



**Product Submittal for MVB® - Type H
Heating Boiler
Models 2503-4003**

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

- 85.1% thermal efficiency at full rate
- 100% factory fire-tested
- VERSA IC® modulating controller with 7" color touchscreen display
- Raymote™ IoT connectivity standard
- Full electronic modulation, constant ratio up to 7:1 turndown
- Full safety diagnostics with history
- Status display lights
- Cascade up to 8 heaters - no external sequencer required
- Modbus RTU BMS port
- CSA Low-lead certified ≤ .25% lead
- Maximum outlet water temperature: 235°F (112°C)
- Minimum inlet water temperature: 120°F (48°C)
- Limited 20-year thermal shock warranty
- Limited 5-year copper/10-year cupronickel heat exchanger warranty
- BAAQMD Rule 9-7 certified, Low NOx < 30 ppm
- Proudly assembled in the USA



Job: _____

Standard Features
Heat Exchanger

- Headers - bronze
- ASME H 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
 - 60 PSIG (standard)
 - ___ PSIG (optional)
- 50 PSI air vent, auto (2)
- T&P gauge
- Four-pass heat exchanger
- Stainless steel evaporator plate
- 4-inch grooved copper water connections

Power

- 240V, 60Hz, 1ø, power supply
- 240/120V, 60Hz, transformer
 - E-16 208/220/240V

Control

- VERSA IC® built-in controller
- 7" (178 mm) color HD touchscreen display
- Raymote™ IoT connectivity
- Cascade up to 8 heaters
- Parallel and sequential modulation cascade modes
- Cascade interstage delay settings
- Ignition module
 - 3-try (standard)
 - C-6 Single-try (optional)
- Remote flame sensor
- Fixed high limit, manual reset, 240°F (115°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
 - Boiler
 - DHW indirect
 - System

- Programmable pump time delays
- Modulating temperature control, 7:1 turndown
- Water temperature sensors 10kΩ (2 mtd, 3 loose, 1 well)
- Cold water protection option
 - Cold water start, 2-way valve, single boiler
- 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 Z21.13/CSA 4.9
- CSA Low-Lead Certified ≤ .25% lead

Venting, cat IV (shipped loose)

- D-11 Vent termination, outdoor
- D-15 Vent termination, sidewall
- D-18 Boiler flue adapter
- D-19 Flue term cap adapter
- D-22 TruSeal® air intake box, indoor
- D-23 Flue support brackets
- D-37 Motorized combustion air damper

Options

- B-32 Outdoor air sensor
- B-65 Indirect tank Aquastat (shipped loose, control cover must be used)
- E-5 Boiler alarm with 4" bell with silence and reset switches
- E-15 Alarm with buzzer (shipped loose)
- F-10 Low water cut off (remote)
- I-1 High limit, adj. auto reset 240°F (115°C) max
- I-2 High limit, adj. manual reset 240°F (115°C) max
- I-5 High limit, adj. manual reset 200°F (93°C) max
- I-13 High limit, adj. auto reset 200°F (93°C) max
- M-1 Safety valve, motorized
- M-10 Safety valve, solenoid
- M-15 Safety valve, vent (requires M-1 or M-10)
- P-29 Cold water start, multiple boilers
- P-52 Cold water start, multiple boilers
- S-1 Low gas pressure switch, manual reset
- Z-4 T&P relief valve
- Z-9 Thermometer (shipped loose)
- Z-12 Condensate treatment kit

Additional options or accessories

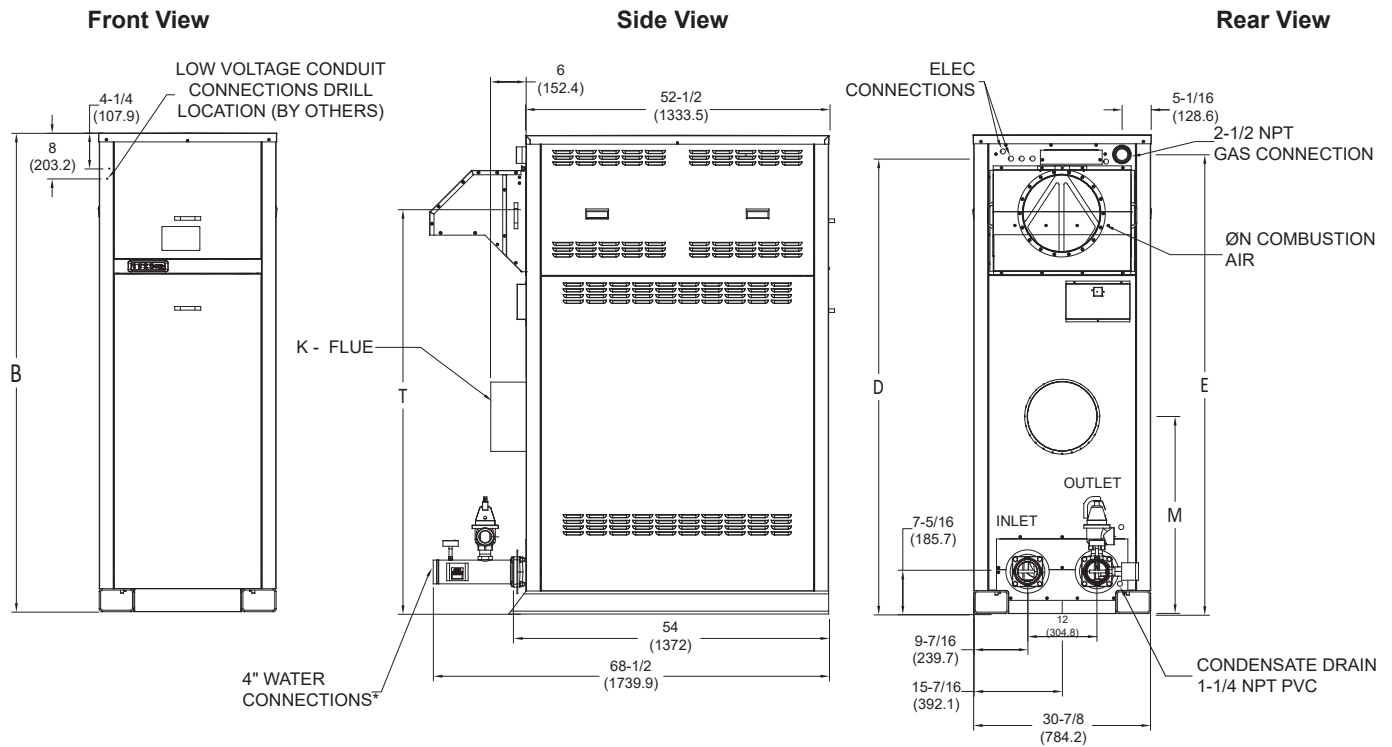
Pumps (optional)

