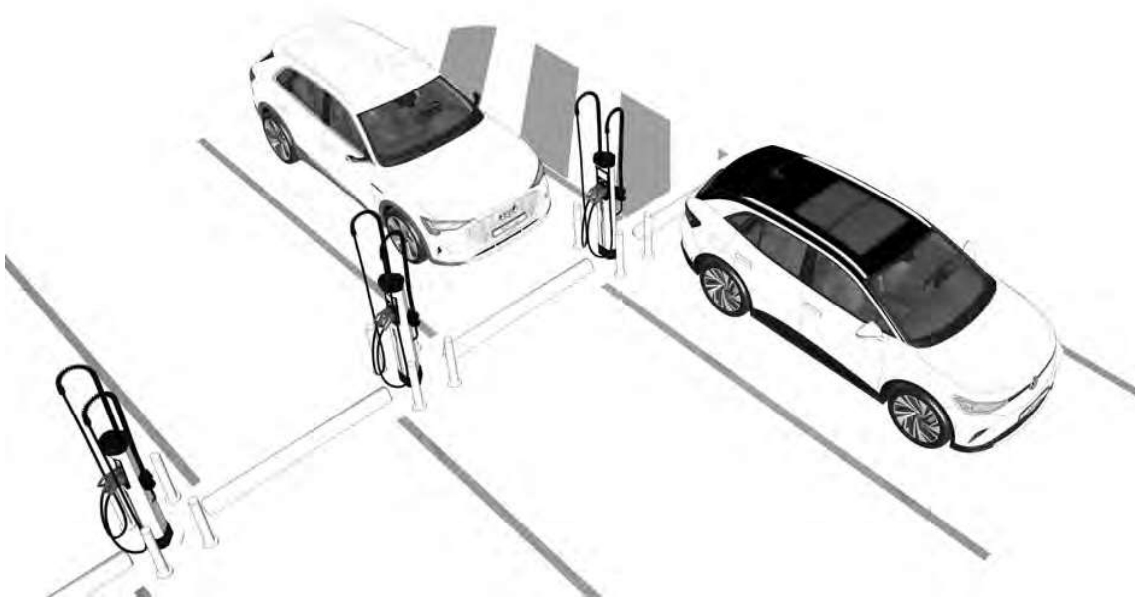


- Rotate the double Satellite 90 degrees to provide maximum operating area for the charging cable on both sides. If possible, index the parking slots. See [Figure 22](#).

Figure 22. Example of indexed parking slots for double Satellites



4.2. Electrical planning



CAUTION

The minimum network requirement per cabinet for the uninterrupted short-circuit current (I_k) is 13 kA/200 kW and for the short-circuit power (S_{sc}) 10 MVA/200 kW. If the values of your network are less than this, contact [Kempower Sales Support](#).



NOTICE

Obey local laws and regulations about the emergency stop circuit. If necessary, include the emergency stop switches and a main circuit breaker on the supply side.



NOTICE

Selecting the correct cable type and size is the electrical designer's responsibility. Obey the relevant standards, local laws, and regulations. Take into account the specific requirements of the installation site.



NOTICE

Dimension the main AC supply to the current specified in the datasheet of the charging power unit.



NOTICE

The cabling between the charging power unit and connected charging points must support the maximum output current of the charging points.


NOTICE

Do not exceed the bending radius of the cable given by the cable manufacturer.


NOTE

AC Satellite is not connected to a charging power unit. It is connected directly to the main power supply.


NOTE

Product datasheets are available at mediabank.kempower.com.

As the requirements of individual installations vary significantly, it is not possible to give detailed instructions that are valid for all sites. Take into account the local rules and requirements on electrical installations, cable routing, and cable dimensioning. For assistance, contact [Kempower Sales Support](#).

The Kempower delivery includes the charging equipment and cabling inside the units. Cabling from the AC main power supply to the unit(s), cabling between the units, and any other components are the customer's responsibility.

4.2.1. AC mains power cables to the charging power unit


NOTICE

Selecting the correct cable type and size is the electrical designer's responsibility. Obey the relevant standards, local laws, and regulations. Take into account the specific requirements of the installation site.


NOTE

The maximum wire size of the terminal is 2 x 240 mm².

