

5 INSTALLATION

All matters for installing the EFAPOWER EV-QC45 are described in this chapter.

5.1 ENVIRONMENTAL REQUIREMENTS

EFAPOWER EV-QC45 reliability is dependent upon compliance of environmental specifications. The design of the environmental control system for your EFAPOWER EV-QC45, in case of extreme environmental conditions, must ensure that the Unit can operate reliably while remaining within the range of its operating specifications.

5.1.1 LOCAL CONDITIONS



The installation of EFAPOWER EV-QC45 shall not be made in a commercial garage (repair facility) or closer than 6,1m (20 feet) of an outdoor motor fuel dispensing device.

EFAPOWER EV-QC45 is in an IP54, IK10 (NEMA 3R) enclosure. This Unit is intended to work below 50°C (122°F) ambient temperature.

Clearance around the cabinet

The air must circulate freely throughout the ventilation grids in order for the charger's cooling system to be effective. The ventilation areas on the sides and back must not be blocked, assuring that the Quick Charger cooling system can be effective. Efacec recommends clearance of at least 1meter (40") in the front (HMI interface) and on right side (output cables) and 500mm (20") of clearance in the remaining sides of the cabinet.

Input Power Cables

AC input cables must be copper with appropriate power rating.

EFAPOWER EV-QC45 can be placed in 3 alternative positions as showed in Figure 5.



Figure 5 - EFAPOWER EV-QC45 alternative orientations

Even though, non-conductive dust does not influence the system's operation, it may however, with excessive accumulation, not allow proper cooling, therefore limiting the equipment's thermal capabilities. Consequently, dust accumulation must be avoided in order to guarantee a better thermal performance. Conductive dust and acid vapors must be kept away from the Quick Charger.

On locations with harsh weather conditions (high temperatures, heavy dust, snow and/or very low temperatures) it's recommended to provide additional protection, either inside a building or a shelter, or providing a protection roof for the Unit. See example in Figure 6.



Figure 6 - EFAPOWER EV-QC45 with shelter

5.1.2 SITE VERIFICATION AND INSPECTION

- ✓ **Check** if the **installation** of the Quick Charger is **not** planned to be made **in a commercial garage** (repair facility) or **closer than 6,1m (20 feet) of an outdoor motor fuel dispensing device**;
- ✓ **Check** if the access **passages** to the **Quick Charger Station layout site** are not blocked in order to **allow** its **transportation**;
- ✓ **Check** if **Quick Charger Station layout site** is **compliant** with the specified **clearance** around the **cabinet**.

5.2 SITE PREPARATION

Once the local conditions are verified, it is time to set up the site to be ready for the installation of the EFAPOWER EV-QC45.

5.2.1 UPSTREAM WIRING INFORMATION

Depending on the configuration of the EFAPOWER EV-QC45 we can have different circuit breakers in the service panel:

- **DC and AC outputs** connections (not available for USA market):

Requires a dedicated **160A circuit breaker 3P C curve**

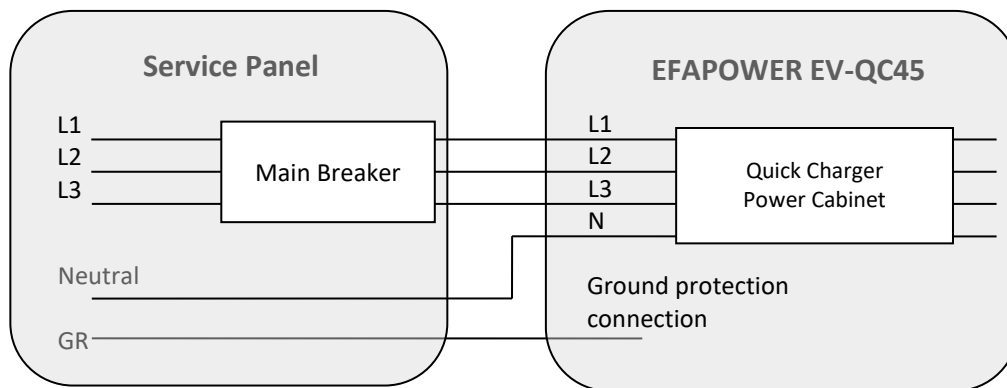


Figure 7 - EFAPOWER EV-QC45 Wiring Information



NOTES

In areas with frequent thunder storms, Efacec recommends adding transient voltage surge suppression (TVSS) at the service panel for all circuits.

Unless required by local codes it is not necessary to install a residual-current device (RCD) for the circuit breaker. The EFAPOWER EV-QC45 already has this protection.

5.2.2 SURFACE PREPARATION

Efacec recommends a concrete pad of at least 800mm (31.5") square, by 254mm (10") deep. Check local codes to ensure compliance.