Multi-Boiler digital temp controllers (shipped
loose)

- B-36 TempTracker Mod+ Hybrid, 2-4 boilers, OA reset
- B-37 TempTracker Mod+ Hybrid, 5-10 boilers, OA reset
- B-38 TempTracker Mod+ Hybrid, 11-16 boilers, OA reset
- B-39 EMS 4-20 mA Remote Setpoint Interface Module (requires B-36 to B-38)
- B-62 BACnet MS/TP 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)		Dimensions - inches (mm)							AHRI Thermal Efficiency	Turn Down	Shipping Weight lbs. (kg)
	Input	Output	B Height	D	E	K Flue ø	M	N C/A ø	T			
<input type="checkbox"/> 2503	2501 (733.0)	2126 (623.1)	68-1/4 (1733.6)	62 (1574.8)	64-3/4 (1644.7)	10	26-3/4 (679.5)	10	53-1/4 (1352.6)	85.1%	7:1	1410 (639.5)
<input type="checkbox"/> 3003	3000 (879.2)	2550 (747.3)	73-1/4 (1860.6)	67 (1701.8)	69-3/4 (1771.7)	10	29-1/4 (743.0)	10	58-1/4 (1479.6)			1450 (657.6)
<input type="checkbox"/> 3503	3500 (1025.7)	2975 (871.9)	78-1/4 (1987.6)	71 (1803.4)	74-3/4 (1898.7)	12	31-3/4 (806.5)	12	63-1/4 (1606.6)			1550 (702.9)
<input type="checkbox"/> 4003	4000 (1172.3)	3400 (996.4)	83-1/4 (2114.6)	76 (1930.4)	79-3/4 (2025.7)	12	34-1/4 (870)	12	68-1/4 (1733.6)			1660 (752.8)

Ratings shown are for elevations up to 4,500 ft. De-rate above 4,500 ft; consult factory.

CLEARANCES in. (mm)		
Heater Side	Minimum Clearances from Combustible Surfaces in. (mm)	Minimum Service Clearance in. (mm)
Front	24 (610)	30 (762)
Rear	30 (762)	30 (762)
Right Side	1 (25)	24* (610)
Left Side	1 (25)	1 (25)
Top	0	12 (304.8)
Floor	0	N/A
Vent	1 (25)	N/A

Model	Boiler Current Draw - Amps	
	<input type="checkbox"/> 208/220/240VAC	<input type="checkbox"/> 240VAC
<input type="checkbox"/> 2503	14	12
<input type="checkbox"/> 3003	17.5	15
<input type="checkbox"/> 3503	20	17
<input type="checkbox"/> 4003	23	20

*Service Clearance can be right side or left side.

RATES OF FLOW AND PRESSURE DROPS																			
Model	Input MBTUH (kW)	20 °F ΔT				30°F ΔT*				Minimum Flow*				Maximum Flow					
		GPM (L/min)	ΔP ft.wc	System Head Loss (ft)		GPM (L/min)	ΔP ft.wc	System Head Loss (ft)		GPM (L/min)	ΔP ft.wc	ΔT °F (°C)	System Head Loss (ft)		GPM (L/min)	ΔP ft.wc	ΔT °F (°C)	System Head Loss (ft)	
				3" Pipe	4" Pipe			3" Pipe	4" Pipe				3" Pipe	4" Pipe				3" Pipe	4" Pipe
□ 2503	2501 (732)	213 (807)	11.7	N/A	14.3 (363)	142 (538)	6.2	10.7	7.4	120 (455)	4.7	35 (19.4)	8.0	5.6	264 (1001)	15.7	16 (8.8)	N/A	19.6
□ 3003	3000 (879)	255 (966)	21.7	N/A	25.3 (643)	170 (644)	10.3	16.6	12.0	131 (496)	6.3	39 (21.6)	10.2	7.4	264 (1001)	23.1	19 (10.5)	N/A	27.0
□ 3503	3500 (1025)	N/A	N/A	N/A	N/A	198 (750)	15.2	N/A	17.5	153 (580)	9.1	39 (21.6)	14.3	10.5	264 (1001)	26.8	23 (12.7)	N/A	30.6
□ 4003	4000 (1172)	N/A	N/A	N/A	N/A	227 (860)	23.7	N/A	26.6	174 (659)	13.5	39 (21.6)	20.1	15.3	264 (1001)	33.5	26 (14.4)	N/A	37.4

*ΔP & SHL are in feet of head based upon 100 equivalent feet of type "L" copper tubing.

Base Anchor Bolt Pattern

