

# Product Submittal



Project:

Location:

## Index:

### ▶ Boilers and Burners

Vitocrossal 200, CI2-2000 Gas-fired Condensing Boiler (Qty. of 1)

### ▶ System Accessories

80 psig Pressure Relief Valve (Qty. of 1)

Low Water Cut-Off, Model 650A (Qty. of 1)

## Boiler Data



# VITOCROSSAL 200

## CI2 Series

Full product manuals:

-  [Technical Data Manual](#)
-  [Quick Start Guide](#)
-  [Installation Instructions](#)
-  [Operating Instructions](#)
-  [Service Instructions](#)
-  [Wiring Diagram](#)

## 1.0 Product Information

Vitocrossal 200 CI2 is a floor-standing, gas-fired condensing boiler with modulating pre-mix cylinder burner, stainless steel Inox-Crossal heat exchanger, and integrated boiler control unit with 7 inch full color graphic display.

### Standard Equipment:

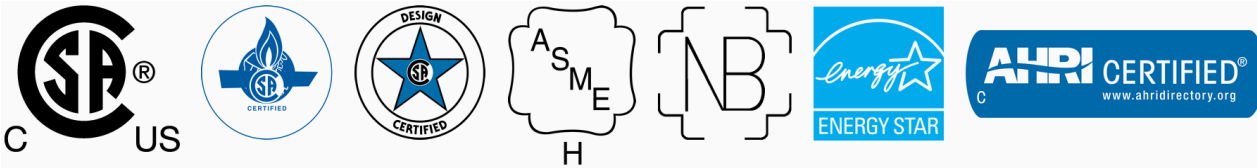
Boiler and installation fittings c/w 80 psig pressure relief valve, integrated boiler control with cascading capability, low water cut-off, gas shut-off valve, drain valve, temperature and pressure gauge.

### Standard Warranty:

Limited 10 year warranty for pressure vessel, and 2 year warranty for boiler enclosure, burner, controls and accessories. See [warranty sheet](#) for details.

### Certifications and Listings:

CSA, CRN, ASME, MA State approval, AHRI, Energy Star



## 1.1 Technical Data for CI2-2000

<b>Input</b>	2000 MBH	586 kW
<b>Minimum input – NG</b>	100 MBH	29.3 kW
<b>Minimum input – LPG</b>	100 MBH	29.3 kW
<b>Output (thermal efficiency)</b>	1940 MBH	568 kW
<b>Net AHRI rating</b>	1687 MBH	494 kW
<b>Combustion efficiency *1</b>	96.5 %	
<b>Thermal efficiency *1</b>	97.0 %	
<b>NG supply pressure</b>		
– Maximum	14 " w.c.	
– Minimum	4 " w.c.	
<b>LPG supply pressure</b>		
– Maximum	14 " w.c.	
– Minimum	10 " w.c.	
<b>Power supply</b>		
Voltage	120 VAC	
Phase	1 Phase	
Frequency	60 Hz	
Current	20 Amp	
<b>Overall boiler dimensions</b>		
Length (A) including insulation & jacketing	56¼ inches	1428 mm
Width (B) including insulation & jacketing	29½ inches	750 mm
Height (C) including insulation & jacketing	78¾ inches	1998 mm
<b>Concrete boiler base</b>		
Length	47¼ inches	1200 mm
Width	29½ inches	750 mm
Thickness	0 inches	0 mm
<b>Weight</b> complete with burners, control, thermal insulation and jacketing	1969 lbs	893 kg
<b>Boiler water content</b>	99 USG	376 L
<b>Heat exchanger surface</b>	258.8 sq. ft.	24.0 sq. m
<b>Max. operating temperature</b>	210 °F	99 °C
<b>Max. adjustable high limit</b>	185 °F	85 °C
<b>Max. operating pressure</b>	80 psig	5.5 bar
<b>Min. pressure relief valve capacity</b>	1786 lb/hr	810 kg/hr
<b>Boiler connections</b>		
Boiler supply (BS) and return (BR) ANSI flanges	4 inches	10 mm
Safety supply	1¼ inch	
Boiler drain	1½ inch	
Condensate drain (barbed fitting)	¾ inch	
Gas connection	2 inch	
<b>Boiler flue collar</b> internal diameter	8 inches	205.2 mm
<b>Combustion air</b> internal diameter (with combustion air intake kit)	8 inches	205.2 mm
<b>Flue gas values</b>		
Temperature (at a return temperature of 86°F / 30°C)		
– At rated input	108 °F	42 °C
– At partial load	93 °F	34 °C
Temperature (at a return temperature of 140°F / 60°C)		
– At rated input	154 °F	68 °C

---

**Mass flow rate of flue gas**

- At rated input	1799 lbs/h	816 kg/h
- At partial load	540 lbs/h	245 kg/h

---

**Pressure** at boiler flue outlet at rated input

2.4 " w.c.

