

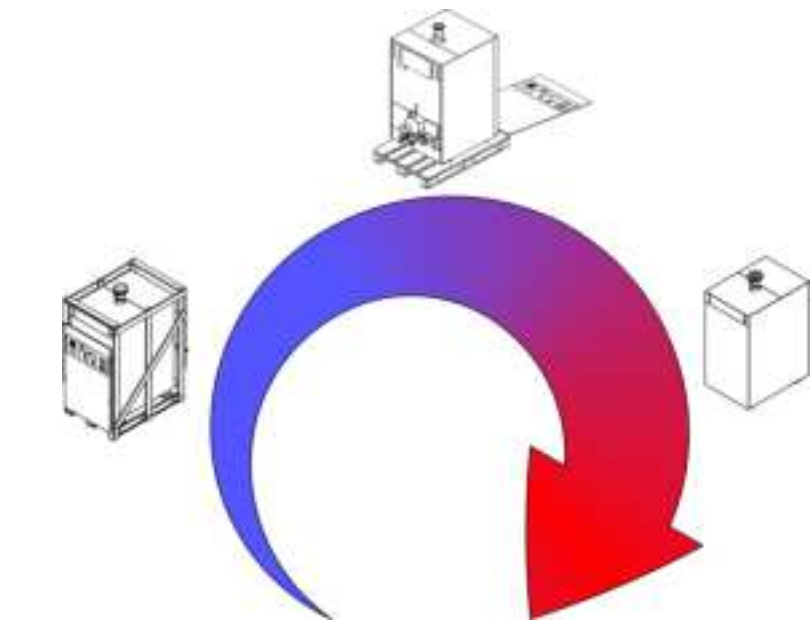
VITOCROSSAL 200 CI2

Installation and Start-up Guide

for use by a licensed professional heating contractor for typical single boiler installations

VIESSMANN

Vitocrossal 200 CI2 series
Gas condensing boilers with MatriX cylinder burners
Heating input: 399 to 2000 MBH
(117 to 586 kW)



Before you install the boiler;

This boiler is configured for Natural Gas from the factory. If conversion to Propane Gas is required, the conversion kit supplied with the boiler must be used.

This guide is designed to provide a quick overview to the licensed professional heating contractor for installing the Vitocrossal 200 CI2 boiler. It is NOT a substitute for the technical support literature supplied with the boiler and accessories.

The technical support literature for each product contains the necessary safety and national/local code requirements which, if not followed exactly, may lead to property damages, personal injuries and/or loss of life. Viessmann Manufacturing assumes no responsibility for damage(s) of any kind caused by inappropriate use of this manual and/or failure to read the technical literature provided which may also render the warranty null and void.

Codes

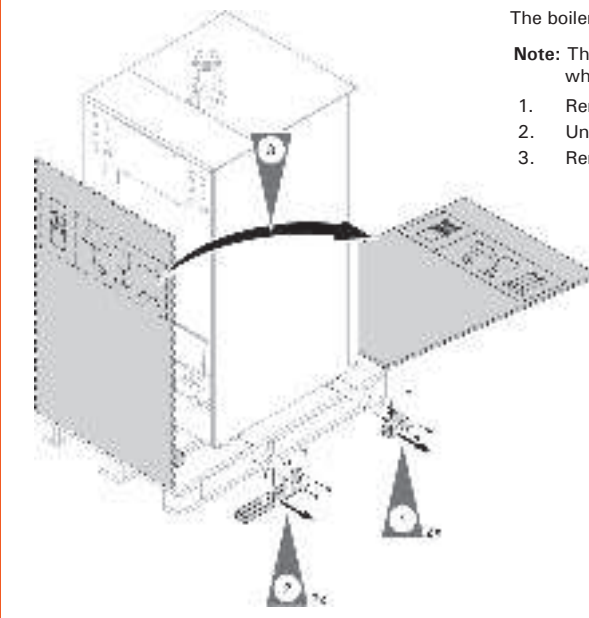
The installation of this unit shall be in accordance with local codes or, in the absence of local codes, use CAN/CSA-B149.1 or .2 Installation Codes for Gas Burning Appliances for Canada. For U.S. installations use the National Fuel Gas Code ANSI Z223.1. Always use latest editions of codes.

In Canada all electrical wiring is to be done in accordance with the latest edition of CSA C22.1 Part 1 and/or local codes. In the U.S. use the National Electrical Code ANSI/NFPA 70. The heating contractor must also comply with both the Standard for Controls and Safety Devices for Automatically Fired Boilers, ANSI/ASME CSD-1, and the Installation Code for Hydronic Heating Systems, CSA B214-01, where required by the authority having jurisdiction.



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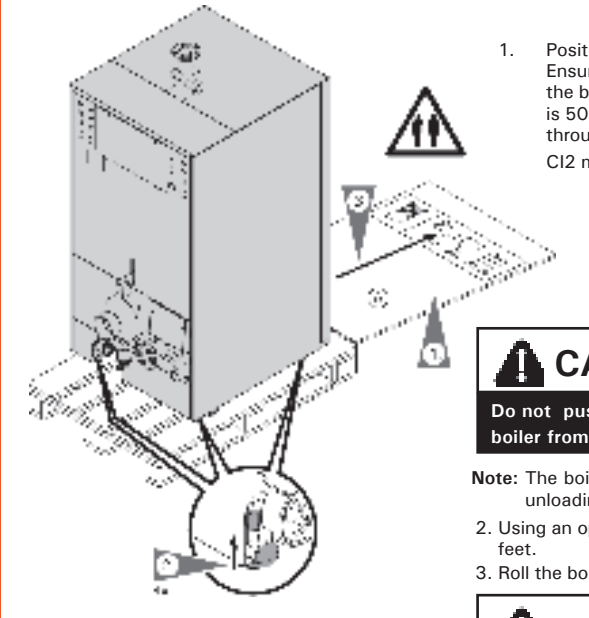
1 Unpacking the Boiler



The boiler is delivered on a wooden pallet.

Note: The boiler can be lifted by crane only while it is still packed on the skid.

