

Job or Customer :	
Location :	
Engineer :	
<input type="checkbox"/> Complies with Spec <input type="checkbox"/> Alternate	Notes :
Contractor :	
HeatLink Rep :	
Submitted By :	Date :
Approved By :	Date :
P.O. Number :	Date :

**Description**

These panels are designed to work with Viessmann Vitodens 100-W boilers. The panel primary piping matches up to the Vitodens boiler system supply and return. The white color of the enclosure matches the Vitodens 100-W boiler. The panel has three or four Grundfos UPS15-58 pumps. There is a primary pump, a DHW pump and one or two heating pumps. The primary pump is controlled by the boiler. The DHW pump is controlled by an aquastat (third party) wired to the terminal strip on the panel. Each heating pump is controlled by a thermostat (supplied separately) wired to the terminal strip on the panel. The water temperature is controlled by the boiler.

Qty	Stk. #	Nominal Panel Output	Primary Flow	Secondary Flow
	V101	80,000 Btu/hr	4.2 US gpm @11.5 feet of head	6.0 US gpm @12 feet of head
	V102	100,000 Btu/hr	4.2 US gpm @11.5 feet of head	10.0 US gpm @12 feet of head

**Technical Data**

Max Ambient Temperature:..... 120°F (49°C)  
 Min Operating Temperature:..... 40°F (4°C)  
 Max Operating Temperature:..... 200°F (93°C)  
 Max Operating Pressure:..... 125 psi (862 kPa)  
 Power Supply:..... 120/24 V(ac)  
 Primary Pump:..... Grundfos UPS15-58 (ref. page 3)  
 DHW Pump:..... Grundfos UPS15-58  
 Radiant 1 Pump:..... Grundfos UPS15-58  
 Radiant 2 Pump (V102 only):..... Grundfos UPS15-58  
 Auxiliary Terminal:..... 2 dry contacts, max. load 1.5A  
 Piping:..... ¾" 304SS Tubing  
 Piping Connections:..... ¾" and 1" FNPT  
 Material - Backplate:..... 16 Gauge galvanized steel  
 Material - Enclosure:..... Powder coated steel

**Standards / Listings**  
 CAN/CSA-C22 No.14, UL508  
 cETLus

For Viessmann Technical Data reference see pages 4 & 5 of this submittal.

**Panel designs**

**FLOW AND HEAD LOSS CONSIDERATIONS:**

From Vitodens 100 WB1B-26 technical manual (see relevant sections on pages 4 & 5 of this submittal):

Page 11. Recommended primary pump: Grundfos UPS15-58 3speed

Page 11. Boiler flow requirements and PD: Min 4.2usgpm at 8ft.hd to Max 5.5usgpm at 12.5ft.hd for full output of boiler.

Page 22. Max-Min flowrates for WB1B-26: Min 4.2usgpm Max. 5.5usgpm at 30F-40F delta T

From Grundfos technical manual:

UPS15-58 pump curve shows 4.2usgpm at 16ft.hd

In V102 panel equivalent pipe lengths:

3/4in (0.715in ID) stainless tube 4ft

6 x 90deg short elbow 14ft

Subtotal 18ft equivalent length of pipe in panel at 4.2usgpm for 3/4in stainless tube at 7ft.hd per 100FT = 1.26ft.hd total

