

Pump-Mounted Water Heaters

BWCV - Copper Brute II

Indoor/Outdoor Sizes 199,900 - 1,999,000 BTU/Hr.

84% Thermal Efficiency



The unit will be designed and constructed in accordance with the ASME Boiler and Pressure Vessel Code Section IV requirements for 160 psi working pressure. The units will bear the ASME "H" stamp and be registered by the National Board.



5-Year Limited Heat Exchanger Warranty / 1-Year Limited Warranty on Component Parts.

For more information on warranty, please visit www.bradfordwhite.com

For products installed in USA, Canada and Puerto Rico. Some states do not allow limitations on warranties.

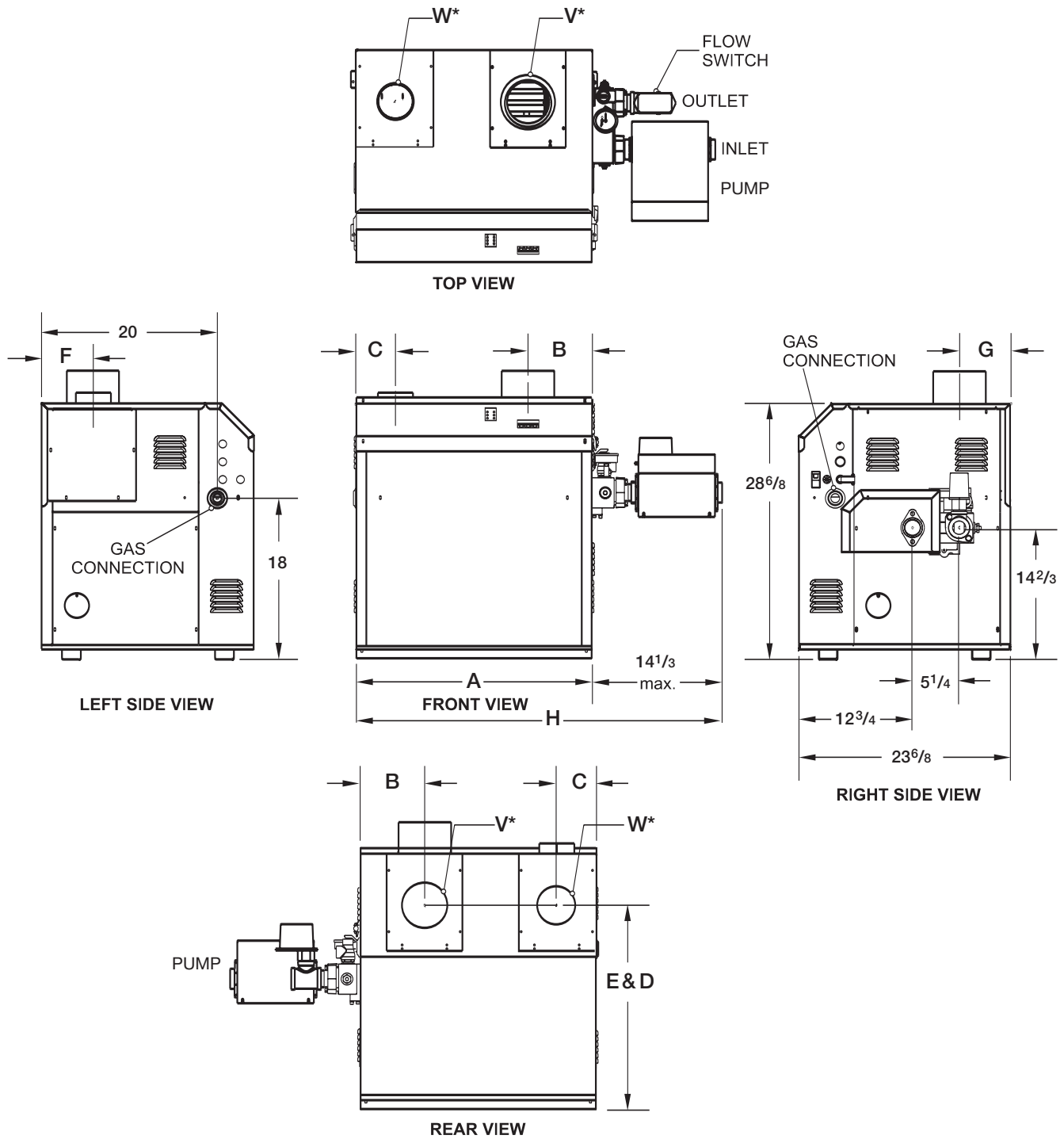
See complete copy of the warranty included with the heater.

