DISPLAY THIS CARD ON PRINCIPAL FRONTAGE OF WORK

CITY OF PORTLAND

BUILDING PERMIT

This is to certify that ANDREA S LAPLANTE **Located At** 71 WEST ST

Job ID: 2012-05-3915-HVAC **CBL:** 063- C-015-001

has permission to Install 3 Viessman 100 WBIB-35 wall mounted gas fired condensing boilers with direct wall vents **provided that the person or persons, firm or corporation accepting this permit shall comply with all of the provisions of the Statues of Maine and of the Ordinances of the City of Portland regulating the construction, maintenance and use of the buildings and structures, and of the application on file in the department.**

Notification of inspection and written permission procured before this building or part thereof is lathed or otherwise closed-in. 48 HOUR NOTICE IS REQUIRED.	A final inspection must be completed by owner before this building or part thereof is occupied. If a certificate of occupancy is required, it must be

Fire Prevention Officer **Code Enforcement Officer / Plan Reviewer** 5/15/12

THIS CARD MUST BE POSTED ON THE STREET SIDE OF THE PROPERTY
PENALTY FOR REMOVING THIS CARD

City of Portland, Maine - Building or Use Permit Application

389 Congress Street, 04101 Tel: (207) 874-8703, FAX: (207) 8716

Job No:	Date Applied:	CBL:	
2012-05-3915-HVAC	**5/3/2012**	**063- C-015-001**	
Location of Construction: **71 WEST ST**	Owner Name: **ROBERT & CARRIE LEBLANC**	Owner Address: **71 WEST ST** **PORTLAND, ME 04102**	Phone:
Business Name:	Contractor Name: **Breggy Oil**	Contractor Address: **84 Congress St., Portland ME 04101**	Phone: **(207) 772-4631**
Lessee/Buyer's Name:	Phone:	Permit Type: **HVAC - HVAC**	Zone: **R-6**
Past Use: Three family	Proposed Use: Same – three family – install three wall mounted Viessman 100 WBIB-35 gas fired condensing boilers in basement	Cost of Work: **31000.00** Fire Dept: ___ Approved w/ conditions ___ Denied ___ N/A Signature: Capt. Leone	CEO District: Inspection: Use Group R-2 Type: HVAC Signature: 6/15/12
Proposed Project Description: **Install 3 Viessman Appliances; per 3 units**		Pedestrian Activities District (P.A.D.)	
Permit Taken By:			

1. This permit application does not preclude the Applicant(s) from meeting applicable State and Federal Rules.
2. Building Permits do not include plumbing, septic or electrial work.
3. Building permits are void if work is not started within six (6) months of the date of issuance. False informatin may invalidate a building permit and stop all work.

Zoning Approval

Special Zone or Reviews	Zoning Appeal	Historic Preservation
___ Shoreland	___ Variance	___ Not in Dist or Landmark
___ Wetlands	___ Miscellaneous	___ Does not Require Review
___ Flood Zone	___ Conditional Use	___ Requires Review
___ Subdivision	___ Interpretation	___ Approved
___ Site Plan	___ Approved	✓ Approved w/Conditions
	___ Denied	___ Denied
___ Maj ___ Min ___ MM		
Date: Ok w/ conditions 5/7/12 TBM	Date:	Date: 5/10/12 D. Andrews

CERTIFICATION

I hereby certify that I am the owner of record of the named property, or that the proposed work is authorized by the owner of record and that I have been authorized by the owner to make this application as his authorized agent and I agree to conform to all applicable laws of this jurisdiction. In addition, if a permit for work described in the appication is issued, I certify that the code official's authorized representative shall have the authority to enter all areas covered by such permit at any reasonable hour to enforce the provision of the code(s) applicable to such permit.

SIGNATURE OF APPLICANT ADDRESS DATE PHONE

RESPONSIBLE PERSON IN CHARGE OF WORK, TITLE DATE PHONE

BUILDING PERMIT INSPECTION PROCEDURES

Please call 874-8703 or 874-8693 (ONLY)

or email: buildinginspections@portlandmaine.gov

With the issuance of this permit, the owner, builder or their designee is required to provide adequate notice to the city of Portland Inspections Services for the following inspections. Appointments must be requested 48 to 72 hours in advance of the required inspection. The inspection date will need to be confirmed by this office.

- **Please read the conditions of approval that is attached to this permit!! Contact this office if you have any questions.**
- **Permits expire in 6 months. If the project is not started or ceases for 6 months.**
- **If the inspection requirements are not followed as stated below additional fees may be incurred due to the issuance of a "Stop Work Order" and subsequent release to continue.**

Final at completion of installation

The project cannot move to the next phase prior to the required inspection and approval to continue, REGARDLESS OF THE NOTICE OF CIRCUMSTANCES.

IF THE PERMIT REQUIRES A CERTIFICATE OF OCCUPANCY, IT MUST BE PAID FOR AND ISSUED TO THE OWNER OR DESIGNEE BEFORE THE SPACE MAY BE OCCUPIED.

PORTLAND MAINE

Strengthening a Remarkable City, Building a Community for Life • *www.portlandmaine.gov*

Acting Director of Planning and Urban Development
Gregory Mitchell

Job ID: 2012-05-3915-HVAC **Located At:** 71 WEST ST **CBL:** 063- C-015-001

Conditions of Approval:

Zoning

1. ANY exterior work requires a separate review and approval thru Historic Preservation. This property is located within an Historic District.
2. This property shall remain a three family dwelling. Any change of use shall require a separate permit application for review and approval.

Historic

1. Approved based on understanding that vents will be located on rear, not side, of building.
2. Vents to be painted out to match color of brick.

Fire

1. Installation shall comply with City Code Chapter 10.
2. Fuel-fired boilers shall be protected in accordance with NFPA 101, *Life Safety Code*.
3. Installation shall comply with NFPA 211, *Standard for Chimneys, Fireplaces, Vents, and Solid Fuel–Burning Appliances*;
4. NFPA 54, *National Fuel Gas Code*;
5. NFPA 90A, *Standard for the Installation of Air-Conditioning and Ventilating Systems*;
6. NFPA 91, *Standard for Exhaust Systems for Air Conveying Vapors, Gases, Mists, and Noncombustible Particulate Solids*;
7. NFPA 70, *National Electrical Code*; and the manufacturer's published instructions.

Building

1. This appliance/stove shall be installed, operated and maintained per the manufacturer's specifications and the UL listing.
2. Separate permits are required for any electrical, plumbing, sprinkler, fire alarm HVAC systems, heating appliances, commercial hood exhaust systems and fuel tanks. Separate plans may need to be submitted for approval as a part of this process.
3. The installation must comply with the State of Maine gas regulations.

FILL IN AND Sign WITH INK

Extend 5/3/12 (B3)

APPLICATION FOR PERMIT
HEATING OR POWER EQUIPMENT

#2012-05-3915-HVAC

To the INSPECTOR OF BUILDINGS, PORTLAND, ME.

The undersigned hereby applies for a permit to install the following heating, cooking or power equipment in accordance with the Laws of Maine, the Building Code of the City of Portland, and the following specifications:

Location / CBL 71 West St. 063 C015 Use of Building ---------- Date _____

Name and address of owner of appliance ROBERT & CARRIE LEBLANC

71 West ST.

Installer's name and address BREGGY OIL & PROPANE 84 Congress St.

PORTLAND ---------- Telephone 207-772-4631

Location of appliance:
- [X] Basement
- [ ] Floor
- [ ] Attic
- [ ] Roof

Type of Fuel:
- [X] Gas (3X)
- [ ] Oil
- [ ] Solid

Appliance Name: VIESSMAN 100 WB1B-35

U.L. Approved [X] Yes [ ] No

Will appliance be installed in accordance with the manufacture's installation instructions? [X] Yes [ ] No

IF NO Explain: _____

The Type of License of Installer:
- [ ] Master Plumber # _____
- [ ] Solid Fuel# ----------
- [ ] Oil# ----------
- [X] Gas# PNT 4546
- [ ] Other- _____

Type of Chimney:
- [ ] Masonry Lined
  Factory built ----------
- [ ] Metal
  Factory Built U.L. Listing #, _____
- [X] Direct Vent
  Type CPVC UL# _____

RECEIVED
MAY 03 2012
Dept. of Building Inspections
City of Portland Maine

Type of Fuel Tank
- [ ] Oil
- [ ] Gas

S eofTank _____

Number of Tanks ----------

Distance from Tank to Center of Flame _____ feet.

Cost of Work: ~~$30,312.00~~ 31,000

Permit Fee: $ 330.00 Historic 50.00

Approved

Fire: _____

Ele.: ----------

Bldg.: ----------

Approved with Conditions

[ ] See attached letter or requirement

_____ Inspector's Signature

_____ Date Approved

Signature of Installer ----------

White - Inspection Yellow - File Pink - Applicant's Gold - Assessor's Copy

71 West St.

Rear of Building

71 WEST ST.

View from STREET

Pipes will Be AT <u>BACK</u> of Building

2" PVC Pipe

Technical Data Manual

Model Nos. and pricing: see Price List

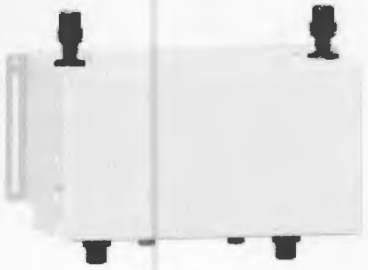
VIESMANN

Vitodens 100-W
WB1B Series
Wall-Mounted, gas-fired condensing boiler
with optional on demand hot water Combi***PLUS*** Kit

Heating input: 37 to 118 MBH
10.8 to 34.5 kW

VITODENS 100-W

Vitodens 100-W, WB1B
(with pre-installed coaxial vent pipe adaptor)



Combi***PLUS*** Kit

Gas-Fired Wall-Mounted Condensing Boiler with modulating stainless steel MatriX cylinder burner, stainless steel Inox-Radial heat exchanger for room air independent operation (using a direct vent system) or room air dependent operation. Optional Combi***PLUS*** Kit providing reliable on demand hot water without a DHW tank is available.

5601 189 v1.1 09/2011

Product Information

Equipped with a Viessmann stainless steel heat exchanger for lasting performance and reliability and a modulating MatriX cylinder gas burner, the Vitodens 100-W wall-mounted condensing boiler is the perfect combination of value, quality and Viessmann technology.

The benefits at a glance:

- **Outstanding efficiency**
  of 95.2 % A.F.U.E. on all models.

- **Lasting performance**
  with Viessmann-made SA240 316Ti stainless steel Inox-Radial heat exchanger constructed to ASME Section IV and CSA B51.

- **Low-emission**
  with fully-modulating stainless steel MatriX cylinder burner. Factory calibration eliminates adjustments in the field.
  < 29 ppm NOx (at 3% O_2)
  < 40 ppm CO (at 3% O_2)

- **Control variety**
  Integrated boiler control interfaces with any level of external control - from room thermostat to outdoor reset and more.

- **Compact, lightweight wall mount design**
  and zero clearance to combustibles make it a great choice for limited-space installations.

- **Extremely quiet operation**
  quieter than most refrigerators.
  < 50 dBA [at 3.3 ft. (1 meter)]

- **Easy installation, service and maintenance**
  with all pipe connections located at the bottom and serviceable components (including electrical connections) easily accessible from the front.

- **Multiple venting options**
  - Horizontal or vertical sealed combustion coaxial, PP(s) vent system (Viessmann supplied).
  - Horizontal, vertical or hybrid sealed combustion double-pipe CPVC vent system (field supplied).
  - Horizontal or vertical single pipe CPVC vent system (field supplied).
  - Horizontal or vertical single or double pipe PP(s), flexible vent system (Viessmann supplied).

- **Suitable for high altitude levels**
  of up to 10,000 ft. (3,000 m) without deration.

- **Built-in automatic frost protection**
  allows boiler to be shut off for an extended period of time while protecting it against freeze-up.

- **Reliable on demand hot water**
  with an optional CombiPLUS kit (no DHW tank required).
  - Plate type heat exchanger
  - Built-in diverting valve
  - Built-in Grundfos 3-speed pump
  - Built-in pressure bypass valve
  - Built-in water hammer arrester
  - Built-in flow sensor
  - Built-in temperature sensor
  - Supplied with a pressure relief valve rated at 150 psi

  Note: Check the boiler rating plate on the Vitodens 100-W, models WB1B-26 or WB1B-35 to ensure it states compatibility with the CombiPLUS kit.

- **Limited lifetime warranty**
  in residential applications.

