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POWER XPRESS™

DUAL CHARGING STATION INSTALL GUIDE

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Power Xpress™ Dual Bollard Charge Station Installation Guide

Technical Support

1-877-805-EVSE (3873)

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INSTALLATION SAFETY

SAVE THESE IMPORTANT SAFETY INSTRUCTIONS.
This guide contains important instructions that must be followed during the installation of the electric vehicle supply equipment (EVSE). All instructions should be carefully read before installation of the EVSE.

⚠ **WARNING: Turn OFF the circuit breaker at the service or distribution panel before performing any electrical work or repairs.**

⚠ **WARNING: The EVSE should be installed by a licensed electrician in accordance with all local electrical codes, ordinances, and all authorities having jurisdiction.**

⚠ **WARNING: Do not install the EVSE near flammable, explosive, or combustible materials. Do not locate or store flammable, explosive, or combustible materials near the EVSE.**

⚠ **WARNING: Improper installation of the EVSE can result in personal injury or product damage.**

⚠ **WARNING: This EVSE installation guide is not a substitute for electrical safety precautions.**

⚠ **WARNING: Use this EVSE within the specified operating parameters. Failure to do so may result in injury or death.**

⚠ **WARNING: Locate and install this EVSE in a location where the charge cable will not be stepped on, tripped over, or subject to damage or stress.**

⚠ **WARNING: The EVSE must be connected to a grounded, metal, permanent wiring system, or an equipment-grounding conductor must be run with the circuit conductors and connected to the equipment grounding terminal on the EVSE.**

⚠ CAUTION: Incorrect installation of the EVSE can result in damage to the vehicle's battery and to the EVSE itself. These damages will void the warranty for the vehicle and the EVSE.

⚠ CAUTION: Do not operate the EVSE in temperatures beyond its operating range of -40°F to +122°F (-40°C to +50°C).

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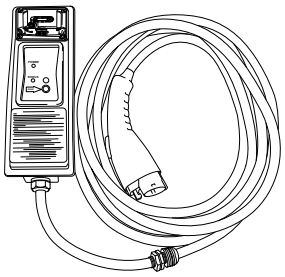
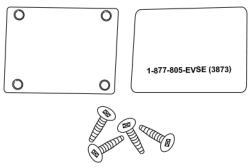
INSTALLATION CONTENTS: BOLLARD AND EVSE (EL-50650-XXXX)

Power Xpress EVSE (EL-50600-300) for Bollard Charge Station x2

1	EVSE (including attached cable with strain relief and grommet, input/output decals, flag tag, and vehicle coupler)	
1	Decal and cover kit	
1	Cable-management hook	
1	Power Xpress Bollard Charge Station Installation Guide	
1	Power Xpress EVSE User Manual	

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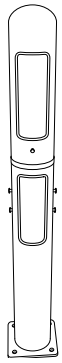
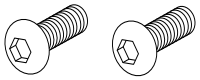
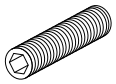
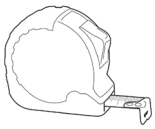
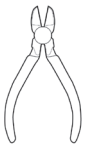
Bollard and Hardware (EL-50600-500)

1	Bollard (including upper and lower plastic covers)	
4	Cable-management retaining screws (pre-installed)	
1	Locating set screw (plastic bag attached to bollard)	
1	Base cover	

TOOLS SUGGESTED FOR INSTALLATION (NOT PROVIDED)

	Tape measure		Wire cutters
	2-ft Level		Wire stripper

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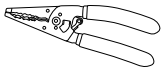
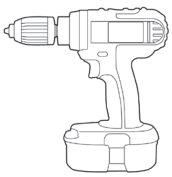
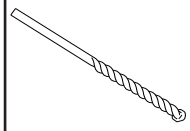
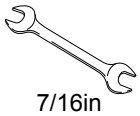
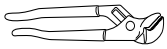
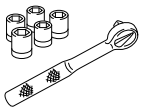
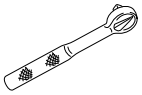
	Pencil		Nonmetallic wire stripper
	Power hammer drill		Masonry drill bit set
	Small flat-blade screwdriver		Needle-nose pliers
	7/16-in. Open-end wrench		Expandable pliers
	1/2-in. Ratchet and sockets		Torque wrench

MATERIALS REQUIRED FOR INSTALLATION

	SOOW or SOW 8/3 Serice Cord - 16’		Single gang junction box
	Cable grips x4		Wire

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APPLICABLE ELECTRICAL SYSTEMS

IMPORTANT: The on-site service connection must be properly identified before installation of the EVSE. If you are unsure of the available service connection, consult the local utility company or contact Bosch at 1-877-805-EVSE (3873).

NOTE: The L1, L2, and ground outputs (H, N for Europe) in the following illustrations correspond to the inputs on the EVSE.

NOTE: For the (earth) ground connection, always connect the neutral at the service panel to earth ground. Ground fault protection is not possible unless the neutral (center tap on the service transformer) is connected to an earth ground.

220/240V Single Phase (North America)

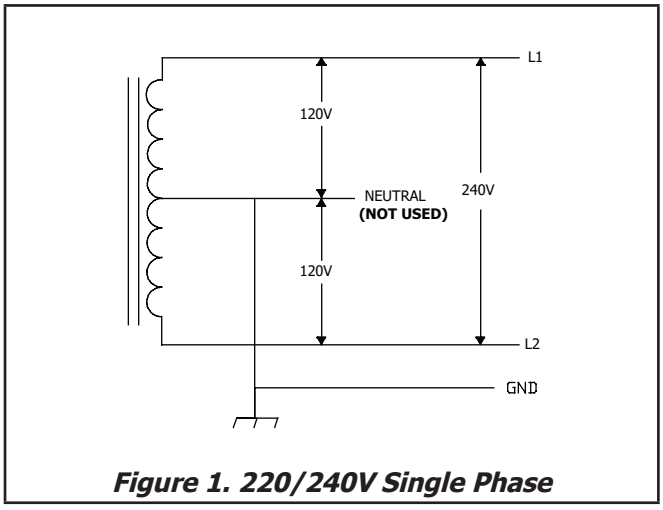

Figure 1. 220/240V Single Phase

⚠ **WARNING: The EVSE is a single-phase device. Do not connect all three phases of a 3-phase feed. Only three wires are connected, take care that the service transformer secondary connection is known, and the three wires from the main-panel circuit breaker are correctly connected and labeled.**

208V 3-Phase Wye Connection (North America)

Any two of the legs can be used to provide 208V to the EVSE with a Wye-connected secondary. For example, L1 and L2, or L1 and L3, or L2 and L3. Reference the wiring diagram below.

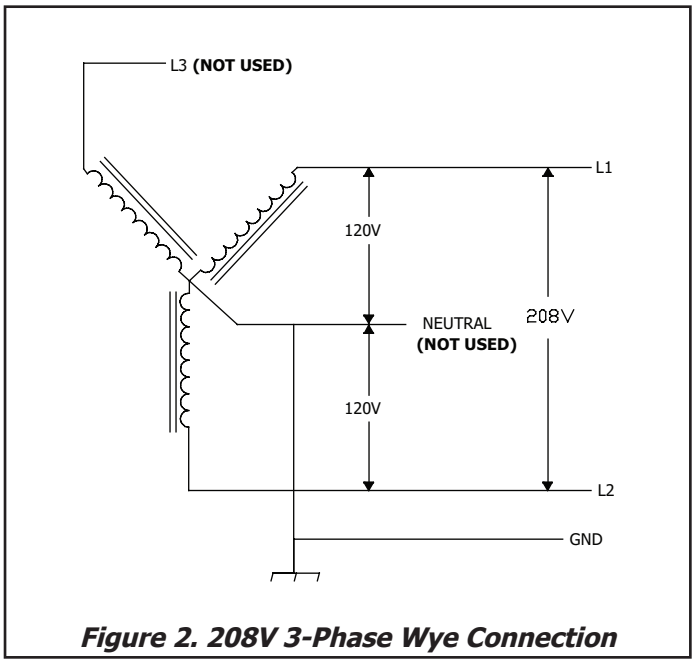

Figure 2. 208V 3-Phase Wye Connection

NOTE: A current-carrying neutral is not required for the EVSE for 208V connections.