The neutral wire is not used in the Power Unit (TN-C network). If the network cable has a neutral wire, it is connected to the cabinet's neutral wire terminal block (N) to keep the wire securely in place. The neutral wire is not connected to earth in the cabinet.

The neutral wire is only used in the Station Charger if it has an optional AC charging output (TN-C-S network). The neutral wire is connected to the cabinet's neutral wire terminal block (N).

Phases 1–3 (L1, L2, L3) and neutral (N) can be aluminum or copper wires. We recommend using copper wire for protective earth (PE).

4.2.1.1. Units manufactured after 3/2023



NOTE

In double and triple cabinet units manufactured after 3/2023, the AC supply terminal blocks of the cabinets are not jumpered together at the factory. If you install jumpers, one cabinet's main switch does not shut off the power in the other cabinet(s) of the unit. You must mark the units clearly to indicate the danger.

When the AC supply terminal blocks of the cabinets are not jumpered together:

- In single cabinet units, at maximum two AC mains power cables can be connected to one cabinet.
- In double and triple cabinet units, one AC mains power cable must be connected to each cabinet.
- If you want to install jumpers, obey the specifications for units manufactured before 3/2023.

4.2.1.2. Units manufactured before 3/2023



NOTE

In double and triple cabinet units manufactured after 3/2023, the AC supply terminal blocks of the cabinets are not jumpered together at the factory. If you install jumpers, one cabinet's main switch does not shut off the power in the other cabinet(s) of the unit. You must mark the units clearly to indicate the danger.

- The jumpers can be removed on site. In this case obey the specifications for units manufactured after 3/2023.
- When the AC supply terminal blocks of double cabinets are jumpered together, one AC mains power cable can be connected to one of the cabinets.
- When the AC supply terminal blocks of triple cabinets are jumpered together, one AC mains power cable can be connected to each of the end cabinets. No AC mains power cable is connected to the middle cabinet.

4.2.2. Cabling between the charging power unit and DC charging points



NOTE

AC Satellite is not connected to a charging power unit. It is connected directly to the main power supply.

4.2.2.1. DC output power cables


NOTICE

The cabling between the charging power unit and connected charging points must support the maximum output current of the charging points.


NOTE

Depending on the Power Unit version, the maximum size of the wire terminal is 2 x 50 mm² or 2 x 150 mm².

The dimensioning of the DC output power cable depends on the maximum output current of the charging point. Multiply the output current with the number of cabinets in the charging power unit.

The DC output power cable can be shielded or non-shielded. Non-shielded cables must have 5 wires (2 x DC+, 2 x DC-, PE). We recommend using copper wires.

Indicative cable types for single Satellite (300 A)

- 2 x (4 x 35 mm² + PE) or 2 x (5 x 35 mm²)
- 4 x 50 mm² + PE or 5 x 50 mm²

Indicative cable types for double Satellites (300 A)


NOTE

Note that this is the maximum wire size that fits inside the double Satellite.

- 4 x (4 x 25 mm² + PE) or 4 x (5 x 25 mm²)
- 2 x (4 x 50 mm² + PE) or 2 x (5 x 50 mm²)


NOTICE

Selecting the correct cable type and size is the electrical designer's responsibility. Obey the relevant standards, local laws, and regulations. Take into account the specific requirements of the installation site.

See also [10: Examples of connecting output and control cables to charging points](#) and [11: Examples of connecting cables to the Satellites](#).

4.2.2.2. Control cable

The control cable is 4 x 1.5 mm² Cu cable If the distance between the charging power unit and a connected charging point is up to 50 m. The control cable is 6 x 1.5 mm² Cu cable if the distance is more than 50 m. In this case, use two parallel auxiliary power wires (+24 V) and ground wires (0 V) to compensate for voltage drop. The cable shield is grounded at the charging power unit end.

Indicative cable type

- 7 x 1.5 mm² Cu cable
 - Control signal wire
 - Auxiliary power wire for the user interface of the satellite (+24 V)
 - Ground wire (GND, 0 V)

4.2.2.3. Communication cable



NOTE

Each Satellite must have its own communication cable. The communication cable is not included in the delivery.

Indicative cable type

- SuperCat 6/7 shielded Ethernet cable 4 x 2 x 0.25 mm²

The Ethernet shield is grounded at one end only, either charging power unit or Satellite.