1. Remove packaging.
2. Unscrew the transport brackets.
3. Remove the ramp and set aside.



1. Position the ramp at the rear of the boiler. Ensure that there is sufficient room to unload the boiler from the skid. The ramp length (A) is 50 in. (1270 mm) for CI2 models 399 through 1000, and 75 in. (1900 mm) for CI2 models 1500 and 2000.

CAUTION

Do not push on the jacketing to remove the boiler from the skid.

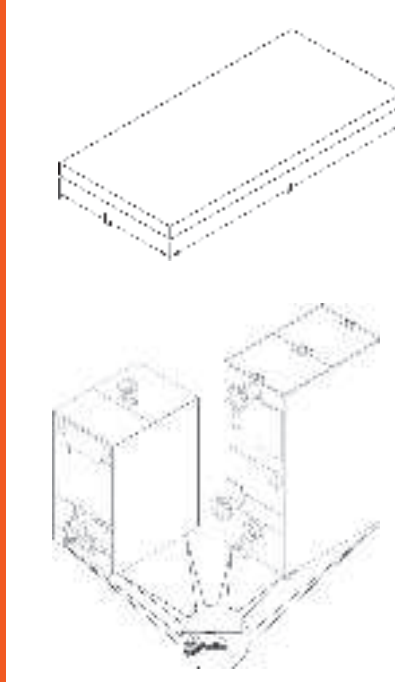
Note: The boiler is equipped with wheels to facilitate unloading and placement of the boiler.

2. Using an open end wrench wind in the adjustable feet.
3. Roll the boiler off the pallet.

WARNING

The boiler can cause serious injury if it overturns. At least 2 people are required to move the boiler. Roll the boiler in a straight line.

2 Positioning the Boiler



Note: The levelling feet must be used once the boiler has been placed in it's final position.

1. Using an open end wrench adjust the levelling feet in the base frame of the boiler ensuring that the wheels are off the ground.
2. It is recommended to place a flat piece of steel plate under each leveling bolt for better weight distribution and adjustment.
3. Level the boiler, by adjusting the levelling feet.

Without seismic feet

CI2 Model	399	500	750	1000	1500	2000
a in. mm	32 (812)		41 (1040)		47a (1200)	
b in. mm	29b (750)		29b (750)		29b (750)	

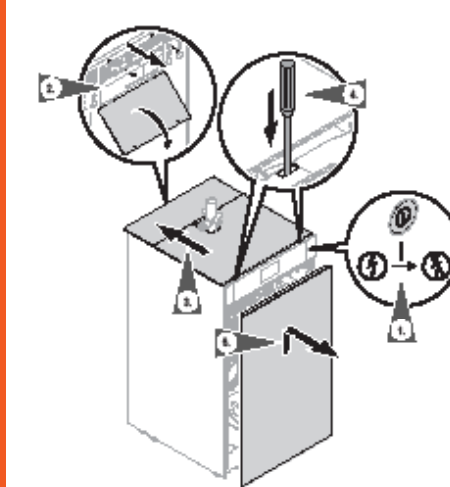
Weight incl. water content	1027 lb. 358 kg		1382 lb. 627 kg		2754 lb. 1249 kg	2798 lb. 1269 kg
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With seismic feet

CI2 Model	399	500	750	1000	1500	2000
a in. mm	46 (1170)		54 (1370)		63 (1600)	
b in. mm	46 (1170)		46 (1170)		46 (1170)	

3 Accessing the Boiler

CI2 399 to 1000



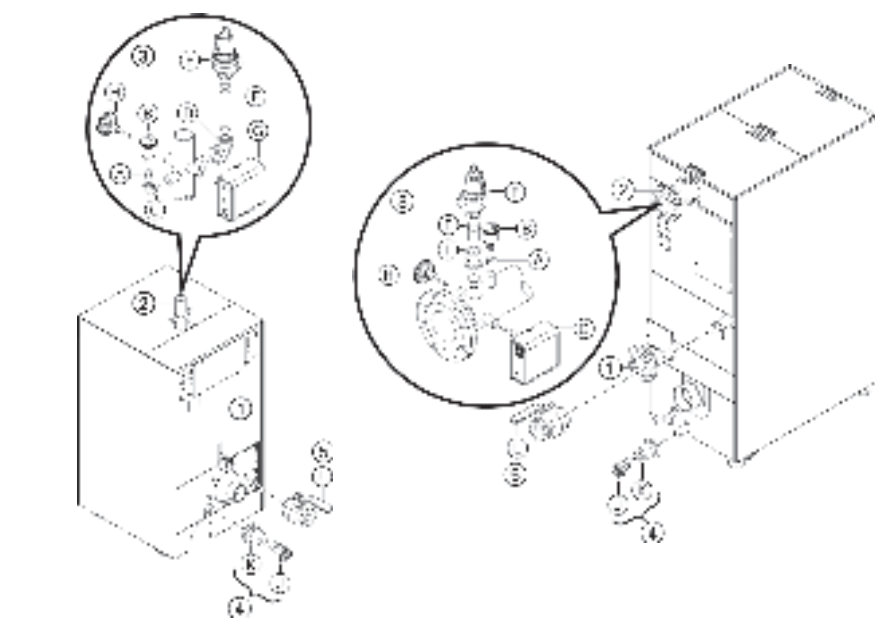
Removing the front panel

To access the BCU and control unit, panels have to be removed.

1. Turn the power switch off and disconnect the power supply to the boiler close gas shutoff valve.
2. Remove junction box retaining screws and set aside, swing the junction box access door to open.
3. Push back top panels to access the front panel release (top panel removal is not required).
4. Using a screwdriver push down on the front panel releases.
5. Pull forward at the top of the front panel and lift up to remove.

4 Boiler Connections

Safety Header



Legend

- ① Boiler return: 2 in. NPT for CI2 399/500
2 ½ in. ANSI flange for CI2 750/1000 *1
4 in. ANSI flange for CI2 1500/2000 *1
- ② Boiler supply: 2 in. NPT for CI2 399/500
2 ½ in. ANSI flange for CI2 750/1000 *1
4 in. ANSI flange for CI2 1500/2000 *1

*1 Counter flanges, gaskets and hardware (field supplied)

*2 Alternate pressure relief valves are available depending on operating pressure requirements. Contact your local Viessmann sales representative for details.