⚠ **WARNING: The EVSE must be installed by a licensed electrician and in accordance with all local electrical codes, ordinances, and all authorities having jurisdiction.**

⚠ **WARNING: Do not install the EVSE near flammable, explosive, or combustible materials. Do not locate or store flammable, explosive, or combustible materials near the EVSE.**

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240V 3-Phase Delta Connection (North America) with Center Tap on One Leg

One leg must be center-tapped, and only the two phases on either side of the center tap can be used with the delta connection.

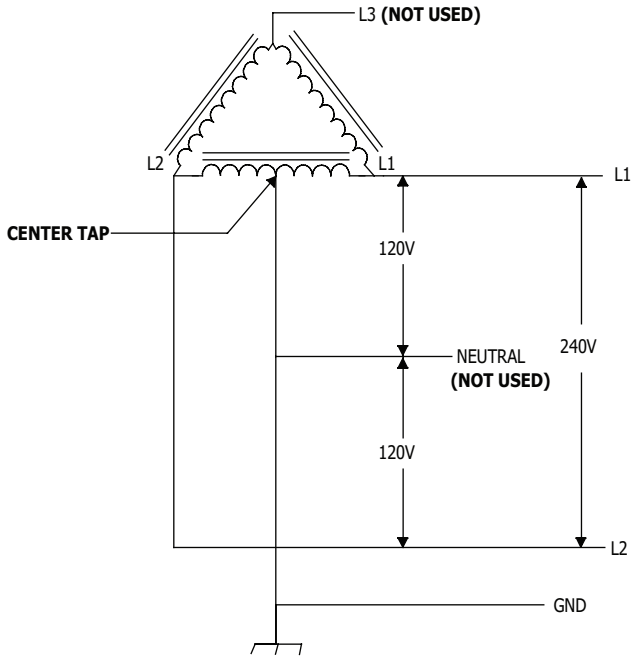

Figure 3. 240V 3-Phase Delta Connection

NOTE: The third line (L3 on the illustration of the delta) is 208V, with respect to the neutral, and is sometimes referred to as a "stinger."

⚠ **WARNING: Do not use this third line.**

NOTE: The two used phases must each measure 120V to neutral or ground.

NOTE: Consult the utility company or the transformer manufacturer's literature to verify that the single leg can supply the required power.

NOTE: The EVSE will only operate properly if it detects the presence of a ground wire connected to a neutral point on the transformer secondary.

⚠ **WARNING: Do not use a 3-phase delta-connected transformer secondary without a center tap on one leg and/or without a neutral point available for the required ground connection.**

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230V Above Ground (Europe)
230V Single Phase

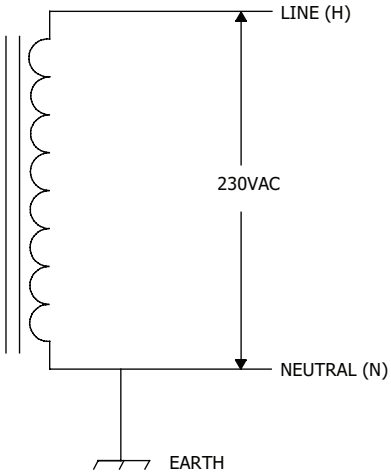

Figure 4. 230V Single Phase

⚠ WARNING: The EVSE is a single-phase device. When connecting the line and neutral wires, take care that the service transformer secondary connection is known, and the wires from the main circuit breaker panel are correctly connected and labeled. The following service connections are primarily used in Europe and Australia (sometimes known as "TT Power Grid"). Please reference the following diagram. The line, neutral, and earth outputs on the illustration correspond to the inputs on the EVSE.

⚠ WARNING: The line connection must measure 230V RMS to neutral. Earth must also be connected to the EVSE.

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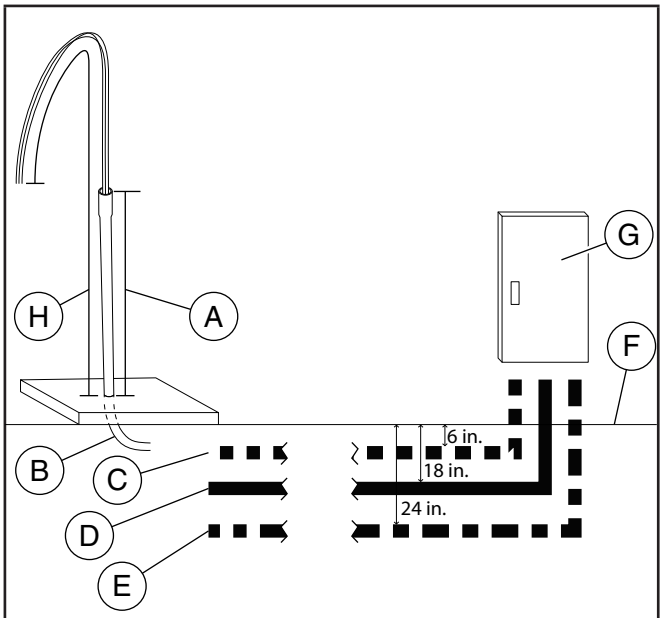
ELECTRICAL REQUIREMENTS FOR BATTERY CHARGING

⚠ CAUTION: The AC electrical connection must have a grounded, dedicated service-main. No other loads shall be connected to the same circuit. Use of a non-dedicated circuit could exceed the current rating of the circuit breaker and cause it to trip or open.



A. Conduit extending up to 24 in. (61 cm) from ground level or per local code
B. Conduit sweep
C. THWN rigid-metal, Schedule 40 or 80 conduit
D. THWN nonmetallic, Schedule 40 or 80 conduit
E. UF burial wire (ground solid)
F. Ground level
G. Service panel
H. Minimum wire length of 66 in. (168 cm)

Figure 5. Wire Run Variations

⚠ **WARNING: The EVSE must be installed by a licensed electrician in accordance with all national and local electrical codes, ordinances, requirements and all authorities having jurisdiction.**

The conduit may extend up to 24 in. (61 cm) from ground level. A sweep is used to direct the circuit from the conduit to the electric circuit from the service panel. The three types of acceptable wire runs are:

- THWN rigid metal conduit, buried 6 in. (15 cm) below ground level, or per local electrical code.
- THWN nonmetallic Schedule 40 or 80 conduit, buried 18 in. (46 cm) below ground level, or per local electrical code.
- UF burial wire (ground solid), buried 24 in. (61 cm) below ground level, or per local electrical code.
- Conduit must carry conductors for both charge stations each on a dedicated circuit breaker.

AMPERAGE AND BREAKER PARAMETERS: FIELD REQUIREMENTS AND

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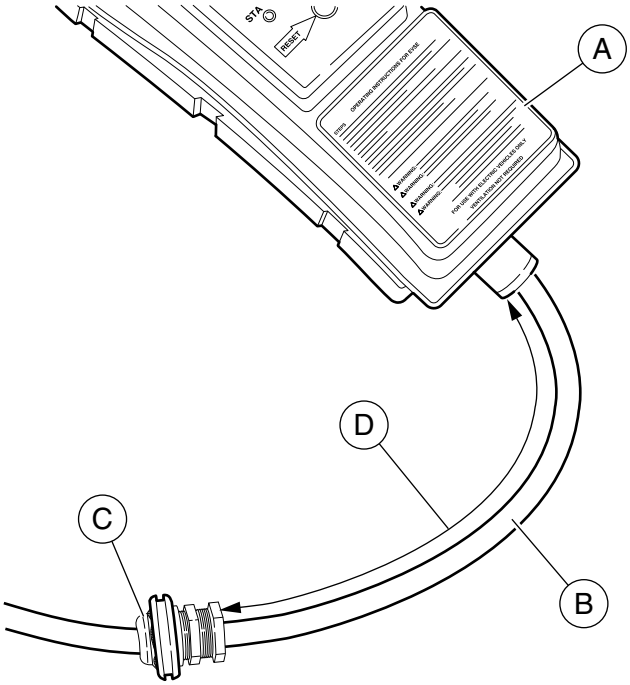
ADJUSTMENTS FOR EVSE INSTALLATION (NOT REQUIRED FOR 40 AMP CIRCUIT INSTALLATION)

1. Unpack the EVSE.



A. EVSE body
B. EVSE cable
C. Strain relief with grommet
D. 18 in. (46 cm)

Figure 6. EVSE

NOTE: The EVSE has been factory set at 30 amp output for a 40 amp circuit. Proceed to "Standard Installation" if installing on a 40 amp circuit. For all other amperages, complete Steps 2 and 3 for EVSE adjustment.