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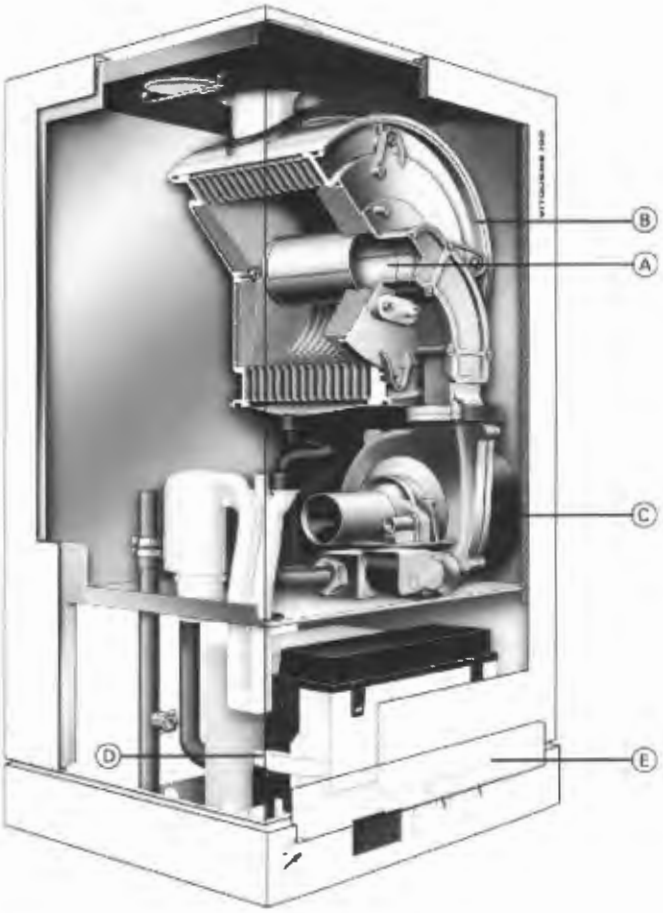
Product Information

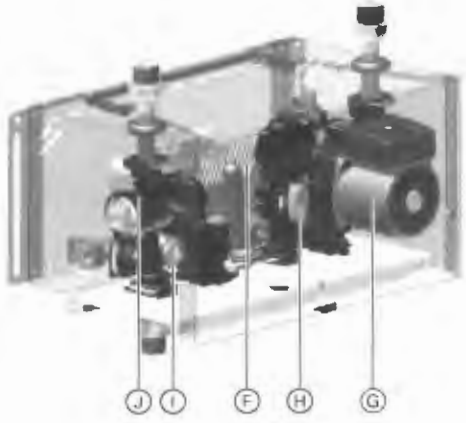


Boiler cross-section

Legend

Ⓐ Stainless steel MatriX cylinder burner
Ⓑ Inox-Radial stainless steel heat exchanger
Ⓒ Burner blower
Ⓓ Gas and hydronic connections
Ⓔ Boiler control

Standard Equipment:
Wall-mount boiler and installation fittings c/w 30 psi pressure relief valve, pressure gage, gas shut-off valve, two fill/drain valves, all mounting hardware, outdoor temperature sensor, and LP conversion kit.



CombiPLUS cross-section

Legend

Ⓕ Plate-type heat exchanger
Ⓖ Boiler / DHW pump
Ⓗ Flow sensor
Ⓘ Pressure by-pass valve
Ⓙ Diverting valve

Note: Products may not look exactly as illustrated.

Specifications

Standard heating boiler

Boiler Model No.		WB1B 26	WB1B 35
Natural gas and LPG			
CSA input	MBH	37-91	37-118
	kW	10.8-26.7	10.8-34.6
CSA output/DOE [1]	MBH	34-83	34-108
heating capacity	kW	9.9-24.3	9.9-31.6
Net I=B=R rating [2]	MBH	72	94
Heat exchanger surface area	$ft.^2$	10.23	10.23
	m^2	0.95	0.95
Min. gas supply pressure			
Natural gas	"w.c.	4	4
LPG	"w.c.	10	10
Max. gas supply pressure [3]			
Natural gas and LPG	"w.c.	14	14
A.F.U.E.	%	95.2	95.2
Weight	lbs	78	78
	kg	34.1	34.1
Shipping weight	lbs	95	95
	kg	43	43
Boiler water content	USG	0.87	0.87
	L	3.3	3.3
Boiler max. flow rate [4]	GPM	6.2	6.2
	L/hr.	1400	1400
Max. operating pressure			
(max. allowable working pressure)	psig	45	45
at 210° F (99° C)	bar	3	3
Boiler water temperature			
- Adjustable high limit (AHL) range			
- space heating (steady state)	°F (°C)	86 to 176 (30 to 80)	
- DHW production (set-point)	°F (°C)	176 (80)	
- Fixed high limit (FHL)	°F (°C)	210 (99)	
Boiler connections			
Boiler heating supply and return	NPTM (male) "	¾"	¾"
Pressure relief valve	NPTF (female) "	¾"	¾"
Drain valve	(male thread) "	¾"	¾"
Dimensions			
Overall depth	inches	14⅛	14⅛
	mm	360	360
Overall width	inches	15 ¾	15 ¾
	mm	400	400
Overall height	inches	28 ½	28½
	mm	725	725

1 *Output based on 140° F (60° C), 120° F (49° C) system supply / return temperature.*

2 *Net I=B=R rating based on piping and pick-up allowance of 1.15.*

3 *If the gas supply pressure exceeds the maximum gas supply pressure value, a separate gas pressure regulator must be installed upstream of the heating system.*

4 *See "System Flow Rates" on pages 20 to 25 in this manual.*

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Specifications *(continued)*

Standard heating boiler *(continued)*

	Boiler Model No.	WB1B 26	WB1B 35
Gas supply connection	NPTF (female)"	¾	¾
Flue gas *5* Temperature at boiler return temperature of 86° F (30° C)			
- at rated full load	°F (°C)	127 (53)	131 (55)
- at rated partial load	°F (°C)	90 (32)	90 (32)
Temperature at boiler return temperature of 140° F (60° C)	°F (°C)	167 (75)	172 (78)
Flue gas value Mass flow rate (of flue gas)			
- at rated full load	lbs/h	79.2	100.1
	kg/h	36.0	45.5
- at rated partial load	lbs/h	33.0	33.0
	kg/h	15.0	15.0
Available draught	Pa	100	100
	mbar	1.0	1.0
Flue gas temperature sensor limit	°F (°C)	230 (110)	230 (110)
Average condensate flow rate *6* with natural gas			
- T_S/T_R = 122 / 86° F (50 / 30° C)	USG/day	1.95-2.3	2.5-2.8
	L/day	8-9	9.4-10.5
Condensate connection *7*	hose nozzle Ø in	1	1
Boiler flue gas connection *8*	Ø in (mm)	2⅜ (60)	2⅜ (60)
Combustion air supply connection *8* coaxial	outer Ø in (mm)	4 (100)	4 (100)
single		2⅜ (60)	2⅜ (60)
Noise level (at 1 meter)			
- at full load	(dB)	47	49
- at partial load	(dB)	40	42
High altitude (factory set) *9*	ft. (m)	0-5,000 (0-1,500)	0-5,000 (0-1,500)

5 Measured flue gas temperature with a combustion air temperature of 68° F (20° C).

6 Based on typical boiler cycles, including partial load conditions.

7 Requires 1"(25) mm tubing. See Vitodens 100-W Installation Instructions for details.

8 For detailed information refer to the Vitodens Venting System Installation Instructions.

9 For 5,000 to 10,000 ft. (1,500 to 3,048 m) operation, a control programming change is required. Refer to the Installation and Service Instructions for details.

▶ *For information regarding other Viessmann System Technology componentry, please reference documentation of respective product.*

Specifications *(continued)*

CombiPLUS (Integrated with the Boiler)

	Boiler Model No.	WB1B 26	WB1B 35
DHW supply temperature	°F (°C)	140 (60)	140 (60)
Continuous draw rate *1*	USG/h	99	147
with DCW temp. of 56° F (13° C)	L/h	374	556
Continuous draw rate *2*	USG/h	156	216
at Δ t = 63° F (35K)	L/h	589	800
Maximum allowable working pressure (potable water)	psi	150	150
Test pressure	psi	300	300
Connections, DHW and DCW	NPTM (male) "	½"	½"
Connections to boiler supply/return and to heating supply/return	NPTM (male) "	¾"	¾"
Dimensions			
Overall depth	inches	9.8	9.8
	mm	250	250
Overall width	inches	17	17
	mm	432	432
Overall height	inches	8.7	8.7
	mm	223	223
Height with pipe connector	inches	13	13
	mm	331	331
Integrated pump flow rate DHW production @ 23 ft. (9.8 m) Head pressure	USG/min.	5.63	5.63
	L/h	1278	1278
Heating system operation with system side additional drop in pressure of max. 6 ft. of water (1.8 m)	USG/min.	6.2	6.2
	L/h	1408	1408
Weight	lbs	25	25
	kg	11	11

1 Based on boiler max. output and boiler supply temperature of 176° F (80° C).

2 DCW and DHW temperature rise would be proportional. Maximum DHW supply temperature is 140° F (60° C).

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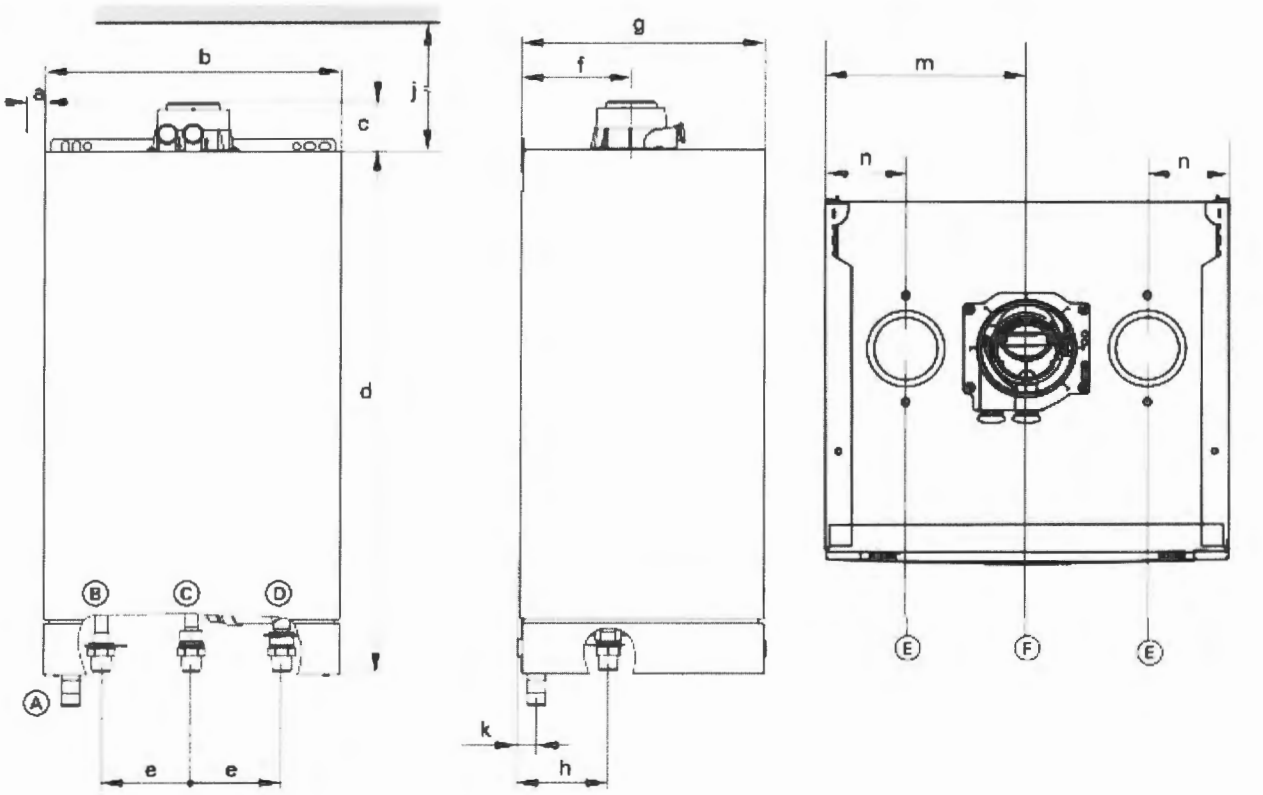
Boiler dimensions without bottom piping connections



Front view *Side view* *Top view*

Connections Vitodens 100-W, WB1B 26, 35

Legend

Connections

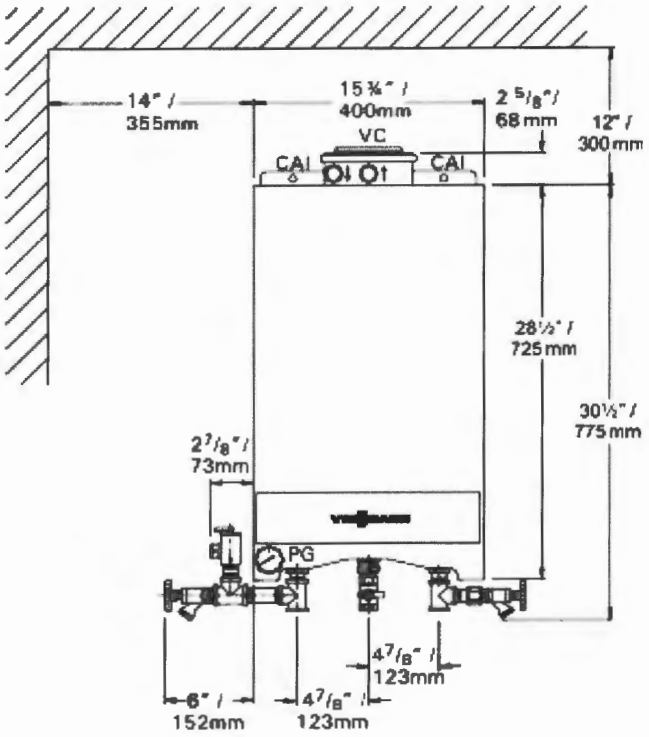
Ⓐ Condensate drain, plastic hose Ø 0.87" (22 mm)
Ⓑ Boiler water supply, NPT ¾" (male thread)
Ⓒ Gas connection, NPT ¾" (male thread)
Ⓓ Boiler water return, NPT ¾" (male thread)
Ⓔ Combustion air opening for double pipe system
Ⓕ Combustion air opening for coaxial system

Note: If using the optional CombiPLUS see page 9.

