Job:

# MVB® - Type WH

## Water Heaters Models 503A-2003A

Engineer:

Contractor:

Prepared By:       Date:

Model:       Indoor/Outdoor:



87% Thermal Efficiency at Full Rate

100% Factory Fire-Tested

VERSA IC® Modulating Controller with with 7” color touchscreen display

Raymote™ remote connectivity provided standard

On/Off Firing with Soft-Start Ignition

Full Safety Diagnostics with History

Status Display Lights

Cascade up to 4 Heaters – No External Sequencer Required

Modbus RTU BMS Port

CSA Low Lead Certified ≤.25% Lead

Maximum Outlet Water Temperature: 200°F

Maximum Tank Setpoint: 150°F

Minimum Acceptable Inlet Water Temperature: 120°F

Proudly Assembled in the USA



Limited Five-Year Copper/Ten-Year Cupro-Nickel Heat Exch. Warranty

Ultra Low NOx, Less than 20 PPM

#### Heat Exchanger

* Headers, Bronze
* ASME HLW 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

125 PSIG – Standard

150 PSIG – Optional

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

#### Control

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

3-Try – Standard

C-6 Single-Try

* Remote Flame Sensor
* Freeze Protection
* High Limit, Manual Reset, Fixed, 200ºF
* On/Off Power Switch
* Flow Switch
* Blocked Vent Pressure Switch
* Programmable Pump Time Delays
* Pump Outputs
* Water Heater
* System – Pilot Duty
* Modulating Temperature Control
* Water Temperature Sensors (3)
* Cold Water Protection Function

Optional Variable-Speed Pump

* Modbus RTU BMS Port

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

B-86 Gateway - LonWorks

#### Burner

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

#### Gas Train

* Fuel

Natural Gas

Propane (Minimum Grade HD-5)

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

#### Construction

* Indoor/Outdoor Construction
* Front Controls Enclosed
* PolyTuf Powder Coat Finish
* Rear Connections (Water, Electrical, Gas, Vent, Combustion Air)
* In-line Combustion Air Filter Kit
* Design Certified ANSI Z21.10.3/CSA 4.3
* 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)

F-10 Low Water Cut-Off, Remote Probe

I-1 High Limit, Auto Reset, Adj.,   
40-180°F

I-2 High Limit, Manual Reset, Adj., 100-200°F (additional)