Connectivity to the Kempower ChargeEye and possible OCPP backend system requires an Internet connection, either with a SIM card in the control module of the master charging power unit or Ethernet cabling between your wide area network (WAN) router and the master charging power unit.

4.2.3. AC Satellite cabling



NOTICE

Do not connect the Ethernet cable of AC Satellite to the charging power unit. Doing so will stop the operation of both units.



NOTE

AC Satellite is not connected to a charging power unit. It is connected directly to the main power supply.

- The AC Satellite requires only AC mains power cables.
- An Ethernet cable between the AC Satellite and the site Ethernet network is optional but not required. The indicative cable type is SuperCat 6/7 shielded Ethernet cable 4 x 2 x 0.25 mm². Connectivity to the Kempower ChargeEye and possible OCPP backend system requires an Internet connection, either with a SIM card or Ethernet cabling to your wide area network (WAN) router.
- Each charging socket or vehicle connector of the AC Satellite has dedicated residual-circuit monitoring (RCM). Obey local laws and

regulations about the type A residual-current device (RCD) required for the supply side.

4.3. Required tools and equipment

To do installation tasks, make sure that you have the necessary tools and equipment.

Personal protective equipment (PPE)

- Protective gloves
- Protective eyewear
- Safety shoes

Access

- Charging power unit door key
- Access to the main AC power supply point
- Triangle key
- Control Unit door key

Required tools

- H3, H4, H5, H6 and H8 key
- T25 and T30 bit
- Security T30 bit
- Screwdriver
- Electrician's crosshead screwdriver
- Electrician's flathead screwdriver
- 1/4 ratchet wrench (or your preferred tool, to use the Allen keys)
- Torque Wrench 1-50 Nm
- 100 mm extension (50 mm and 200 mm also recommended)
- Multimeter, capable of insulation tests up to 1000 V

Recommended tools

- Long nose pliers
- Side cutters
- Electric tape, multiple colors
- Work light
- Digital camera or mobile phone with camera

Some task-specific additional tools may also be needed.

5. INSTALLING THE CHARGING EQUIPMENT

The recommended maximum distance between the charging power unit and a connected charging point is approximately 80 m. If longer distances are necessary, make sure that the requirements are specified in the electrical design documentation of your site.

5.1. Mechanical installation



DANGER

High-voltage installation. Make sure that the units are correctly isolated and the lockout-tagout (LOTO) procedure completed when necessary during installation, service or maintenance work. Know and obey general and local safety regulations and procedures. Use adequate personal protection equipment (PPE).

5.1.1. Preparing for the installation



CAUTION

High center of gravity. Make sure that the cabinet does not fall over.



NOTICE

One cabinet with four power modules weighs approximately 400 kg. Use appropriate lifting equipment operated by qualified professionals.



NOTICE

The maximum tilting angle of the charging power unit is 6 degrees. High center of gravity.



NOTICE

The Liquid Cooled Satellite is shipped in a crate that weighs approximately 150 kg. Use appropriate lifting equipment operated by qualified professionals.



NOTICE

The electrical installation must be done in dry conditions. If necessary, weatherproof the installation area before you start the installation.

- Inspect the delivery as soon as possible. Make sure to remove the fixing brackets. If the equipment is damaged, do not start the installation. For assistance, contact [Kempower Technical Support](#).
 - Power Unit is shipped upright on a pallet and wrapped in plastic. The top of the unit is covered with a plywood board.
 - The charging cables and support springs of the Station Charger are installed on the unit at the factory. The unit is shipped upright on a pallet and wrapped in plastic. The top of the unit is covered with a plywood board.

- The charging cable and support spring of the Liquid Cooled Satellite are installed on the unit at the factory. The coolant is prefilled inside the unit. The unit is shipped upright in a crate.
 - The charging cables and support springs of the Satellite are not installed on the unit at the factory. The unit and its charging cables and support springs are shipped in a horizontal position in a crate.
 - The charging cable of Control Unit is not installed on the unit at the factory. The unit and the charging cable are shipped in two separate boxes.
 - Do not remove the protective packaging from the vehicle connectors before you have installed the charging cables.
-
- Power Unit and Station Charger shipments have a tilt indicator. Shipments of other products may also have a tilt indicator. If the tilt indicator indicates mishandling, do not start the installation. For assistance, contact [Kempower Technical Support](#).
 - Know the site's electrical installation plan before you start mechanical installation.
 - If an emergency stop circuit is included, make sure that it is in place before you start installation.
 - Make sure that the AC mains power cables of the charging power unit have been routed to the foundation or installation location before you install the charging power unit in place.
 - Make sure that the connection cables have been routed from the charging power unit to the charging point before you install the charging point in place. The connection cables are routed to the Liquid Cooled Satellite frame that has the user interface.
 - Make sure that the AC mains power cables and the communication cable (optional) have been routed to the AC Satellite before you install it in place.

