, Auto Reset, Adj.,   
100-240°F

I-2 High Limit, Manual Reset, Adj., 100-240°F (additional)

P-   Pump:      HP, 120V, 1∅, 60Hz

Cast Iron  Bronze

Loose  Mounted

P-   Cold Water Start

P-   Cold Water Run

S-1 Low Gas Pressure Switch,   
Manual Reset

S-2 High Gas Pressure Switch, Manual Reset

Z-12 Condensate Treatment Kit

#### Additional Options or Accessories

#### Multi-Boiler Temperature Controllers

TempTracker Mod+ Hybrid

B-36 2-4 Heaters

B-37 5-10 Heaters

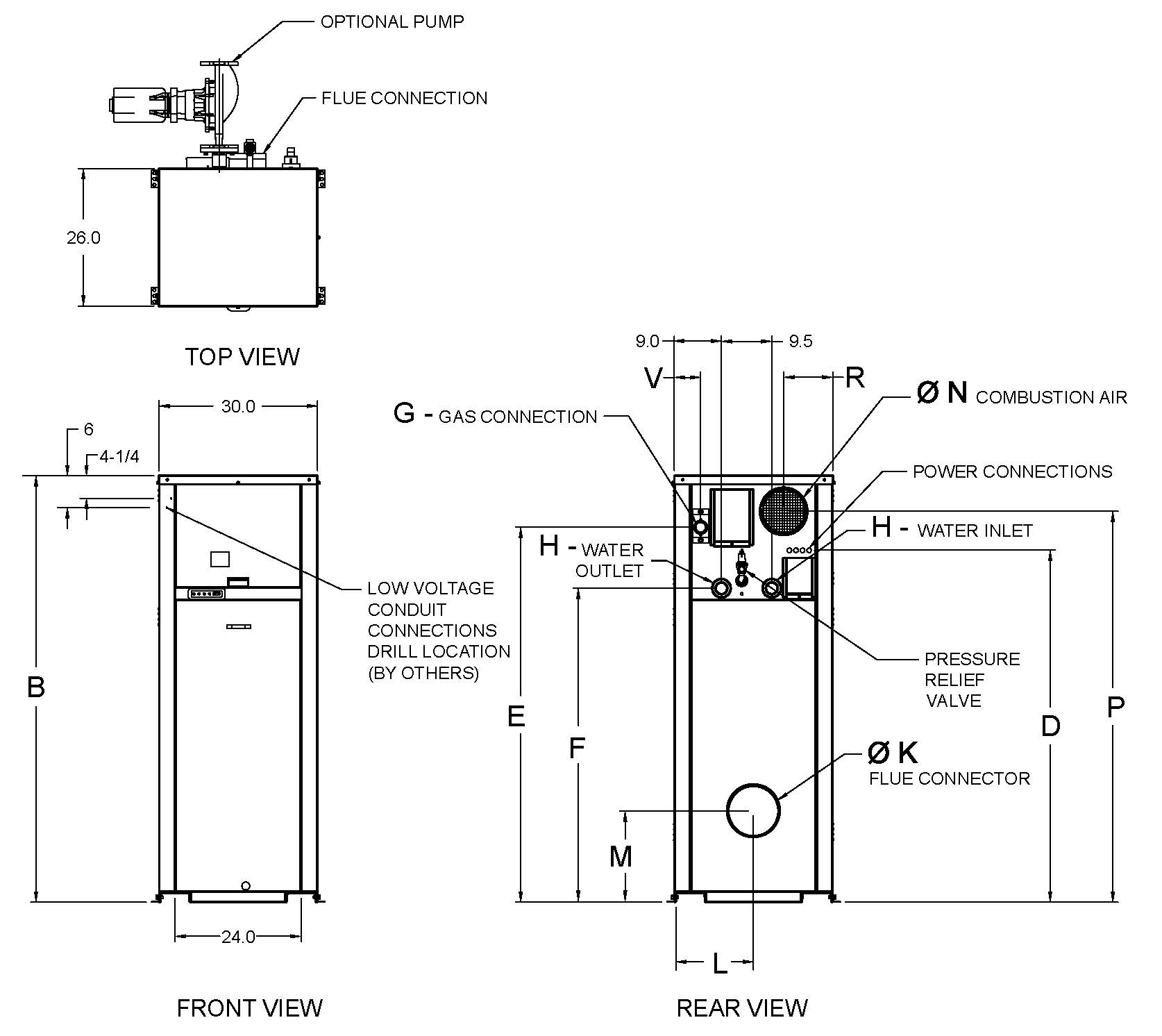
B-38 11-16 Heaters

B-39 EMS 4-20mA Remote Setpoint Interface Module

B-62 BACnet MS/TP Interface

MVB – Type H

Models 504A-2004A Model



|  |  |  |  |
| --- | --- | --- | --- |
| **Model**  **(H7 - )** | **Water Hardness** | | |
| **Soft** | **Medium** | **Hard** |
| 504A | 1/4 – 6 | 1/4 – 6 | 3/4 – 11 |
| 754A | 1/4 – 6 | 1/2 – 7 | 3/4 – 11 |
| 1104A | 1/4 – 6 | 1/2 – 7 | 1 – 14 |
| 1504A | 3/4 – 11 | 1 – 14 | 1 – 14 |
| 2004A | 1 – 14 | 1-1/2 – 16 | 1-1/2 – 16 |

