



**Product Submittal for MVB® - Type H
Heating Boiler
Models 503A-2003A**

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

- 86.2% Thermal efficiency at full rate
- 100% Factory fire-tested
- VERSA IC® Integrated controller with 7" color touchscreen display
- Raymote™ remote connectivity provided standard
- Electronic modulation, constant ratio 7:1 turndown
- Full safety diagnostics with history
- Status display lights
- Cascade up to 8 boilers - no external sequencer required
- Cascade in parallel or sequential modulation modes
- Modbus RTU BMS Port
- Maximum outlet water temperature: 235°F (113°F)
- Minimum acceptable inlet water temperature: 120°F (49°F)
- Limited 20-year thermal shock warranty
- Limited 10-year heat exchanger warranty
- SCAQMD Rule 1146.2 certified, Low NOx < 20 ppm
- Proudly Assembled in the USA



Features and Options
Heat Exchanger

- Headers
 - Cast iron (standard)
 - A-1 Bronze
- ASME H stamped 160 PSIG MAWP
- National board registered
- 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)
- T&P gauge (shipped loose)
- Stainless steel evaporator plate
- Four-pass heat exchanger

Power

- 120V, 60Hz, 1Ø, power supply
- 120/24V, 60Hz, transformer

Control

- VERSA IC® built-in controller
- 7" (178 mm) color HD touchscreen display
- Raymote™ Wi-Fi remote connectivity
- Cascade up to 8 boilers
- Parallel and sequential modulation cascade modes
- Cascade interstage delay settings
- Ignition module
 - 3-Try (standard)
 - C-6 Single-try
- Remote flame sensor
- Freeze protection
- High limit, manual reset, fixed, 240°F (116°C)
- On/Off power switch
- Flow switch
- Blocked vent pressure switch
- Pump outputs
 - Boiler pump
 - DHW indirect – pilot duty
 - System – pilot duty
- Programmable pump time delays

- Water temperature sensors 10kΩ (2 mtd, 3 loose, 1 well)
- Modbus RTU BMS port
 - B-85 Gateway – BACnet MS/TP, BACnet IP, N2 Metasys or Modbus TCP
 - B-86 Gateway - LonWorks

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 shutoff valve

Construction

- Indoor/outdoor construction
- Front controls enclosed
- PolyTuf powder coat finish
- Rear connections (water, gas, vent, electrical, combustion air, condensate drain)
- Combustion air filter (shipped loose)
- Design Certified ANSI Z21.13/CSA 4.9
- CSA Low-Lead Certified ≤.25% Lead

Venting, cat IV

- D-11 Vent termination, outdoor
- D-15 Sidewall vent termination
- D-17 Inline air intake filter
- D-18 Boiler vent adapter
- D-19 Vent termination cap adapter
- D-23 Outdoor vent supports
- D-37 Motorized combustion air damper
- Cold water protection option
 - Cold water run, variable-speed injector pump, single boiler
 - P-45 Injector pump, bronze
 - P-46 Injector pump, cast iron
 - P-47 Pump flange kit
 - Cold water start, proportional valve, single boiler
 - P-29 Cold water start, field-installed kit
 - P-52 Cold water start, multiple boilers