2. Remove the domed cap from the current-adjustment selector (positioned just above the reset button on the front of the EVSE).
3. Using a small, flat-blade screwdriver, set the current-adjustment selector to the applicable output current-limiting setting as specified in "Figure 8. Current-Adjustment Settings".

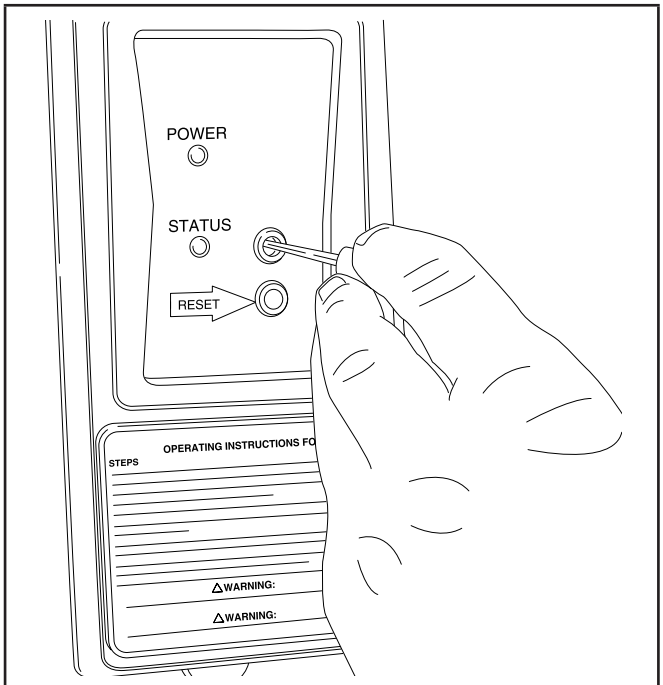


Figure 7. Setting the Current-Adjustment Selector

NOTE: Positions 6, 7, 8, 9, 0 are not used (X) and are non-operational. The EVSE will not function under these settings.

⚠ **WARNING: The EVSE setting cannot exceed ampacity ratings of field service wires or branch circuit protectors.**

⚠ **WARNING: See "output" specification label located on the side of the EVSE for maximum amperage setting, per limitations of vehicle cable and coupler.**

NOTE: The EVSE must be de-rated to match line service power limitations.

⚠ CAUTION: Use 75°C (600V) approved wire, conductor temperature at 30°C ambient in wet or dry locations.

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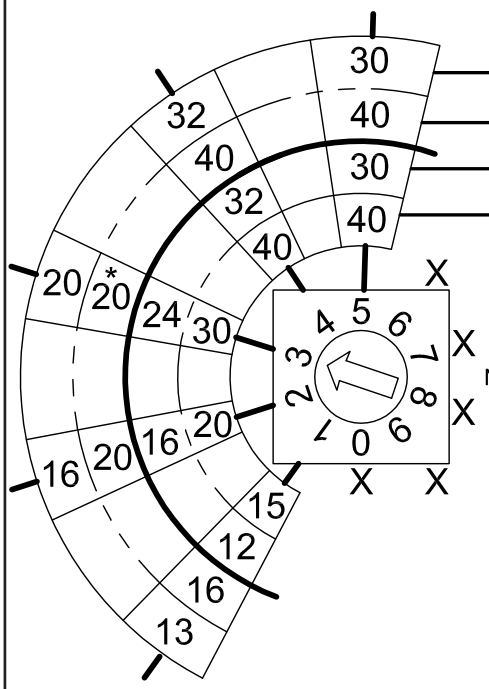

EUROPEAN EVSE AMPERAGE SETTING
EVSE OPERATING AMPERAGE & REQUIRED WIRE SIZE
13 AMPS = 3.31 mm^2 WIRE
16 AMPS = 3.31 mm^2 WIRE
20 AMPS = 5.26 mm^2 WIRE
30-32 AMPS = 8.36 mm^2 WIRE

EUROPEAN BREAKER REQUIREMENT

NORTH AMERICAN EVSE AMPERAGE SETTING
EVSE OPERATING AMPERAGE & REQUIRED GAUGE WIRE SIZE
12 AMPS = 12 GAUGE WIRE
16 AMPS = 12 GAUGE WIRE
24 AMPS = 10 GAUGE WIRE
30-32 AMPS = 8 GAUGE WIRE

NORTH AMERICAN BREAKER REQUIREMENT

NOTE 1: POSITIONS 6, 7, 8, 9, 0 ARE NOT USED (X) AND ARE NON OPERATIONAL - THE EVSE WILL NOT FUNCTION UNDER THESE SETTINGS

NOTE 2: (*) LINE SERVICE BREAKER NOT APPLIANCE SERVICE BREAKER.

WARNING: EVSE SETTING CAN NOT EXCEED AMPACITY RATINGS OF FIELD SERVICE WIRES OR BRANCH CIRCUIT PROTECTORS

WARNING: SEE "OUTPUT" SPECIFICATION LABEL LOCATED ON SIDE OF EVSE FOR MAX. AMPERAGE SETTING OF EVSE. NOTE: EVSE MUST BE DERATED TO MATCH LINE SERVICE POWER LIMITATIONS.

CAUTION: USE 75°C (600V) APPROVED WIRE - CONDUCTOR TEMPERATURE AT 30°C AMBIENT IN WET OR DRY LOCATIONS

Figure 8. Current-Adjustment Settings

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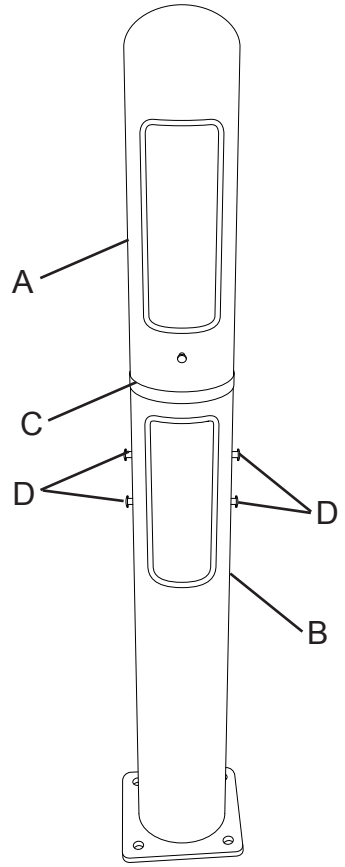
STANDARD INSTALLATION

1. Lay down the bollard box and remove the banding.
2. Lift the top off the box and remove the bollard from the packaging material.
3. Remove the upper cover from the bollard assembly by removing the cable-management retaining screws (E) on the rear of the bollard.
4. Remove plastic bag containing locating set screw (not shown) from inside bollard.



A. Upper plastic cover
B. Lower plastic cover (Do not remove)
C. Seal
D.Cable-management retaining screws

Figure 9. Bollard Disassembly

NOTE: The upper and lower plastic bollard covers are a matched set and cannot be used interchangeably with those from other bollards.

The standard installation design for the Power Xpress Bollard is a bolt-down external plate.

The standard diameter of the bollard is approximately 7 in. The bollard height will vary with the application.

