



**Product Submittal for MVB® - Type WH
Water Heater
Models 2503-4003**

Date: _____ Job: _____ Location: _____
Equipment Tags: _____ Engineer: _____ Contractor: _____
Model: _____ Notes: _____
Prepared by: _____ Indoor Outdoor Gas Type: Natural Gas Propane

- 85% thermal efficiency at full rate
- 100% factory fire-tested
- VERSA IC® integrated controller with 7" color touchscreen display
- Raymote™ IoT connectivity standard
- Full electronic modulation, 60% minimum fire under normal conditions
- Full safety diagnostics with history
- Status display lights
- Cascade up to 8 heaters - no external sequencer required
- Modbus RTU BMS port
- Maximum outlet water temperature: 200°F (93.3°C)
- Maximum tank setpoint: 160°F (71.1°C)
- Minimum inlet water temperature: 120°F (48.8°C)
- Limited 20-year thermal shock warranty
- Limited 5-year copper/10-year cupronickel heat exchanger warranty
- BAAQMD certified per Rule 9-7 - Low NOx, < 30 ppm
- Must be used with a properly-sized storage tank for proper operation
- Proudly assembled in the USA



Standard Features

Heat Exchanger

- Headers - bronze
- ASME HLW stamped; 160 PSIG MAWP
- National board registered
- Finned tubing
 - Copper (standard)
 - A-3 Cupronickel (optional)
- ASME powder-coated tube sheet
- Silicone high-temp O-rings
- ASME pressure relief valve
 - 125 PSIG (standard)
 - ___ PSIG (optional)
- 150 PSI air vent, auto (2)
- T&P gauge
- Four-pass heat exchanger
- Stainless steel evaporator plate
- 4-inch grooved copper water connections

Control

- 240V, 60Hz, 1ø power supply
 - E-16 208/220/240V, 60Hz, 1ø (optional)
- 240/120V, 60Hz, transformer
- VERSA IC® built-in controller
- 7" (178 mm) color HD touchscreen display
- Raymote™ IoT connectivity
- Cascade up to 8 heaters
- Cascade interstage delay settings
- Ignition module
 - 3-try (standard)
 - C-6 single-try (optional)
- Remote flame sensor
- Fixed high limit, manual reset, 200°F (93.3°C)
- On/Off power switch
- Flow switch
- Blocked vent pressure switch
- Freeze protection
- Alarm dry contact
- High gas pressure switch, manual reset
- Pump outputs - pilot duty
 - Water heater
 - System
- Programmable pump time delays

- Modulating temperature control, 60% minimum fire
- Water temperature sensors 10kΩ (2 mtd, 1 loose, 1 well)
- Cold water protection package
 - P-45 & P-46 Injector pumps (115/230V 1PH)
 - P-47 Pump flange kits for injector pumps
 - P-163 Cold water run 2-way valve
- Modbus RTU BMS port (up to 115K baud rate, see Cat. No. 5000.73)
 - B-85 BMS Gateway, Modbus RTU to Modbus TCP, N2 Metasys, BACnet IP, or BACnet MS/TP (optional)
 - B-86 BMS Gateway, Modbus RTU to LonWorks (optional)

Burner

- Hot surface ignition (HSI)
- Radially-fired knitted burner

Gas Train

- Fuel
 - Natural gas
 - Propane (minimum grade HD-5)
- Dual-seat combination valve
- Manual shutoff firing valve

Construction

- Indoor/outdoor construction
- Enclosed front controls
- PolyTuf powder coat finish
- Rear connections (water, gas, vent, electrical, combustion air)
- Combustion air filter
- Front connection - low-voltage wiring
- Design certified ANSI Z21.10.3/CSA 4.3
- CSA low-lead certified ≤ .25% lead

Venting, cat IV

- D-11 Outdoor vent kit
- D-15 Sidewall vent termination cap
- D-18 Boiler flue adapter
- D-19 Flue term cap adapter
- D-22 TruSeal™ direct vent, indoor
- D-23 Flue support brackets
- D-37 Motorized combustion air damper

Options

- B-31 Well assembly, system sensor
- B-65 Indirect tank Aquastat
- E-5 Alarm with 4" bell with silence and reset switches
- F-10 Low water cut-off, manual reset & test button
- I-5 High limit, adj. manual reset 200°F (93.3°C) max
- I-13 High limit, adj. auto reset 200°F (93.3°C) max
- I-14 High limit, adj. auto reset 180°F (82.2°C) max
- I-20 High limit, adj. manual reset 180°F (82.2°C) max
- M-1 Safety valve, motorized
- M-10 Safety valve, solenoid
- M-15 Safety valve, vent (requires M-1 or M-10)
- P-_____ Pump
- S-1 Low gas pressure switch, manual reset
- Z-4 T & P relief valve
- Z-9 Thermometer
- Z-12 Condensate treatment kit