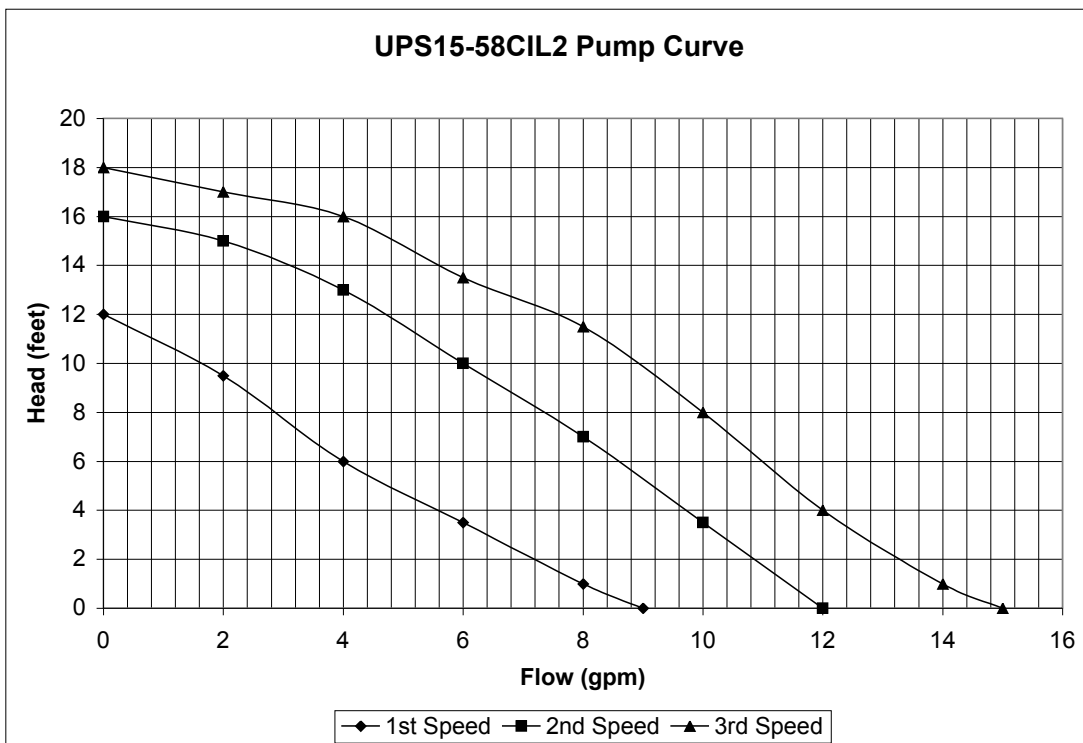
6 x straight tee (0.6in ID) 8ft

2 x 90deg tee (0.6in ID) 8ft

Subtotal 16ft equivalent length of pipe in panel at 4.2usgpm for 0.6in tube at 20ft.hd per 100FT = 3.2ft.hd total

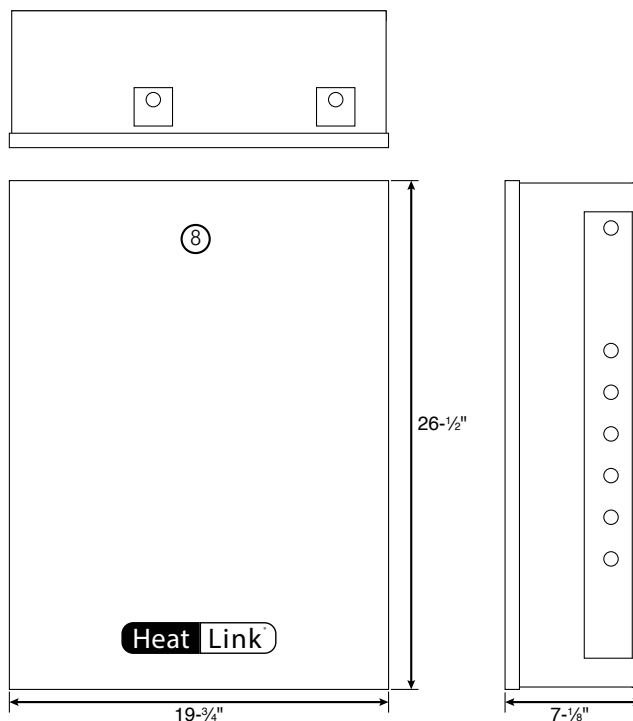
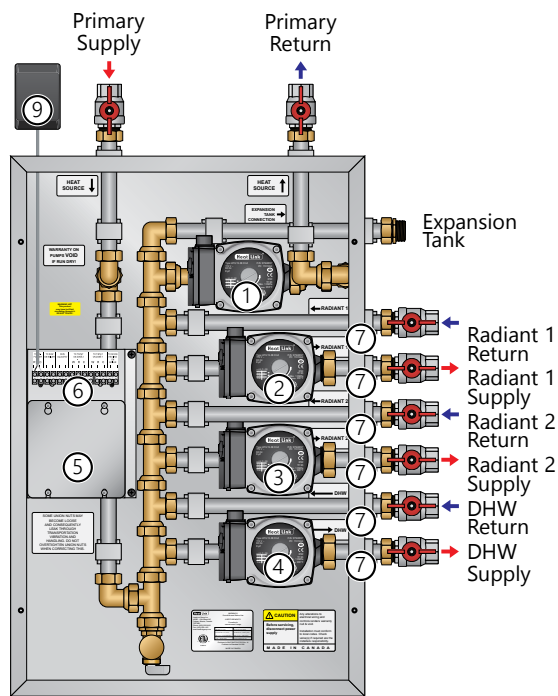
Total equivalent length of pipe in panel at 4.2usgpm: 1.26ft.hd + 3.2ft.hd = 4.46ft.hd

Hence 16ft.hd-4.46ft.hd = 11.5ft.hd at 4.2usgpm for primary side of V102 panel.