600 pa

---

**Max. condensate flow rate** for NG and LPG

19 USG/h

73.3 L/h

---

**Standby loss**At boiler water temperature 122°F / 50°C  
(room temperature 68°F / 20°C)

4590 BTU/h

1345 W

---

**NOx emissions**

NOx @ 3% O2 (NG) \*2

&lt; 20 PPM

---

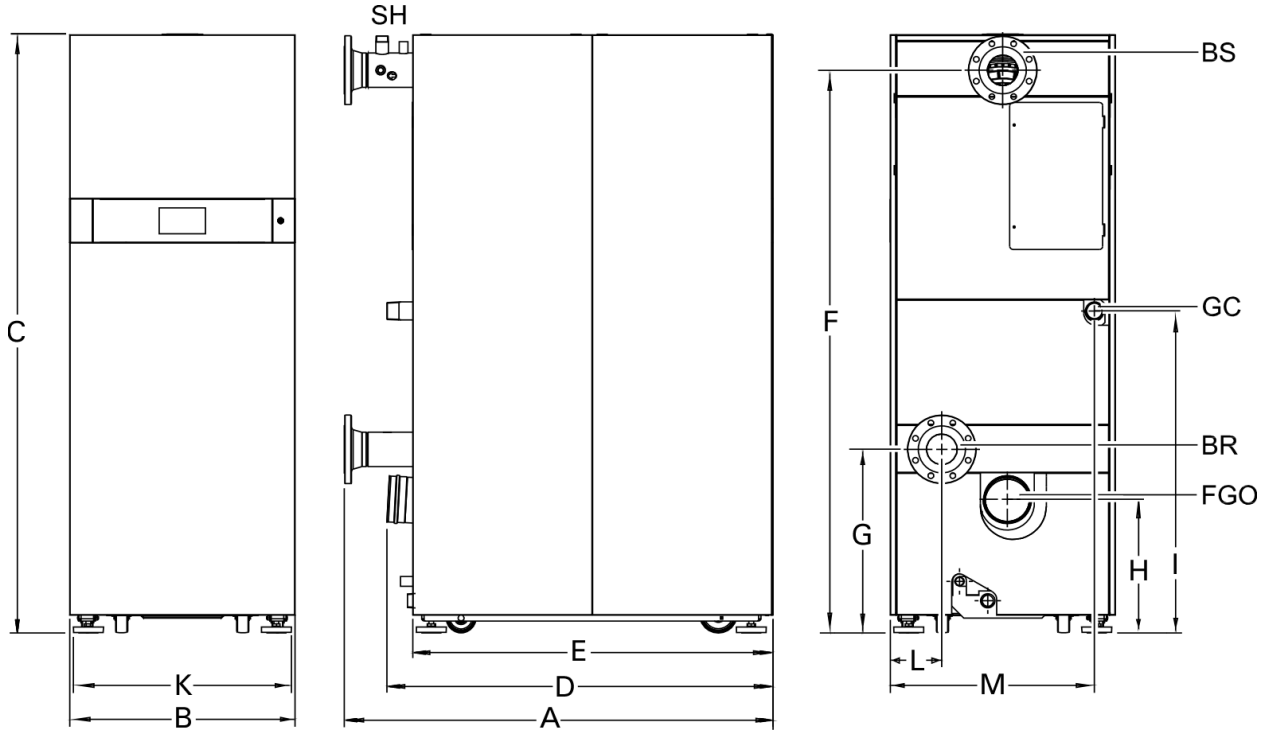
**Notes:**

\*1 Tested to ANSI/AHRI standard 1500 Performance Rating of Commercial Space Heating Boilers / DOE Test Procedure 81 FR 89276 / U.S. Standards ANSI Z21.13/CSA 4.9.