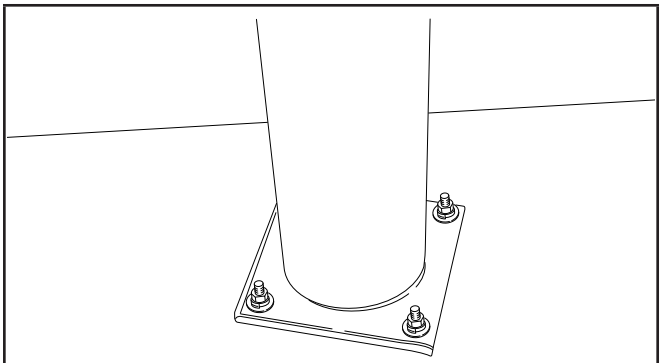


Figure 10. Typical Installation

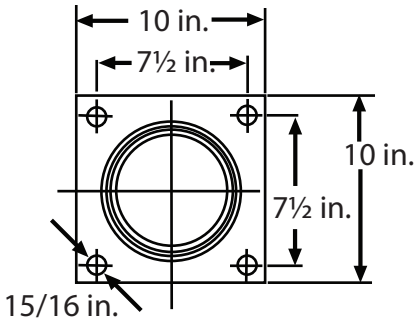


Figure 11. Base Plate Dimensions

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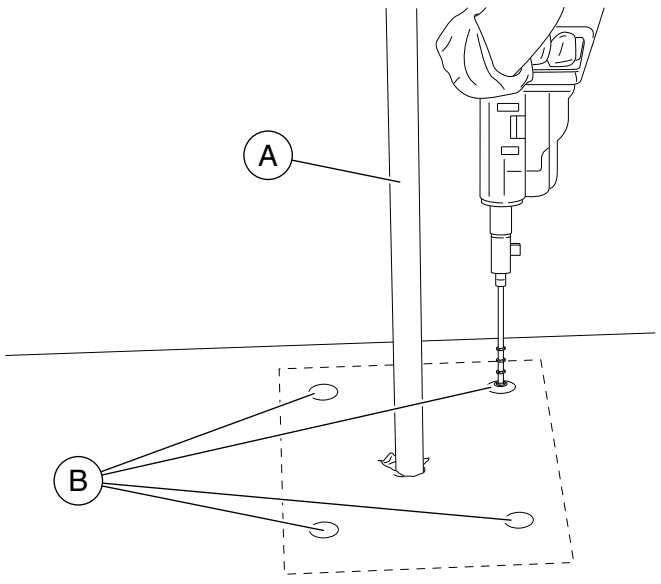
⚠ CAUTION: Read all instructions before installing the EVSE.

⚠ **WARNING: Main service power must be off and disconnected before attempting to install the EVSE.**

⚠ **WARNING: The bollard weighs 20 lb per foot, and the bottom end is significantly heavier than the top end. Take proper precautions and use safe lifting practices when lifting the bollard.**

1. Place the bollard where it is to be installed and drill holes.
2. Install the 3/4 in. anchor bolts in accordance with industry standards for the type of mounting being performed.



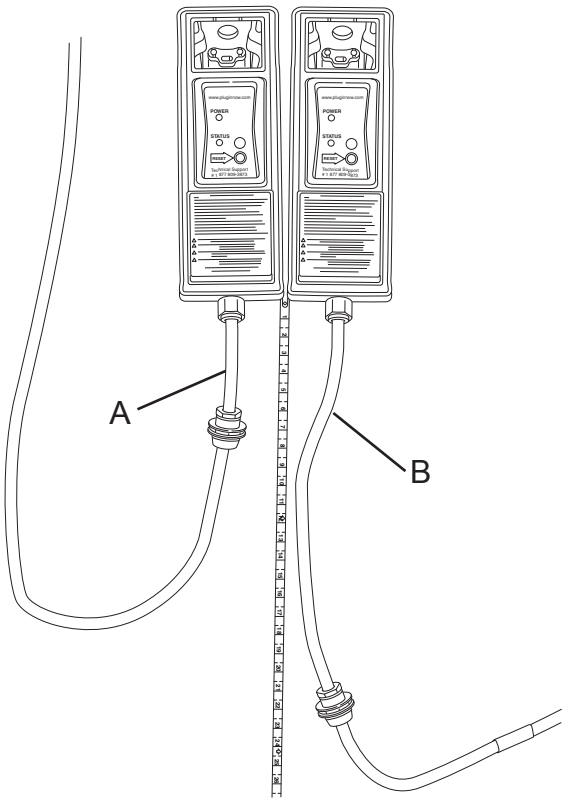
A. Conduit stand pipe
B. Marked locations for anchor bolts

Figure 12. Drill Holes

NOTE: Adapters may be used to attach junction box to stand pipe. All adapters and boxes must be suitable for wet locations.

NOTE: Consult national and local codes for approved, service cord.

3. Adjust charging cable strain relief to the following locations.
   - ***Top unit - 7 in. from EVSE***
   - ***Bottom unit - 24 in. from EVSE***



A. Top Unit
B. Bottom Unit

Figure 13. Prepare Power Xpress Units

4. Install cable gland in top of wiring chamber.
1. Remove the top plastic cover.
2. Back out fasteners so that they do not extend into the inside of the bollard.
3. Cut 2 lengths of service cord approximately 6.5 ft. and 8.5 ft.

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4. Feed cord through the length of the bollard. Excess should extend approximately 14 in. past bollard base.

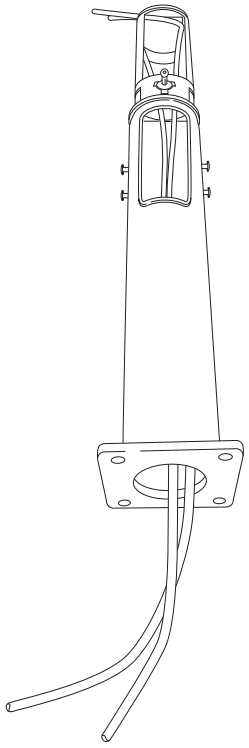

Figure 14. Prepare Bollard

1. Feed the length of the charging cable through the exit hole in the side of the bollard.

NOTE: Fish tape can be used to pass the service cord through the bollard and past the EVSE units.

2. Pass the cord for the top unit past the side of the EVSE and behind the black face.

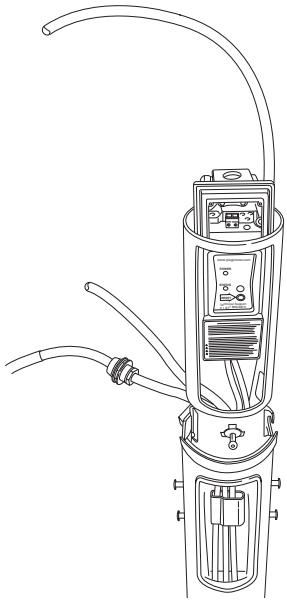

Figure 15. Install Bottom Unit

3. Slide bottom unit into mounting position. Take caution not to scrape the front surface of the EVSE against the bollard. Cables and cords will pass by the sides of the EVSE.

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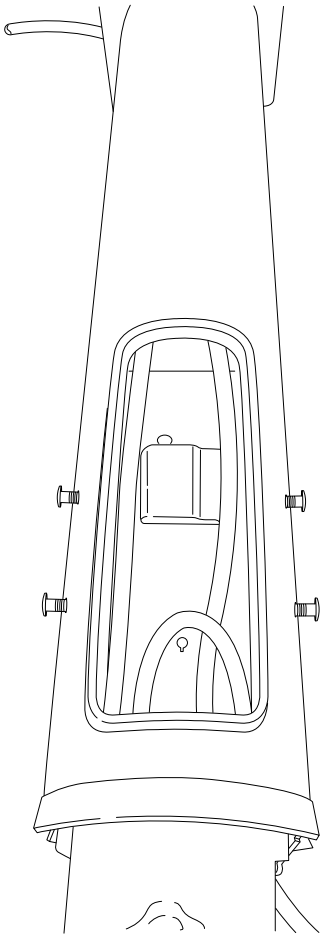
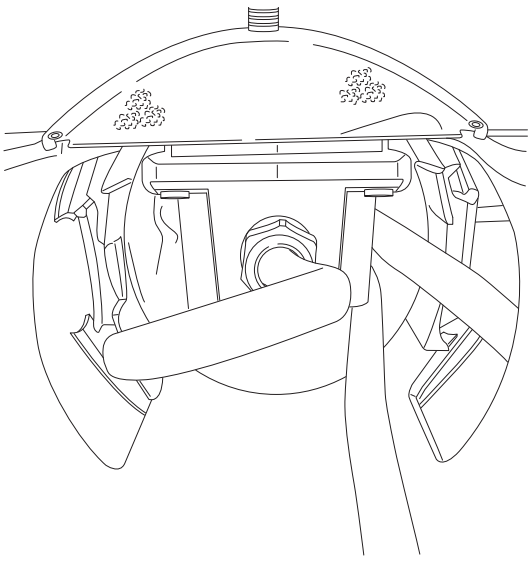