P-   Bronze Pump:      HP, 120V, 1∅, 60Hz

Water Hardness:       GPG

Loose  Mounted

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

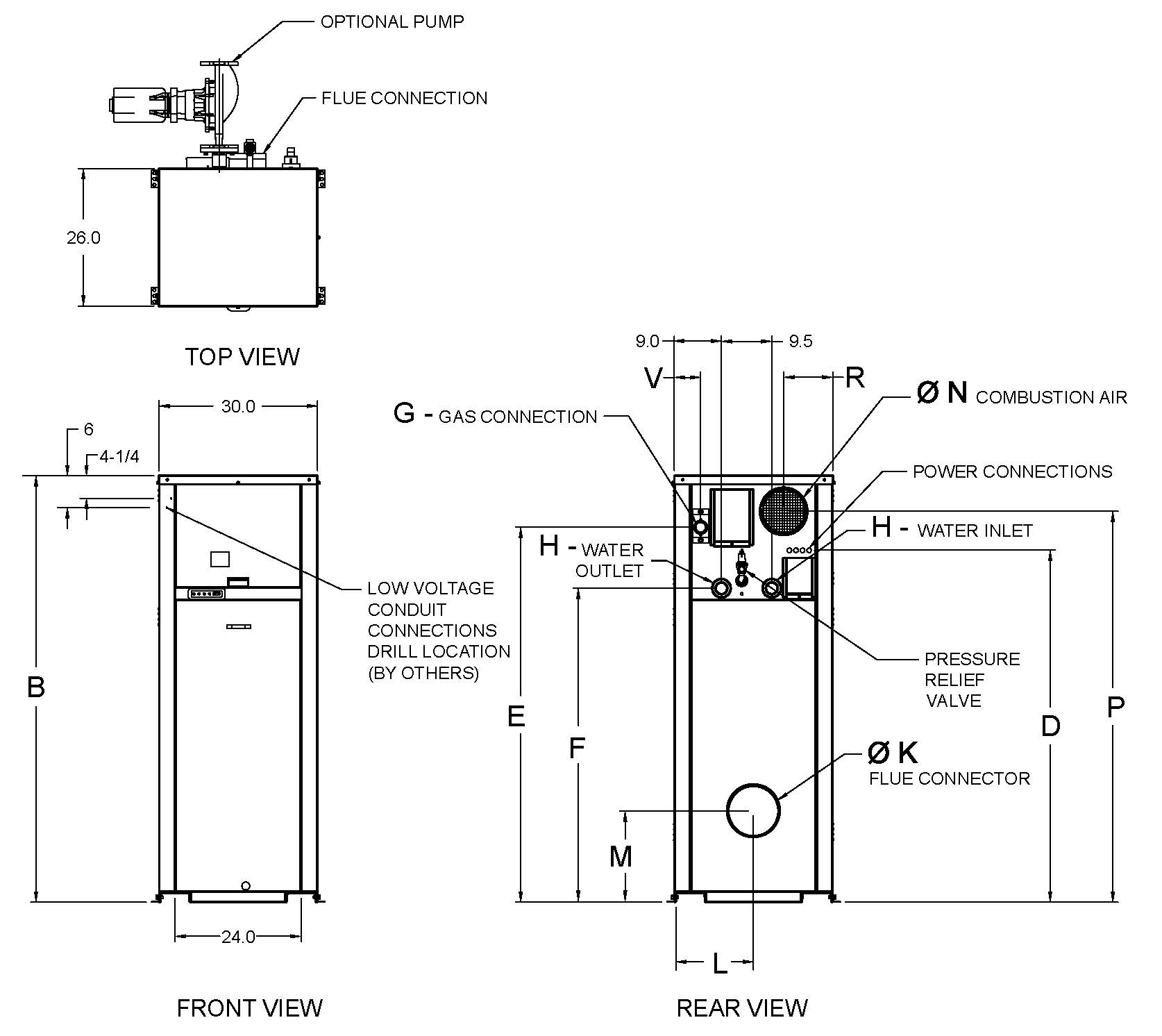


MVB® – Type WH

Models 503A-2003A Model

**Clearances**

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



|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Model (WH1-)** | **MBTUH** | |  | **Dimensions (in.)** | | | | | | | | | | | | **Ship Weight**  **(Lbs.)** | **Foot- print**  **(Ft2)** | **Amps\*\*** |
| **B** | **D** | **E** | **F** | **G\*** | **H** | **K** | **L** | **M** | **N** | **P** | **R** | **V** |
| **Input** | **Output** | **Height** |  |  |  | **NPT** | **NPT** | **Flue Ø** |  |  | **C/A Ø** |  |  |  |
| 503A | 500 | 435 | 43 | 32 | 35 | 23-3/4 | 1 | 2 | 6 | 13-3/4 | 14-1/4 | 6 | 35 | 8 | 2 | 600 | 5.4 | 12 |
| 753A | 750 | 653 | 49 | 38 | 41 | 29-3/4 | 1 | 2 | 6 | 13-1/2 | 14-1/4 | 6 | 41 | 8 | 2 | 670 | 5.4 | 12 |
| 1003A | 999 | 869 | 55 | 44 | 47 | 35-3/4 | 1-1/4 | 2-1/2 | 6 | 13-1/2 | 14-1/4 | 6 | 47 | 8 | 2 | 720 | 5.4 | 12 |
| 1253A | 1250 | 1088 | 61 | 50 | 53 | 41-3/4 | 1-1/4 | 2-1/2 | 8 | 13-3/4 | 17-1/4 | 8 | 53 | 8 | 2 | 780 | 5.4 | 12 |
| 1503A | 1500 | 1305 | 67 | 56 | 59 | 47-3/4 | 1-1/4 | 2-1/2 | 8 | 13-3/4 | 17-1/4 | 8 | 59 | 8 | 2 | 840 | 5.4 | 12 |
| 1753A | 1750 | 1523 | 75 | 62 | 65 | 53-3/4 | 2 | 2-1/2 | 8 | 13-1/2 | 17-1/4 | 8 | 68 | 9 | 5 | 940 | 5.4 | 18 |
| 2003A | 1999 | 1739 | 81 | 68 | 71 | 59-3/4 | 2 | 2-1/2 | 8 | 13-3/4 | 17-1/4 | 8 | 74 | 9 | 5 | 1000 | 5.4 | 18 |

|  |  |
| --- | --- |
| \*For natural gas. For propane, all sizes are 1” NPT  \*\*Current draw is for heater only. (Supply breaker must have delayed trip.)   * 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 feet. |  |