5.1.2. Installing the steel base (option)

5.1.2.1. Installing the steel base (single)


WARNING

Do not go under the unit when it is lifted.


CAUTION

Use all lifting lugs of the unit when you lift it. Minimum angle of slings 60 degrees.


CAUTION

High center of gravity. Make sure that the cabinet does not fall over.


NOTICE

One cabinet with four power modules weighs approximately 400 kg. Use appropriate lifting equipment operated by qualified professionals.


NOTICE

Make sure that the installation surface is solid and as level as possible.


NOTICE

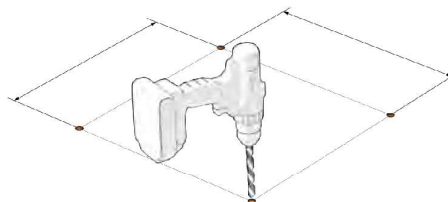
Make sure that the door of the unit has space to open when the unit is in position.


NOTE

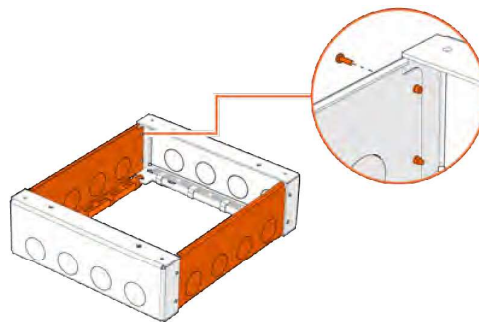
Note the cable routes and open the necessary knock-out holes of the steel base. Use cable bushings or file the sharp metal edges of the knock-out holes to protect the cables from damages.

1. Drill the fixing holes into the installation surface. Make sure that the installation surface is solid and as level as possible.

For more information, see [9.6: Steel base footprints and fixing points](#).



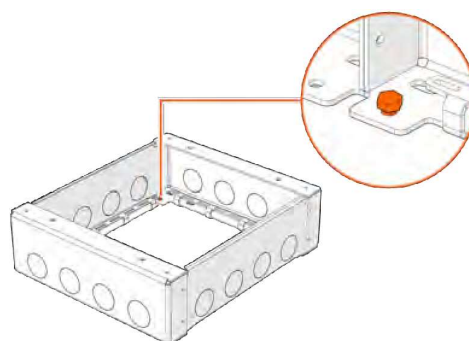
2. Assemble the steel base. Use two M6 bolts for each seam to attach the panels together.



3. Use fasteners to install the steel base to the installation surface.


NOTE

The fasteners used for installing the steel base to the installation surface are not included in the delivery.



4. Lift the charging power unit onto the steel base. For moving and lifting instructions, see [5.1.3: Moving and lifting Power Unit.](#)

Make sure that the unit is horizontally level.

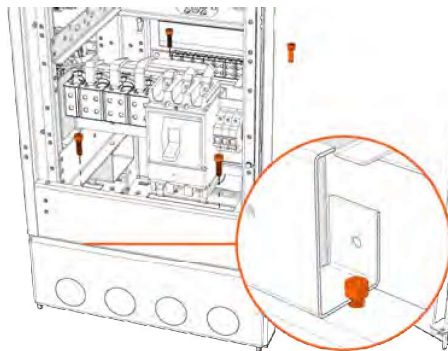


5. Install the charging power unit to the steel frame using four M12 bolts.

At first, tighten the bolts only loosely. Once all the bolts are in place, tighten them completely.


NOTE

If the charging power unit does not fit correctly onto the steel base, you may need to go back and readjust the steel base.



6. Finalize the installation of the charging power unit. For instructions, see [5.1.9: Installing the charging power unit](#).