Additional Options or Accessories

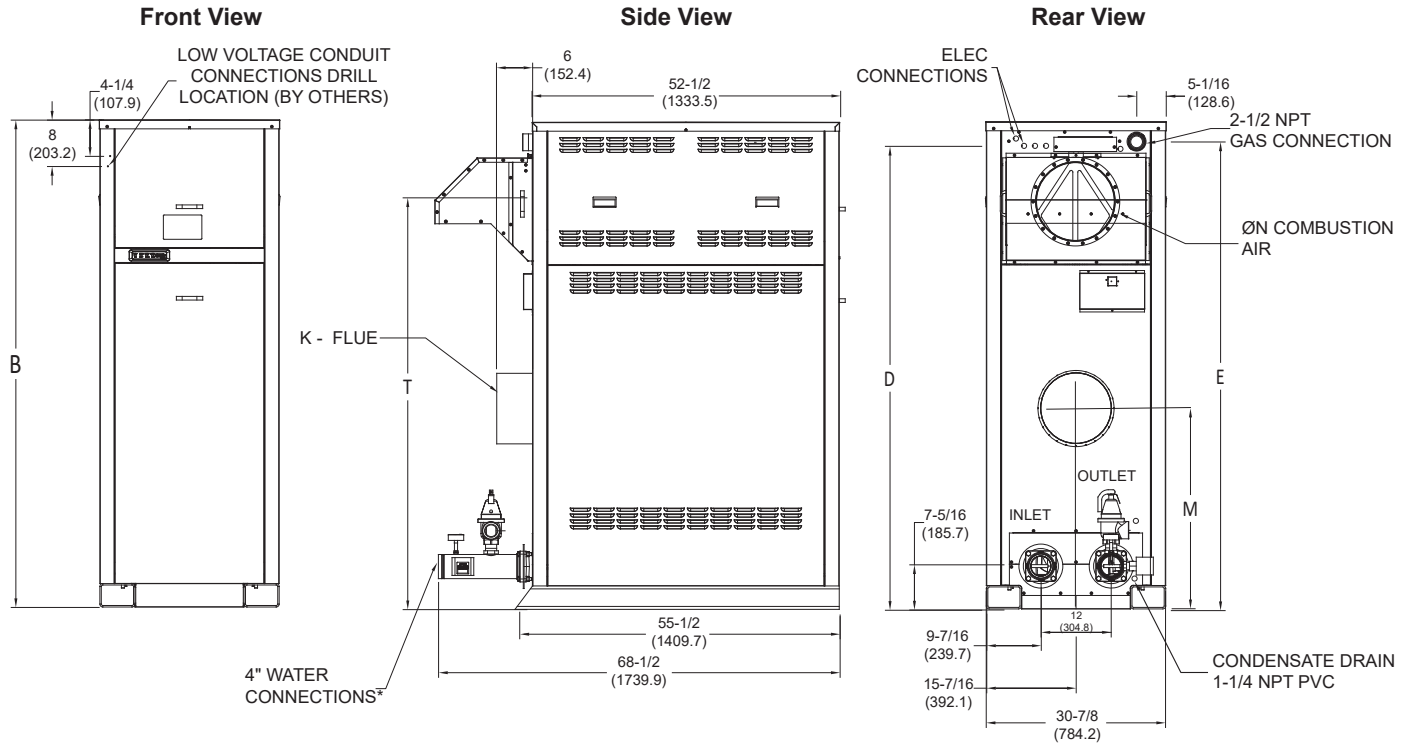
TempTracker Mod+ Hybrid Multi-Boiler Controller

(shipped loose)

- B-36 2-4 units
- B-37 5-10 units
- B-38 11-16 units
- B-39 EMS 4-20 mA remote setpoint interface*
- B-62 BACNET interface module* (*requires B-36 to B-38)

Regulatory agency requirements

- G-15 CSD-1 field upgrade



*Water connections are grooved copper tube. Dimensions are shown in inches (mm).

Model	MBTUH (kW) ⁽¹⁾		Dimensions - inches (mm)							Thermal Efficiency	Shipping Weight - lbs. (kg)
	Input	Output	B Height	D	E	K Flue Ø	M	N ⁽²⁾ C/A Ø	T		
2503	2501 (733.0)	2126 (623.1)	68-1/8 (1730.4)	64-1/16 (1627.2)	64-7/8 (1647.8)	10	26-3/4 (679.5)	10	53-1/4 (1352.6)	85.1%	1768 (801.8)
3003	3000 (879.2)	2550 (747.3)	73-1/8 (1857.4)	69-1/16 (1754.2)	69-7/8 (1774.8)	10	29-1/4 (743.0)	10	58-1/4 (1479.6)		1842 (835.4)
<input type="checkbox"/> 3503	3500 (1025.7)	2975 (871.9)	78-1/8 (1984.4)	74-1/16 (1881.2)	74-7/8 (1901.8)	12	31-3/4 (806.5)	12	63-1/4 (1606.6)		1916 (868.9)
<input type="checkbox"/> 4003	4000 (1172.3)	3400 (996.4)	83-1/8 (2111.4)	79-1/16 (2008.2)	79-7/8 (2028.8)	12	34-1/4 (870.0)	12	68-1/4 (1733.6)		2032 (921.5)

1. Ratings shown are for elevations up to 4,500 ft. De-rated above 4,500 ft; consult factory. No hardware changes below 10,000 ft.
2. For direct-vent applications, please contact the factory about relocating the pump.