MVB® – Type WH

Models 503A-2003A Model

**PUMP HP – AMPS\***

|  |  |  |  |
| --- | --- | --- | --- |
| **Model (WH-1)** | **Water Hardness** | | |
| **Soft** | **Medium** | **Hard** |
| 503A | 1/4 – 6 | 1/4 – 6 | 3/4 – 11 |
| 753A | 1/4 – 6 | 1/2 – 7 | 3/4 – 11 |
| 1003A | 1/4 – 6 | 1/2 – 7 | 1 – 14 |
| 1253A | 1/2 – 7 | 1 – 14 | 1 – 14 |
| 1503A | 3/4 – 11 | 1 – 14 | 1 – 14 |
| 1753A | 1 – 14 | 1 1/2 – 16 | 1 1/2 – 16 |
| 2003A | 1 – 14 | 1 1/2 – 16 | 1 1/2 – 16 |

\* Current draw is for pump only.

SHL includes 50ft of tubing each way (total 100 ft)

\* Must use optional cupronickel heat exchanger

\*\* If over 25 GPG, a water softener MUST be used.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Water Hardness** | | | | | | | | | | | | | | |
| **Soft** | | | | | **Medium** | | | | | **Hard\*** | | | | |
| **3-4 Grains Per Gallon** | | | | | **5-15 Grains Per Gallon** | | | | | **16-25 Grains Per Gallon\*\*** | | | | |
| **Model** | **ΔT**  **(ºF)** | **GPM** | **ΔP**  **(ft wc)** | **MTS**  **(in)** | **SHL**  **(ft wc)** | **ΔT**  **(ºF)** | **GPM** | **ΔP**  **(ft wc)** | **MTS**  **(in)** | **SHL**  **(ft wc)** | **ΔT**  **(ºF)** | **GPM** | **ΔP**  **(ft wc)** | **MTS**  **(in)** | **SHL**  **(ft wc)** |
| 503A | 17 | 50 | 3.6 | 2 | 8.3 | 17 | 50 | 3.6 | 2 | 8.3 | 9 | 95 | 10.4 | 2 | 25.7 |
| 753A | 26 | 50 | 4.0 | 2 | 8.7 | 18 | 73 | 7.8 | 2 | 17.3 | 15 | 90 | 11.4 | 2 | 25.3 |
| 1003A | 20 | 85 | 11.5 | 2-1/2 | 16.2 | 20 | 85 | 11.5 | 2-1/2 | 16.2 | 15 | 116 | 19.6 | 2-1/2 | 27.8 |
| 1253A | 27 | 80 | 12.2 | 2-1/2 | 16.3 | 20 | 109 | 21.0 | 2-1/2 | 28.3 | 20 | 109 | 21.0 | 2-1/2 | 28.3 |
| 1503A | 28 | 94 | 18.4 | 2-1/2 | 24.0 | 25 | 105 | 22.5 | 2-1/2 | 29.3 | 23 | 115 | 26.5 | 2-1/2 | 34.6 |
| 1753A | 29 | 104 | 23.6 | 2-1/2 | 30.3 | 27 | 113 | 27.4 | 2-1/2 | 35.2 | 27 | 113 | 27.4 | 2-1/2 | 35.2 |
| 2003A | 32 | 108 | 28.1 | 2-1/2 | 35.3 | 32 | 108 | 28.1 | 2-1/2 | 35.3 | 30 | 116 | 33.0 | 2-1/2 | 41.5 |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **RECOVERY RATES** | | | | | | | | | |
|  | **Temperature Rise (°F)** | | | | | | | | | |
|  | **20** | **30** | **40** | **50** | **60** | **70** | **80** | **90** | **100** | **110** |
| 503A | 2636 | 1758 | 1318 | 1055 | 879 | 753 | 659 | 586 | 527 | 479 |
| 753A | 3955 | 2636 | 1977 | 1582 | 1318 | 1130 | 989 | 879 | 791 | 719 |
| 1003A | 5267 | 3512 | 2634 | 2107 | 1756 | 1505 | 1317 | 1171 | 1053 | 958 |
| 1253A | 6591 | 4394 | 3295 | 2636 | 2197 | 1883 | 1648 | 1465 | 1318 | 1198 |
| 1503A | 7909 | 5273 | 3955 | 3164 | 2637 | 2260 | 1978 | 1758 | 1582 | 1438 |
| 1753A | 9227 | 6152 | 4614 | 3691 | 3076 | 2636 | 2307 | 2051 | 1845 | 1678 |
| 2003A | 10540 | 7027 | 5270 | 4216 | 3513 | 3011 | 2635 | 2342 | 2108 | 1916 |

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