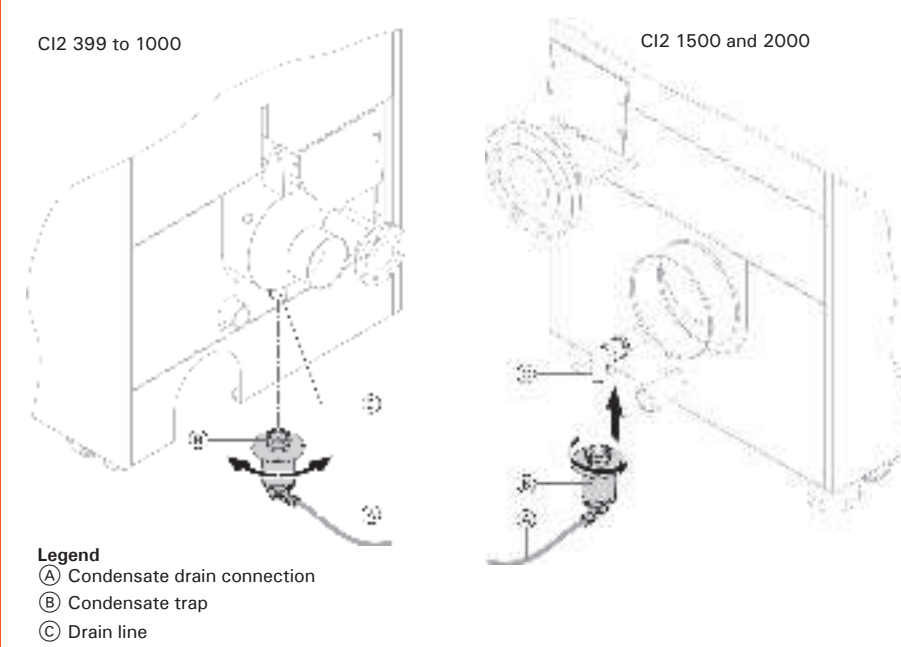
- ③ Safety header: (Pressure relief valve, low water cutoff, automatic air vent and temperature/pressure gauge)

- Ⓐ Hex bushing ½ in. x ¾ in.
- Ⓑ Air vent with shut-off base
- Ⓒ Street elbow ¾ in.
- Ⓓ Reducing elbow 1 ¼ in. to 1 in.
- Ⓔ Nipple 1 in.
- Ⓕ Pressure relief valve, 80 psi *2
- Ⓖ Low water cutoff
- Ⓗ Temperature/pressure gauge
- Ⓘ Reducer 1 ½ in. to 1 in.

④ Drains:

- ⓐ Reducer 1 ½ in. x ¾ in.
 - ⓑ Sediment faucet ¾ in.
- Gas line fittings:
- ⓓ Gas gas shut-off valve, 1 ½ in. for models 399, 500, 750 and 1000, 2 in. for models 1500 and 2000