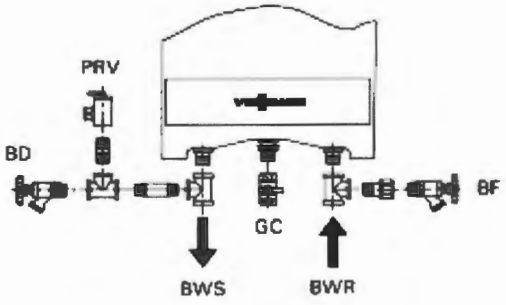
Dimensions

a See illustration for dimensions
b 15¾" (400 mm)
c 2⅝" (68 mm)
d 28½" (725 mm)
e 4⅞" (123 mm)
f 6⅛" (156 mm)
g 14⅛" (360 mm)
h 5" (125 mm)
j 12" (305 mm)
k 1¼" (31 mm)
m 7⅞" (200 mm)
n 3⅛" (80 mm)

Boiler dimensions with piping connections



Piping connections for Vitodens 100-W, WB1B 26 and 35 (factory supplied)



Legend

BWR	Boiler water return, ¾"
BWS	Boiler water supply, ¾"
BD	Boiler drain
BF	Boiler fill
GC	Gas connection, ¾" NPTM (male thread)
PRV	Pressure relief valve
PG	Pressure gage
VC	Venting connection
CAI	Combustion air inlet connection (optional)

Note: If using the optional CombiPLUS see page 9.

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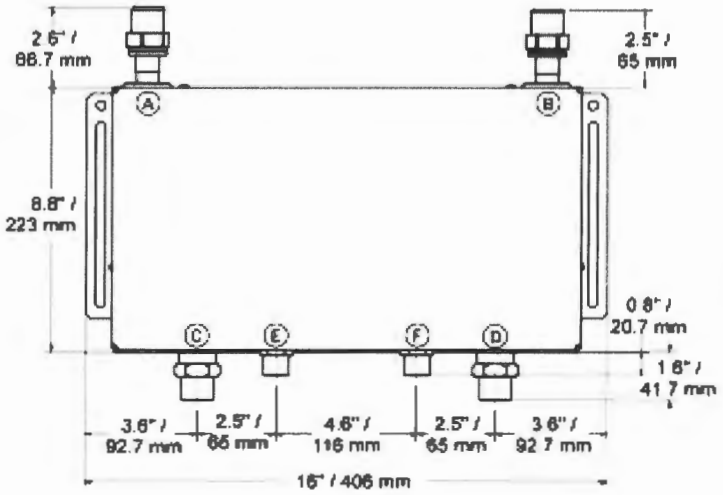
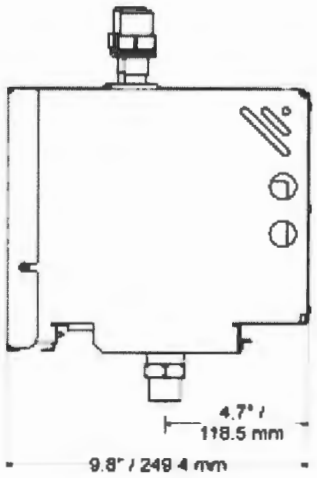
CombiPLUS dimensions and piping connections

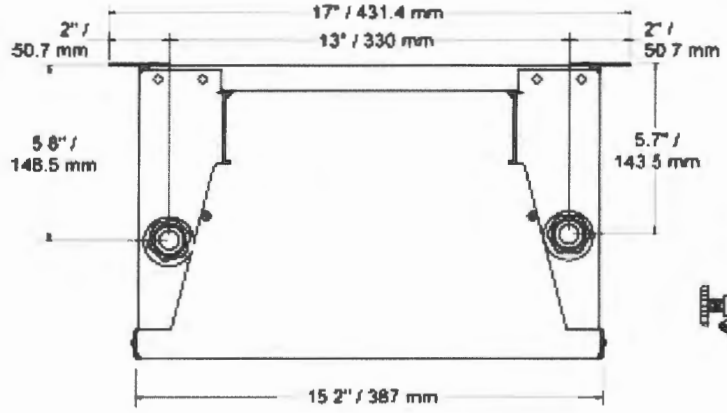
CombiPLUS Connections



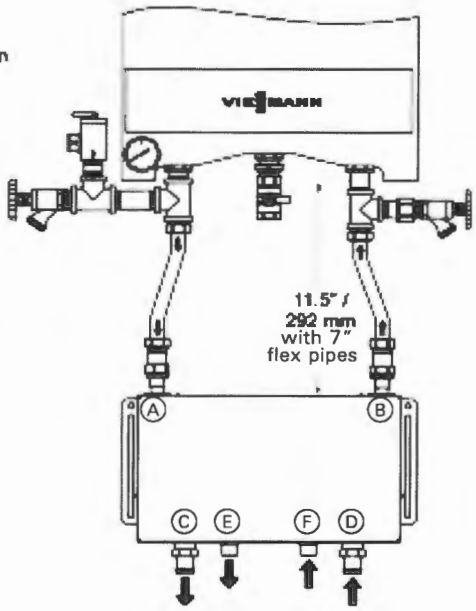
Front view



Side view



Top view



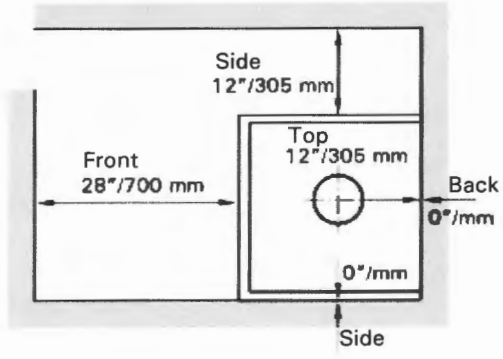
Front view

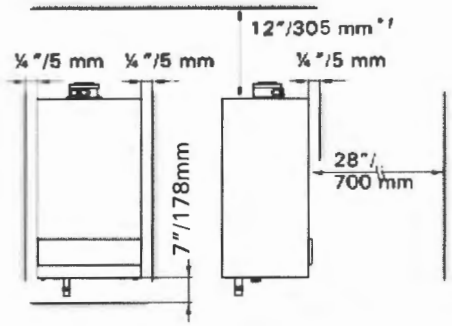
Legend

- Ⓐ Boiler water supply, NPTM ¾" (male thread)
- Ⓑ Boiler water return, NPTM ¾" (male thread)
- Ⓒ System water supply, NPTM ¾" (male thread)
- Ⓓ System water return, NPTM ¾" (male thread)
- Ⓔ DHW, NPTM ½" (male thread)
- Ⓕ DCW, NPTM ½" (male thread)

Boiler minimum clearances

Recommended minimum boiler service clearances





Recommended minimum boiler and CombiPLUS Kit clearances to combustibles

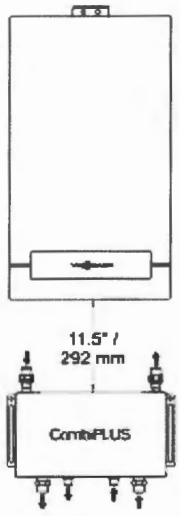
Top	Front	Rear	Left	Right	Vent pipe *1
0	0 AL, CL	0	0	0	0

AL = Alcove
CL = Closet

**1 Refer to the Installation Instructions of the Vitodens Venting System for details.*

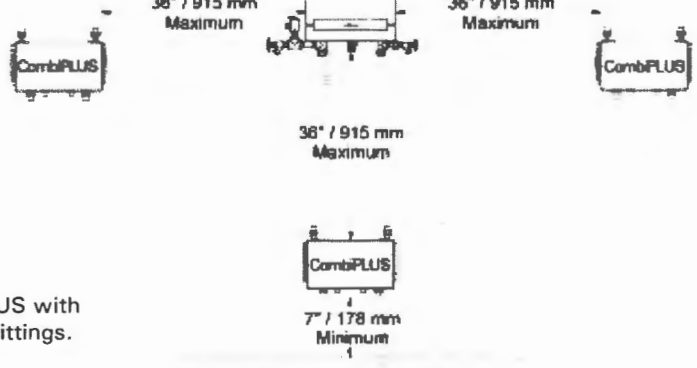
Note: The Vitodens 100-W boiler has passed the zero inches vent clearance to combustibles testing requirements dictated by the boiler latest Harmonized Standard ANSI Z21.13. CSA 4.9.2007 and therefore is listed for zero clearance to combustibles when vented with a single-wall special venting system (AL-29-4C material) or UL/ULC-listed CPVC/PP(s) gas vent material. The zero inches vent clearance to combustibles for the Vitodens 100-W boiler supercedes the clearance to combustibles listing that appears on the special venting system label.

CombiPLUS installation options



Min. distance between the boiler and CombiPLUS with Viessmann supplied 7" flex piping connection fittings.

Note: The maximum distance between the boiler and the CombiPLUS is restricted by the communication cable to 36" (915 mm).



Shown is the maximum distance between the boiler and CombiPLUS using field supplied fittings and pipes.

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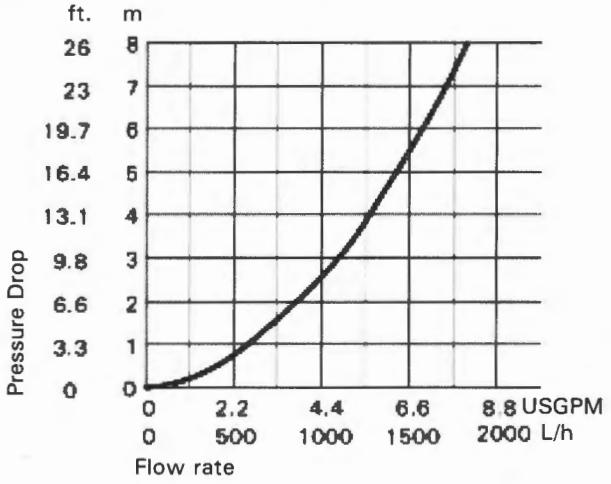
Heating circuit pumps

Waterside Flow (boiler circuit)

The Vitodens 100-W is designed only for closed loop, forced circulation hot water heating systems.

Pressure drop (primary circuit) of Vitodens 100-W



A low-loss header **must** be used when the **system** flow rate exceeds the maximum (or minimum) flow rate of the Vitodens 100-W boiler. An alternative method may be used, such as primary secondary piping using closely spaced tees.

A low-loss header offers additional benefits not provided by a pair of closely spaced tees. Viessmann strongly recommends and prefers the use of a low-loss header over closely spaced tees. Please see page 18 for details.

Use standard friction loss method for pipe sizing. Observe boiler maximum and minimum flow rate limitations. If system flow rate exceeds boiler maximum flow rate (as stated on page 18) or if system flow rate is unknown, Viessmann strongly recommends the installation of a low-loss header. See page 18 for low-loss header information or refer to the Vitodens Venting System Installation Instructions.

Heating circuit pumps (field supplied)

Recommended heating pumps with Vitodens 100-W, WB1B 26, 35 (without an optional CombiPLUS).

- Grundfos 15-58 (3-speed)
- Taco 00R
  or equivalent

Refer to the graph for the proper waterside boiler friction loss calculations.

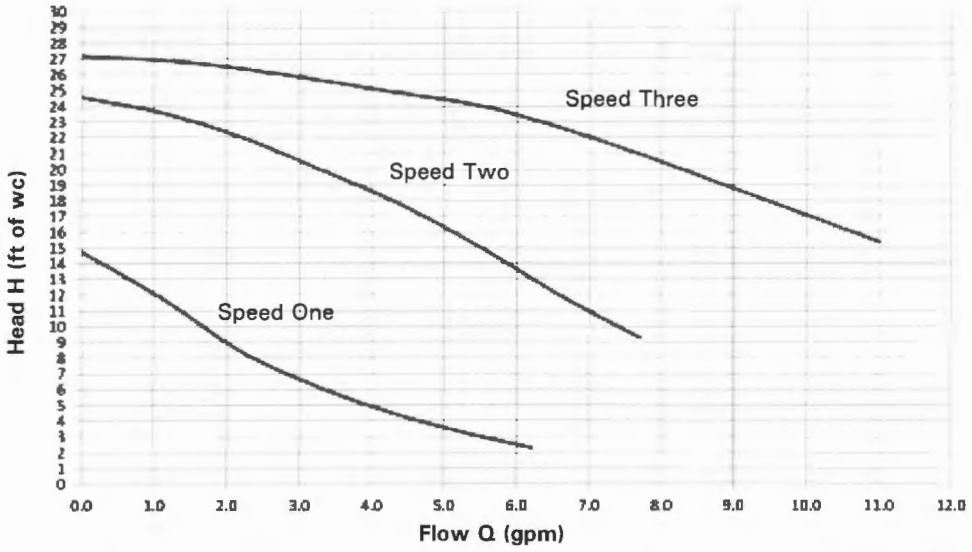
IMPORTANT

Pump selection must be based on accurate system flow and pressure drop calculations (including DHW sizing).