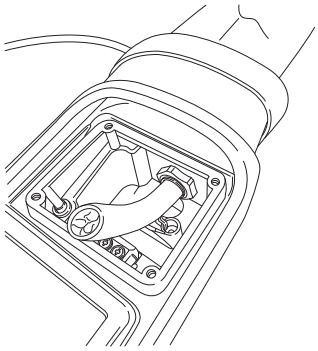
Figure 16. EVSE Cables and Cords

4. Install cord into top wiring chamber of the bottom unit.



A. Cables passing around EVSE

Figure 17. Wiring Chamber of Bottom Unit



A. Location of cord in chamber

Figure 18. Wiring Chamber of Bottom Unit

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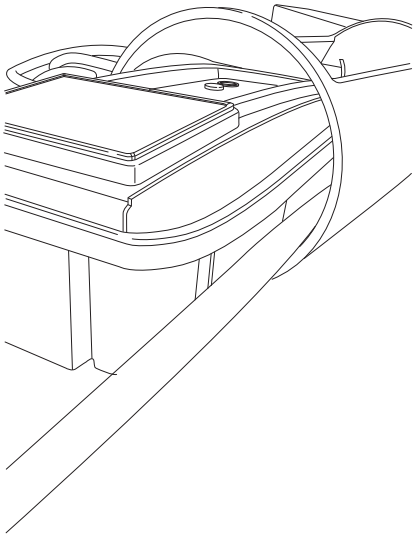
1. Pass the charging cable through the exit hole on the side of the bollard.
2. Feed the cord past the side of the EVSE and slide into position.



A. EVSE
B. Top Unit

Figure 19. Installation of Top Unit

3. Install cord into top wiring chamber of the top unit.

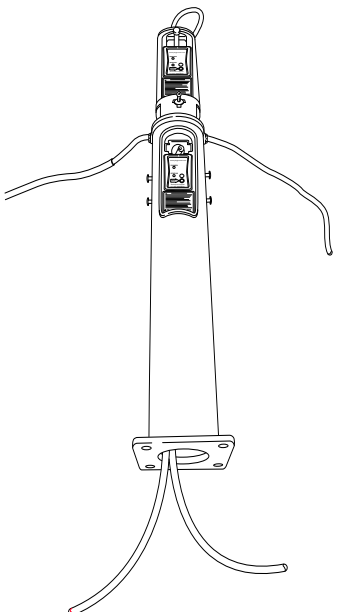


Figure 20. Wires Installed into EVSE

1. Tighten fasteners on the back of the bollard.
2. While tightening the fasteners guide the EVSE's so that the bottom cover is resting on the ledge of the bollard.

NOTE: The fasteners will force the EVSE's snuggly against the bollard..

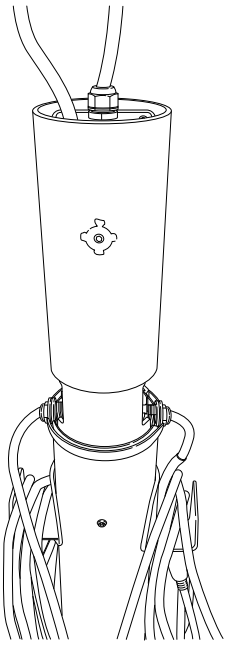


Figure 21. Secure EVSE Units

1. Position the strain relief at the bottom of the side slot metal mounting bracket in the steel bollard. Position such that the rubber grommet (D) seats on the opening of the lower plastic bollard cover. Repeat on opposite side.

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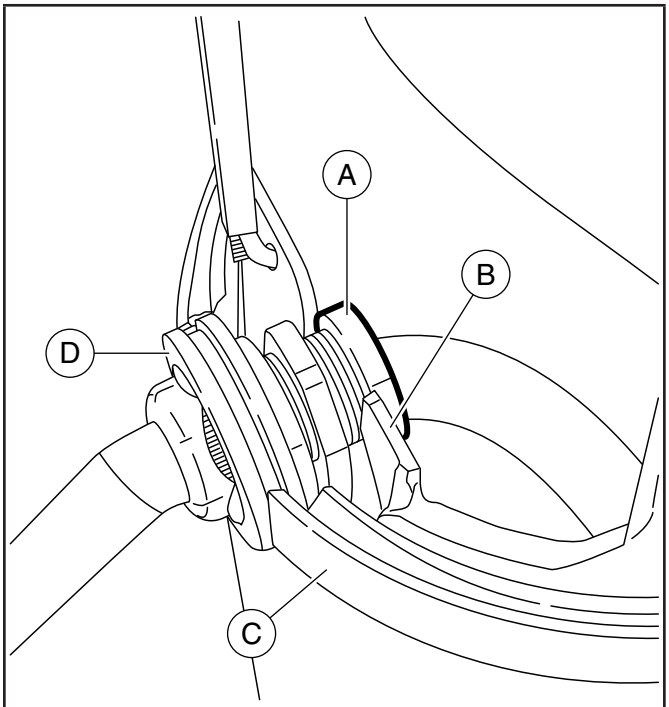

A. Inner strain-relief nut
B. Metal mounting bracket
C. Seal
D. Rubber grommet

Figure 22. Strain Relief Placement

2. Tighten the inner strain-relief nut (A) inside the bollard hand tight. Using expandable pliers, tighten the nut an additional 1/4 turn.

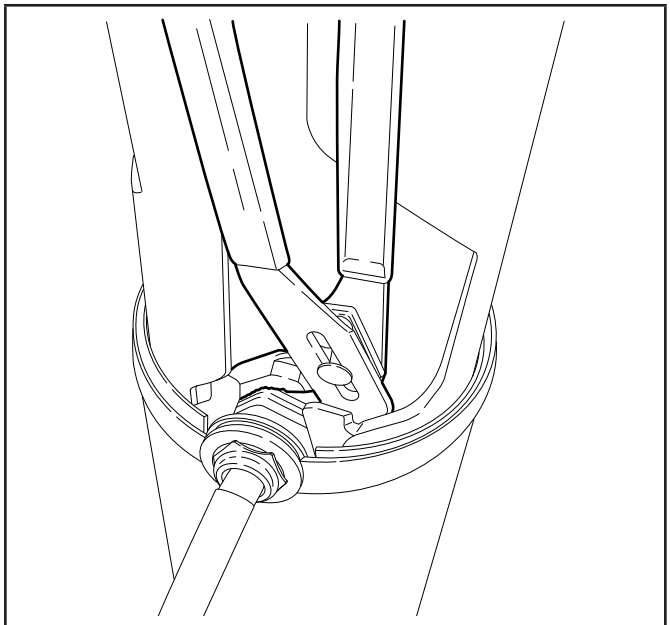

Figure 23. Tightening the Strain-Relief Nut

NOTE: Do not overtighten the strain-relief nut. The grommet may pull through.

