



**Product Submittal for MVB®- Type WH
Water Heater
Models 503A-2003A**

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

- 87% Thermal Efficiency at Full Rate
- 100% Factory fire-tested
- VERSA IC® Modulating controller 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 8 heaters – no external sequencer required
- Modbus RTU BMS Port
- CSA Low-Lead Certified ≤ .25% Lead
- Maximum outlet water temperature: 200°F (93.3°C)
- Maximum tank setpoint: 160°F (71.1°C)
- Minimum acceptable inlet water temperature: 120°F (48.9°C)
- Limited 20-year thermal shock warranty
- Limited 5-year copper/10-year cupronickel heat exch. warranty
- SCAQMD Rule 1146.2 certified, Low NOx < 20 ppm
- Must be used with properly-sized storage tank for proper operation
- Proudly assembled in the USA



Features and Options

Heat Exchanger

- Bronze headers
- ASME HLW stamped 160 PSIG MAWP
- National board registered
- Fin tubing
 - Copper (standard)
 - A-3 cupronickel
- ASME steel tube sheet
- Silicone high-temp. O-rings
- ASME pressure relief valve
 - 125 PSIG (standard)
 - 150 PSIG (optional)
- T&P gauge (shipped loose)
- Four-pass primary heat exchanger
- Stainless steel evaporator plate

Power

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

Control

- VERSA IC® built-in controller
- 7" color HD touchscreen display
- Raymote Wi-Fi remote connectivity
- Cascade up to 8 heaters
- Cascade interstage delay settings
- Ignition module
 - 3-Try (standard)
 - C-6 Single-try
- Remote flame sensor
- Freeze protection
- High limit, manual reset, fixed, 200°F (93.3°C)
- 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 10kΩ (2 mtd, 1 loose, 1 well)
- Cold water run (CWR) protection (optional)

- P-45 Injector pump single boiler (bronze)
- P-47 Pump flange kit
- 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

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

Construction

- Indoor/outdoor construction
- Enclosed front controls
- 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, cat IV

- D-11 Outdoor vent termination
- 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

Options

- A-30 Air vent, auto, 150 PSI (loose)
 - E-5 Boiler alarm with 4" bell
 - E-15 Boiler alarm with buzzer
 - F-10 Low water cut-off, remote probe
 - I-5 Manual reset high limit 200°F (93.3°C) max
 - I-13 Auto reset high limit 200°F (93.3°C) max
 - I-14 Auto reset high limit 180°F (82.2°C) max
 - I-20 Manual reset high limit 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: ____HP, 120V, 1Ø, 60Hz
- Water hardness: _____ GPG
- Mounted Loose

- P-42 CWR Controls, mtd (no bypass)
- P-43 CWR Controls, loose (no bypass)
- S-1 Low gas pressure switch, manual
- S-2 High gas pressure switch, manual
- Z-4 T & P relief valve, 125 PSI
- Z-9 Thermometer

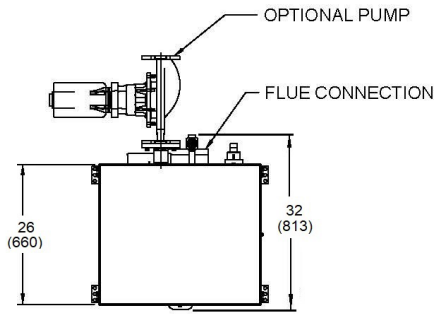
Additional options or accessories

Multi-Unit temperature controllers

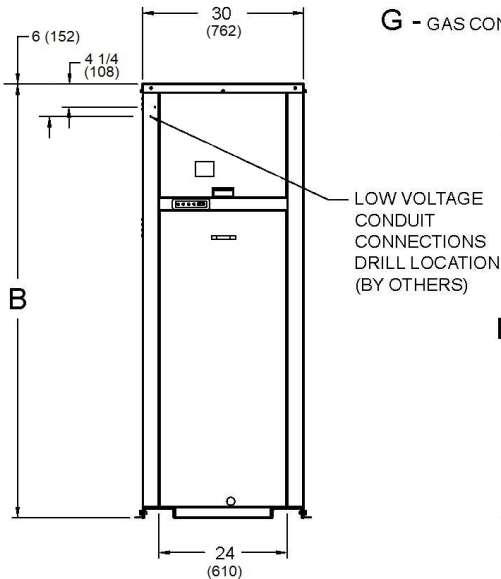
- TempTracker Mod+ Hybrid
 - B-36 (2-4 heaters)
 - B-37 (5-10 heaters)
 - B-38 (11-16 heaters)
 - B-39* EMS 4-20 mA remote setpoint interface module
 - B-62* BACnet MS/TP interface module
- [*requires B-36 - B-38]