Heating circuit pumps *(continued)*

CombiPLUS **built-in pump**

Grondfos UPS15-78 three speed heating circuit/DHW production pump for Vitodens 100 WB1B 26, 35 boilers (in the factory setting, the pump speed is preset to 'speed three')

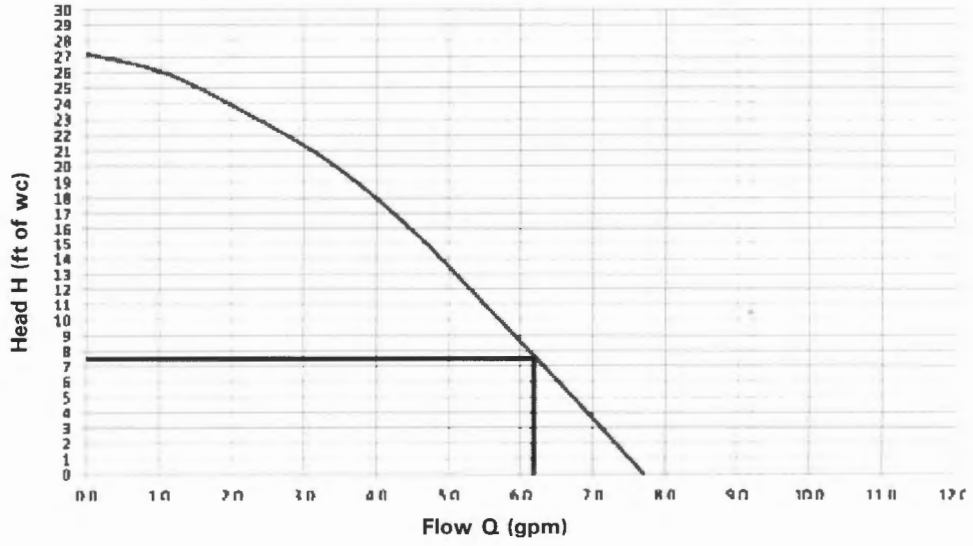


Performance chart courtesy of Grundfos

Pump Model	**Grundfos UPS15-78**	
Rated voltage	VAC	115
Rated current	A max.	1.15
	A min.	0.8
Capacitor	μF	8
Power consumption	W max.	130
	W min.	80

CombiPLUS **built-in pump, Grundfos UPS15-78 residual head pressure**

Residual head of built-in three speed pump used with Vitodens 100 WB1B 26, 35



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Heating circuit pumps *(continued)*

DHW Production Planning

With the CombiPLUS for instantaneous DHW heating or with DHW connections for DHW production via a stand-alone DHW storage tank, the Vitodens 100 boiler series offers the right solution for every need.

Various factors must be taken into account when designing the DHW system, and when deciding between the DHW production with integrated CombiPLUS and the standard heating boiler with DHW production via a stand-alone DHW storage tank.

Such factors are:

- DHW requirement, level of comfort and convenience
- Number of draw points
- Distance of draw points from the boiler/DHW storage tank
- System retrofit
- Space requirements

Options

		Gas-fired boiler with instantaneous CombiPLUS production	Gas-fired standard heating boiler with stand-alone DHW storage tank
DHW requirement, level of comfort and convenience	DHW requirement for an apartment	+	+
	DHW requirement for a single-family house	0	+
	Central DHW requirement for a multi-family house	-	+
	Decentralized DHW requirement for a multi-family house	+	+
Number of draw points	One draw point	+	0
	Several draw points, non-simultaneous use	+	0
	Several draw points, simultaneous use	-	+
Distance of draw points from the boiler/ DHW storage tank	Up to 23 ft. (7 m) (without DHW recirculation line)	+	-
	With DHW recirculation line	-	+
System retrofit	DHW storage tank already installed	-	+
	Replacement of existing Combi boiler	+	-
Space requirements	Minimal space available (installation in alcove)	+	0
	Adequate space available (boiler room)	+	+

\+ (recommended)
0 (recommended in certain cases)
\- (not recommended)

Heating circuit pumps *(continued)*

Domestic Hot Water Production via Instantaneous DHW Plate Heat Exchanger (CombiPLUS)

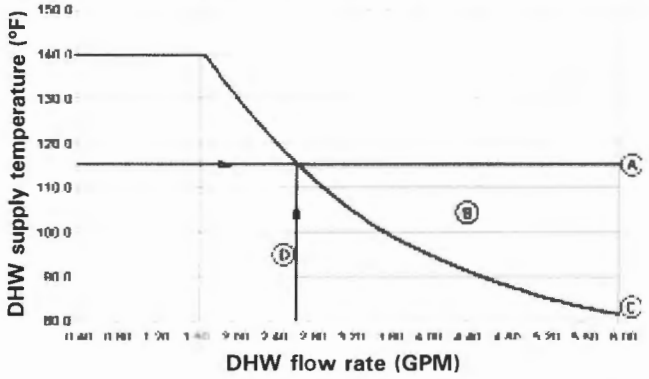
The CombiPLUS is equipped with an electronically controlled instantaneous DHW plate heat exchanger.
The comfort control function (if selected) ensures that the instantaneous DHW plate heat exchanger is kept warm.
This translates into immediate availability of domestic hot water at any required temperature level.

Technical Data DHW Plate Heat Exchanger

See page 5 in this manual for technical data.

CombiPLUS **heat exchanger performance**

DHW supply temperature for WB1B 26 (with mixed water)



Legend

Ⓐ DHW output temperature
Ⓑ DHW/DCW mixing zone
Ⓒ DHW output temperature at the tap
Ⓓ Max. flow (restriction by flow limiter)

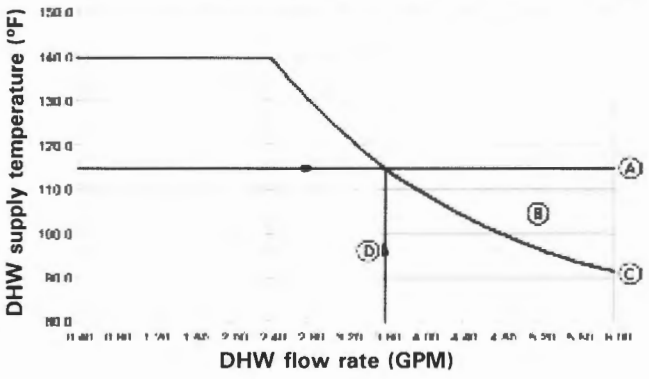
This chart illustrates the changes in the outlet temperature, subject to the flow rate at the tap.

If greater volume (max. flow rate through heat exchanger = 2.6 GPM) of water is required, cold water needs to be mixed which reduces the outlet temperature.

Curve is only applicable for a *DCW inlet temperature of 56° F* and a boiler input of 91,000 MBH (Vitodens 100-W, WB1B 26).

Max. recovery rate @ DHW temperature of 140° F = 1.7 GPM
Min. flow through the heat exchanger for boiler start = 0.4 GPM

DHW supply temperature for WB1B 35 (with mixed water)



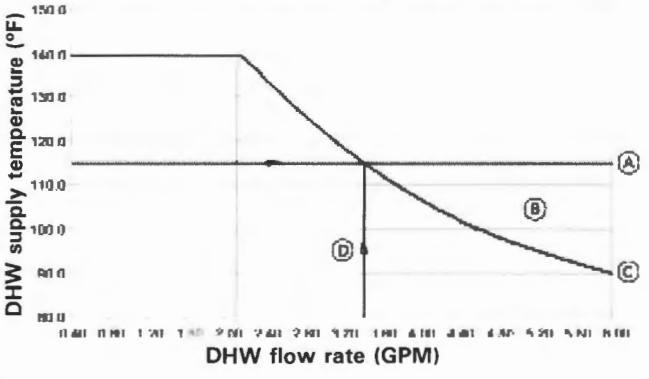
This chart illustrates the changes in the outlet temperature, subject to the flow rate at the tap.

If greater volume (max. flow rate through heat exchanger = 3.6 GPM) of water is required, cold water needs to be mixed which reduces the outlet temperature.

Curve is only applicable for a *DCW inlet temperature of 56° F* and a boiler input of 118,000 MBH (Vitodens 100-W, WB1B 35).

Max. recovery rate @ DHW temperature of 140° F = 2.4 GPM
Min. flow through the heat exchanger for boiler start = 0.4 GPM

DHW supply temperature for WB1B 35 (with mixed water)



This chart illustrates the changes in the outlet temperature, subject to the flow rate at the tap.

If greater volume (max. flow rate through heat exchanger = 3.4 GPM) of water is required, cold water needs to be mixed which reduces the outlet temperature.

Curve is only applicable for a *DCW inlet temperature of 40° F* and a boiler input of 118,000 MBH (Vitodens 100-W, WB1B 35).

Max. recovery rate @ DHW temperature of 140° F = 2.14 GPM
Min. flow through the heat exchanger for boiler start = 0.4 GPM

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Mounting

Domestic Hot Water Production via DHW Storage Tank

Vitodens 100-W boilers can be used in conjunction with the stand-alone DHW storage tanks offered by Viessmann (a separate DHW controller should be field supplied).
All Viessmann DHW storage tanks sold in North America are available in "Vitosilver" finish only.

Size and select the DHW storage tank based on the forecast DHW consumption of the building in question.

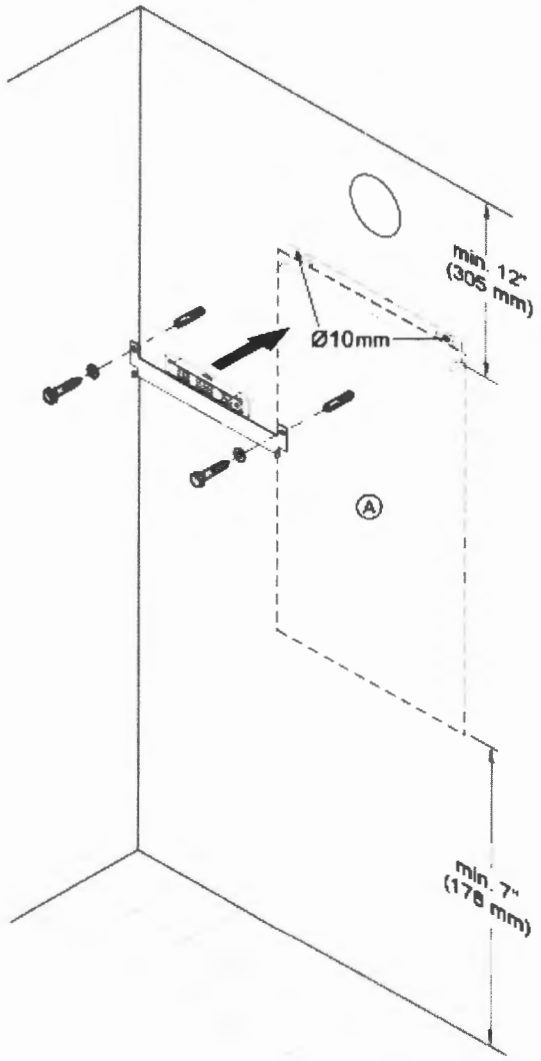
For further technical information on DHW storage tanks, see the Vitocell-V Technical Data Manuals.

Wall Mounting Information

The Vitodens 100-W (model WB1B 26 and 35) comes with a template, which allows you to easily mark the location of the screws for the mounting bracket and the location of the flue gas pipe on the wall (Viessmann coaxial PPS vent system only).

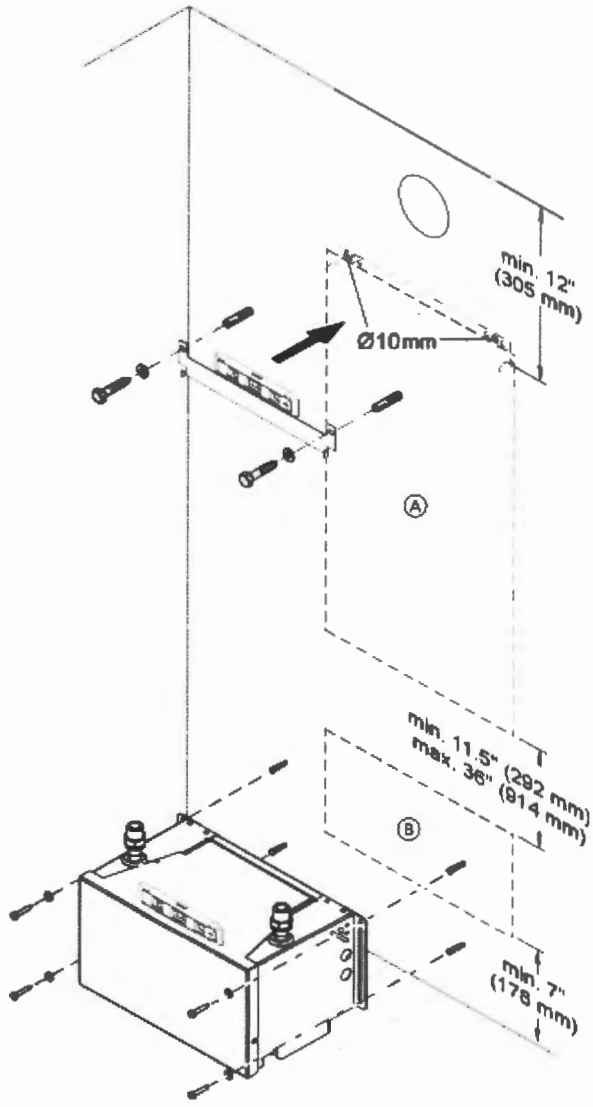
The connection to the heating circuits must be made on site (installation fittings are supplied in the Installation Fittings package supplied with the boiler).