\*2 The Vitocrossal 200 CI2 boilers are certified to the requirements of South Coast Air Quality Management District (SCAQMD) Rule 1146.2, Bay Area Air Quality Management District (BAAQMD) Regulation 9 Rule 6.

## 1.2 Dimensional Drawings

### Boiler Front, Side and Rear Views



#### Dimensions

A	56¼ in.	1428 mm
B	29½ in.	750 mm
C *	78¾ in.	1998 mm
D	51 in.	1295 mm
E	47¼ in.	1200 mm
F	74 in.	1875 mm
G	24 in.	612 mm
H	15 in.	383 mm
I	42¼ in.	1073 mm
K	28½ in.	726 mm
L	6¾ in.	172 mm
M	26¾ in.	680 mm

#### Legend

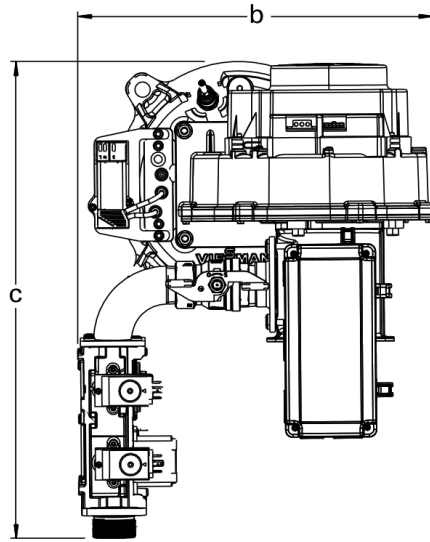
BR	Boiler Return
BS	Boiler Supply
FGO	Flue Gas Outlet (vent pipe connection)
GC	Gas Connection
SH	Safety Header

#### Notes

\* Height from the bottom of the casters.

Dimensional tolerance of  $\pm \frac{1}{4}$  in. ( $\pm 5$  mm).

## Burner Top and Side Views

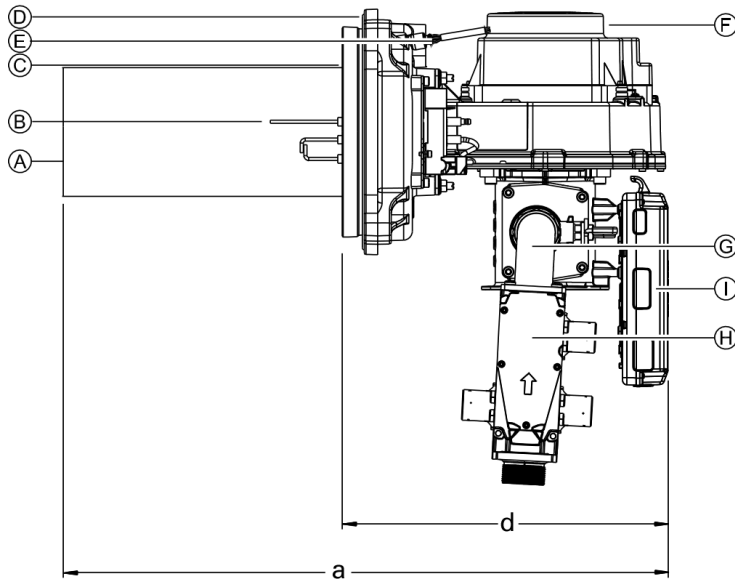


### 1000 MBH Burner Dimensions (CI2-2000 is equipped with 2)

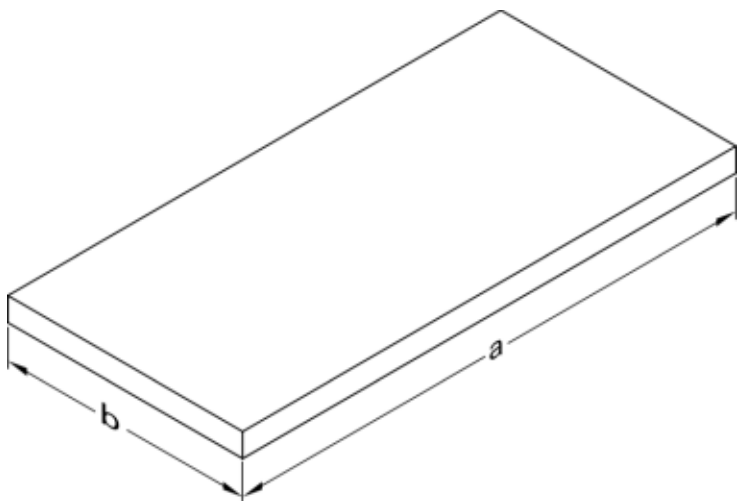
a	28¼ in.	731 mm
b	15½ in.	395 mm
c	21 in.	530 mm
d	14¼ in.	363 mm