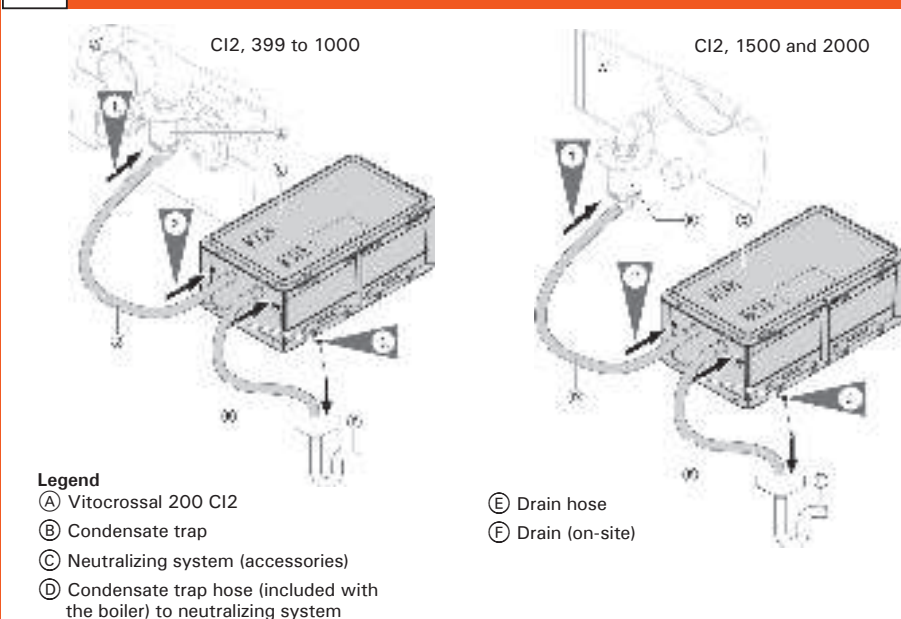
5 Installing the Condensate Trap



Legend

- Ⓐ Condensate drain connection
- Ⓑ Condensate trap
- Ⓒ Drain line

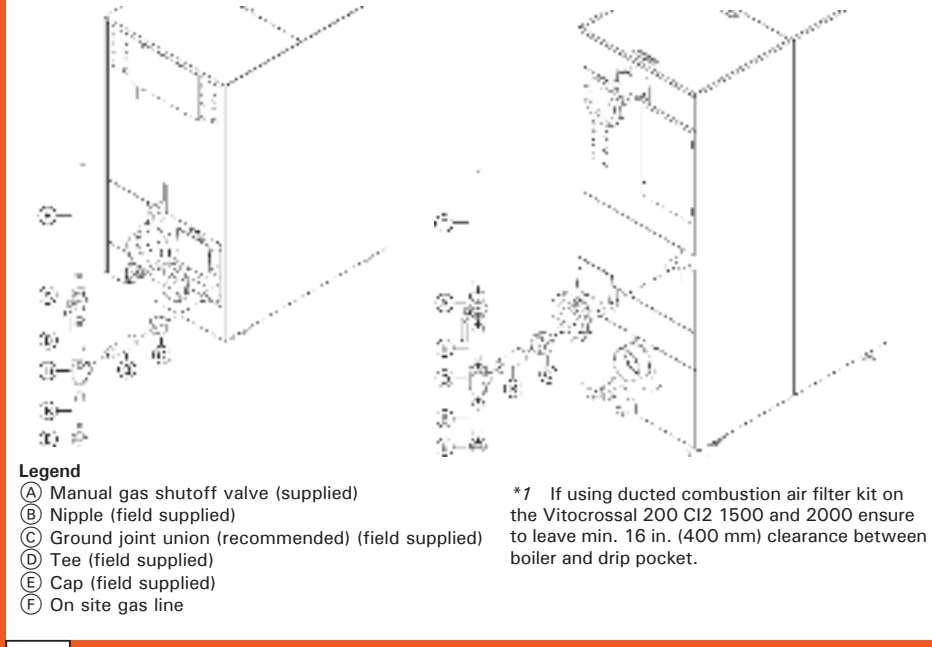
6 Connecting the Neutralization System



Legend

- Ⓐ Vitocrossal 200 CI2
- Ⓑ Condensate trap
- Ⓒ Neutralizing system (accessories)
- Ⓓ Condensate trap hose (included with the boiler) to neutralizing system
- Ⓔ Drain hose
- Ⓕ Drain (on-site)

7 Making the Fuel Gas Connections

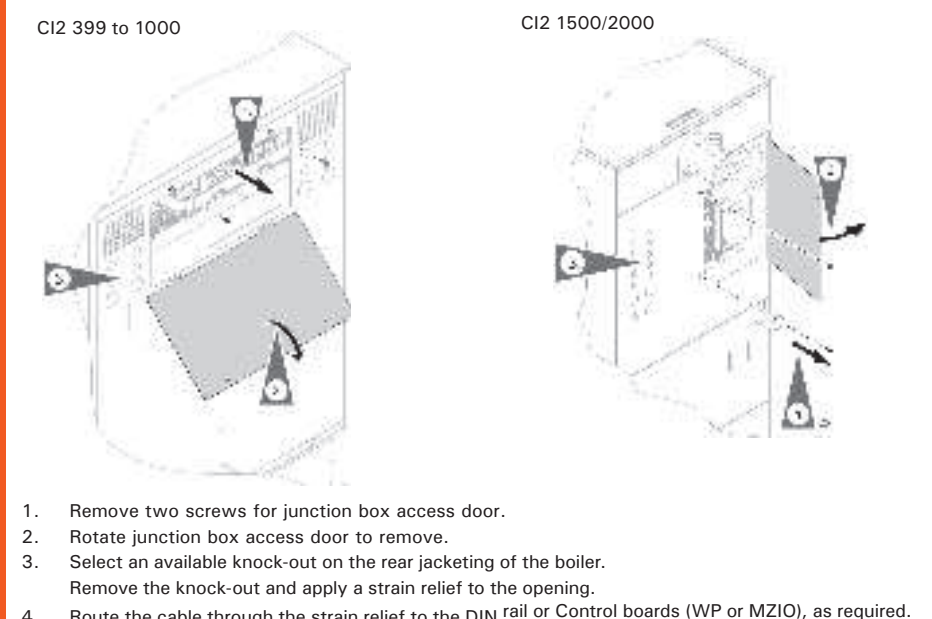


Legend

- Ⓐ Manual gas shutoff valve (supplied)
- Ⓑ Nipple (field supplied)
- Ⓒ Ground joint union (recommended) (field supplied)
- Ⓓ Tee (field supplied)
- Ⓔ Cap (field supplied)
- Ⓕ On site gas line

*1 If using ducted combustion air filter kit on the Vitocrossal 200 CI2 1500 and 2000 ensure to leave min. 16 in. (400 mm) clearance between boiler and drip pocket.

8 Accessing the DIN Rail



1. Remove two screws for junction box access door.
2. Rotate junction box access door to remove.
3. Select an available knock-out on the rear jacketing of the boiler. Remove the knock-out and apply a strain relief to the opening.
4. Route the cable through the strain relief to the DIN rail or Control boards (WP or MZIO), as required.

3 Accessing the Boiler (continued)

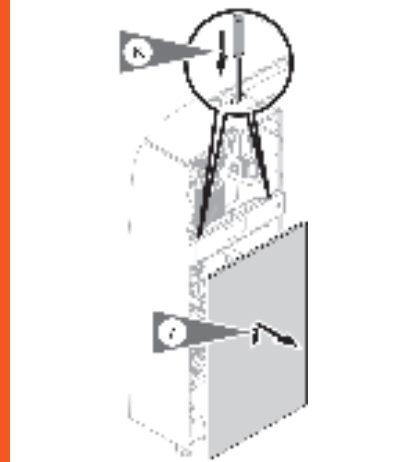
CI2 1500/2000



1. Turn the power switch off and disconnect the power supply to the boiler close gas shutoff valve.
2. Flip open the panel handle located at the top of the upper front panel.
3. Pull up the upper front panel using the panel handle.
4. While holding the panel handle, use a screw driver to release the panel retaining clip.
5. Pull up to finish removing the panel.