Mounting Vitodens 100-W boiler



Legend
Ⓐ Boiler mounting template

Mounting Vitodens 100-W boiler and the CombiPLUS



Legend
Ⓐ Boiler mounting template
Ⓑ CombiPLUS mounting template

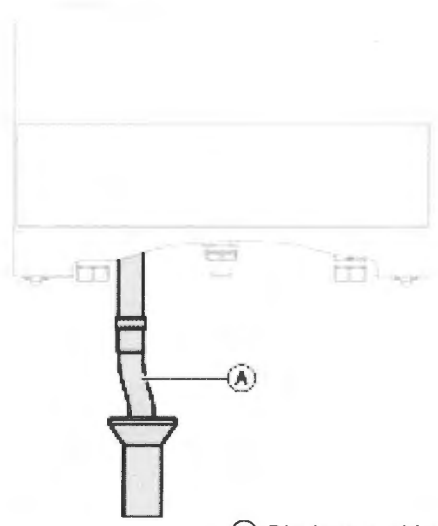
Condensate

Condensate Connection

Install the condensate drain pipe (Ø 7/8" / 22 mm) with a suitable gradient (min. 2.5%).
Discharge condensate from the boiler into the drainage system, either directly or (if required) via a neutralization unit (accessory).

Condensate connection for Vitodens 100-W

- model WB1B 26, 35



Ⓐ Discharge tubing

The condensate drain of the Vitodens 100-W boiler is equipped with a built-in siphon trap in order to keep flue gases from being discharged via the condensate drain.

IMPORTANT

Pipe ventilation must take place between the siphon trap and the neutralization unit (if applicable).

Condensate Drainage and Condensate Neutralization

The condensate formed both in the condensing boiler and in the flue gas pipe must be discharged into the public sewage system in accordance with all applicable local regulations. The condensate produced by a gas-fired heating system has a pH value between 3 and 4.

Some local codes may require the use of a separate neutralization unit to treat the aggressive and corrosive condensate.
With a neutralization unit installed, all condensate from the boiler and the flue gas pipe enters into the neutralization unit where it is treated and released into the public sewage system with a safe pH value of above 6.5.

The use of neutralization granulate (performing the neutralizing process) is dependent on the operation of the heating system. To determine the required refill amount, check granulate level several times during the first year of operation. In some cases one granulate fill may last an entire year.

Contact Viessmann to order a neutralization unit for the Vitodens 100-W boiler.
See Viessmann Price List for order information.

The condensate discharge outlet to the drainage system connection must be clearly visible. It must be installed with a suitable gradient and provided with a stench trap.

If the condensate outlet of the Vitodens 100-W boiler is lower than the drain, a condensate pump must be used.

Only corrosion-resistant materials may be used for condensate drainage purposes (e.g. braided hose).
Do not use galvanized materials or materials containing copper for piping, couplings etc. The condensate drain must have a trap.

Please note that other requirements may apply depending on local regulations and/or project-specific details.

It is advisable to contact your local waterworks office (authority responsible for waste water regulations) well before commencing with the installation of the neutralization unit in order to establish details of local regulations that apply.

The following table shows the concentration of (effluent) substances (e.g. heavy metals) contained in the waste water from the Vitodens 100-W condensing boiler.

Condensate (effluent) substances	Values measured in mg/L Vitodens 100
Lead	< 0.01
Cadmium	< 0.005
Chromium	< 0.01
Copper	< 0.01
Nickel	< 0.01
Zinc	< 0.05
Tin	< 0.05

Venting Options / Electrical Connections

Vitodens 100-W Venting Options

For detailed information refer to the Vitodens Venting System Installation Instructions.

Electrical Connection

All electrical connections are made to the boiler's integrated power pump module (120 VAC/60 Hz). Use disconnect means and power service switch as per local code requirements.

Control Unit

Function and construction:
The control is integrated into the Vitodens 100-W boiler.

- Integrated diagnostic system
- For room temperature-dependent operation, an external control or a room temperature thermostat may be connected
- To control DHW temperature, a separate DHW controller may be connected
- External heat demand
- 0-10 V (with open therm only)
- Viessmann outdoor temperature sensor (field wiring)
- Open Therm (field wiring)
- CombiPLUS instantaneous DHW control

The control unit consists of:

- LCD Display
- Selector dial for boiler water temperature adjustment
- Selector dial for service setting
- Temperature adjustable high limit
- Boiler temperature sensor
- Burner fault display
- Burner fault reset
- Pressure gage
- Fuse

Boiler temperature sensor

The boiler temperature sensor is connected to the control unit and built into the boiler.

Frost protection

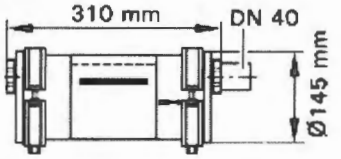
Frost protection is continuously active. The burner is switched ON when the boiler water temperature reaches 41° F (5° C) and is switched OFF again when the boiler water temperature reaches at least 59° F (15° C) [but not more than 68° F (20° C)].

For details on the control, refer to the Vitodens 100-W Operating Instructions.

Accessories

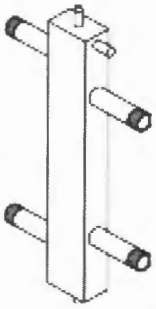
Accessories for the Vitodens 100-W

Neutralization Unit for Single-Boiler Applications
with neutralizing granulate for Vitodens 100-W, WB1B 26, 35
Part No. 7134 231



Low-Loss Header

- Type 80/50, Part No. 7134 791
  [max. flow rate 17.6 GPM (4 m3/h)]
- Type 120/80, Part No. 7134 792
  [max. flow rate 35.2 GPM (8 m3/h)]

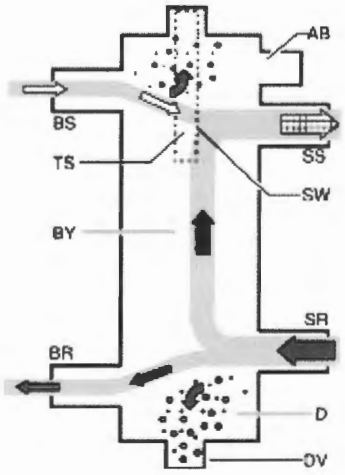


A low-loss header offers additional benefits not provided by a pair of closely spaced tees. Viessmann strongly recommends and prefers the use of a low-loss header over closely spaced tees. When used in conjunction with the Vitodens 100-W boiler, the low-loss header acts as hydraulic break, decoupling boiler and system circuits from each other (no sensor required). It is recommended to use the low-loss header in applications in which the total system flow rate exceeds the maximum or falls below the minimum flow rate of the Vitodens 100-W boiler.

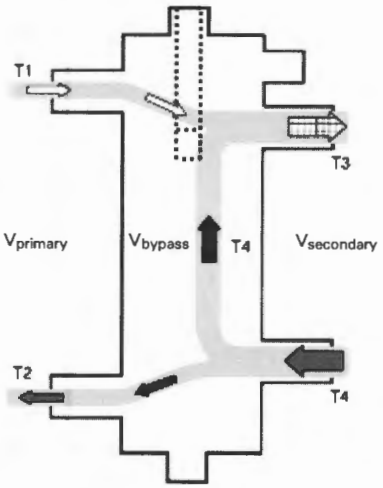
For maximum boiler flow rates, see the table on page 11 in this manual.

Viessmann strongly recommends the use of a low-loss header in cases where the system head and flow rates are unknown.

In addition, the low-loss header helps eliminate air and debris [D] from the heating system. See illustrations for Low-loss header design and the principle of operation. Product may not look exactly as illustrated.



Low-loss header design



Prinicpal of operation

The low-loss header is available in the following sizes. Select the size based on the maximum system flow rate of your application.

Model No.	Max. system flow rate
Type 80/50	17.6 GPM (4 m3/h)
Type 120/80	35.2 GPM (8 m3/h)

Legend

AB	Air Bleed	DV	Drain Valve
BR	Boiler Return	SR	System Return
BS	Boiler Supply	SS	System Supply
BY	Bypass (with laminar flow)	TS	Viessmann Temp. Sensor (not used)
D	Debris and/or air	SW	Sensor Well
T1	Boiler supply temp.	T3	System supply temp.
T2	Boiler return temp.	T4	System return temp.

$V_{primary}$ Boiler circuit flow rate
$V_{secondary}$ Heating circuit flow rate
V_{bypass} Bypass flow rate
$Q_{primary}$ Heat supplied by boiler
$Q_{secondary}$ Heat consumed by system

$V_{primary} < V_{secondary}$
$T1 > T3$
$T2 = T4$
$Q_{primary} = Q_{secondary}$

T1 176° F (80° C)
$V_{secondary} = V_{primary} + V_{bypass}$

IMPORTANT

When installing a low-loss header, system mixed supply temperature (T3) must be calculated as follows

$$T3 = \frac{T1 \times V_{primary} + T4\ V_{bypass}}{V_{secondary}}$$

Product may not look exactly as illustrated.

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Standard Equipment

Standard Equipment

The Vitodens 100-W gas-fired condensing boiler with Inox-Radial heat exchanger surfaces, modulating stainless steel MatriX cylinder gas burner c/w:

- installation fittings with 30 psig pressure relief valve, air vent and pressure gauge
- two fill/drain valves
- all mounting hardware

The boiler comes fully piped and pre-wired.

Venting material (coaxial) or single pipe PP(s) is to be supplied by Viessmann only. Side wall vent installations must include Viessmann protective screen!

Wall mounting componentry

The following wall mounting components are supplied with the Vitodens 100-W boiler:

- Mounting bracket
- Mounting bolts
- Installation fittings
- Screws for mounting bracket on
  - wood studs (2" x 4")
  - metal studs
  - brick/concrete wall

How the Vitodens 100-W boiler operates...

The Vitodens 100-W boiler uses a premix combustion system, which is designed to deliver a certain air-gas mixture to the burner for complete combustion. The gas is injected upstream of the blower. The burner and heat exchanger are part of a forced-draft design. The benefits of forced-draft systems are lower component temperatures, direct air-fuel connection (premix) for improved mixing, and longer service life of the boiler due to mild to moderate ambient conditions.

The MatriX cylinder burner, blower and the combination gas valve are factory calibrated and pre-adjusted. A pneumatic link between combustion air and gas flows guarantees optimal boiler performance at all firing rates. Blower speed is automatically increased or decreased based on heat demand, thereby regulating the amount of combustion air drawn. The pneumatic link between air and gas introduces the required amount of gas for optimal combustion to meet the current heat demand, based on a linear relationship between Δ P air and Δ P gas.

Installation Examples

IMPORTANT

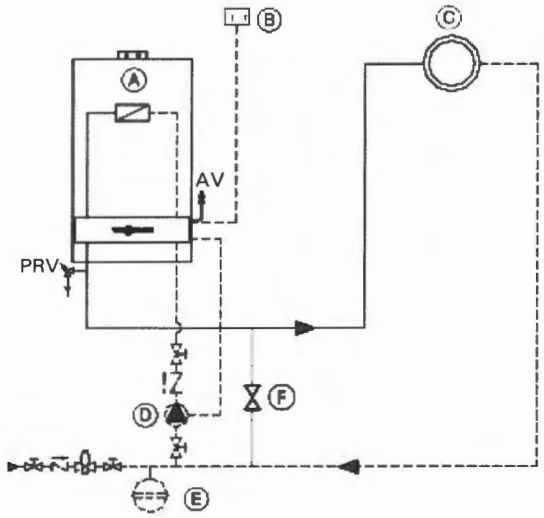
The examples on the following pages depict possible piping layouts of the Vitodens 100-W boiler.

Please note that the following examples are simplified conceptual drawings only!

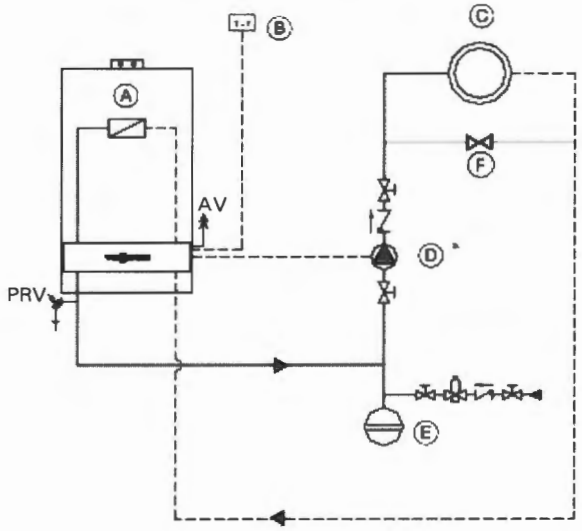
Piping and necessary componentry must be field verified. A low water cut-off (LWCO) must be installed where required by local codes. Proper installation and functionality in the field is the responsibility of the heating contractor.