### Legend

A	Burner tube
B	Ignition electrodes
C	Insulation block
D	Burner door
E	Lambda probe (O <sub>2</sub> sensor)
F	Burner fan
G	Gas train
H	Gas valve
I	E box



### Concrete Pad (If Required)



#### Dimensions

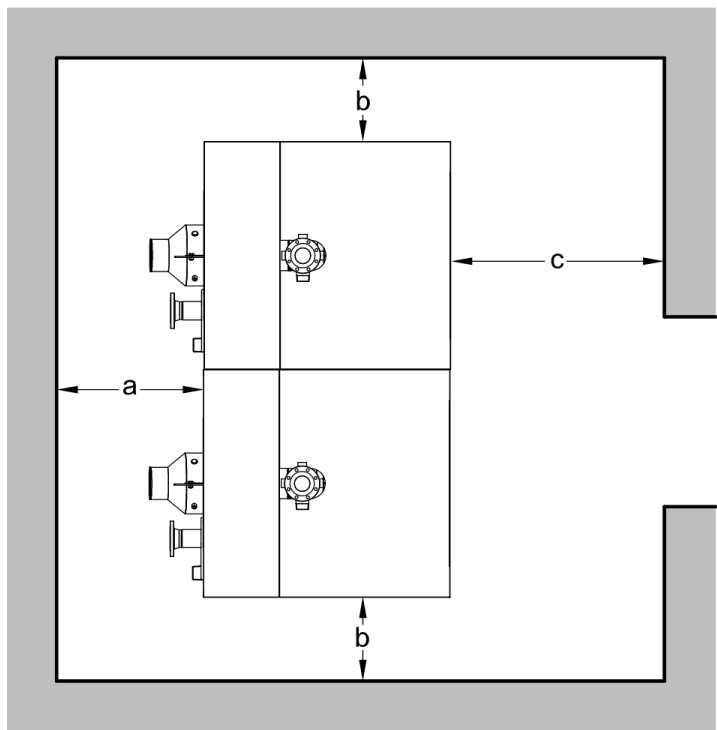
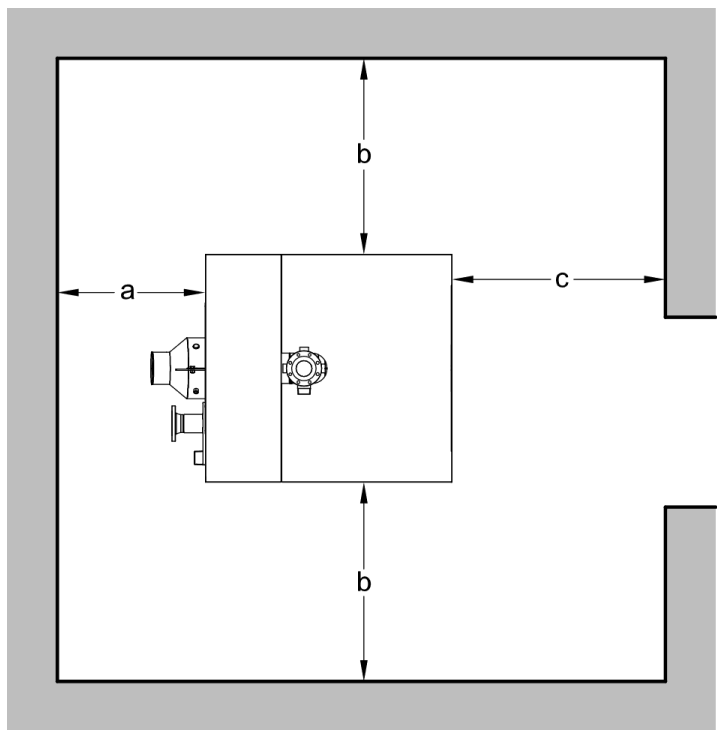
a	47¼ in.	1200 mm
b	29½ in.	750 mm