Regulatory agency requirements

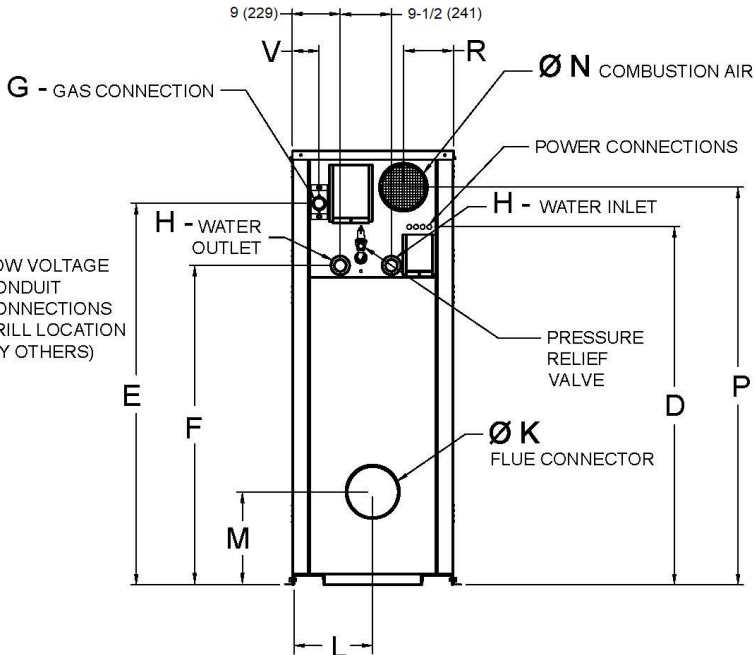
- G-15 CSD-1 Field upgrade kit



TOP VIEW



FRONT VIEW



REAR VIEW

SPECIFICATIONS																		
Model	MBTUH (Kw)		Dimensions in (mm)													Ship Weight Lbs. (Kg)	Foot-print Ft ² (m ²)	Amps ⁽²⁾
	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 (147)	435 (127)	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)	600 (272.1)	5.4 (1)	15
753A	750 (220)	653 (191)	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)	670 (303.9)	5.4 (1)	15
1003A	999 (293)	869 (255)	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)	720 (326.5)	5.4 (1)	15
1253A	1250 (366)	1088 (319)	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)	780 (353.7)	5.4 (1)	15
1503A	1500 (440)	1305 (382)	67 (1702)	54-3/4 (1391)	58-3/4 (1492)	47-3/4 (1213)	1-1/4 (32)	1-1/2 (38)	8 (203)	13-3/4 (349)	17-1/4 (438)	8 (203)	60-1/2 (1537)	8 (203)	1-3/4 (44)	840 (381)	5.4 (1)	15
1753A	1750 (513)	1523 (446)	75 (1905)	61 (1549)	65-1/4 (1657)	53-3/4 (1365)	2 (51)	1-1/2 (38)	8 (203)	13-1/2 (343)	17-1/4 (438)	8 (203)	68-1/2 (1740)	9 (229)	5 (127)	940 (426.3)	5.4 (1)	15
2003A	1999 (586)	1739 (510)	81 (2057)	66-3/4 (1695)	71-1/4 (1810)	59-3/4 (1518)	2 (51)	1-1/2 (38)	8 (203)	13-3/4 (349)	17-1/4 (438)	8 (203)	74 (1880)	9 (229)	5 (127)	1000 (453.5)	5.4 (1)	15

(1) For Natural Gas. For Propane, all sizes are 1" (25 mm) NPT.

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

- Ratings shown are for elevations up to 4,500 ft. De-rated above 4,500 ft; consult factory. No hardware changes required below 10,000 ft.