System Layout 1

Vitodens 100-W, WB1B 26, 35 with one heating circuit (without optional CombiPLUS)



System Layout 1 (alternate option)



Legend

AV Air vent
PRV Pressure relief valve
Ⓐ Vitodens 100-W
Ⓑ Room thermostat
Ⓒ Heating circuit
Ⓓ Heating circuit pump (field supplied)
Ⓔ Expansion tank
Ⓕ Pressure Activated By-Pass

Maximum Flow Rates

Model WB1B	**26**	**35**
Δ t		
Output Btu/h	83,000	108,000
30° F rise (GPM)	5.5	---
35° F rise (GPM)	4.7	6.2
40° F rise (GPM)	4.2	5.4

Note: The use of a low-loss header is recommended if the water flow rate is less than 1.7 GPM (400 L/h) or more than 6.2 GPM (1400 L/h).
The low-loss header is available as accessory part.

Note: Heating circuit C in the examples should be designed to 30° F to 40° F (16.7° C to 22.2° C). For lesser delta T design, system layout designer must use one of the examples (3 or 4) on the following pages.

IMPORTANT

Ensure that a pressure activated by-pass is installed if there are system component(s) in Ⓒ that may isolate the flow to the pump Ⓓ.

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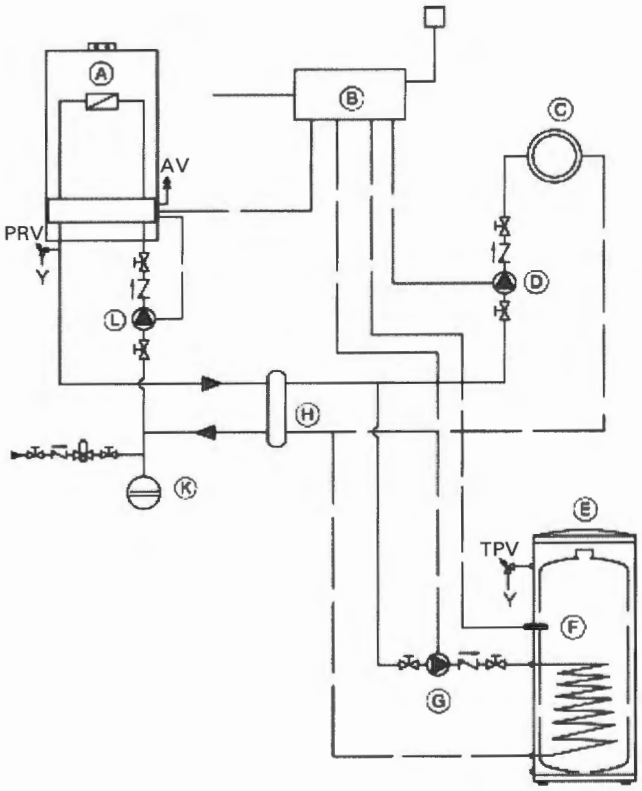
System Layout 2

Vitodens 100-W, WB1B 10-26, 10-35 with...
- DHW storage tank
- low-loss header
- one heating circuit



Legend

AV Air vent
PRV Pressure relief valve
TPV Temperature and pressure relief valve
Ⓐ Vitodens 100-W gas-fired condensing boiler
Ⓑ External boiler/DHW controller (field supplied)
Ⓒ Heating circuit
Ⓓ Heating circuit pump (field supplied)
Ⓔ DHW storage tank
Ⓕ DHW tank temperature aquastat or sensor
Ⓖ DHW circulating pump (field supplied)
Ⓗ Low-loss header
Ⓚ Expansion tank
Ⓛ Primary pump (boiler circuit, field supplied) with low-loss header only

IMPORTANT

Primary pump must pump into the boiler (as illustrated).

Note: The use of a low-loss header is recommended if the water flow rate is less than 1.7 GPM (400 L/h) or more than 6.2 GPM (1400 L/h).
The low-loss header is available as accessory part.

Maximum Flow Rates

Model WB1B	**26**	**35**
Δ t		
Output Btu/h	83,000	108,000
30° F rise (GPM)	5.5	---
35° F rise (GPM)	4.7	6.2
40° F rise (GPM)	4.2	5.4

IMPORTANT

DHW supply and return piping between boiler DHW connections and the Viessmann DHW tank connections, shall be a minimum of 1" nominal pipe diameter (irrespective of the ¾" DHW connection outlet sizes provided on the boiler and the DHW tank).

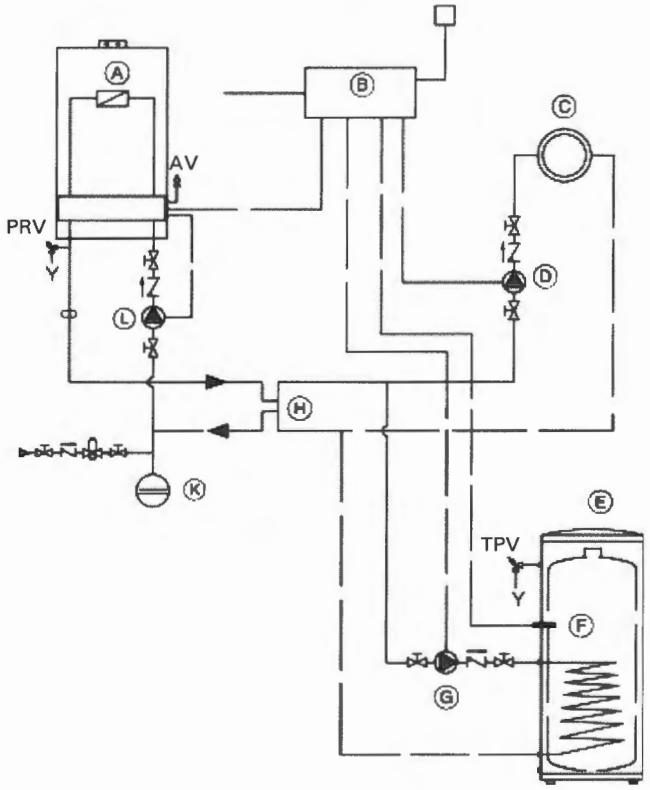
This ensures that the head of the pump is fully utilized to overcome the resistance of the DHW heat exchanger coil and to provide sufficient water flow to the boiler heat exchanger.

In non-Viessmann DHW tank applications, perform, in addition to the above, accurate calculations for DHW tank coil pressure drop versus boiler pump head to ensure sufficient water flow to the boiler heat exchanger.

Failure to heed the above instructions may cause boiler short-cycling and inadequate DHW supply.

System Layout 3

Vitodens 100-W, WB1B 10-26, 10-35 with DHW storage tank and one heating circuit



Legend

AV Air vent
PRV Pressure relief valve
TPV Temperature and pressure relief valve
Ⓐ Vitodens 100-W gas-fired condensing boiler
Ⓑ External boiler/DHW controller (field supplied)
Ⓒ Heating circuit
Ⓓ Heating circuit pump (field supplied)
Ⓔ DHW storage tank
Ⓕ DHW tank temperature aquastat or sensor
Ⓖ DHW circulating pump (field supplied)
Ⓗ Closely spaced tees, 4x pipe Ø or 12" (305 mm)*
Ⓚ Expansion tank
Ⓛ Primary pump (boiler circuit, field supplied) with low-loss header only

* A low-loss header offers additional benefits not provided by a pair of closely spaced tees. Viessmann strongly recommends and prefers the use of a low-loss header over closely spaced tees.

See page 18 for details.

IMPORTANT

Primary pump must pump into the boiler (as illustrated).

Note: The use of a low-loss header is recommended if the water flow rate is less than 1.7 GPM (400 L/h) or more than 6.2 GPM (1400 L/h).
The low-loss header is available as an accessory part.

Maximum Flow Rates

Model WB1B	26	35
Δ t		
Output Btu/h	83,000	108,000
30° F rise (GPM)	5.5	---
35° F rise (GPM)	4.7	6.2
40° F rise (GPM)	4.2	5.4

IMPORTANT

DHW supply and return piping between boiler DHW connections and the Viessmann DHW tank connections, shall be a minimum of 1" nominal pipe diameter (irrespective of the ¾" DHW connection outlet sizes provided on the boiler and the DHW tank).

This ensures that the head of the pump is fully utilized to overcome the resistance of the DHW heat exchanger coil and to provide sufficient water flow to the boiler heat exchanger.

In non-Viessmann DHW tank applications, perform, in addition to the above, accurate calculations for DHW tank coil pressure drop versus boiler pump head to ensure sufficient water flow to the boiler heat exchanger.

Failure to heed the above instructions may cause boiler short-cycling and inadequate DHW supply.

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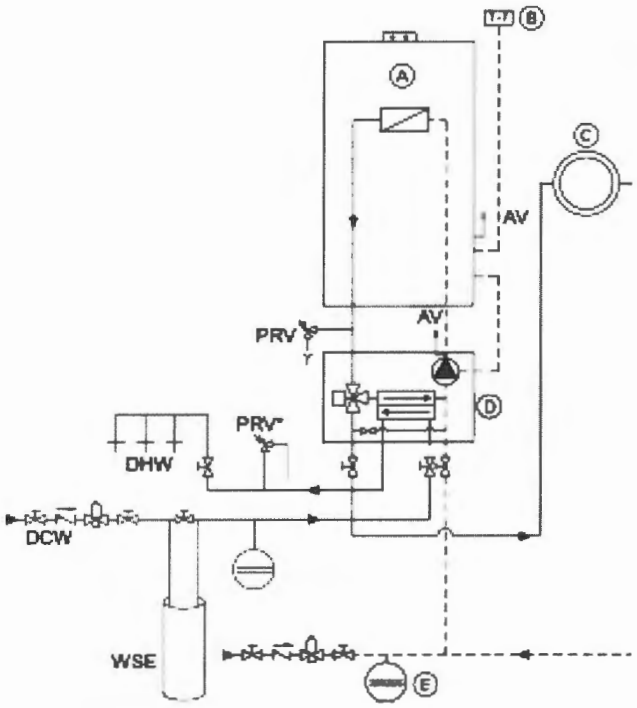
System Layout 4

Vitodens 100-W, WB1B 26, 35 with one heating circuit and the CombiPLUS



Maximum Flow Rates

Model WB1B	26	35
Δ t		
Output Btu/h	83,000	108,000
30° F rise (GPM)	5.5	---
35° F rise (GPM)	4.7	6.2
40° F rise (GPM)	4.2	5.4

Note: The use of a low-loss header is recommended if the water flow rate is less than 1.7 GPM (400 L/h) or more than 6.2 GPM (1400 L/h).
The low-loss header is available as accessory part.

Built-in pump residual head for the heating system side is 7.5 ft. of water column at the boiler maximum flow rate of 6.2 GPM.

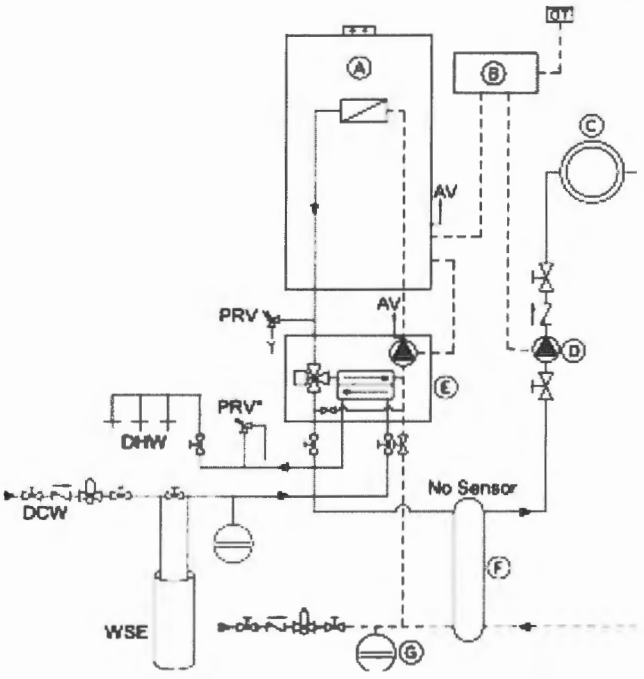
Note: Heating circuit C in the examples should be designed to 30° F to 40° F (16.7° C to 22.2° C). For lesser delta T design, system layout designer must use one of the examples (5 or 6) on the following pages.

Legend

AV Air vent
PRV Pressure relief valve (boiler)
PRV* Pressure relief valve (DHW 150 psi)
WSE Water softner equipment
Ⓐ Vitodens 100-W
Ⓑ Room thermostat
Ⓒ Heating circuit
Ⓓ CombiPLUS
Ⓔ Expansion tank

System Layout 5

Vitodens 100-W, WB1B 10-26, 10-35 with...
- CombiPLUS Kit
- low-loss header
- one heating circuit



Note: The use of a low-loss header is recommended if the water flow rate is less than 1.7 GPM (400 L/h) or more than 6.2 GPM (1400 L/h).
The low-loss header is available as accessory part.