### 1.3 Minimum Clearances

#### Clearances to Combustibles

Top	0" / 0 mm
Sides	0" / 0 mm
Flue	As per vent manufacturer's specifications
Front	0" / 0 mm
Floor	Combustible

## Recommended Minimum Service Clearances



### Dimensions

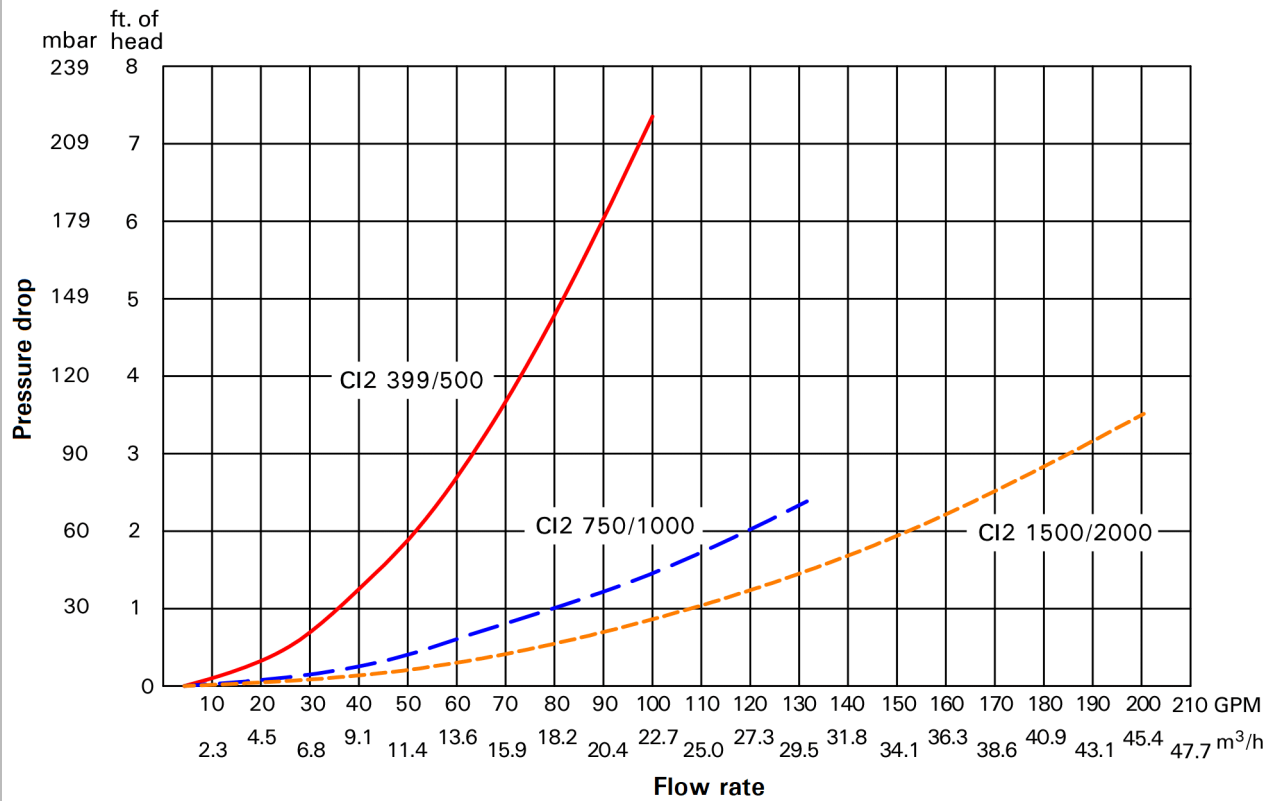
a *1	31½ in.	800 mm
b *2	27½ in.	700 mm
c	39½ in.	1000 mm
Top clearance	20 in.	510 mm

### Notes

- \*1 Clearance for vent pipe installation.
- \*2 Clearance between boilers may be reduced to zero in multi-boiler installations.