CAUTION

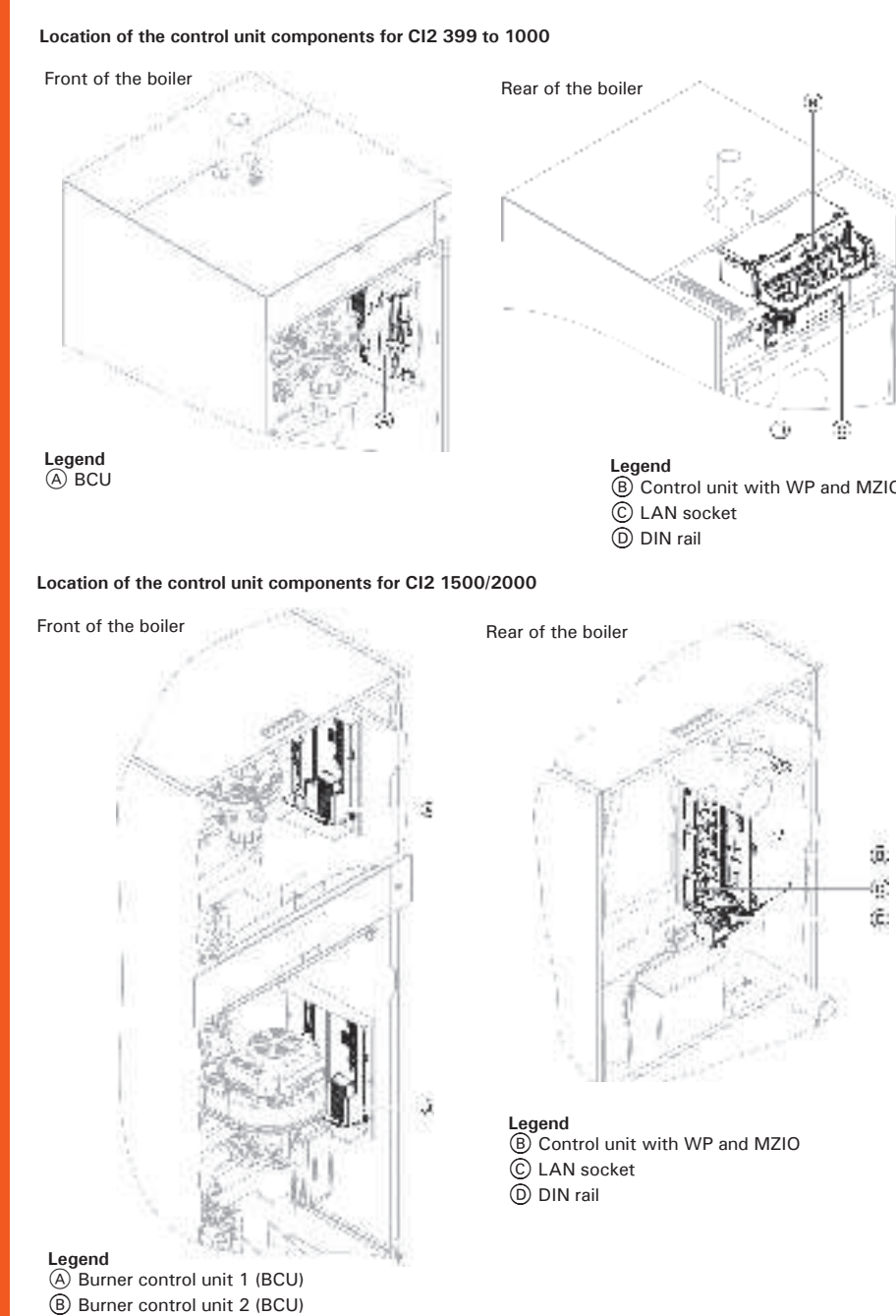
Failure to keep a firm grip on the panel handle may cause the upper front panel to fall causing injury.



Removing the front panels

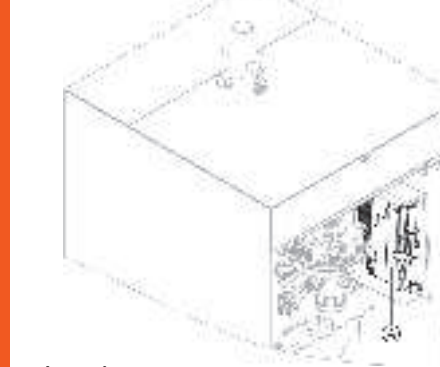
6. Using a screw driver, press down on the lower front panel release.
7. Pull the top of the lower front panel away from the boiler, lift up to remove.

9 Boiler Control Locations



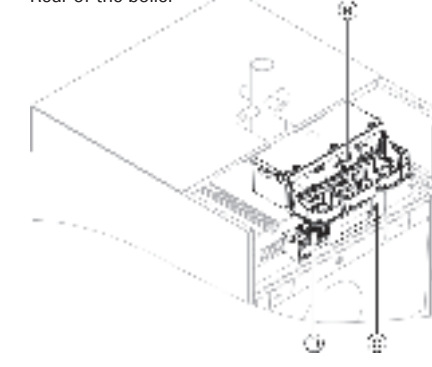
Location of the control unit components for CI2 399 to 1000

Front of the boiler



Legend
Ⓐ BCU

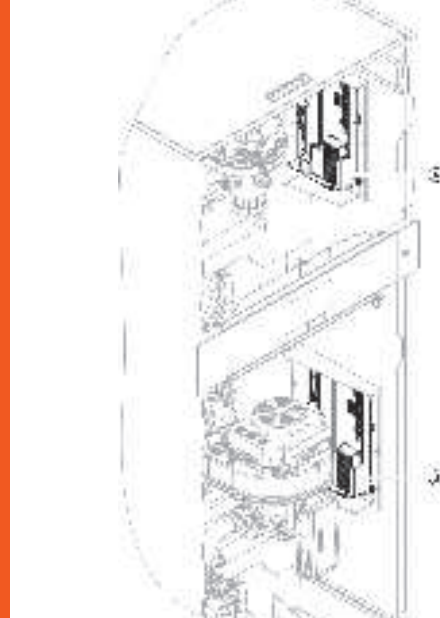
Rear of the boiler



Legend
Ⓑ Control unit with WP and MZIO
Ⓒ LAN socket
Ⓓ DIN rail

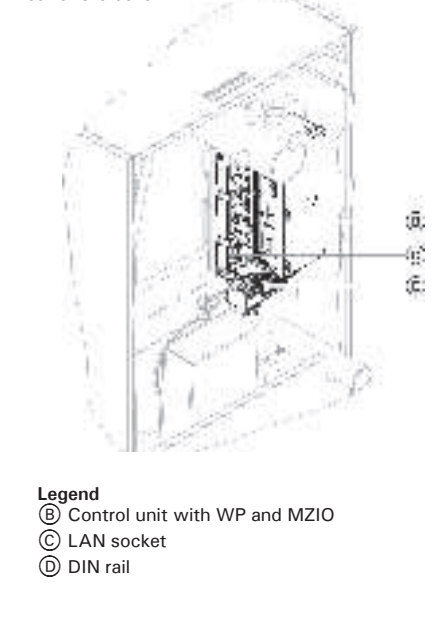
Location of the control unit components for CI2 1500/2000