**PUMP HP – AMPS\***

\* Current draw is for Pump Only

**CLEARANCES**

|  |  |  |
| --- | --- | --- |
|  | **Certified Minimum** | **Recomm. Service** |
| Front | 24” | 24” |
| Rear | 12” | 24” |
| Right | 1” | N/A |
| Left | 1” | N/A |
| Top | 0” | 10” |
| Floor | 0” | N/A |
| Vent | 1” | N/A |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Model (H7-)** | **MBTUH** | |  | **Dimensions (in.)** | | | | | | | | | | | |
| **B**  **Height** | **D** | **E** | **F** | **G\***  **NPT** | **H**  **NPT** | **K**  **Flue Ø** | **L** | **M** | **N**  **C/A Ø** | **P** | **R** | **V** |
| **Input** | **Output** |
| 504A | 500 | 420 | 43-1/4 | 30-3/4 | 35 | 23-3/4 | 1 | 2 | 8 | 13-3/4 | 14-1/4 | 6 | 36-3/4 | 8-1/4 | 1-3/4 |
| 754A | 750 | 630 | 49 | 36-3/4 | 40-3/4 | 29-1/2 | 1 | 2 | 10 | 13-1/2 | 14-1/4 | 6 | 42-1/2 | 8-1/4 | 1-3/4 |
| 1104A | 1100 | 924 | 55 | 42-3/4 | 46-3/4 | 35-1/2 | 1-1/4 | 2-1/2 | 10 | 13-1/2 | 14-1/4 | 6 | 48-1/2 | 8-1/4 | 1-3/4 |
| 1504A | 1500 | 1260 | 61 | 48-3/4 | 53 | 41-3/4 | 1-1/4 | 2-1/2 | 12 | 13-3/4 | 17-1/4 | 8 | 54-3/4 | 8-1/4 | 1-3/4 |
| 2004A | 1999 | 1679 | 75 | 61 | 65-1/4 | 53-3/4 | 2 | 2-1/2 | 14 | 13-1/2 | 20 | 8 | 68-1/2 | 9-1/4 | 5 |

|  |
| --- |
| * \*For natural gas. Propane all sizes 1” NPT. * Ratings shown are for elevations up to 4,500 feet. For installations at elevations above 4,500 feet, please consult the factory for additional instructions. No hardware changes required below 10,000 ft. * For direct vent applications, please contact the factory about relocating the pump. |

\* Current draw is for Boiler Only.

(Supply breaker must have delayed trip.)

|  |  |  |  |
| --- | --- | --- | --- |
| Model  (H7 - ) | Shipping  Weight  (Lbs.) | Footprint  (ft2) | Amps\* |
| 504A | 600 | 5.4 | 12 |
| 754A  Raypak, Inc. ▪ 2151 Eastman Avenue, Oxnard, CA 93030 ▪ (805) 278-5300 ▪ Fax (800) 872-9725 ▪ www.raypak.com | 670 | 5.4 | 12 |
| 1104A | 720 | 5.4 | 12 |
| 1504A | 780 | 5.4 | 12 |
| 2004A | 940 | 5.4 | 18 |

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Models 504A-2004A Model

**RATES OF FLOW AND PRESSURE DROPS**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Model (H7-)** | **20**°**F T** | | **30**°**F T** | | **39**°**F T\*** | | **Maximum Flow** | | | **Minimum Flow\*** | | |
| **GPM** | **P (ft.)** | **GPM** | **P (ft.)** | **GPM** | **P (ft.)** | **GPM** | **P (ft.)** | **T (**°**F)** | **GPM** | **P (ft.)** | **T (**°**F)** |
| 504A | 42 | 2.7 | 28 | 1.4 | N/A | N/A | 100 | 11.3 | 8 | 25 | 1.1 | 34 |
| 754A | 63 | 6.0 | 42 | 2.9 | 32 | 1.7 | 100 | 13.8 | 13 | 32 | 1.7 | 39 |
| 1104A | 92 | 13.3 | 62 | 6.7 | 47 | 4.1 | 113 | 18.6 | 16 | 47 | 4.1 | 39 |
| 1504A | N/A | N/A | 84 | 13.3 | 65 | 8.0 | 113 | 22.2 | 22 | 65 | 8.0 | 39 |
| 2004A | N/A | N/A | 112 | 26.9 | 86 | 16.0 | 113 | 27.2 | 30 | 86 | 16.0 | 39 |

\* Closed systems only

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