Product Submittal for MVB®- Type WH

Job: _____

Water Hardness															
Model	<input type="checkbox"/> Soft					<input type="checkbox"/> Medium					<input type="checkbox"/> Hard ⁽¹⁾				
	3-4 Grains Per Gallon					5-15 Grains Per Gallon					16-25 ⁽²⁾ Grains Per Gallon				
	ΔT °F (°C)	GPM (L/min)	ΔP (FT WC)	MTS in (mm)	SHL (FT WC)	ΔT °F (°C)	GPM (L/min)	ΔP (FT WC)	MTS in (mm)	SHL (FT WC)	ΔT °F (°C)	GPM (L/min)	ΔP (FT WC)	MTS in (mm)	SHL (FT WC)
<input type="checkbox"/> 503A	17 (9.4)	50 (190)	3.6	2 (51)	8.3	17 (9.4)	50 (190)	3.6	2 (51)	8.3	9 (5)	95 (360)	10.4	2 (51)	25.7
<input type="checkbox"/> 753A	26 (14.4)	50 (190)	4	2 (51)	8.7	18 (10)	73 (277)	7.8	2 (51)	17.3	15 (8.3)	90 (341)	11.4	2 (51)	25.3
<input type="checkbox"/> 1003A	20 (11)	85 (322)	11.5	2-1/2 (64)	16.2	20 (11)	85 (322)	11.5	2-1/2 (64)	16.2	15 (8.3)	116 (440)	19.6	2-1/2 (64)	27.8
<input type="checkbox"/> 1253A	27 (15)	80 (303)	12.2	2-1/2 (64)	16.3	20 (11)	109 (413)	21	2-1/2 (64)	28.3	20 (11)	109 (413)	21	2-1/2 (64)	28.3
<input type="checkbox"/> 1503A	28 (15.5)	94 (356)	18.4	2-1/2 (64)	24	25 (14)	105 (398)	22.5	2-1/2 (64)	29.3	23 (13)	115 (436)	26.5	2-1/2 (64)	34.6
<input type="checkbox"/> 1753A	29 (16)	104 (394)	23.6	2-1/2 (64)	30.3	27 (15)	113 (428)	27.4	2-1/2 (64)	35.2	27 (15)	113 (428)	27.4	2-1/2 (64)	35.2
<input type="checkbox"/> 2003A	29 (16)	118 (447)	33	2-1/2 (64)	41.5	29 (16)	118 (447)	33	2-1/2 (64)	41.5	29 (16)	118 (447)	33	2-1/2 (64)	41.5

System Head Loss (SHL) includes 50 ft. of tubing each way (total 100 ft.).

(1) Must use optional cupronickel heat exchanger.

(2) If over 25 GPG, a water softener MUST be used.

Minimum Tube Size (MTS) is the port size on the unit.

Model	Recovery Rates GPH (L/H)										
	Temperature Rise										
	20°F	30°F	40°F	50°F	60°F	70°F	80°F	90°F	100°F	110°F	
<input type="checkbox"/> 503A	2636 (9978)	1758 (6655)	1318 (4989)	1055 (3994)	879 (3327)	753 (2850)	659 (2495)	586 (2218)	527 (1995)	479 (1813)	
<input type="checkbox"/> 753A	3955 (14971)	2636 (9978)	1977 (7484)	1582 (5989)	1318 (4989)	1130 (4278)	989 (3744)	879 (3327)	791 (2994)	719 (2722)	
<input type="checkbox"/> 1003A	5267 (19938)	3512 (13294)	2634 (9971)	2107 (7976)	1756 (6647)	1505 (5697)	1317 (4985)	1171 (4433)	1053 (3986)	958 (3626)	
<input type="checkbox"/> 1253A	6591 (24950)	4394 (16633)	3295 (12473)	2636 (9978)	2197 (8317)	1883 (7128)	1648 (6238)	1465 (5546)	1318 (4989)	1198 (4535)	
<input type="checkbox"/> 1503A	7909 (29939)	5273 (19960)	3955 (14971)	3164 (11977)	2637 (9982)	2260 (8555)	1978 (7488)	1758 (6655)	1582 (5989)	1438 (5443)	
<input type="checkbox"/> 1753A	9227 (34928)	6152 (23288)	4614 (17466)	3691 (13972)	3076 (11644)	2636 (9978)	2307 (8733)	2051 (7764)	1845 (6984)	1678 (6352)	
<input type="checkbox"/> 2003A	10540 (39898)	7027 (26600)	5270 (19949)	4216 (15959)	3513 (13298)	3011 (11398)	2635 (9975)	2342 (8865)	2108 (7980)	1916 (7253)	

PUMP HP – AMPS*			
Model (WH7)	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 – 28

CLEARANCES		
Heater Side	Minimum Clearances from Combustible Surfaces in. (mm)	Minimum Service Clearance in. (mm)
Front	24 (610)	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)