Front of the boiler



Legend
Ⓐ Burner control unit 1 (BCU)
Ⓑ Burner control unit 2 (BCU)

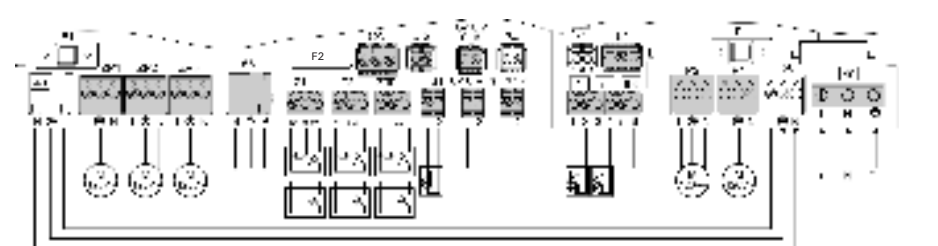
Rear of the boiler



Legend
Ⓑ Control unit with WP and MZIO
Ⓒ LAN socket
Ⓓ DIN rail

10 Connection on MZIO/WP Boards

Overview of connections to the wiring panel and MZIO



Note: For further information on the connections, see the following chapters.

Wiring panel

40 Power cable DIN rail

P1 Output 120V for: DHW pump

P2 Output 120V for: Heating circuit pump for heating circuit without mixing valve A1 in conjunction with low loss header and heating circuits with mixing valve or DHW recirculation pump

96 External call for heat

1 Outside temperature sensor, terminals 1 and 2

5 Tank temperature sensor or temperature switch such as an Aquastat, terminals 3 and 4

91 CAN BUS connection

74 PlusBus

F1 Fuse 6.3 A (slow), 120V

F2 Fuse 1 A (slow), 120V

When connecting accessories observe the separate installation instructions provided with them.

MZIO

ZP1 Zone 1, pump

ZP2 Zone 2, pump

ZP3 Zone 3, pump

66 Potential-free changeover contact S

Normally closed (NC) O

Normally open (NO) P

COM

Z11 Zone 1 or safety input 1

Z12 Zone 2 or safety input 2

Z13 Zone 3 or safety input 3

CAI Combustion air interlock


DIS Digital input (burner lockout)

TS1 Low loss header sensor

0-10V OUT Output 0-10V (burner modulation feedback)

0-10V IN Input 0-10V

11 Typical Single Pipe and Coaxial Pipe Venting Layouts



Switch

■ If the boiler is not integrated into a CAN bus system: Switch (A) must not be set to "ON".

■ If the boiler is integrated in a CAN bus system and is located at the beginning or end of this system (not in the middle): Set switch (A) to "ON" (switched on).

■ If the boiler is integrated in a CAN bus system and is not located at the beginning or end of this system: Do not set switch (A) to "ON" (switched off).

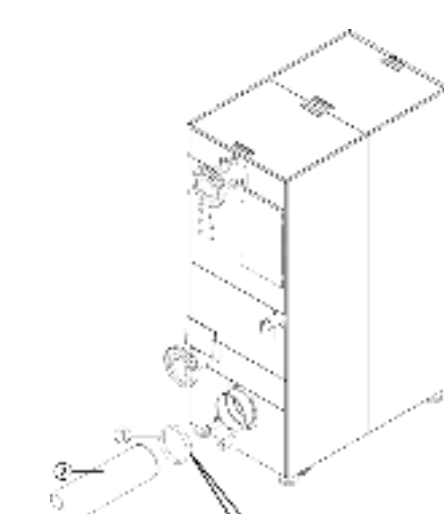
Legend

(A) Boiler

(B) CAN bus cable

(C) Other subscribers

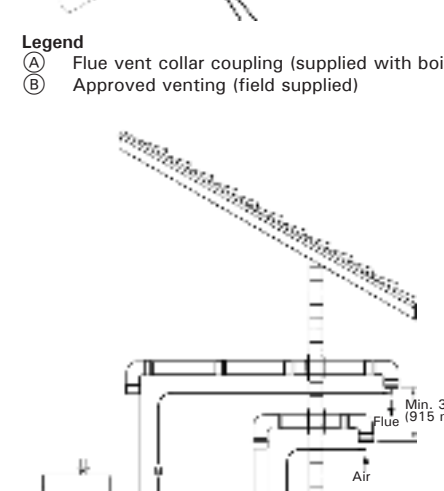
16 Making the Vent Connection



Two pipe - vertical exhaust/vertical intake

a - Equivalent exhaust length

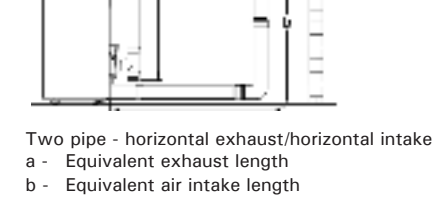
b - Equivalent air intake length



Two pipe - horizontal exhaust/horizontal intake

a - Equivalent exhaust length

b - Equivalent air intake length



Two pipe - vertical exhaust/ horizontal intake

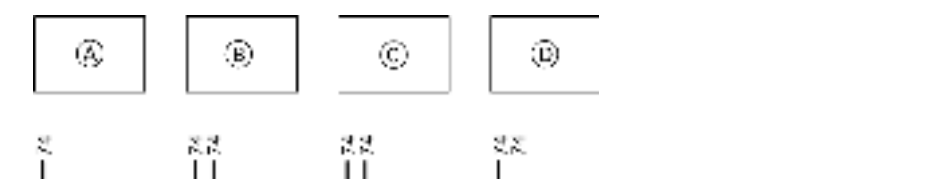
a - Equivalent exhaust length

b - Equivalent air intake length

Vertical intake and exhaust		399	500	750	1000	1500	2000
Vitocrossal 2000 C12 Boiler model							
Boiler flue collar (internal diameter)	in. (mm)	4 (104.2)	4 (104.2)	6 (155)	6 (155)	6 (155)	8 (205.2)
Combustion air intake diameter	in. (mm)	4 (104.2)	4 (104.2)	6 (155)	6 (155)	6 (155)	8 (205.2)
Max. total equivalent length (a + b)	ft. (m)	198 (60)	198 (60)	198 (60)	198 (60)	198 (60)	198 (60)