## 1.4 Waterside Flow

### Pressure Drop (Primary Circuit)



#### Recommended flow rates for CI2-2000

20°F $\Delta t$	194 GPM
40°F $\Delta t$	97 GPM
100°F $\Delta t$	39 GPM
11°C $\Delta t$	44.1 cubic m/h
22°C $\Delta t$	22.0 cubic m/h
56°C $\Delta t$	8.9 cubic m/h

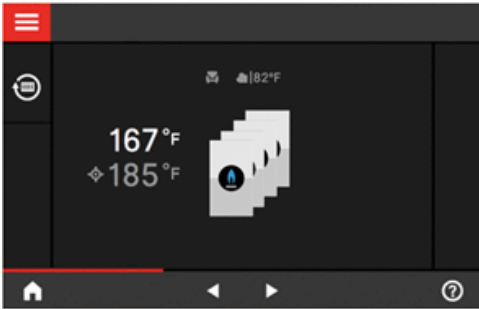
$\Delta t$  = temperature difference

This boiler does not require a flow switch.

Minimum flow rate based on 100°F  $\Delta t$  (56°C  $\Delta t$ )

Maximum flow rate based on 20°F  $\Delta t$  (11°C  $\Delta t$ )

## Control Data



### 7 Inch Color Touch Screen Control

Weather-compensated boiler and heating circuit control integrated into each Vitocrossal 200 CI2 boiler in single or multi-boiler systems (cascadable up to 16 boilers).

## 1.0 Technical Data

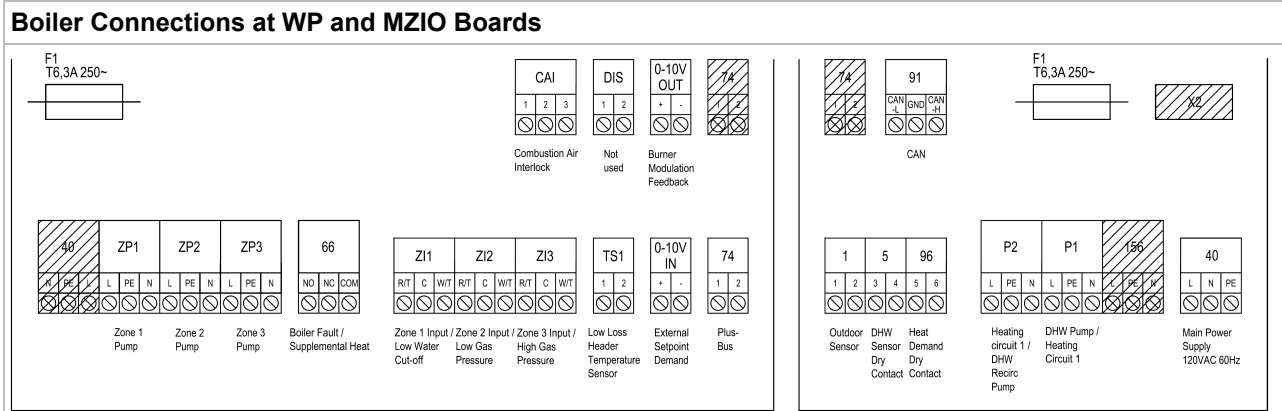
### Electrical Connections

Plug / designation	Component	Rated voltage	Single boiler system	Multi boiler system	
				Lead boiler control unit	Lag boiler control unit
P1	DHW pump or heating circuit pump for heating circuit A1 depending on system configuration	120V~	X	X	
P2	Heating circuit pump for heating circuit A1 or DHW recirculation pump depending on system configuration	120V~	X	X	
[20]	Boiler pump	120V~	X	X	X
[40]	Boiler power supply	120V~	X	X	X
[52]	Boiler isolation (accessory)	120V~	X	X	X
[53]	Flue gas damper (accessory)	120V~		X	X
[66]	Central fault message depending on configuration	120V~	X	X	X
ZP1	Zone 1 pump	120V~	X	X	
ZP2	Zone 2 pump	120V~	X	X	
ZP3	Zone 3 pump	120V~	X	X	