5.1.2.2. Installing the steel base (double)


WARNING

Do not go under the unit when it is lifted.


CAUTION

Use all lifting lugs of the unit when you lift it. Minimum angle of slings 60 degrees.


CAUTION

High center of gravity. Make sure that the cabinet does not fall over.


NOTICE

One cabinet with four power modules weighs approximately 400 kg. Use appropriate lifting equipment operated by qualified professionals.


NOTICE

Make sure that the installation surface is solid and as level as possible.


NOTICE

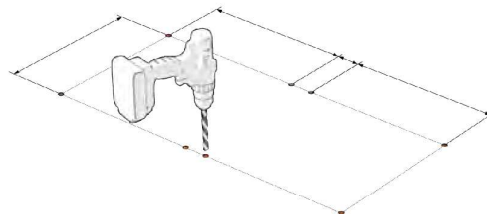
Make sure that the door of the unit has space to open when the unit is in position.


NOTE

Note the cable routes and open the necessary knock-out holes of the steel base. Use cable bushings or file the sharp metal edges of the knock-out holes to protect the cables from damages.

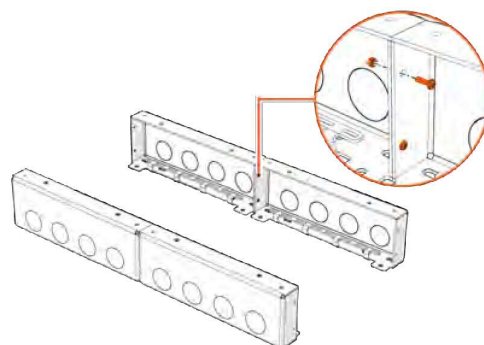
1. Drill the fixing holes into the installation surface. Make sure that the installation surface is solid and as level as possible.

For more information, see [9.6: Steel base footprints and fixing points](#).



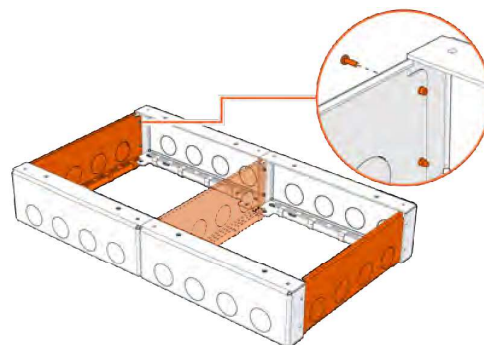
2. Assemble the side panels of the steel base. Use two M6 bolts and nuts for each seam to attach the panels together.

Use the appropriate number of side panels for your installation. Two for a double cabinet and three for a triple cabinet.



3. Attach the end panels using two M6 bolts per seam.

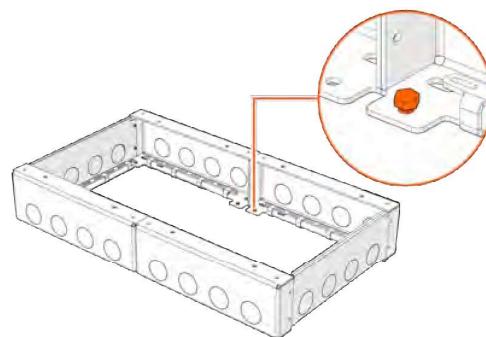
The middle panel is optional.



4. Use fasteners to install the steel base to the installation surface.

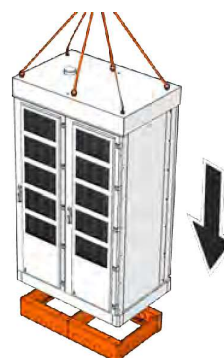

NOTE

The fasteners used for installing the steel base to the installation surface are not included in the delivery.



5. Lift the charging power unit onto the steel base. For moving and lifting instructions, see [5.1.3: Moving and lifting Power Unit](#).

Make sure that the unit is horizontally level.