3. Install cable hooks on the sides of the bollard.

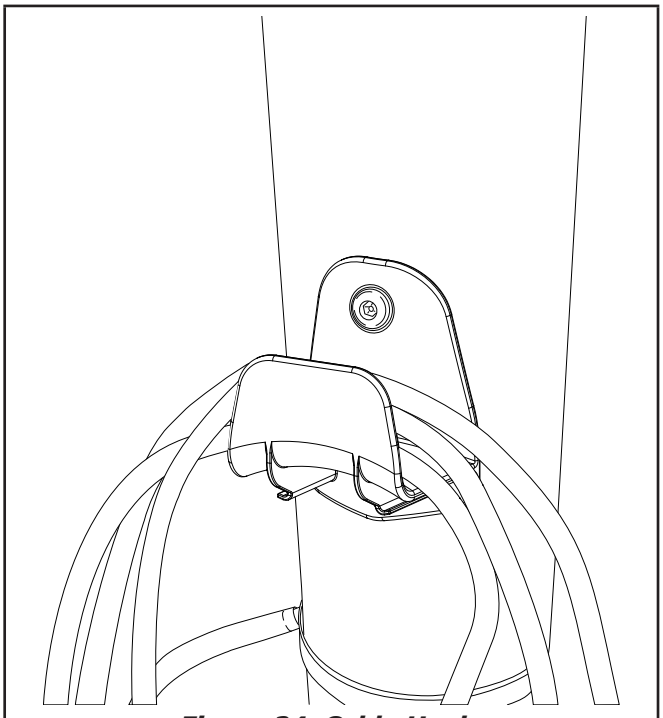

Figure 24. Cable Hooks

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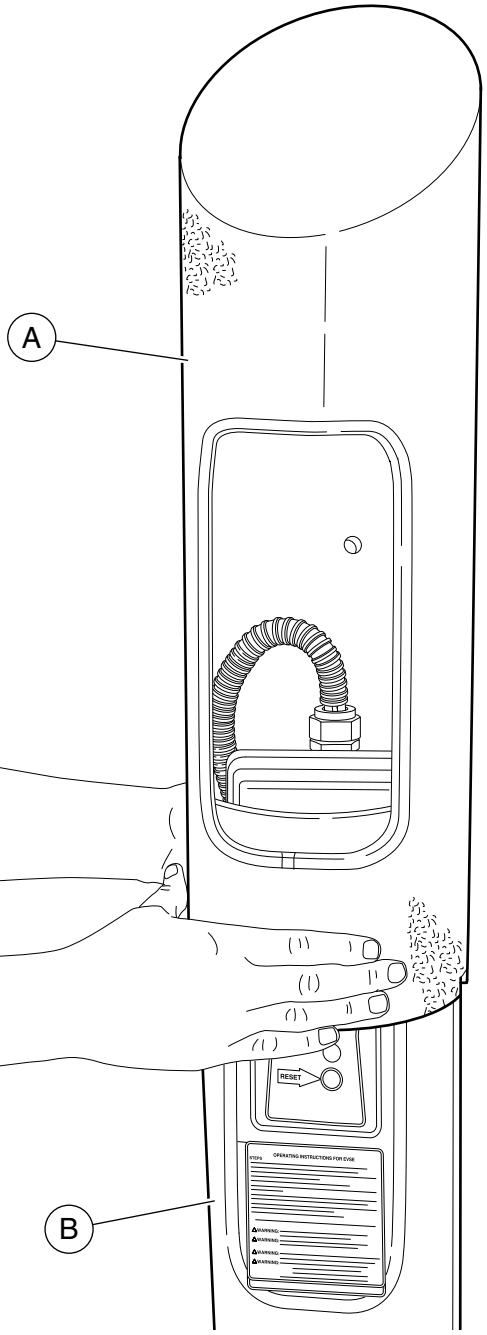
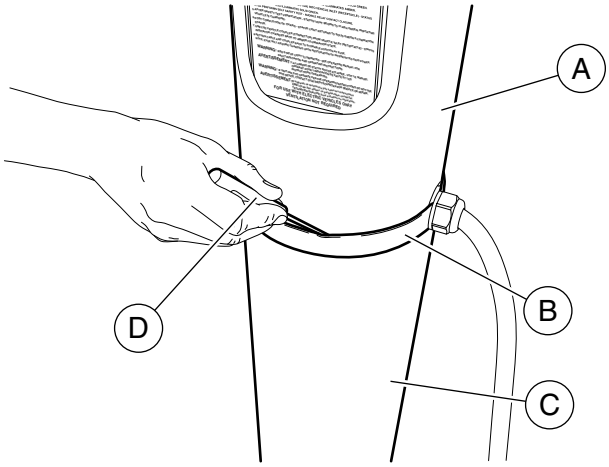


A. Upper plastic cover
B. Metal bollard

Figure 25. Upper Bollard Lowered into Place

4. Use a small flat-blade screwdriver or similar tool to guide the upper plastic cover into seal.



A. Upper plastic cover
B. Seal
C. Lower plastic cover
D. Small flat-blade screwdriver

Figure 26. Seal Installation

5. While gently pressing down on the upper plastic cover, carefully slide the screwdriver around the bollard to extend the upper lip of the seal over the upper plastic cover. The upper cover may need to be tapped gently to fully seat it in the seal.

⚠ CAUTION: Use care not to cut or damage the seal during this procedure.

6. With assistance, move bollard next to the prepared site.
7. Feed cords into the junction box and secure cable glands.
8. Wire cords to the supply wires and seal the junction box with a cover suitable for wet location.

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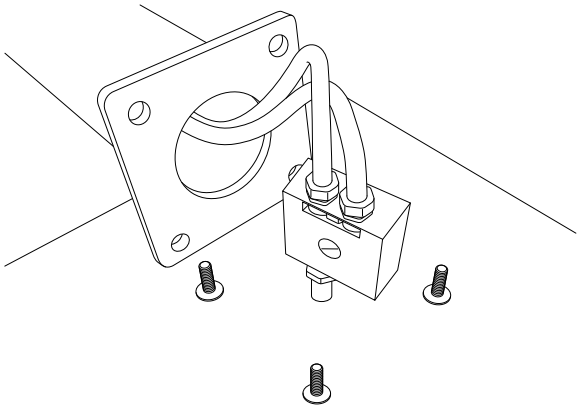

Figure 27. Bollard installed over Mounting Bolts

9. With assistance, lift bollard onto mounting bolts.
10. Level, adjust, and tighten mounting nuts according to anchor manufacturer specification.
11. Loop the cables onto the cable-management holder.