MANUFACTURED UNDER ONE OR MORE OF THE FOLLOWING U.S. PATENTS: 5,954,492; 5,761,379; 5,943,984; 5,081,696; 5,988,117; 6,142,216; 5,199,385; 5,574,822; 5,372,185; 5,485,879; 5,277,171; (B1)5,341,770; 5,660,165; 5,596,952; 5,682,666; 4,904,428; 5,023,031; 5,000,893; 4,669,448; 4,829,983; 4,808,356; 5,115,767; 5,092,519; 5,052,346; 4,416,222; 4,628,184; 4,861,968; 4,672,919; Re. 34,534; 7,270,087 B2. OTHER U.S. AND FOREIGN PATENT APPLICATIONS PENDING. CURRENT CANADIAN PATENTS: 1,272,914; 1,280,043; 1,289,832; 2,045,862; 2,112,515; 2,108,186; 2,107,012; 2,092,105; 2,409,271. ©2008, Bradford White Corporation. All rights reserved. Printed in U.S.A.

Copper-Brute II (200-400)

Water Heater Dimensions

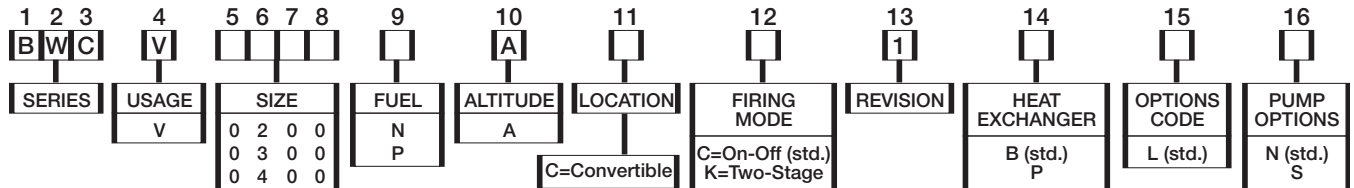
Dimensions are shown in inches.



DIMENSIONS																						
Model Numbers	A		B		C		D		E		F		G		H		W*		V*		Horiz. Vent Pipe inch cm	
	Length		Ct. Line Vent Connect to Side		Ct. Line Air Connect to Side		Ct. Line Air Connect to Floor		Ct. Line Vent Connect to Floor		Ct. Line Air Connect to Back of Unit		Ct. Line Vent Connect to Back of Unit		Length Plus Pump		Air Connect		Vent Connect			
BWCV0200	20 1/2	52	7 1/3	18	4 1/2	12	23 1/8	59	23 1/8	59	5 7/8	15	5 7/8	15	34 1/2	88	4	10	5	13	4	10
BWCV0300	26 1/2	67	7 1/3	18	4 1/2	12	23 1/8	59	23 1/8	59	5 7/8	15	5 7/8	15	40 1/2	103	4	10	6	15	5	13
BWCV0400	33 1/2	85	7 1/3	18	4 1/2	12	23 1/8	59	23 1/8	59	5 7/8	15	5 7/8	15	47 1/2	121	6	15	7	18	6	15

* Air and vent connections may be on top or back of unit and are field convertible.

Copper-Brute II (200-400) Water Heater Specifications



Model Character Designation

(1-3) Model Series Designation

B W C = Copper Brute II

(4) Usage

V = Volume Water

(5-8) Size

0 2 0 0 = 199,900 BTU/Hr. input

0 3 0 0 = 299,900 BTU/Hr. input

0 4 0 0 = 399,900 BTU/Hr. input

(9) Fuel

N = Natural Gas

P = Propane

(10) Altitude

A = 1-10,000 feet

(11) Location

C = Convertible

(12) Firing Mode

C = On-Off (standard on all models)

K = Two-stage (optional on all models)

(13) Revision

1 = First Revision of Design

(14) Heat Exchanger

B = Glass-lined cast iron headers / copper / bronze trim

P = Glass-lined cast iron headers / cu-nickel / bronze trim

(15) Option Code

L = Low Temp. Control

(16) Pump Options

N = Pump mounted water heater, normal water pump

S = Pump mounted water heater, soft water pump

Copper-Brute II Models

Model Numbers	Input ¹ BTU/Hr.	Output ¹ BTU/Hr.	WATER TEMPERATURE RISE IN DEGREES						Gas ² Conn. inches	Water ² Conn. inches	Shipping Weight (lbs.) (kg)	
			90°F GPH	50°C LPH	100°F GPH	56°C LPH	140°F GPH	78°C LPH				
BWCV0200	199,900	169,900	227	858	204	771	146	552	¾	1½	290	132
BWCV0300	299,900	254,900	340	1285	306	1157	219	828	¾	1½	320	145
BWCV0400	399,900	339,900	453	1712	408	1542	291	1100	¾	1½	350	159