Flatness

To avoid warping of the doors, the Quick Charger Station power cabinet must be mounted on a surface with a maximum slope of 2mm/m (¼ inch rise per 10 feet of run).

5.2.3 RESOURCES FOR INSTALLATION

The following resources will be needed for installation of the EFAPOWER EV-QC45:

Fasteners:

- 4 (four) chemical anchors, M8 (5/16"), 10mm thread diameter – length must comply with local codes, but must have at least 120mm (5")
- 4 (four) galvanized bolts M8 (5/16"), with matching nuts and washers (must extend at least 30.5mm (1.2") above the concrete and 89.5mm (3.52") into the concrete)
- 4 (four) sealing screws: Socket head button cap screws M12x25 (metric), with matching flat rubber washers (supplied with the Quick Charging Station)

End terminals for input wiring:

- Depending on the EFAPOWER EV-QC45 configuration:
 - Only DC outputs: 5 (five) end terminals up to 35mm² (3phases + neutral + protective ground), or
 - DC and AC outputs (not available for US market): 5 (five) end terminals up to 35mm² + 5 (five) end terminals up to 16mm² (3phases + neutral+ protective ground)

Tools:

- 13mm (1/2") wrench - for anchoring the Unit on the pad
- 10mm Hex key/bit - for Sealing Screws
- Crimping tool - for power and earth cables
- Torque screwdriver with flat blade - for input terminal blocks

5.2.4 SITE VERIFICATION AND INSPECTION

- ✓ **Check** if **Quick Charger** has the **appropriate upstream protection** depending on the configuration of it
- ✓ **Check** if the **surface** where the Quick Charging Station will be placed is **leveled** as specified

5.3 HANDLING AND PLACING



Before installing stations

The instructions provided in this manual assume that the appropriate wiring, circuit protection, and metering are in place at the installation location.

To assist in the process of preparing the installation site, it is recommended that before you begin installing the Quick Charging Station, you thoroughly review the contents of this document to familiarize yourself with the required installation steps.

In case of any doubt regarding items described in this guide, please contact us at:



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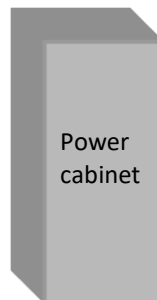


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5.3.1 PACKAGING

EFAPOWER EV-QC45 is shipped in a package with the following dimensions (WxDxH):

- 1150x850x2150mm (45.3x33.5x84.6 inches)



5.3.2 VISUAL INSPECTION

- ✓ **Check if the exterior packaging** has been **damaged** by mechanical impacts or any accidents during transportation
- ✓ If applicable, **check if the exterior panels** of the EFAPOWER EV-QC45 are in **perfect condition**
- ✓ **Check if the interior of the Quick Charger Station is clean**
- ✓ **Check if the door** of the Quick Charger Station is **working properly**
- ✓ **Check for proper Quick Charger Station protective ground connection point**, which should be interconnected with the low voltage switchboard ground connection during the installation

5.3.3 HANDLING

Due to its heavy weight, 4 (four) lifting hooks are provided on the top of the Power Cabinet as indicated on Figure 8.



Never try to move the power cabinets by using tools under panels; this will create a risk of deformation.



Figure 8 - EFAPOWER EV-QC45 lifting hooks

After the power cabinet is placed, the lifting hooks must be removed, and the M12 sealing screws must be inserted in their holes in order to guarantee the IP54, IK10 (NEMA 3R) protection degree.

5.3.4 ASSEMBLY/ PLACING INSTRUCTIONS

5.3.4.1 ANCHORING TO THE CONCRETE PAD

The Quick Charging Station must be anchored on the surface compliant with the specifications mentioned in chapter 5.2.2.

The power cabinet must be installed on a concrete pad using 4 (four) chemical anchors, M8 (5/16"), 10mm thread diameter – length must comply with local codes, but must have at least 120mm (5").

In the following figure, some details are shown regarding the drilling layout for the Power Cabinet.

Only 4 (four) points are needed to anchor the Unit on the concrete pad (marked with a red circle).

For the power cabinet, the conduits must extend 160mm (6.3") above the concrete, or according to local codes. **The cable entrance shall only be located as shown in the image below (marked in green).**

The access to all the controls and **commands including the buttons and the card reader**, must comply with local codes and **ADA requirements**. That includes being **under 1200mm (48")** off the ground.