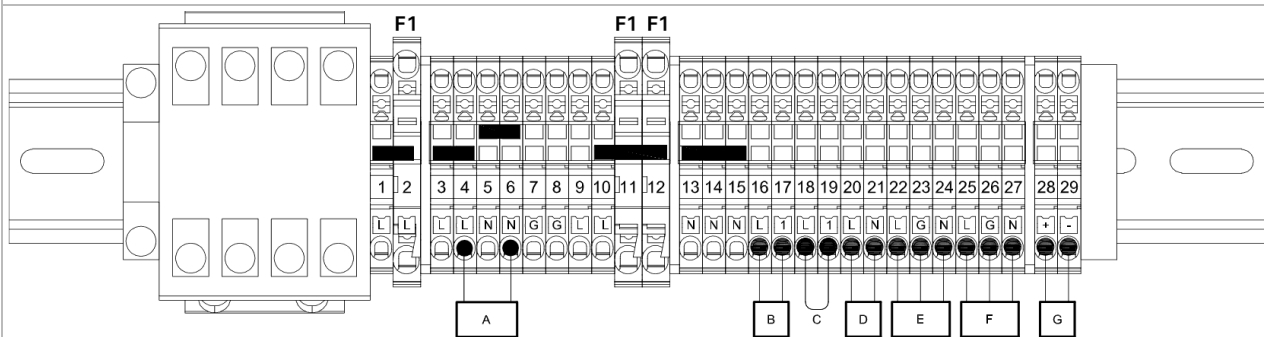
## Low Voltage Connections

Plug	Component	Single boiler system	Multi boiler system	
			Lead boiler control unit	Lag boiler control unit
[1]	Outdoor temperature sensor	X	X	
[5]	DHW tank temperature sensor	X	X	
[74]	PlusBus participant	X	X	
[91]	CAN communication interface for data exchange between lead and lag boilers in a cascade system and boiler control units and WAGO Gateway	X	X	X
[96]	External demand via switching contact	X	X	
0-10VDC IN	Boiler setpoint temperature or burner modulation setpoint depending on configuration	X	X	
0-10VDC OUT	Boiler pump modulation signal	X	X	X
CAI	Combustion air device interface	X	X	X
DIS	Digital input – burner block	X	X	X
TSI	Boiler common supply temperature sensor	X	X	
ZI1	External safety equipment or TT contact for Zone 1	X	X	
ZI2	External safety equipment or TT contact for Zone 2	X	X	
ZI3	External safety equipment or TT contact for Zone 3	X	X	

## 1.1 Control Diagrams



## DIN Rail Connections



### Legend

- |    |  |
|----|--|
| A  | Low water cut-off power supply   |
| B  | Low water cut-off feedback   |
| C  | Flue gas damper for common venting feedback (factory installed jumper) |
| D  | Flue gas damper for common venting power supply                        |
| E  | Boiler isolation valve (power open spring return)                      |
| F  | Boiler pump power supply   |
| G  | Boiler pump modulation signal (0-10VDC)                                |
| F1 | Fuse 6.3 (slow) 120VAC   |

## System Accessories Data



### Pressure Relief Valve

#### Watts 174A Series

Bronze safety relief valve for protection of hot water boilers and heating systems.

#### 1.0 Technical Data for Model 0275176

<b>Set pressure</b>	80 psig	
<b>Certified capacity *1</b>	2,166,000 Btu/hr	
<b>Maximum temperature</b>	250 °F	121 °C

#### Connections

Inlet size	1 inch NPT Female
Outlet size	1 inch NPT Female

#### Dimensions

Height	5¾ inches	144 mm
Length	3 inches	76 mm
Weight	1.9 lbs	0.9 kg

#### Notes:

\*1 Steam pressure discharge capacity as tested and rated by the National Board of Boiler and Pressure Vessel Inspectors.

## System Accessories Data



### Low Water Cut-Off

#### Hydrolevel Safgard™ Model 650A

Electronic low water cut-off control with probe for hot water boilers.

### 1.0 Product Description

The low water cut-off is designed to shut down the burner in low water conditions.

The probe is installed in the boiler shell or external manifold, and connected to the control unit. Water is used as a conductor to complete the circuit between the probe and the boiler shell. When water is in contact with the probe, the circuit is completed; when the water level drops below the probe, the circuit opens.