Maximum Flow Rates

Model WB1B	**26**	**35**
Δ t		
Output Btu/h	83,000	108,000
30° F rise (GPM)	5.5	---
35° F rise (GPM)	4.7	6.2
40° F rise (GPM)	4.2	5.4

Legend

AV Air vent
PRV Pressure relief valve (boiler)
PRV* Pressure relief valve (DHW 150 psi)
WSE Water softener equipment
- Ⓐ Vitodens 100-W gas-fired condensing boiler
- Ⓑ External boiler / system controller (field supplied)
- Ⓒ Heating circuit
- Ⓓ Heating circuit pump (field supplied)
- Ⓔ CombiPLUS
- Ⓕ LLH
- Ⓖ Expansion tank

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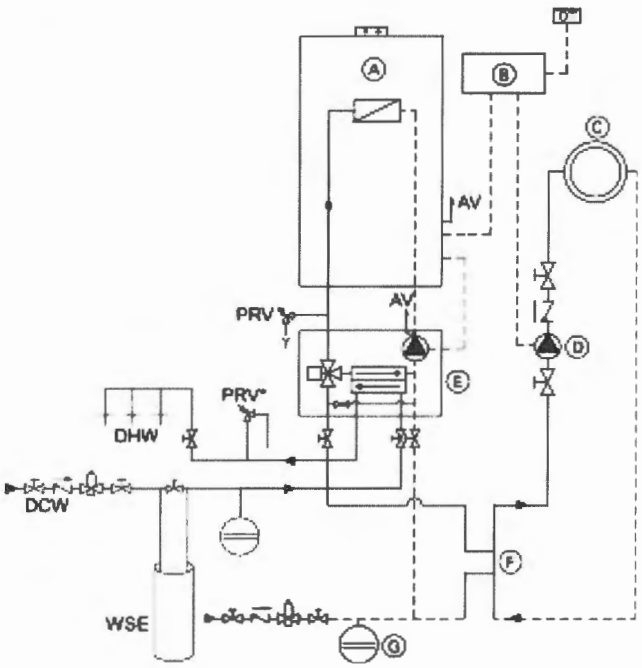
System Layout 6

Vitodens 100-W, WB1B 10-26, 10-35 with CombiPLUS and one heating circuit without LLH



Legend

AV Air vent
PRV Pressure relief valve (boiler)
PRV* Pressure relief valve (DHW 150 psi)
WSE Water softener equipment
Ⓐ Vitodens 100-W gas-fired condensing boiler
Ⓑ External system controller (field supplied)
Ⓒ Heating circuit
Ⓓ Heating circuit pump (field supplied)
Ⓔ CombiPLUS
Ⓕ Closely spaced tees, 4x pipe Ø or 12" (305 mm)*
Ⓖ Expansion tank

* A low-loss header offers additional benefits not provided by a pair of closely spaced tees. Viessmann strongly recommends and prefers the use of a low-loss header over closely spaced tees.

See page 18 for details.

Note: The use of a low-loss header is recommended if the water flow rate is less than 1.7 GPM (400 L/h) or more than 6.2 GPM (1400 L/h).
The low-loss header is available as an accessory part.

Maximum Flow Rates

Model WB1B	**26**	**35**
Δ t		
Output Btu/h	83,000	108,000
30° F rise (GPM)	5.5	---
35° F rise (GPM)	4.7	6.2
40° F rise (GPM)	4.2	5.4

System Design Considerations

IN THE COMMONWEALTH OF MASSACHUSETTS...
- this product shall be installed by a licensed plumber or gas fitter.
- the flexible connector (if used) may not exceed 36".
- any level type shutoff used must be of tee handle type.

Boiler location

As a direct vent appliance, the Vitodens 100-W may be installed for room air independent operation (sealed combustion) regardless of size and ventilation method of the room in which it is located.

The Vitodens 100-W may be installed, for example, in the main living area of a house, in non-ventilated utility rooms, cupboards, closets and alcoves with no clearance required from combustible materials, as well as in attics with a direct outlet for the flue gas/fresh air system. Follow all local and national codes.

Flue gas system

Viessmann coaxial PPS (Polypropylene - flame retardant) concentric flue gas/fresh air systems and two-pipe stainless steel/CPVC systems for room air independent operation (sealed combustion) and side wall venting are tested to ANSI Z21.13 - CSA 4.9 - 2007 standards and are certified together with the Vitodens 100-W boiler as a constructional unit. The Vitodens 100-W boiler may also be vented vertically or horizontally, using a metallic AL29-4C® special stainless steel, or non-metallic CPVC single-wall, room air dependent venting system (UL/ULC listed for category IV).

For a more detailed description of the direct vent and single-wall vent system, please refer to the Vitodens Venting System Installation Instructions.

Flue gas temperature protection

Viessmann coaxial PPS (Polypropylene - flame retardant) flue pipes used for the Vitodens 100-W are rated for max. flue gas temperatures of up to 230° F (110° C).

Flue gas temperature protection is also included although the maximum permissible flue gas temperature will not be exceeded in any operating condition or in the event of malfunctioning.

Low water cut-off

A low water cut-off may be required by local codes. If the boiler is installed above the radiation level, a low water cut-off device of approved type must be installed in all instances. An approved low water cut-off device that meets government and local regulations must be provided by the heating contractor.

Do not install an isolation valve between the boiler and the low water cut-off. The Vitodens 100-W boiler has a built-in flow switch, which may be accepted by local codes in lieu of a low water cut-off.

System layout

- The max. boiler water temperature for ...
  -space heating is 176° F (80° C).
  -DHW production is 176° F (80° C).

  To minimize distribution losses, Viessmann recommends that the heating and domestic hot water systems be based on a maximum boiler supply temperature of 158° F (70° C).

- Due to the low return temperatures required for gas condensing, avoid the use of mixing valves in the heating circuit whenever possible.

  If mixing valves are required, e.g. for multi-circuit systems or underfloor heating systems, only 3-way mixing valves may be used.

  Do not use 4-way mixing valves in a system with condensing boilers.

Water connections

Vitodens 100-W boilers can be used in any fully pumped hot water heating system.
Minimum system pressure is 0.8 bar (12 psig).

Chemical corrosion protection products
Corrosion does not typically occur in sealed heating systems which have been correctly installed and are correctly operated.

Many manufacturers of plastic pipes recommend the use of chemical additives. In this case, only commercially available corrosion protection products that have been approved for boilers with domestic hot water heating via single-wall heat exchangers (instantaneous plate heat exchangers or DHW tanks) may be used.

Underfloor heating systems

For underfloor heating systems Viessmann recommends the use of plastic tubing with an oxygen diffusion barrier in order to prevent the diffusion of oxygen through tubing.

If plastic tubing without an oxygen diffusion barrier is used in underfloor heating systems, Viessmann recommends that such systems be separated from the boiler with a heat exchanger.

Water Conditions for DHW CombiPLUS

Media: pH value 6.5 to 12, glycol max. 30%

DHW (max. hardness): Chloride up to 250 mg/L

Hardness up to 358 ppm
(= max. 0.278 kg/m³ lime deposit)

System Design Considerations *(continued)*

Oxygen diffusion barrier underfloor tubing

The boiler warranty does not cover leaks resulting from corrosion caused by the use of underfloor plastic tubing without an oxygen diffusion barrier. Such systems must have the non-oxygen diffusion barrier tubing separated from the boiler with a heat exchanger.

Viessmann recommends the use of underfloor plastic tubing with an oxygen diffusion barrier.

Water quality

Treatment for boiler feed water should be considered in areas of known problems, such as where a high mineral content and hardness exist. In areas where freezing might occur, an antifreeze may be added to the system water to protect the system. Please adhere to the specifications given by the antifreeze manufacturer.

Do not use automotive silicate based antifreeze. Please observe that an antifreeze/water mixture may require a backflow preventer within the automatic water feed and influence components such as diaphragm expansion tanks, radiation, etc. Maximum antifreeze content is 50% for the Vitodens 100-W boiler (when used with DHW CombiPLUS max. content is 30%). Do not use antifreeze other than specifically made for hot water heating systems.

The system may also contain components which might be negatively affected by antifreeze.

Check total system frequently when filled with antifreeze. Advise system operator/ultimate owner that system is filled with a glycol mix.

The heating contractor must provide a MSDS (Material Safety Data Sheet) for the antifreeze used to the system operator/ultimate owner.

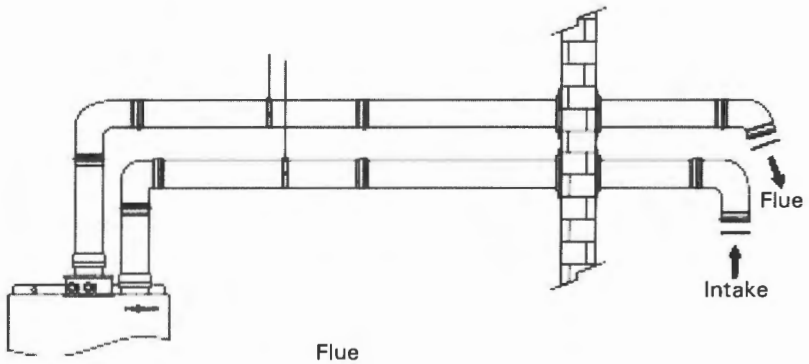
Warranty

Our warranty does not cover damages resulting from the following:

- installation or service by unqualified and unlicensed personnel.
- attempting to perform any repair work on the boiler other than that mentioned in the boiler literature.
- tampering with or attempting to readjust the factory settings of the combination gas valve
- leaks resulting from corrosion caused by the use of underfloor plastic tubing without an oxygen diffusion barrier.

For detailed warranty information, please read warranty sheet supplied with product.

Two Pipe System



Two pipe system (room air independent) horizontally vented

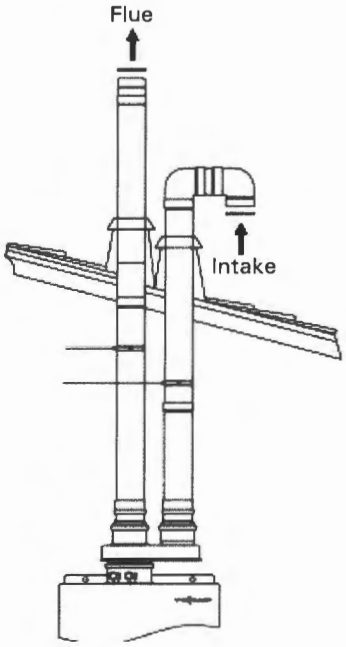
Vent system diameter (in)	2*	3	4
Maximum equivalent length ft. (m)	86 (20)	164 (50)	200 (61)

*stainless steel is not available in 2"

Combustion air: CPVC, PVC, ABS and stainless steel (field supplied)

Flue gas: CPVC and stainless steel (field supplied)

PP(s): (Viessmann supplied)



Two pipe system (room air independent) vertically vented

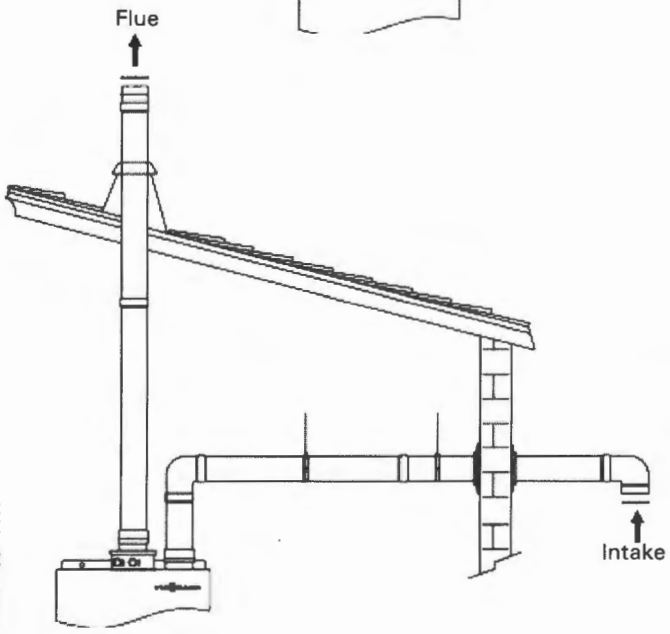
Vent system diameter (in)	2*	3	4
Maximum equivalent length ft. (m)	86 (20)	164 (50)	200 (61)

*stainless steel is not available in 2"

Combustion air: CPVC, PVC, ABS and stainless steel (field supplied)

Flue gas: CPVC and stainless steel (field supplied)

PP(s): (Viessmann supplied)



Two pipe system (room air independent) hybrid

Vent system diameter (in)	2*	3	4
Maximum equivalent length ft. (m)	86 (20)	164 (50)	200 (61)

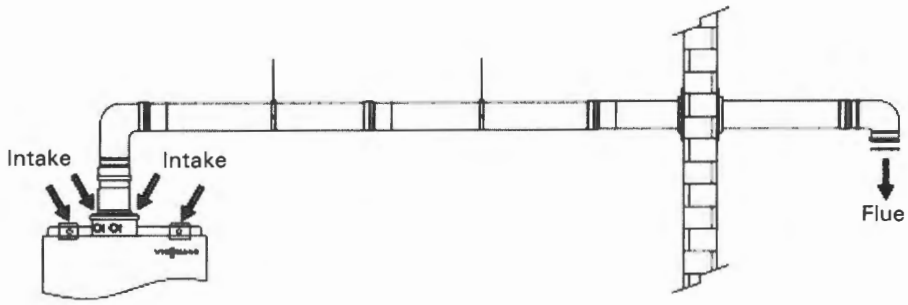
*stainless steel is not available in 2"