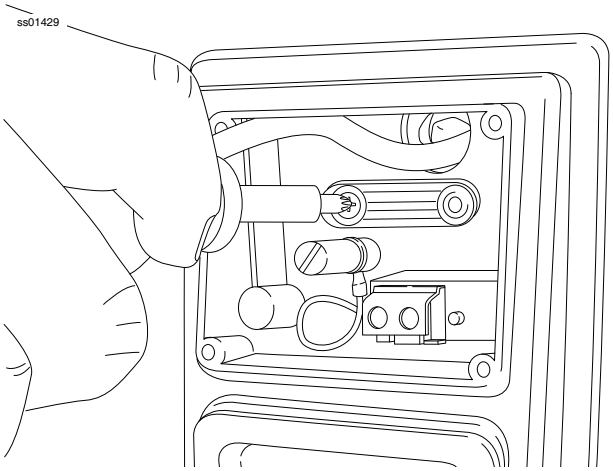

Figure 28. Remove Strain Relief

12. Remove the strain-relief assembly from the wiring chamber.

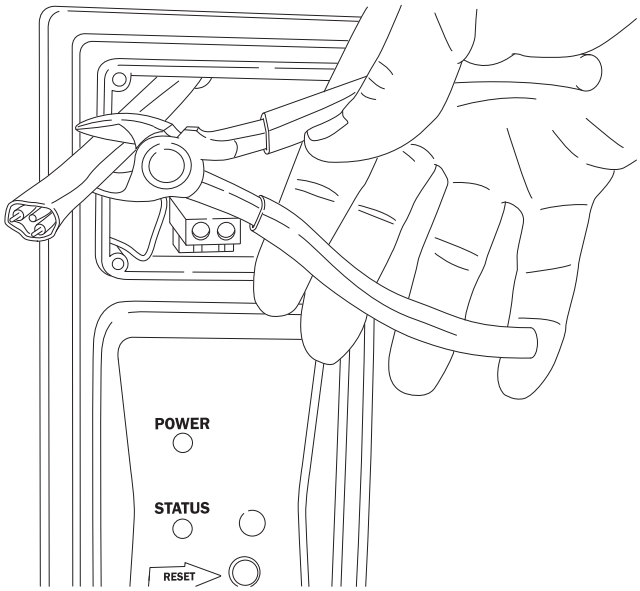

Figure 29. Trim Wire to Length

13. Trim the wire to a length sufficient to make the connections to the Charge Station terminal block.

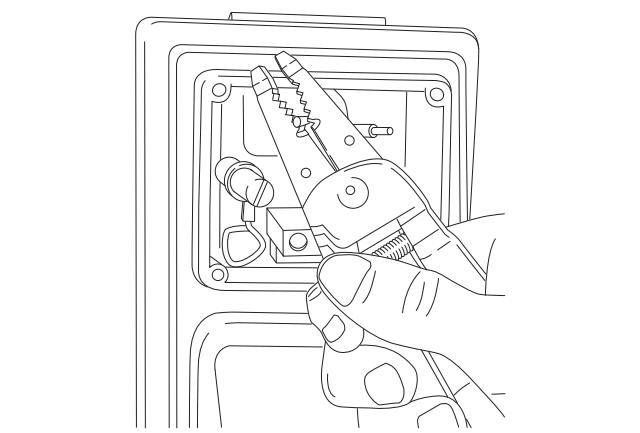

Figure 30. Trim Wire to Length

14. Strip back 1 1/4 in. (32 mm) of the wire jacket and 3/8 in. (10 mm) from the ends of the individual conductors.

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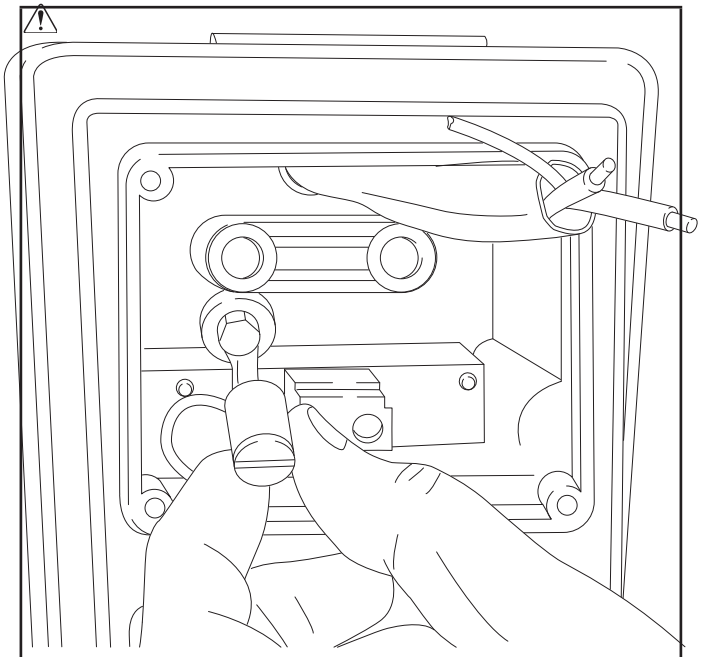

Figure 31. Remove Ground Lug

15. Remove threaded ground lug.

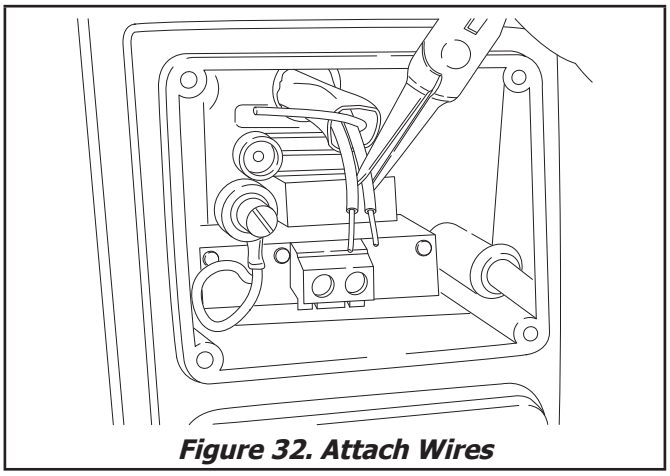

Figure 32. Attach Wires

16. Feed the L1 wire into the L1 terminal slot in the wiring chamber.
17. Feed the L2 wire into the L2 terminal slot in the wiring chamber.

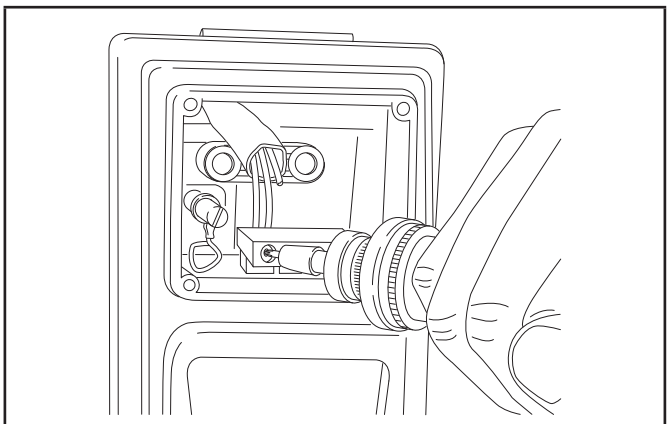

Figure 33. Attach Safety Ground Wire

18. Attach safety ground wire through the slot on the ground terminal. Hand-tighten grounding lug.

NOTE: See inside of wiring chamber cover for wiring schematic.

19. Tighten terminal screws to 1.2 Nm (10.62 in-lb).

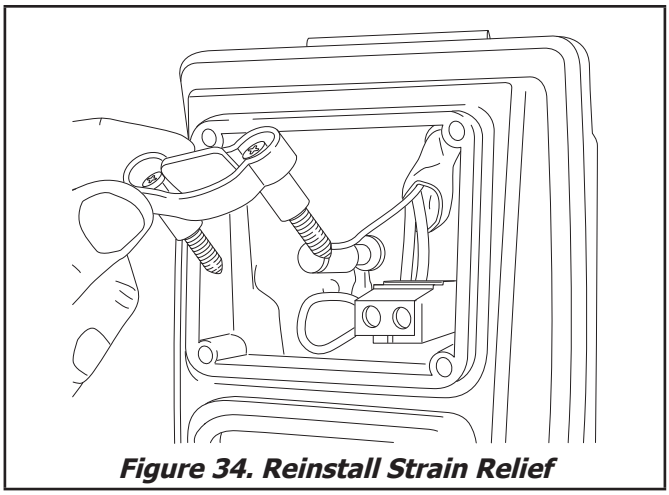

Figure 34. Reinstall Strain Relief

20. Reinstall strain relief.

NOTE: Select appropriate orientation of insert to achieve proper clamping for wire size used.

CAUTION: Do not overtighten.

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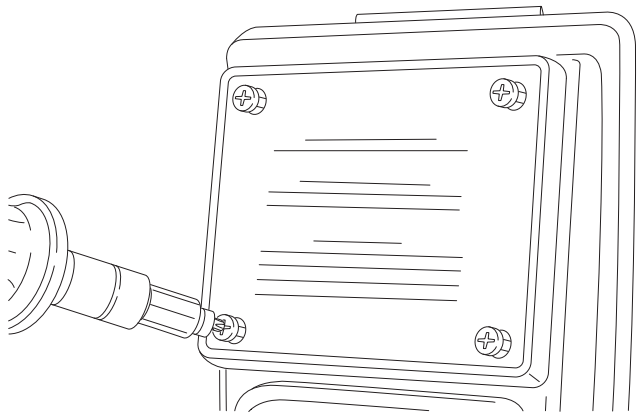

Figure 35. Attach Wire Chamber Lid

21. Attach the wiring chamber lid with four (4) 3/4 in. (20 mm) square-drive screws.
22. Apply the self-adhesive chamber lid label.