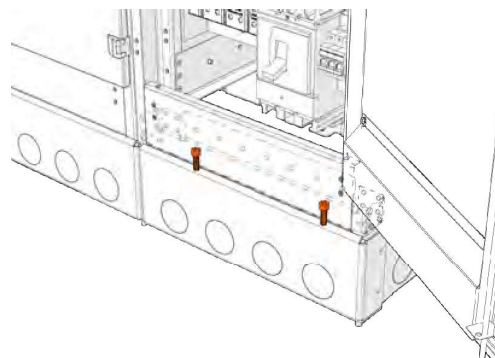


6. Install the charging power unit to the steel frame using four M12 bolts per cabinet.

At first, tighten the bolts only loosely. Once all the bolts are in place, tighten them completely.


NOTE

If the charging power unit does not fit correctly onto the steel base, you may need to go back and readjust the steel base.



7. Finalize the installation of the charging power unit. For instructions, see [5.1.9: Installing the charging power unit](#).

5.1.2.3. Installing the steel base (triple)


WARNING

Do not go under the unit when it is lifted.


CAUTION

Use all lifting lugs of the unit when you lift it. Minimum angle of slings 60 degrees.


CAUTION

High center of gravity. Make sure that the cabinet does not fall over.


NOTICE

One cabinet with four power modules weighs approximately 400 kg. Use appropriate lifting equipment operated by qualified professionals.


NOTICE

Make sure that the installation surface is solid and as level as possible.


NOTICE

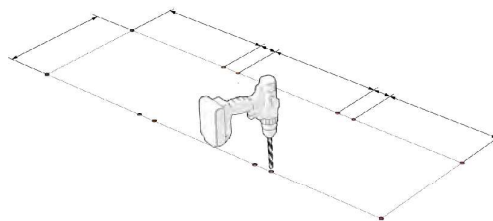
Make sure that the door of the unit has space to open when the unit is in position.


NOTE

Note the cable routes and open the necessary knock-out holes of the steel base. Use cable bushings or file the sharp metal edges of the knock-out holes to protect the cables from damages.

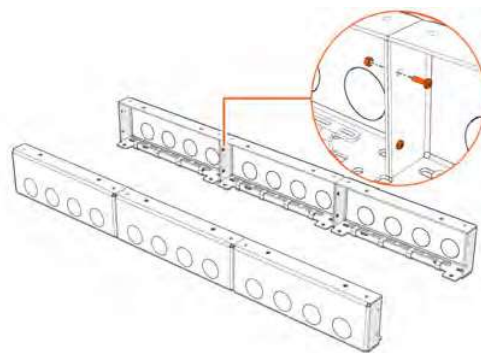
1. Drill the fixing holes into the installation surface. Make sure that the installation surface is solid and as level as possible.

For more information, see [9.6: Steel base footprints and fixing points](#).



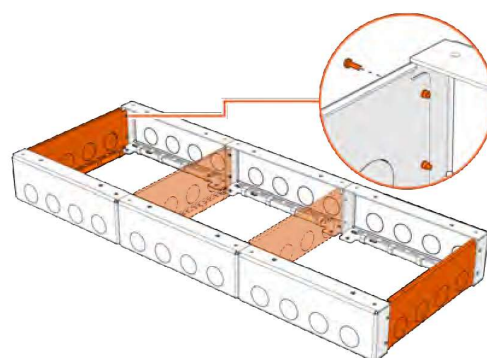
2. Assemble the side panels of the steel base. Use two M6 bolts and nuts for each seam to attach the panels together.

Use the appropriate number of side panels for your installation. Two for a double cabinet and three for a triple cabinet.



3. Attach the end panels using two M6 bolts per seam.

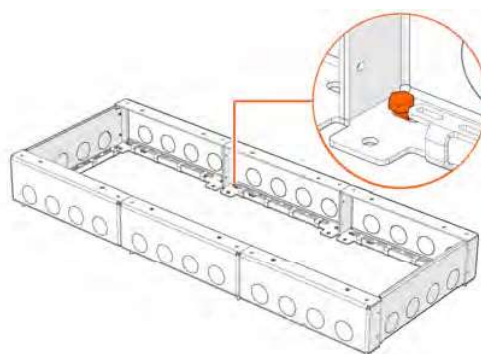
The middle panels are optional.



4. Use fasteners to install the steel base to the installation surface.

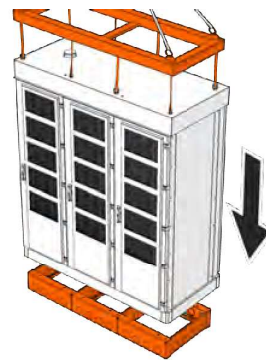

NOTE

The fasteners used for installing the steel base to the installation surface are not included in the delivery.