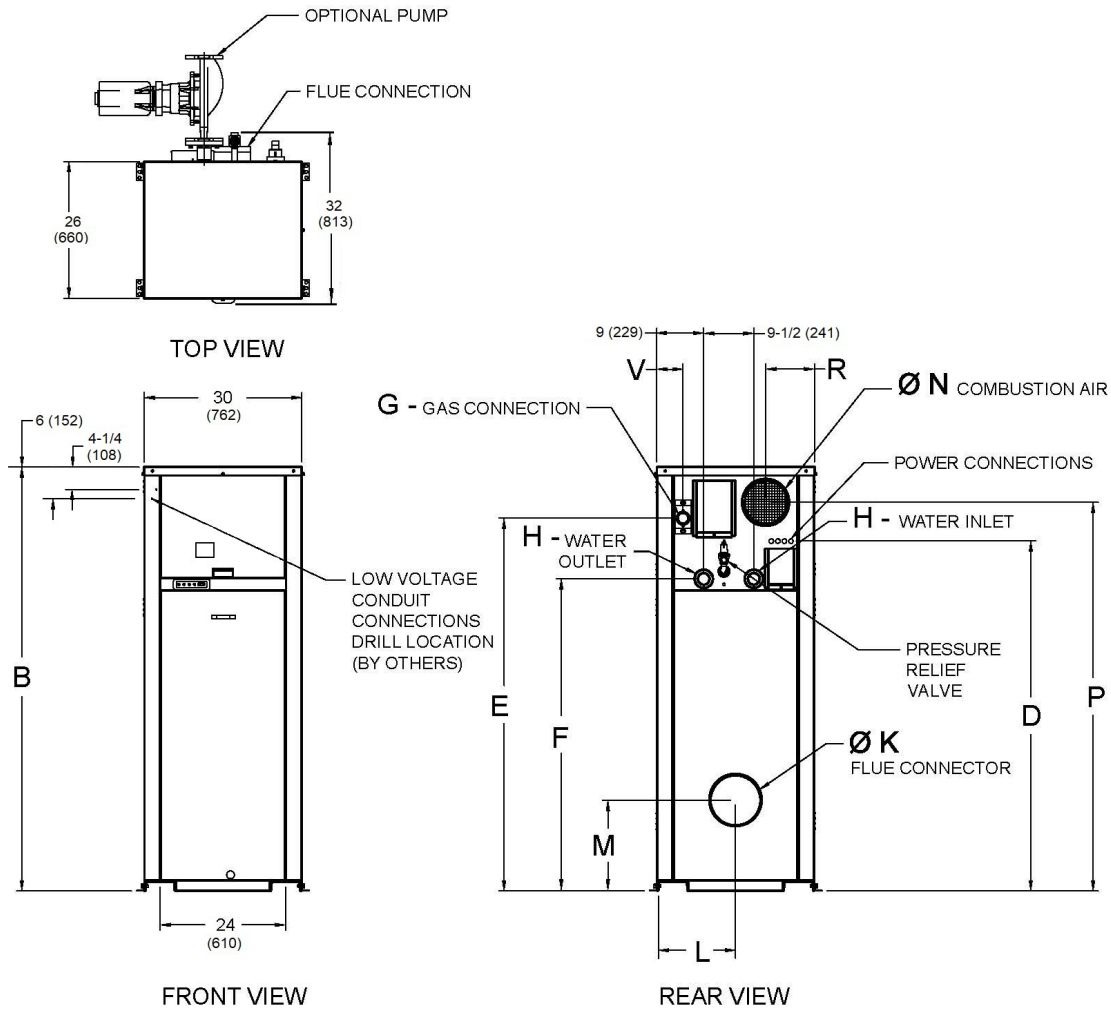
Options

- A-30 Air vent, auto, 150 PSI (loose)
- B-32 Outdoor air sensor
- B-65 Indirect tank Aquastat control
- E-5 Alarm with 4" bell
- E-15 Alarm with buzzer
- F-10 Low water cut-off, remote probe
- I-1 High limit, auto reset, adj. 240°F (116°C) max
- I-2 High limit, manual reset, adj. 240°F (116°C) max (additional)
- I-5 High limit, manual reset, 200°F (93°C) max
- I-13 High limit, 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___ Pump: ___ HP, 120V, 1Ø, 60Hz
 - Cast iron Bronze
 - Loose Mounted
- P-42 Cold water run controls (mtd, no bypass)
- P-43 Cold water controls (loose, no bypass)
- S-1 Low gas pressure switch, manual reset
- S-2 High gas pressure switch, manual reset

Additional options or accessories

Multi-boiler temperature controllers

- Temp tracker mod+ hybrid
 - B-36 2 - 4 Heaters
 - B-37 5 - 10 Heaters
 - B-38 11 - 16 Heaters
 - B-39* EMS 4 - 20 mA remote setpoint interface module
 - B-62* BACnet MS/TP interface (*requires B-36 - B-38)



Model	MBTUH (kW)		Dimensions - inches (mm)												
	Input	Output	B Height	D	E	F	G ⁽¹⁾ NPT	H NPT	K Flue Ø	L	M	N C/A Ø	P	R	V
503A	500 (146.5)	431 (126.3)	43 (1092)	30-3/4 (781)	35 (889)	23-3/4 (603)	1 (25)	2 (51)	6 (152)	13-3/4 (349)	14-1/4 (362)	6 (152)	36-3/4 (933)	8 (203)	1-3/4 (44)
753A	750 (219.8)	647 (189.6)	49 (1245)	36-3/4 (933)	40-3/4 (1035)	29-3/4 (756)	1 (25)	2 (51)	6 (152)	13-1/2 (343)	14-1/4 (362)	6 (152)	42-1/2 (1080)	8 (203)	1-3/4 (44)
1003A	999 (292.7)	861 (252.3)	55 (1397)	42-3/4 (1086)	46-3/4 (1187)	35-3/4 (908)	1-1/4 (32)	2-1/2 (64)	6 (152)	13-1/2 (343)	14-1/4 (362)	6 (152)	48-1/2 (1232)	8 (203)	1-3/4 (44)
1253A	1250 (366.3)	1078 (315.9)	61 (1549)	48-3/4 (1238)	53 (1346)	41-3/4 (1060)	1-1/4 (32)	2-1/2 (64)	8 (203)	13-3/4 (349)	17-1/4 (438)	8 (203)	54-3/4 (1391)	8 (203)	1-3/4 (44)
1503A	1500 (439.6)	1293 (378.9)	67 (1702)	54-3/4 (1391)	58-3/4 (1492)	47-3/4 (1213)	1-1/4 (32)	2-1/2 (64)	8 (203)	13-3/4 (349)	17-1/4 (438)	8 (203)	60-1/2 (1537)	8 (203)	1-3/4 (44)
1753A	1750 (512.8)	1508 (441.9)	75 (1905)	61 (1549)	65-1/4 (1657)	53-3/4 (1365)	2 (51)	2-1/2 (64)	8 (203)	13-1/2 (343)	17-1/4 (438)	8 (203)	68-1/2 (1740)	9 (229)	5 (127)
2003A	1999 (585.8)	1723 (504.9)	81 (2057)	66-3/4 (1695)	71-1/4 (1810)	59-3/4 (1518)	2 (51)	2-1/2 (64)	8 (203)	13-3/4 (349)	17-1/4 (438)	8 (203)	74 (1880)	9 (229)	5 (127)