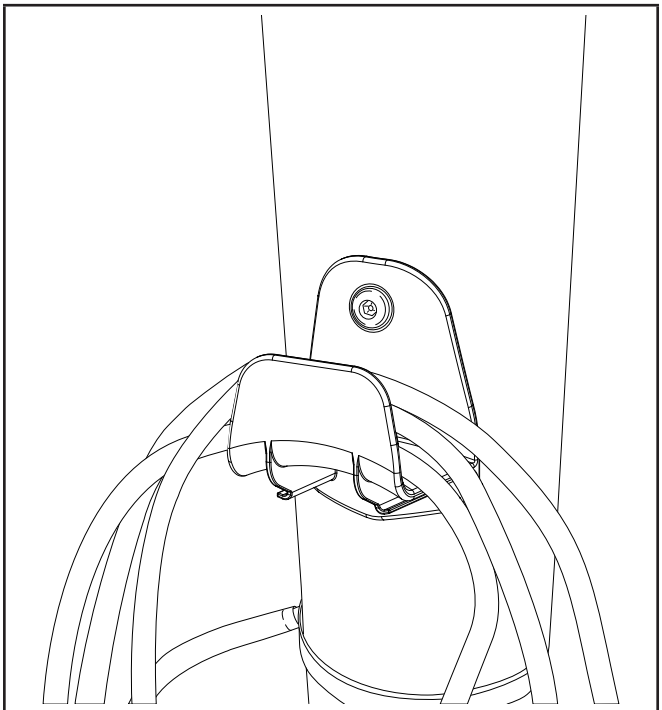

Figure 36. Cable Looped on Hook

23. Switch the main circuit breaker to the ON position and verify that the Power LED is illuminated solid green and the Status LED is illuminated solid amber on the EVSE.
24. Place both halves of the plastic base cover over bollard base. Secure with plastic push pins.

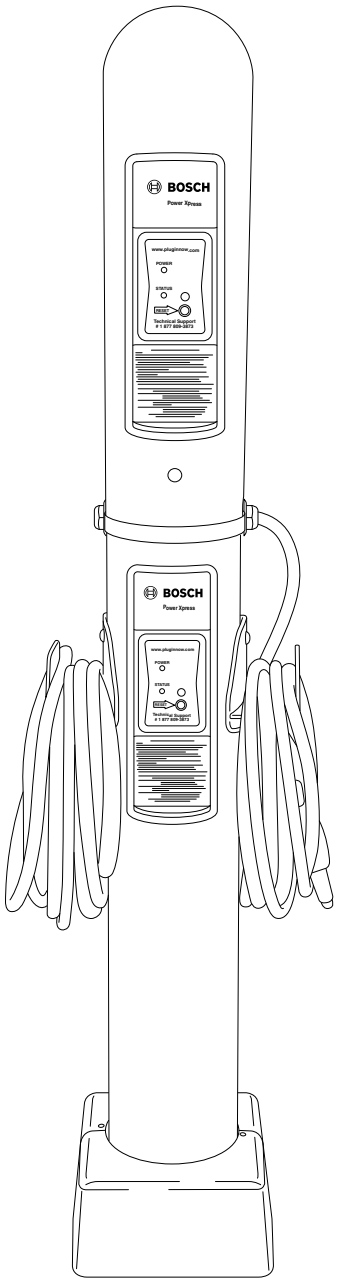

Figure 37. Complete Installation

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EVSE POWER AND STATUS LED INDICATIONS

POWER LED		STATUS LED		CONDITION
(OFF)	○	(OFF)	○	NO SERVICE SUPPLY POWER
GREEN SOLID	●	AMBER SOLID	●	EVSE POWERED; VEHICLE COUPLER NOT CONNECTED
GREEN SOLID	●	GREEN SOLID	●	WAITING TO CHARGE
GREEN SOLID	●	GREEN BLINKING	✸	VEHICLE IS CHARGING
GREEN SOLID	●	1 OR 2 RED BLINKS EVERY 2 SECONDS	✸	PILOT CHARGING ERROR*
GREEN SOLID	●	SOLID RED THEN GREEN BLINK EVERY 2 SECONDS	● ✸	GROUND FAULT DETECTED*
GREEN SOLID	●	RED BLINKING	✸	GROUND MONITOR INTERRUPTED*
GREEN SOLID	●	RED SOLID	●	OPERATION FAULT*
GREEN SOLID	●	(OFF)	○	OPERATION FAULT*

*See Troubleshooting section for suggested solutions.

○ - No illumination

● - Solid illumination

✸ - Flashing illumination

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TROUBLESHOOTING

If there is a charging issue proceed with the following steps. If the issue persists after three attempts call Bosch at 1-877-805-EVSE (3873) for assistance.

Problem Indicated by LED Status	Solution
Pilot charging error	1. Verify supply-side power. The green POWER LED should be on. If green POWER LED is off, locate load center/panel and reset breaker. 2. Press the master clear RESET button on the front panel of the EVSE to attempt a charge-restart. 3. If the red STATUS LED remains on, disconnect the EVSE coupler from the vehicle charge port, wait 10 seconds, and reconnect the coupler.
Ground fault detected	1. Disconnect main service power at service panel. 2. Disconnect the EVSE coupler from the vehicle. 3. Inspect the EVSE connector and the vehicle charge port verifying both are clean and undamaged. If vehicle charge port needs cleaning, follow manufacturer instructions for cleaning. Clean EVSE connector with a dry or damp cloth if necessary. 4. Restore main service power. 5. Reconnect the coupler to the vehicle port.
Ground monitor interrupted	1. Disconnect main service power at service panel. 2. Disconnect the EVSE coupler from the vehicle. 3. Inspect the EVSE connector and the vehicle charge port verifying both are clean and undamaged. If vehicle charge port needs cleaning, follow manufacturer instructions for cleaning. Clean EVSE connector with a dry or damp cloth if necessary. 4. Restore main service power. 5. Reconnect the coupler to the vehicle port.
Operation fault	1. Verify supply-side power. The green POWER LED should be on. If green POWER LED is off, locate load center/panel and reset breaker. 2. Press the master clear RESET button on the front panel of the EVSE to attempt a charge-restart. 3. If the red STATUS LED remains on, disconnect the EVSE coupler from the vehicle charge port, wait 10 seconds, and reconnect the coupler.

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Ground Fault Circuit Interrupt (GFCI) Tripped

If the EVSE detects a ground fault, power will be interrupted and the STATUS LED will illuminate (red flash with intermittent green). The EVSE will attempt to reset automatically and re-attempt charging (see note below on European models). If the fault condition persists after an initial automatic attempt, per the code, the EVSE waits 15 minutes before a second attempt is made. A total of four attempts will be made to restore vehicle charging. If the charging mode cannot be restored, the STATUS LED will illuminate solid red, and the EVSE will stay in fault mode.

NOTE: Automatic reset feature after ground fault (STATUS LED will be solid red) does not apply to **European EVSE models**. European standards dictate that user intervention is required by pressing the master clear RESET button on the front of the EVSE housing. If ground fault condition clears, EVSE will resume charging.

Missing Ground

If the EVSE detects a missing ground connection (rapid red flashing LED), power will be interrupted and the EVSE will not be capable of charging vehicle until a ground connection has been detected. Disconnect service power (breaker) and disconnect vehicle coupler from vehicle and contact a qualified Bosch technician to validate the presence of a proper ground.

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LIMITED WARRANTY

THIS WARRANTY IS EXPRESSLY LIMITED TO THE ORIGINAL PURCHASER OF BOSCH EVSE PRODUCT.

- **Power Xpress Bollard** is warranted against defects in materials and workmanship for one year from the date of installation.
- **EVSE Cables and Connectors** are warranted against defects in materials and workmanship for 90 days from the date of delivery.

This warranty is only valid to the original purchaser of the EVSE and is not transferable. All warranty claims must be made within the warranty period and proof of purchase must be supplied. This warranty does not cover the cost of freight to return the EVSE to Bosch.

The sole and exclusive remedy for any EVSE found to be defective is repair or replacement, at the option of Bosch. The existence of a defect shall be determined by Bosch in accordance with procedures established by Bosch. No one is authorized to make any statement or representation altering the terms of this warranty. This warranty covers only those defects that arise as a result of normal use of the EVSE and does not cover any other problems including those that arise as a result of abuse, neglect, improper maintenance, care or modification, operation outside of the EVSE's specifications or in a manner inconsistent with instructions regarding use. Bosch does not make any representation or warranty regarding the continuous availability of electrical service to the EVSE.

This warranty gives the original purchaser specific legal rights. The original purchaser may also have other rights which vary from state to state. To the extent that this warranty is inconsistent with applicable law, this warranty will be deemed modified to be consistent with such local law.

DISCLAIMER

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The EVSE should be installed only by a licensed electrician and in accordance with all local and national codes and standards.

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