Combustion air: CPVC, PVC, ABS and stainless steel (field supplied)

Flue gas: CPVC and stainless steel (field supplied)

PP(s): (Viessmann supplied)

Single Pipe System

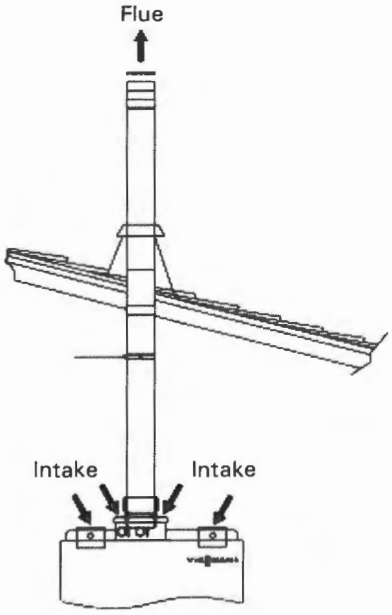


Single pipe system (room air dependant) horizontally vented

Vent system diameter (in)	2*	3	4
Maximum equivalent length ft. (m)	86 (20)	164 (50)	200 (61)

*stainless steel is not available in 2"

CPVC and stainless steel (field supplied)
PP(s) (Viessmann supplied)



Single pipe system (room air dependant) vertically vented

Vent system diameter (in)	2*	3	4
Maximum equivalent length ft. (m)	86 (20)	164 (50)	200 (61)

*stainless steel is not available in 2"

CPVC and stainless steel (field supplied)
PP(s) (Viessmann supplied)

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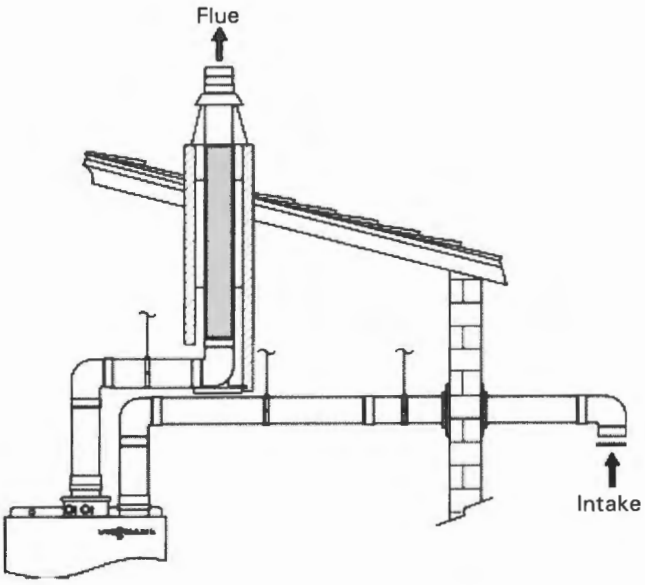
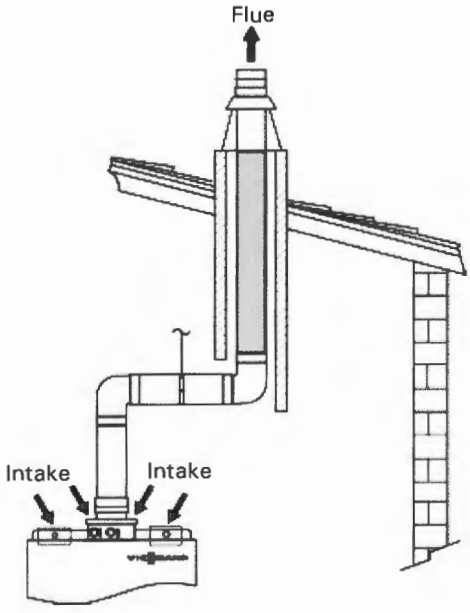
Flexible System



Flexible two pipe system (room air independent)

Vent system diameter (in)	80 flex 2" comb.	80	100
Maximum equivalent length ft. (m)	65 (20)	123 (37)	150 (46)

Combustion air: CPVC, PVC, ABS and stainless steel (field supplied)
Flue gas: PP(s) (Viessmann supplied)



Flexible single pipe system (room air dependant)

Vent system diameter (in)	80	100
Maximum equivalent length ft. (m)	123 (37)	150 (46)

PP(s) (Viessmann supplied)

Quick Reference

°C	°F
-40	-40
-35	-31
-25	-13
-20	-4
-18	0
-16	+3
-14	+7
-12	+10
-10	+14
-9	+16
-8	+18
-7	+19
-6	+21
-5	+23
-4	+25
-3	+27
-2	+28
-1	+30
0	+32
+1	+34
+2	+36
+3	+37
+4	+39
+5	+41
+6	+43
+7	+45
+8	+46
+9	+48
+10	+50
+12	+54
+14	+57
+16	+61
+18	+64
+20	+68
+25	+77
+30	+86
+35	+95
+40	+104
+50	+122
+60	+140
+70	+158
+80	+176
+90	+194
+100	+212
+110	+230

Viessmann Manufacturing Company (U.S.) Inc.
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Warwick, Rhode Island · 02886 · USA
1-800-288-0667 · Fax (401) 732-0590
www.viessmann-us.com · info@viessmann-us.com

Viessmann Manufacturing Company Inc.
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5601 189 v1.0

Manufacturer's Certification Statement

VIESMANN
climate of innovation

For Residential Energy Efficiency Tax Credit

Viessmann Manufacturing
Company (U.S.) Inc.
45 Access Road
Warwick, RI 02886
USA

This statement shall serve as notification that the boilers listed below are included in the following class of Qualified Energy Property as outlined in § 25C of the Internal Revenue Code:

A natural gas, propane, or oil boiler, with an annual fuel utilization efficiency (AFUE) of at least 90%. Qualifying units must be placed in service between February 17, 2009 and December 31, 2011.

The following boiler series have been tested and found to be Qualified Energy Property that qualifies for the credit allowed under § 25C of the Internal Revenue Code:

Make: **Viessmann Manufacturing Company Inc.**

Series: **Vitodens 100-W**

Model(s):		
	WB1A 8-24	WB1B 26
	WB1A 8-30	WB1B 35

Series: **Vitodens 200-W**

Model(s):		
	WB2 6-24C	WB2B 19
	WB2 6-24	WB2B 26
	WB2 8-32	WB2B 35
	WB2 11-44	WB2B 45
	WB2 15-60	WB2B 60
		WB2B 80
		WB2B 105

Under penalties of perjury, I declare that I have examined this certification statement, and to the best of my knowledge and belief, the facts presented are true, correct, and complete.

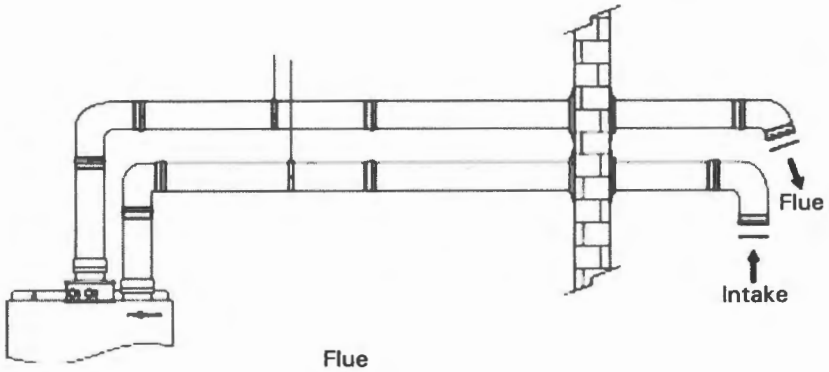
January 1, 2011

Viessmann Manufacturing
Company (U.S.) Inc.

Date

Two Pipe System

Two pipe system (room air independent) horizontally vented



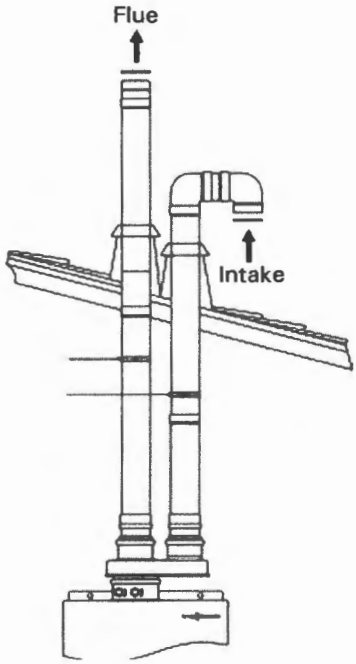
Vent system diameter (in)	2*	3	4
Maximum equivalent length ft. (m)	86 (20)	164 (50)	200 (61)

*stainless steel is not available in 2"

Combustion air: CPVC, PVC, ABS and stainless steel (field supplied)

Flue gas: CPVC and stainless steel (field supplied)

PP(s): (Viessmann supplied)



Two pipe system (room air independent) vertically vented

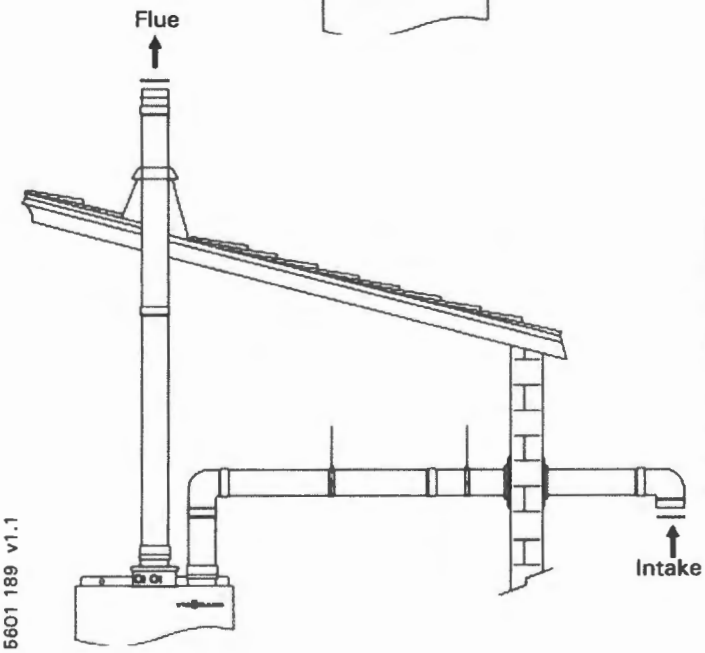
Vent system diameter (in)	2*	3	4
Maximum equivalent length ft. (m)	86 (20)	164 (50)	200 (61)

*stainless steel is not available in 2"

Combustion air: CPVC, PVC, ABS and stainless steel (field supplied)

Flue gas: CPVC and stainless steel (field supplied)

PP(s): (Viessmann supplied)



Two pipe system (room air independent) hybrid

Vent system diameter (in)	2*	3	4
Maximum equivalent length ft. (m)	86 (20)	164 (50)	200 (61)

*stainless steel is not available in 2"

Combustion air: CPVC, PVC, ABS and stainless steel (field supplied)

Flue gas: CPVC and stainless steel (field supplied)

PP(s): (Viessmann supplied)

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PORTLAND MAINE

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PROJECTS IN HISTORIC DISTRICTS

Extra Information Needed

(As applicable/appropriate to your project)

- ( ) Exterior photographs (REQUIRED for ALL applications.) Include general streetscape view, view of entire building & close ups of affected area(s).
- (X) Sketches or elevation drawings (at a MINIMUM ¼'' scale). Please label relevant dimensions. 11'' X 17'' plans are recommended for legibility.
- (X) Details or sections, where applicable
- (X) Floor plans (where applicable)
- (X) Site plans showing relative location of adjoining structures.
- (X) Catalog cuts or product information (eg; proposed windows, doors, lighting fixtures, HVAC, etc.)
- ( ) Materials – list all visible exterior materials. Samples are helpful.
- ( ) OTHER (explain)

$50.00

2" cPVC vent pipe

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Receipts Details:

Tender Information: Check , Check Number: 33751
Tender Amount: 50.00

Receipt Header:

Cashier Id: bsaucier
Receipt Date: 5/3/2012
Receipt Number: 43571

Receipt Details:

Referance ID:	6394	Fee Type:	BP-HRAD
Receipt Number:	0	Payment Date:	
Transaction Amount:	50.00	Charge Amount:	50.00
Job ID: Job ID: 2012-05-3915-HVAC - Install 3 Viessman Appliances; per 3 units			
Additional Comments: 71 West			

Thank You for your Payment!

PORTLAND MAINE

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Receipts Details:

Tender Information: Check , Check Number: 33750
Tender Amount: 330.00

Receipt Header:

Cashier Id: bsaucier
Receipt Date: 5/3/2012
Receipt Number: 43569

Receipt Details:

Referance ID:	6393	Fee Type:	BP-Constr
Receipt Number:	0	Payment Date:	
Transaction Amount:	330.00	Charge Amount:	330.00
Job ID: Job ID: 2012-05-3915-HVAC - Install 3 Viessman Appliances; per 3 units			
Additional Comments: 71 West			

Thank You for your Payment!