(1) For natural gas. For propane, 1" (25 mm) NPT for all sizes.
 Ratings shown are for elevations up to 4,500 feet. De-rated above 4,500 ft; consult factory. No hardware changes below 10,000 ft.
 For direct vent applications, please contact the factory about relocating the pump.

Rates of Flow and Pressure Drops												
Model	20° ΔT		30° ΔT		39° ΔT		Min Flow			Max Flow		
	GPM (L/min)	ΔP ft.wc. (kPa)	GPM (L/min)	ΔP ft.wc. (kPa)	GPM (L/min)	ΔP ft.wc. (kPa)	GPM (L/min)	ΔP ft.wc. (kPa)	ΔT °F (°C)	GPM (L/min)	ΔP ft.wc. (kPa)	ΔT °F (°C)
<input type="checkbox"/> 503A	44 (167)	2.8 (8)	29 (110)	1.4 (4)	N/A	N/A	25 (95)	1.1 (3)	35 (19.4)	100 (379)	11.3 (34)	9 (5)
<input type="checkbox"/> 753A	65 (246)	6.4 (19)	44 (167)	3.1 (9)	33 (125)	1.9 (6)	33 (125)	1.9 (6)	39 (21.6)	100 (379)	13.8 (41)	13 (7.2)
<input type="checkbox"/> 1003A	87 (330)	12 (36)	58 (220)	6 (18)	45 (171)	3.8 (11)	45 (171)	3.8 (11)	39 (21.6)	113 (428)	18.6 (56)	15 (8.3)
<input type="checkbox"/> 1253A	109 (413)	20.9 (62)	73 (277)	10.2 (30)	56 (212)	6.5 (19)	56 (212)	6.5 (19)	39 (21.6)	113 (428)	22.2 (66)	19 (10.5)
<input type="checkbox"/> 1503A	N/A	N/A	87 (330)	16 (48)	67 (254)	10 (30)	67 (254)	10 (30)	39 (21.6)	113 (428)	25.5 (76)	23 (12.7)
<input type="checkbox"/> 1753A	N/A	N/A	102 (387)	22.5 (67)	78 (296)	14 (42)	78 (296)	14 (42)	39 (21.6)	113 (428)	27.2 (81)	27 (15)
<input type="checkbox"/> 2003A	N/A	N/A	116 (440)	31.9 (95)	89 (337)	19.8 (59)	89 (337)	19.8 (59)	39 (21.6)	116 (440)	32 (96)	30 (17)

Notes: Basis for minimum flow is °F ΔT. Basis for maximum flow is GPM.

CLEARANCES in. (mm)		
Heater Side	Minimum Clearances from Combustible Surfaces in. (mm)	Minimum Service Clearance in. (mm)
Front	Open	24 (610)
Rear	12 (305)	24 (610)
Right Side	1 (25)	1 (25)
Left Side	1 (25)	1 (25)
Top	0	10 (254)
Floor	0	0
Vent	1 (25)	1 (25)

PUMP HP - Amps*			
Model	Water Hardness		
	<input type="checkbox"/> Soft	<input type="checkbox"/> Medium	<input type="checkbox"/> Hard
<input type="checkbox"/> 503A	1/4 - 6	1/4 - 6	3/4 - 11
<input type="checkbox"/> 753A	1/4 - 6	1/2 - 7	3/4 - 11
<input type="checkbox"/> 1003A	1/4 - 6	1/2 - 7	1 - 14
<input type="checkbox"/> 1253A	1/2 - 7	1 - 14	1 - 14
<input type="checkbox"/> 1503A	3/4 - 11	1 - 14	1 - 14
<input type="checkbox"/> 1753A	1 - 14	1-1/2 - 16	1-1/2 - 16
<input type="checkbox"/> 2003A	1 - 14	1-1/2 - 16	2 - 16

*Current Draw is for Pump Only.

Model	Shipping Weight lbs. (Kg)	Footprint ft² (m²)	Amps*
<input type="checkbox"/> 503A	600 (272.1)	5.4 (0.5)	12
<input type="checkbox"/> 753A	670 (303.9)		
<input type="checkbox"/> 1003A	720 (326.5)		
<input type="checkbox"/> 1253A	780 (353.7)		
<input type="checkbox"/> 1503A	840 (381)		
<input type="checkbox"/> 1753A	940 (426.3)		
<input type="checkbox"/> 2003A	1000 (453.5)	18	

* Current draw is for heater only. (Supply breaker must have delayed trip).