1. Input and output must be derated 4% per 1000 feet above sea level when installed above 2000 feet altitude.

2. Dimensions are nominal.

Note: GPH = gallons per hour, LPH = liters per hour.

Water Flow Data

Model Numbers	HARD WATER		NORMAL WATER		SOFT WATER	
	Flow GPM	Flow LPM	Flow GPM	Flow LPM	Flow GPM	Flow LPM
BWCV0200	45	170	35	133	23	87
BWCV0300	45	170	35	133	23	87
BWCV0400	45	170	35	133	23	87

Note: GPM= gallons per minute, LPM=liters per minute

Firing Rates

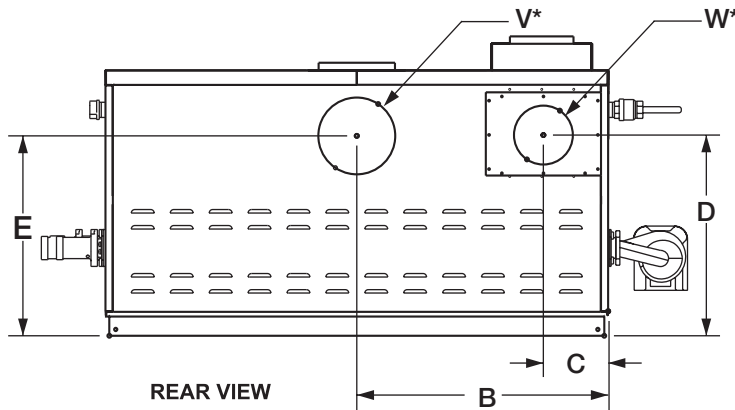
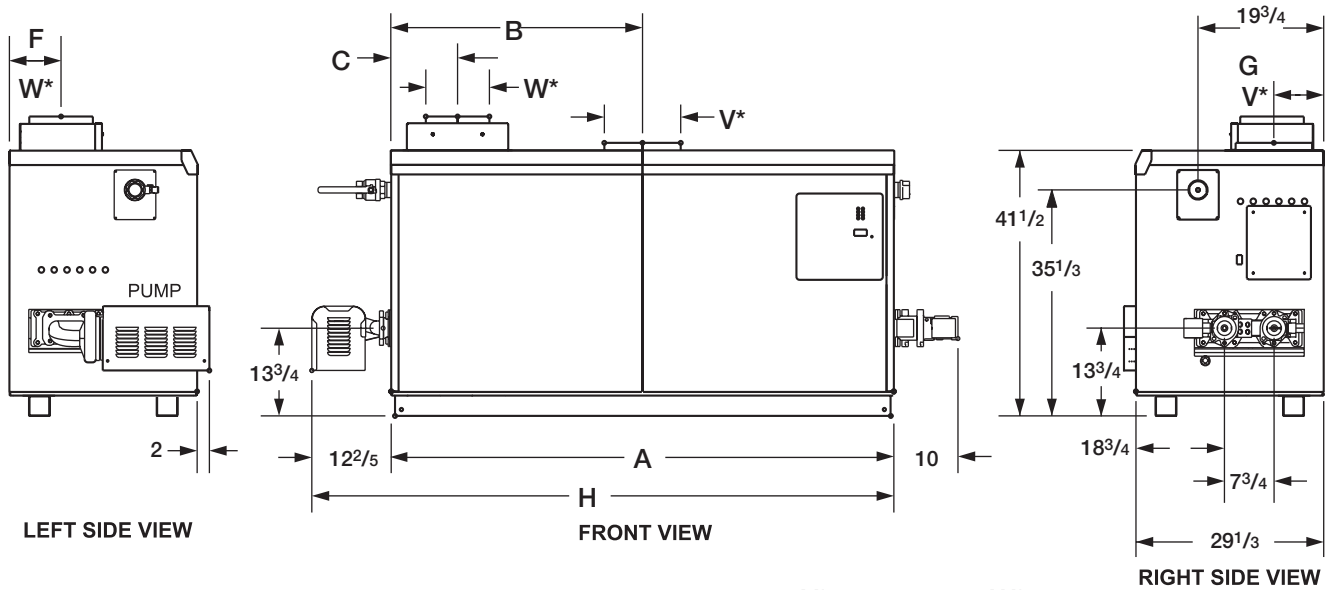
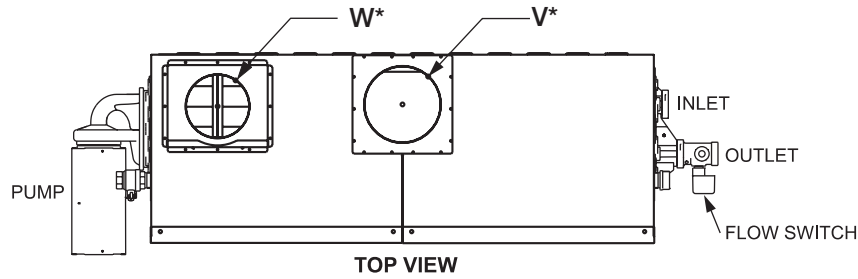
Model Numbers	Firing Stage
BWCV0200	On/Off*
BWCV0300	On/Off*
BWCV0400	On/Off*