CLEARANCES		
Heater Side	Minimum Clearances from Combustible Surfaces in. (mm)	Minimum Service Clearance in. (mm)
Front	Open	30 (762.0)
Rear	12 (305)	36 (914.4)
Right Side	1 (25)	24* (609.6)
Left Side	1 (25)	1 (25)
Top	0	12 (305)
Floor	0	0
Vent	1 (25)	1 (25)

*Service Clearance can be right side or left side.

Model	Boiler Current Draw - Amps	
	<input type="checkbox"/> 208VAC	<input type="checkbox"/> 240VAC
<input type="checkbox"/> 2503	14	20
<input type="checkbox"/> 3003	17.5	
<input type="checkbox"/> 3503	20	
<input type="checkbox"/> 4003	23	

Supply breaker must have delayed trip.

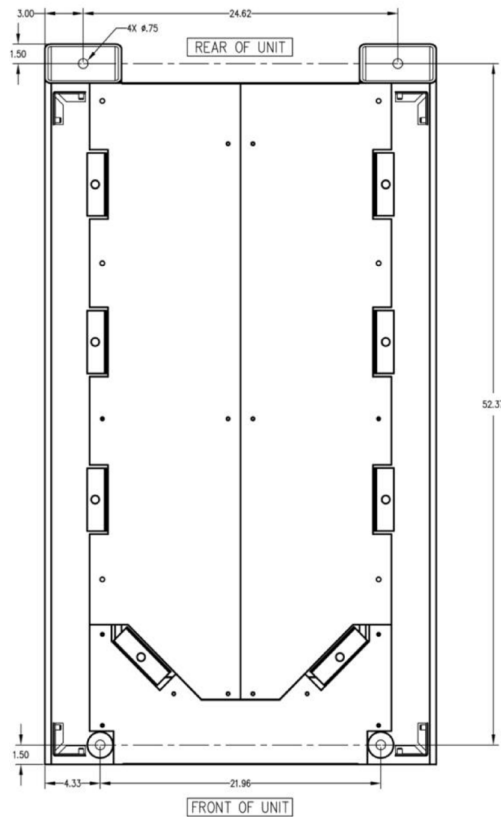
NOTE: Must be used with properly sized storage tank for proper operation.

		WATER HARDNESS															
		☐ SOFT ⁽¹⁾					☐ MEDIUM					☐ HARD ⁽¹⁾					
Model	MBTUH Input	0-4 Grains Per Gallon ⁽³⁾					5-15 Grains Per Gallon					16-25 ⁽²⁾ Grains Per Gallon					
		ΔT °F (°C)	GPM	ΔP ⁽⁴⁾ (ft wc)	MTS (in)	SHL (ft wc)	ΔT °F (°C)	GPM	ΔP ⁽⁴⁾ (ft wc)	MTS (in)	SHL (ft wc)	ΔT °F (°C)	GPM	ΔP ⁽⁴⁾ (ft wc)	MTS (in)	SHL (ft wc)	
☐ 2503	2501	29 (52.2)	1768 (801.8)	6.6	4 (102)	7.9	20 (11)	213 (807)	11.7	4 (102)	14.4	16 (8.8)	264 (1001)	15.7	4 (102)	20.0	
☐ 3003	3000	29 (52.2)	1842 (835.4)	11.0	4 (102)	12.8	20 (11)	255 (966)	21.7	4 (102)	25.6	19 (10.5)	264 (1001)	23.1	4 (102)	27.3	
☐ 3503	3500	29 (52.2)	1916 (868.9)	16.3	4 (102)	18.8	23 (12.7)	264 (1001)	26.8	4 (102)	31.0	23 (12.7)	264 (1001)	26.8	4 (102)	31.0	
☐ 4003	4000	29 (52.2)	2032 (921.5)	25.6	4 (102)	28.9	26 (14.4)	264 (1001)	33.5	4 (102)	37.7	26 (14.4)	264 (1001)	33.5	4 (102)	37.7	

(1) Cupronickel tubes are required for hard water applications and water softened below 5 GPG.
 (2) Water treatment is required when hardness exceeds 25 GPG.
 (3) Water softened below 3 GPG has been known to be aggressive and may damage the appliance.
 (4) ΔP is based upon type "L" copper tubing.
 264 GPM is maximum allowable flow.
 Do not exceed ΔT of 29°F. SHL = System Heat Loss. Includes 100 ft. of tubing each way.

Model	RECOVERY RATES (GPH)									
	Temperature Rise									
	20°F	30°F	40°F	50°F	60°F	70°F	80°F	90°F	100°F	
☐ 2503	12884	8589	6442	5154	4295	3681	3221	2863	2577	
☐ 3003	15455	10303	7727	6182	5152	4416	3864	3434	3091	
☐ 3503	18030	12020	9015	7212	6010	5152	4508	4007	3606	
☐ 4003	20606	13737	10303	8242	6869	5887	5152	4579	4121	

Base Anchor Bolt Pattern



Dimensions are shown in inches.