12 Connecting Accessories

Accessories with direct power supply



Legend

(A) Lead boiler

(B) Mixing valve extension kit

(C) Mixing valve extension kit

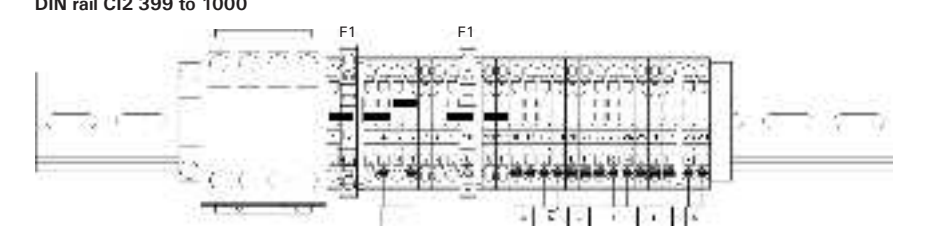
(D) EM-EA1 extension and/or EM-P1 extension

(74) PlusBus

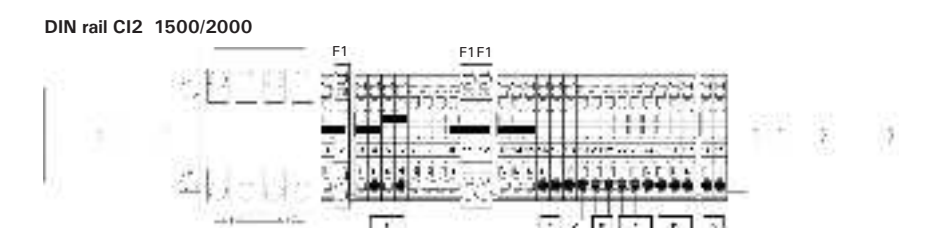
13 Electrical Connections DIN Rail

Overview of terminal block connections

DIN rail C12 399 to 1000



DIN rail C12 1500/2000



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

14 Connection of Low Water Cut-off Device

Note: The boiler is supplied with a LWCO wiring harness.

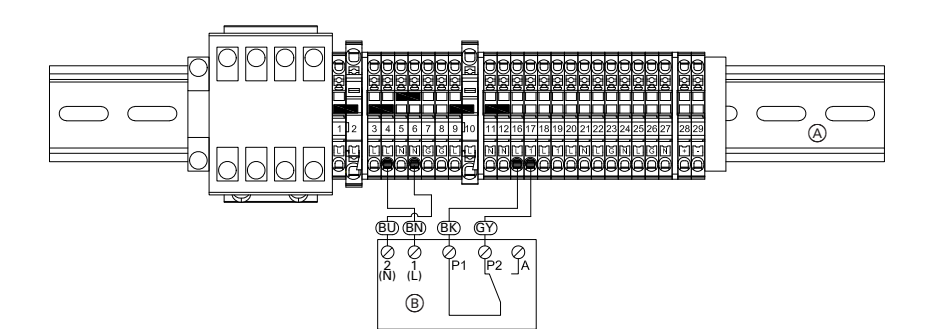
- Make connection for (LWCO) switching contact at terminals 16 and 17.
- Power supply for low water cut-off device made at terminal 4 and terminal 6.

For additional information refer to the Installation Instructions.

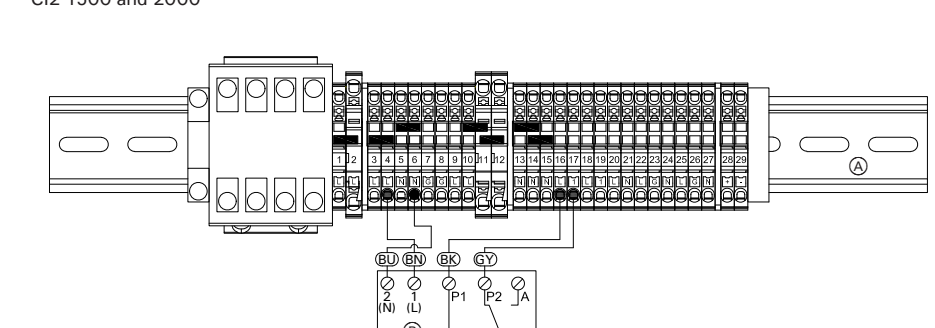
CAUTION

The diagram shown is only a simplified conceptual drawing of a typical low water cut off (LWCO) device. Refer to the manual specific to the device for interconnection details.

C12 399 to 1000



C12 1500 and 2000



Legend

(A) Boiler DIN rail

(B) Low water cutoff (typical)