* Two-stage available as an option.

Copper-Brute II (500-2000)

Water Heater Dimensions

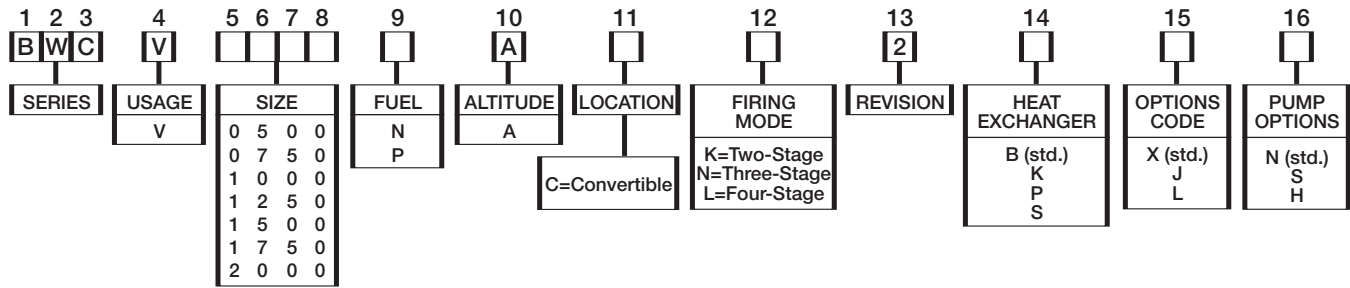
Dimensions are shown in inches.



Model Numbers	DIMENSIONS													
	A Length inch cm	B Ct. Line Vent Connect to Side inch cm	C Ct. Line Air Connect to Side inch cm	D Ct. Line Air Connect to Floor inch cm	E Ct. Line Vent Connect to Floor inch cm	F Ct. Line Air Connect to Back of Unit inch cm	G Ct. Line Vent Connect to Back of Unit inch cm	H Length Plus Pump inch cm	W* Air Connect inch cm	V* Vent Connect inch cm	Horiz. Vent Pipe inch cm	Max. Pipe Length	No. of Elbows	
BWCV0500	33 ¹ / ₂ 85	15 ³ / ₄ 40	5 ⁹ / ₁₆ 15	29 ³ / ₄ 76	32 ³ / ₄ 83	7 ³ / ₄ 20	8 ³ / ₄ 22	46 117	6 15	8 20	6 15	50ft.	3	
BWCV0750	45 ¹ / ₂ 116	21 ³ / ₄ 55	5 ⁹ / ₁₆ 15	29 ³ / ₄ 76	32 ³ / ₄ 83	7 ³ / ₄ 20	8 ³ / ₄ 22	58 147	6 15	10 25	8 20	50ft.	3	
BWCV1000	57 ¹ / ₂ 146	28 ³ / ₄ 73	5 ⁹ / ₁₆ 15	29 ³ / ₄ 76	32 ³ / ₄ 83	7 ³ / ₄ 20	7 18	70 178	8 20	10 25	8 20	50ft.	3	
BWCV1250	68 172	34 86	10 ¹ / ₈ 26	30 ³ / ₄ 78	29 ¹ / ₂ 75	8 ³ / ₄ 28	8 ³ / ₄ 22	80 203	8 20	12 30	8 20	50ft.	3	
BWCV1500	78 ¹ / ₂ 199	39 ³ / ₄ 101	10 ¹ / ₈ 26	30 ³ / ₄ 78	29 ¹ / ₂ 75	8 ³ / ₄ 28	8 ³ / ₄ 22	91 231	8 20	12 30	8 20	50ft.	3	
BWCV1750	89 226	44 ¹ / ₂ 113	10 ¹ / ₈ 26	30 ³ / ₄ 78	29 ¹ / ₂ 75	8 ³ / ₄ 28	8 ³ / ₄ 22	101 256	8 20	14 36	8 20	50ft.	3	
BWCV2000	99 ¹ / ₂ 253	49 ³ / ₄ 126	10 ¹ / ₈ 26	30 ³ / ₄ 78	29 ¹ / ₂ 75	8 ³ / ₄ 28	8 ³ / ₄ 22	112 284	12 20	14 36	12 30	50ft.	3	