**Panel Components**

- ① Primary Pump
- ② Radiant 1 Pump
- ③ Radiant 2 Pump (V102 only)
- ④ DHW Pump
- ⑤ Electrical Connection Box
- ⑥ 24V Terminal Strip
- ⑦ Isolation Valve
- ⑧ Panel Cover
- ⑨ 40VA 24Vac Plug-in Transformer



**Installation**

Installation must follow all of HeatLink's instructions and guidelines.

**Maintenance**

Maintenance must follow all of HeatLink's instructions and guidelines.

**Related Documents**

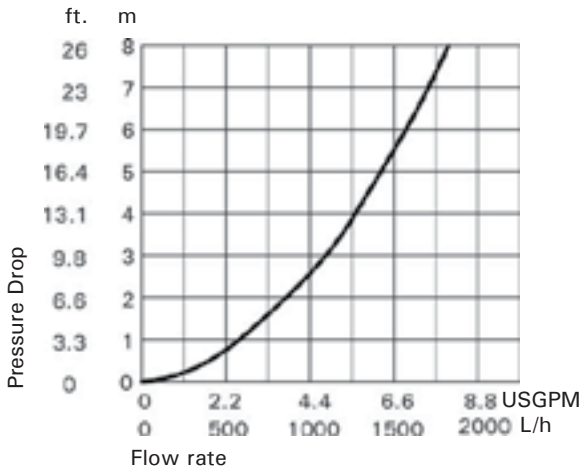
- V100 Panels Installation, Operation, and Maintenance Manual Instructions (L6V100)
- HeatLink Limited Heating Warranty

### 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

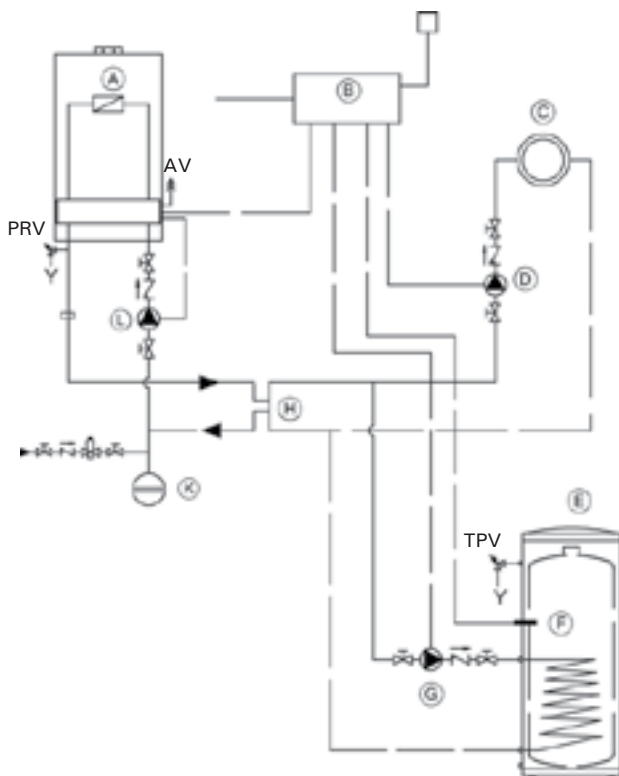
**Pump selection must be based on accurate system flow and pressure drop calculations (including DHW sizing).**

Installation Page 22

Vitodens 100-W, WB1B Technical Data

**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
- (A) Vitodens 100-W gas-fired condensing boiler
- (B) External boiler/DHW controller (field supplied)
- (C) Heating circuit
- (D) Heating circuit pump (field supplied)
- (E) DHW storage tank
- (F) DHW tank temperature aquastat or sensor
- (G) DHW circulating pump (field supplied)
- (H) Closely spaced tees, 4x pipe Ø or 12" (305 mm) \*
- (K) Expansion tank
- (L) 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
$\Delta t$		
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 3/4" 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.