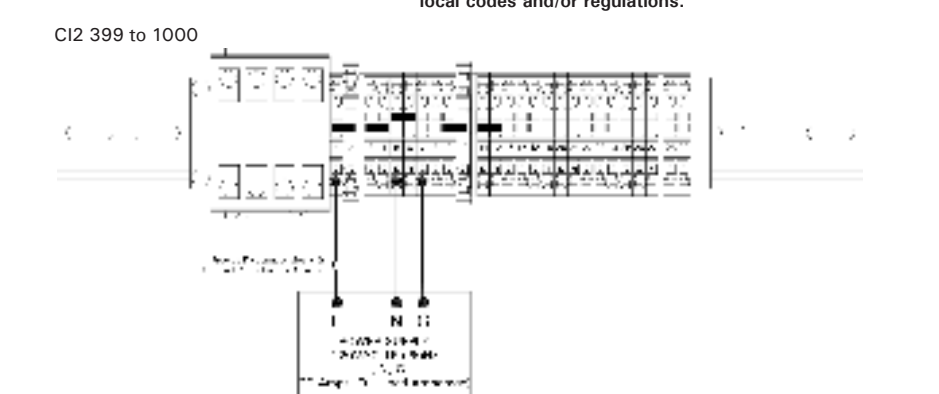
15 Connecting the Boiler Power Supply

IMPORTANT

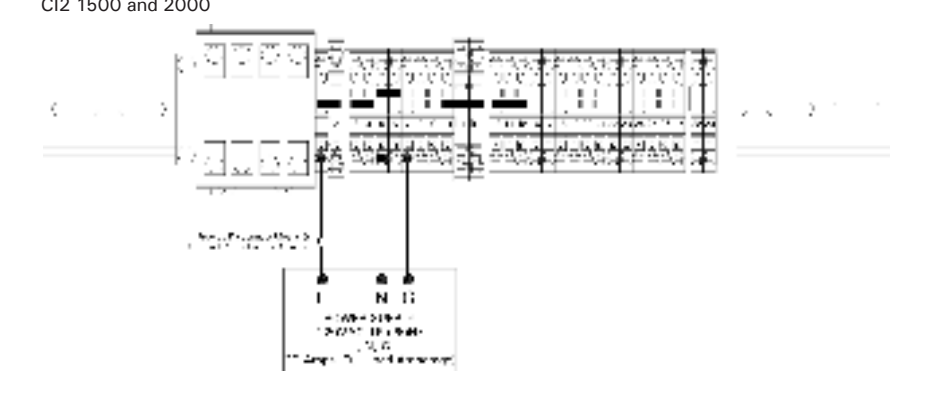
Electrical installations must comply with the latest edition of:

- In the U.S.A., the National Electrical Code (NEC), ANSI/NFPA 70 and any other state, local codes and/or regulations.
- In Canada, the Canadian Electrical Code (CEC), CSA C22.1 Part 1 and any other province, territory, local codes and/or regulations.

C12 399 to 1000



C12 1500 and 2000



WARNING

The control must be grounded. Ensure that 'L', 'N' and 'G' are not interchanged.

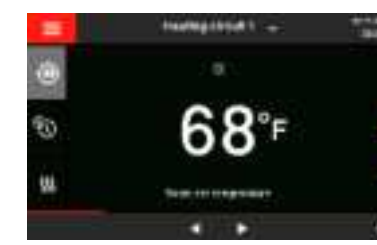
WARNING

Incorrectly executed electrical installations can lead to injuries from electrical current and result in appliance damage.

17 Starting the Boiler Using the Commissioning Assistant (continued)

Commissioning assistant sequence	Explanations and references
Floating contact: Function selection plug 96	If a contact has been connected to plug 96.
<ul style="list-style-type: none">No functionExternal demand, DHW circulation pumpExternal demand (based on boiler application type)External blockingHeat demand (based on boiler application type)	Push button function, DHW recirculation pump runs for 5 min. Boiler demand with adjustable target supply temperature (parameter 528.0) and target primary pump speed (parameter 1100.2) Call for heat is shown in the display/menu as "Heating zone 4".
EM-EA1 (DIO): Function selection (based on boiler application type)	If an EM-EA1 extension (DIO electronics module) is connected as a function extension.
Functions	Selection of the connected function according to the table in the EM-EA1 extension installation instructions.
Remote control units (based on boiler application type)	Set the type of remote control and subscriber no. as assignment to the respective heating circuit. Up to 4 heating circuits can be assigned to one remote control unit. It is not possible for several remote controls to act on one heating circuit.
"Primary pump"	
<ul style="list-style-type: none">No pumpBoiler circuit pumpBoiler circuit pump	On/off control 0 - 10V modulation control
Maintenance	
Interval in burner hours run until next maintenance	Interval adjustable in steps of 100 h.
Interval until next maintenance	Interval adjustable to 3, 6, 12, 18 or 24 months.


18 Setting the Room Temperature



- Tap the header bar and select desired heating circuit.
- Tap \pm .
- Tap \pm for either reduced, standard, or comfort to adjust temperature set point.
- ✓ to confirm, this will take you back to the home screen.

19 Adjusting the Heating Curve

In the delivered condition, the slope of the heating curve is set to 1.4, the level of the heating curve is set to 0.



Factory setting:

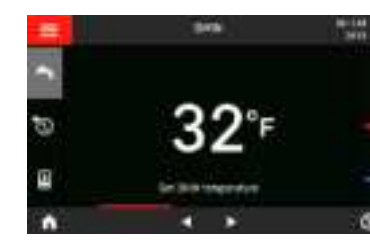
- "Slope": 1.4
- "Shift": 0

Tap the following buttons:

1. \equiv
2. \square "Heating"
3. Select "heating zone or heating circuit".
4. Select a heating zone or heating circuit, e.g. \odot "Heating circuit 1"
5. \swarrow "Heating curve"
6. \pm for the required value for "Slope" and "Shift" respectively.
The graph displayed clearly shows the change in the "Heating curve" as soon as you alter the value for the "Slope" or "Shift".
7. ✓ to confirm

Note: The heating curve can only be adjusted in weather-compensated operation. Refer to the "Operation" section of the Operating Instructions for more detail.

20 Setting DHW Temperature




Tap the following buttons:

- If applicable, \blacktriangleleft for the "DHW" default display
- \pm for the required value
- ✓ to confirm

Note: Not valid for systems with a DHW tank with temperature switch (e.g. Aquastat). The factory settings 122°F (50°C). Note: For reasons of good hygiene, you should not set the DHW temperature lower than 122°F (50°C).

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Manufacturer: Viessmann Heating GmbH, 35120 Viessmann, Germany
Product: Vitocrossal 2000 C12 Boiler
Model: C12 399 to 1000, C12 1500 to 2000
Technical Data: 1-888-464-8848
Technical Data: 1-544-840-5000
Technical Data: 1-888-464-8848
Technical Data: 1-544-840-5000