* Air and vent connections may be on top or back of unit and are field convertible.

Copper-Brute II (500-2000) Water Heater Specifications



Model Character Designation

(1-3) Model Series Designation

B W C = Copper Brute II

(4) Usage

V = Volume Water

(5-8) Size

0 5 0 0 = 500,000 BTU/Hr. input
 0 7 5 0 = 750,000 BTU/Hr. input
 1 0 0 0 = 999,000 BTU/Hr. input
 1 2 5 0 = 1,250,000 BTU/Hr. input
 1 5 0 0 = 1,500,000 BTU/Hr. input
 1 7 5 0 = 1,750,000 BTU/Hr. input
 2 0 0 0 = 1,999,000 BTU/Hr. input

(9) Fuel

N = Natural Gas
 P = Propane

(10) Altitude

A = 0-10,000 feet

(11) Location

C=Convertible

(12) Firing Mode

K = Two-stage (500 & 750)
 N = Three-stage (1000)
 L = Four-stage
 (1250, 1500, 1750 & 2000)

(13) Revision

2 = First Revision of Design

(14) Heat Exchanger

B = Glass-lined cast iron headers /
 copper tubes/ bronze trim
 K = Bronze headers / copper tubes/
 bronze trim
 P = Glass-lined cast iron headers /
 cu-nickel / bronze trim
 S = Bronze headers / cu-nickel /
 bronze trim

(15) Option Code

X = Standard
 J = CSD-1, FM, IRI, IL
 L = LDS (consult factory)

(16) Pump Options

N = Pump mounted water heater,
 normal water pump
 S = Pump mounted water heater,
 soft water pump
 H = Pump mounted water heater,
 hard water pump

Copper-Brute II Models

Model Numbers	Input ¹ BTU/Hr.	Output ¹ BTU/Hr.	WATER TEMPERATURE RISE IN DEGREES						Gas ² Conn. inches	Water ² Conn. inches	Shipping Weight (lbs.) (kg)	
			90°F GPH	50°C LPH	100°F GPH	56°C LPH	140°F GPH	78°C LPH				
BWCV0500	500,000	425,000	567	2143	510	1929	364	1378	1½	2	480	218
BWCV0750	750,000	638,000	850	3214	765	2893	547	2066	1½	2	560	254
BWCV1000	999,000	849,000	1133	4281	1019	3853	728	2752	1½	2½	670	304
BWCV1250	1,250,000	1,063,000	1417	5357	1276	4821	911	3444	2	2½	730	331
BWCV1500	1,500,000	1,275,000	1701	6429	1531	5786	1093	4133	2	2½	815	370
BWCV1750	1,750,000	1,488,000	1984	7500	1786	6750	1276	4821	2	2½	880	400
BWCV2000	1,999,000	1,699,000	2266	8567	2040	7710	1457	5507	2	2½	1010	459

1. Input and output must be derated 4% per 1000 feet above sea level when installed above 2000 feet altitude.

2. Dimensions are nominal.

Note: GPH = gallons per hour, LPH = liters per hour.