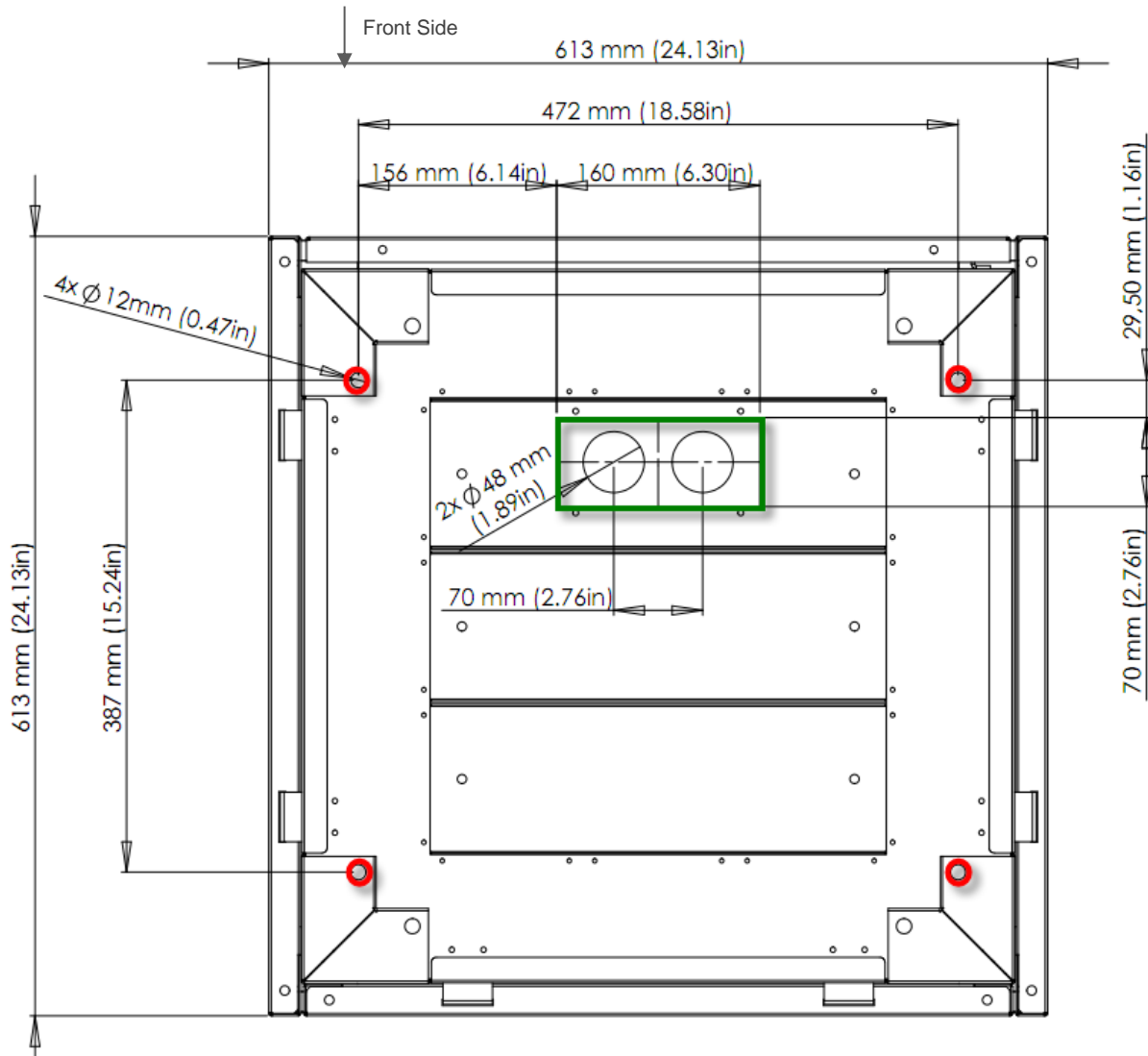


Figure 9 - EFAPOWER EV-QC45 Drilling and conduits layout
(bottom view)



- The use of chemical anchors must be in compliance with the manufacturer's instructions
- For the Power Cabinet, it's advised to have a concrete block of at least 1000mm (34.9") square, by 254mm (10") deep. Check local codes to ensure compliance
- The bolts must extend at least 30.5mm (1.2") above the concrete and 89.5mm (3.52") into the concrete



ALL SERVICING MUST BE PERFORMED ONLY BY QUALIFIED PERSONNEL. DO NOT ATTEMPT TO SERVICE THE EFAPOWER EV QC45 QUICK CHARGING STATION YOURSELF. DO NOT OPEN THE DOOR WHILE THE EFAPOWER EV-QC45 STATION IS ENERGIZED. BY OPENING THE DOOR OR REMOVING THE EFAPOWER EV QC45 QUICK CHARGING STATION SIDE PANELS YOU RUN THE RISK OF EXPOSURE TO DANGEROUS VOLTAGES!