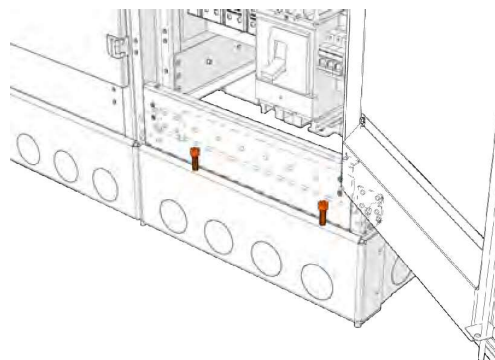
5. Lift the charging power unit onto the steel base. For moving and lifting instructions, see [5.1.3: Moving and lifting Power Unit](#).

Make sure that the unit is horizontally level.



6. Install the charging power unit to the steel frame using four M12 bolts per cabinet.

At first, tighten the bolts only loosely. Once all the bolts are in place, tighten them completely.



NOTE

If the charging power unit does not fit correctly onto the steel base, you may need to go back and readjust the steel base.

7. Finalize the installation of the charging power unit. For instructions, see [5.1.9: Installing the charging power unit](#).

5.1.3. Moving and lifting Power Unit

**WARNING**

Do not go under the unit when it is lifted.

**CAUTION**

Use all lifting lugs of the unit when you lift it. Minimum angle of slings 60 degrees.

**CAUTION**

High center of gravity. Make sure that the cabinet does not fall over.

**CAUTION**

The module rails inside the cabinet have sharp edges. Be careful when removing and installing modules.

**NOTICE**

The maximum tilting angle of the charging power unit is 6 degrees. High center of gravity.

**NOTICE**

One cabinet with four power modules weighs approximately 400 kg. Use appropriate lifting equipment operated by qualified professionals.

**NOTICE**

Carefully remove the control module, the power distribution module, the bottom power module, and the front panel of the mains module from each cabinet before you lift the unit. This is done to reduce the weight and make space for installing the cables. Keep the modules clean and dry.

**NOTICE**

Make sure that you replace the same serial number card to the same cabinet when you install or replace control modules. Each cabinet is identified with its unique serial number in ChargeEye.

**NOTICE**

Do not lift the power module from its guide pins.

**NOTE**

The power module weighs approximately 43 kg.

**NOTE**

The power distribution module weighs approximately 32 kg.

Figure 23. Remove the bottom modules before you lift the unit

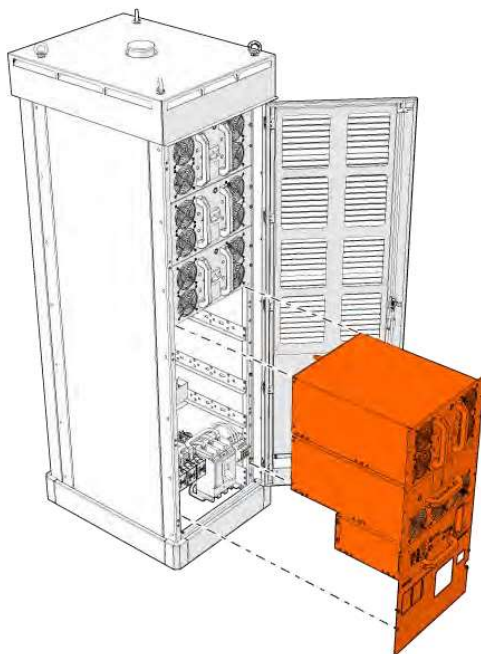


Figure 24. Left : lifting the unit to be installed without the steel base. Right: lifting the unit to be installed on the steel base.