Water Flow Data

Model Numbers	HARD WATER		NORMAL WATER		SOFT WATER	
	Flow GPM	Flow LPM	Flow GPM	Flow LPM	Flow GPM	Flow LPM
BWCV0500	90	341	68	257	45	170
BWCV0750	90	341	68	257	45	170
BWCV1000	90	341	68	257	45	170
BWCV1250	90	341	68	257	68	257
BWCV1500	90	341	68	257	68	257
BWCV1750	90	341	68	257	68	257
BWCV2000	112	424	112	424	112	424

Note: GPM= gallons per minute, LPM=liters per minute

Firing Rates

Model Numbers	Firing Stage
BWCV0500	2-Stage
BWCV0750	2-Stage
BWCV1000	3-Stage
BWCV1250	4-Stage
BWCV1500	4-Stage
BWCV1750	4-Stage
BWCV2000	4-Stage

Standard Features

- Thermal efficiency up to 85%
- ASME 160 psi working pressure heat exchanger
- ASME "H" stamp, designed and certified for potable water use
- Flanged bronze water connections
- Glass-lined headers
- External header gaskets
- 125 psi (861 kPa) ASME rated pressure relief valve
- Flow switch, mounted and wired
- Temperature/pressure gauge
- Pump, mounted and wired
- Multiple operating gas valve/pressure regulators
- Manual "A" gas valve
- Washable intake air filter
- Multiple, removable burner trays
- Stainless steel burners
- Built-in draft fan for Category I or III vent systems
- Air pressure switch
- Burner site glass
- 24V control system
- 115/24VAC transformer
- Ignitor access panels
- Energy Management Monitor (EM²) pump time delay
- Manual reset high limit
- Automatic reset high limit (500-2000 only)
- Electronic PID staging control with LCD and touchpad
- PC board for electrical connections
- External controller connections with selector switch
- Hot surface ignition
- On/Off toggle switch
- Pump time delay
- Diagnostic lights
- Less than 10 ppm NOx (500-2000 only)
- Less than 30 ppm NOx (200-400 only)
- All models can be converted to either indoor use or outdoor use. For outdoor use, you must order exhaust vent and air intake vent (consult factory for part numbers)

Optional Equipment

- Copper-nickel heat exchanger
- Normally open vent valve (500-2000 only, see IRI Package)
- Low water cutoff
- Motorized gas safety valve (500-2000, see LDS Package)
- Double stack stand (500-2000 only)
- Reverse Heat Exchanger - switches the inlet and outlet to left side and pump to the right side
- Indoor Venting Accessories (required for sidewall venting)
- CSD-1 Package includes:
Size 500-2000:
Single Try Ignition, High and Low Gas Pressure Switches, and Gas Regulator.
Excludes Low Water Cutoff.
- IRI Package, added to the CSD-1 package includes:
Size 500-2000:
Single Try Ignition, High and Low Gas Pressure Switches with Manual reset, Normally Open Vent Valve, Safety Valve with Gas Regulator and Leak Test Valve.
Excludes Low Water Cutoff
- LDS Package includes:
Size 500-1000:
Safety Valve with Gas Regulator, High Gas Pressure Switch and Leak Test Valve.
Size 1250-2000:
Solenoid Safety Valve, Motorized Valve with Proof of Closure, Leak Test Valve, High and Low Gas Pressure Switches.

Clearances

APPLIANCE SURFACE	REQUIRED CLEARANCE FROM COMBUSTIBLE MATERIAL		SUGGESTED SERVICE ACCESS CLEARANCES	
	inch	cm	inch	cm
Left Side	1	2.5	24	61
Right Side	1	2.5	24	61
Top	1	2.5	12	30
Back*	1	2.5	12	30
Front	1	2.5	36	91
Vent	Per venting supplier's instructions			

*When vent and/or air is connected to the back, 36" (91cm) is suggested.

Motor Electrical Data

Model Numbers	WATER CATEGORY			Current (Amps)		
	Soft	Power (HP) Normal	Hard	Soft	Normal	Hard
BWCV0200	1/8	1/8	3/4	2.8	2.8	7.2
BWCV0300	1/8	1/8	3/4	2.8	2.8	7.2
BWCV0400	1/8	1/8	3/4	2.8	2.8	7.2
BWCV0500	1/8	1/8	3/4	2.8	2.8	7.2
BWCV0750	1/8	1/8	3/4	2.8	2.8	7.2
BWCV1000	1/8	1/8	3/4	2.8	5.2	7.2
BWCV1250	1/8	1/8	3/4	2.8	5.2	7.2
BWCV1500	1/8	3/4	3/4	2.8	7.2	7.2
BWCV1750	3/4	3/4	3/4	7.2	7.2	7.2
BWCV2000	1	1	1	9.8	9.8	9.8



Ambler, PA

For U.S. and Canada field service, contact your professional installer or local Bradford White sales representative.

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