The low water cut-off features:

- Automatic reset (boiler control manual reset required)
- Test button

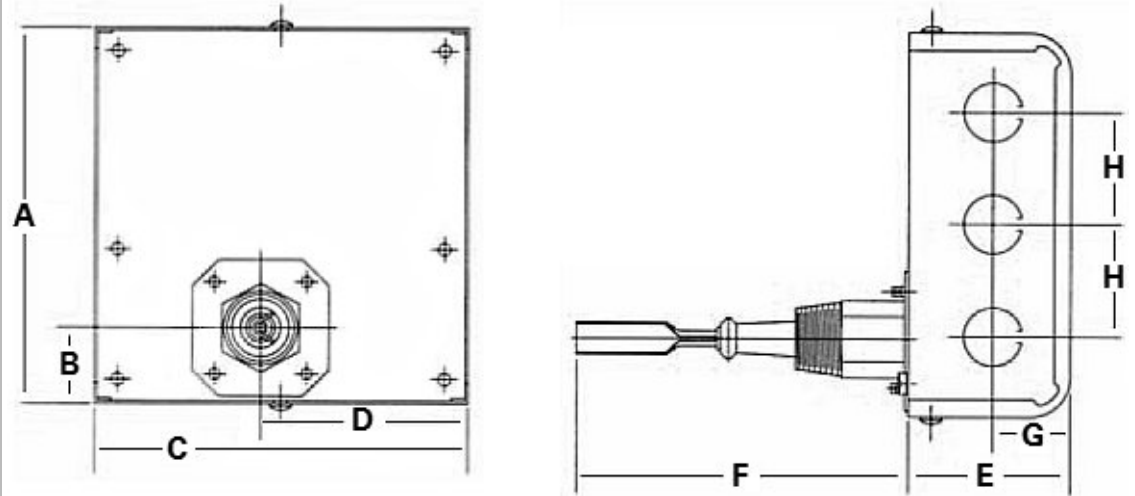
The low water cut-off can be mounted vertically or horizontally.

### 1.1 Technical Data for Model 650A

<b>Maximum pressure</b>	250 psi	17 bar
<b>Input voltage</b>	120 VAC	60 Hz
<b>Switch ratings</b>	5.8 FLA	34.8 LRA
<b>Switch contacts</b>	SPDT	
<b>Alarm circuit</b>	125 VA @ 120 VAC	Pilot Duty
<b>Certifications</b>	UL listed (CA & US)	

## 1.2 Dimensional Drawings

### LWCO Back and Bottom Views

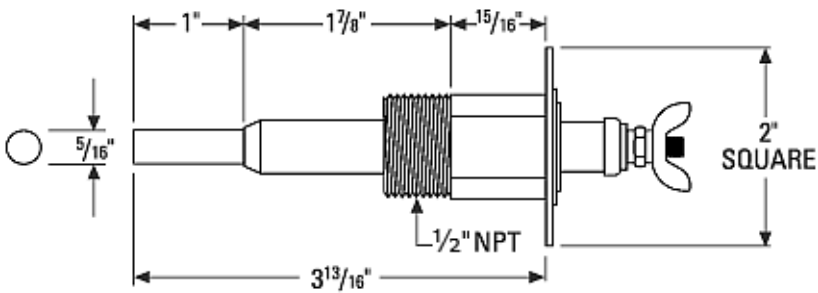


*Drawing courtesy of Hydrolevel*

#### Dimensions (approx.)

A	5½"	141 mm	E	2⅝"	60 mm
B	1⅞"	27 mm	F	3⅞"	98 mm
C	5½"	140 mm	G	1⅞"	29 mm
D	3⅞"	78 mm	H	1⅝"	41 mm

### Probe Side View



*Drawing courtesy of Hydrolevel*

Technical information subject to change without notice. Viessmann reserves the right to correct errors in graphics, files, text and technical data. Some product may not be exactly as illustrated. Viessmann will not be held liable, financially or otherwise, for product changes, discontinuations or delays.

© Viessmann Manufacturing Company Inc. All rights reserved.  
 Viessmann is a trademark of Viessmann Group GmbH & Co. KG, and is registered with the U.S. Patent and Trademark Office. For further copyright, trademark and disclaimer information, please visit: [www.viessmann.ca/en/copyright.html](http://www.viessmann.ca/en/copyright.html)