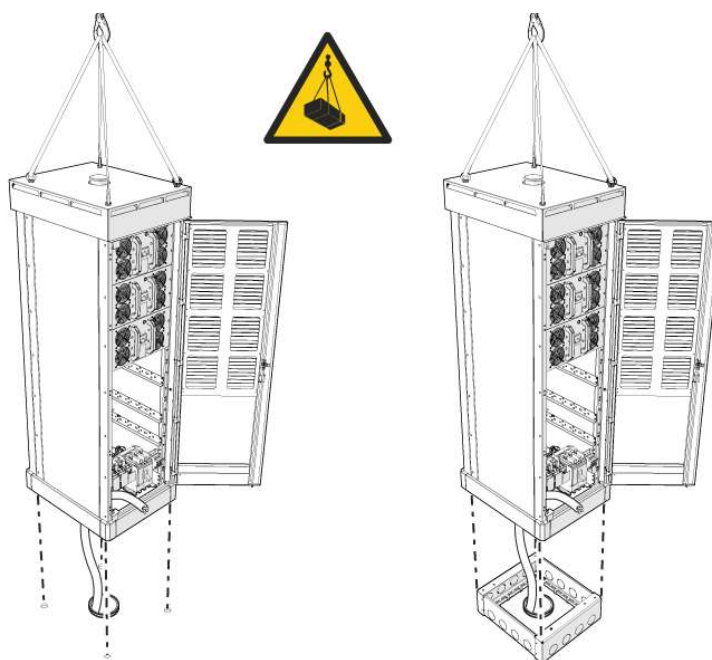


Figure 25. Lifting lugs on a single, double, and triple cabinet

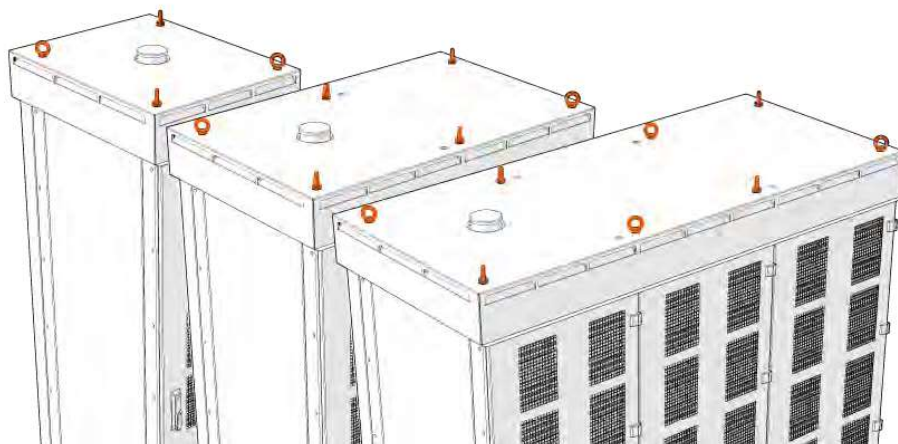
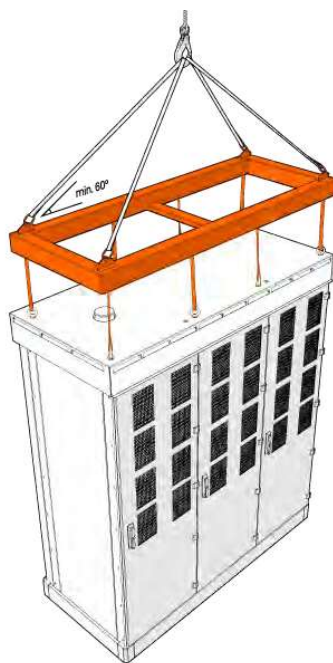


Figure 26. Use all fastening points if you use lifting beams



5.1.4. Moving and lifting Power Unit Version 3



WARNING

Do not go under the unit when it is lifted.



CAUTION

Use all lifting lugs of the unit when you lift it. Minimum angle of slings 60 degrees.



CAUTION

High center of gravity. Make sure that the cabinet does not fall over.



NOTICE

The maximum tilting angle of the charging power unit is 6 degrees. High center of gravity.



NOTICE

One cabinet with four power modules weighs approximately 400 kg. Use appropriate lifting equipment operated by qualified professionals.



NOTICE

Carefully remove the control module, the power distribution module, and the front panel of the mains module from each cabinet before you lift the unit. This is done to reduce the weight and make space for installing the cables. Keep the modules clean and dry.



NOTICE

Make sure that you replace the same serial number card to the same cabinet when you install or replace control modules. Each cabinet is identified with its unique serial number in ChargeEye.



NOTE

The power distribution module weighs approximately 32 kg.

Figure 27. Remove the control module, the power distribution module and the front panel of the mains module before you lift the unit

