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ABB DRIVES

# **ACS880-01, ACS580-01, ACH580-01 and ACQ580-01 drives frame size R9e**

## Installation instructions





# ACS880-01, ACS580-01, ACH580-01 and ACQ580-01 drives frame size R9e

## Installation instructions

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4. Electrical installation (IEC)



5. Electrical installation (NEC)



3AXD50001240653 Rev B  
EN

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## Further information



# 1

## Safety instructions

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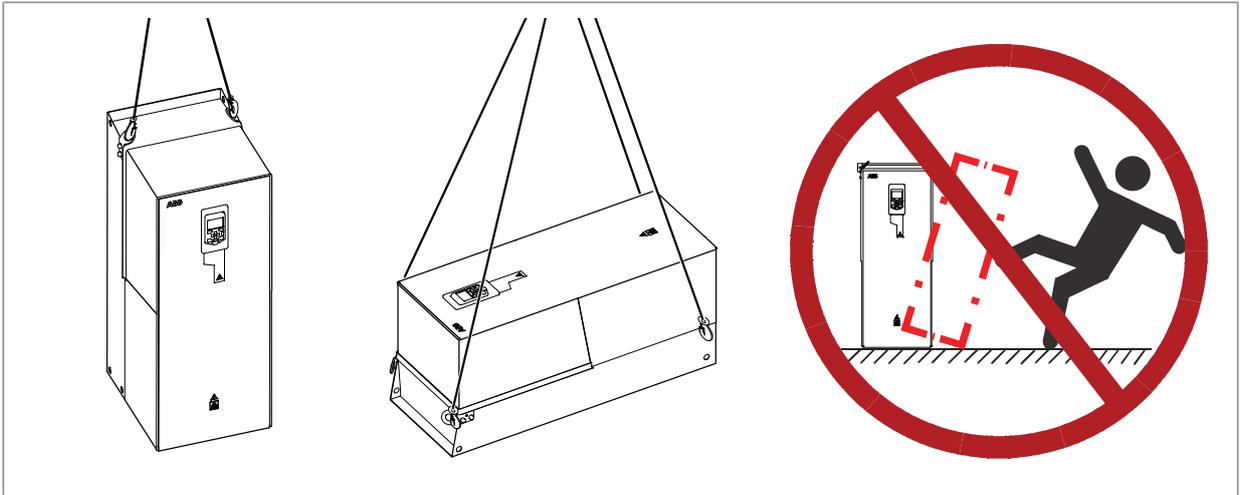
**▲WARNING** Obey the safety instructions of the drive. If you ignore them, injury or death, or damage to the equipment can occur. If you are not a qualified electrical professional, do not do installation, commissioning, or maintenance work.

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- Obey all safety instructions of the drive. Read the complete safety instructions of the drive before you install, start up or use the drive. Refer to the hardware manual.
  - Do not do work on the drive, motor cable, motor, or control cables when the drive is connected to the input power. Before you start the work, isolate the drive from all dangerous voltage sources and make sure that it is safe to start the work. Always wait for 5 minutes after disconnecting the input power to let the intermediate circuit capacitors discharge.
  - Do not do work on the drive when a rotating permanent magnet motor is connected to it. A rotating permanent magnet motor energizes the drive, including its input and output terminals.
  - Wear hearing protection when the drive operates.
-

## 8 Safety instructions

- Lift the drive with a lifting device. Use the lifting eyes of the drive.
- Do not tilt the drive. The drive is heavy and its center of gravity is high. An overturning drive can cause physical injury.



# 2

## Introduction to the manual

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### Contents of this chapter

This chapter describes the manual.

### Applicability

This manual is applicable to ACS880-01, ACS580-01, ACH580-01 and ACQ580-01 drives, frame size R9e. It is a supplement to:

- [ACS880-01 quick installation and start-up guide \(3AXD50001371753 \[English\]\)](#)
- [ACS580-01 quick installation and start-up guide for global \(IEC\) product types \(3AXD50001317799 \[English\]\)](#)
- [ACH580-01 quick installation and start-up guide for global \(IEC\) product types \(3AXD50001324124 \[English\]\)](#)
- [ACQ580-01 quick installation and start-up guide for global \(IEC\) product types \(3AXD50001324131 \[English\]\).](#)

### Target audience

This manual is intended for people who plan the installation, install, commission, and do maintenance work on the drive, or create instructions for the end user of the drive concerning the installation and maintenance of the drive.

Read the manual before you do work on the drive. You are expected to know the fundamentals of electricity, wiring, electrical components, and electrical schematic symbols.

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## Related documents

For more documentation, go to [www.abb.com/drives/documents](http://www.abb.com/drives/documents).



[ACS880-01 manuals](#)



[ACS580-01 manuals](#)



[ACH580-01 manuals](#)



[ACQ580-01 manuals](#)

# 3

## Mechanical installation

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### Contents of this chapter

This chapter gives instructions on how to remove the necessary parts before you connect the cables. Refer to [Technical data \(page 43\)](#) for the dimensions, weights and free space requirements. For other instructions, refer to the quick installation and start-up guide.



### Necessary tools

To move a heavy drive, use a crane, forklift, or pallet truck (examine the load capacity). To lift a heavy drive, use a lifting device.

To mechanically install the drive, make sure that you have these tools available:

- drill with suitable bits
  - screwdriver set (Torx, Phillips, flat and/or Pozidriv, as necessary)
  - 300 mm (11.8 in) screwdriver extension bit
  - torque wrench
  - socket set, Hex key set (metric)
  - tape measure, if you do not use the mounting template delivered with the drive.
-

## Before you start

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**⚠ WARNING** Obey the safety instructions of the drive. If you ignore them, injury or death, or damage to the equipment can occur. If you are not a qualified electrical professional, do not do electrical installation, commissioning or maintenance work.

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Do the these steps from the quick installation and start-up guide before you start the mechanical installation:

1. Unpack the delivery.
2. Reform the capacitors if the drive has not been powered for a year or more. Refer to [Capacitor reforming instructions \(3BFE64059629 \[English\]\)](#).
3. Select the cables and fuses.

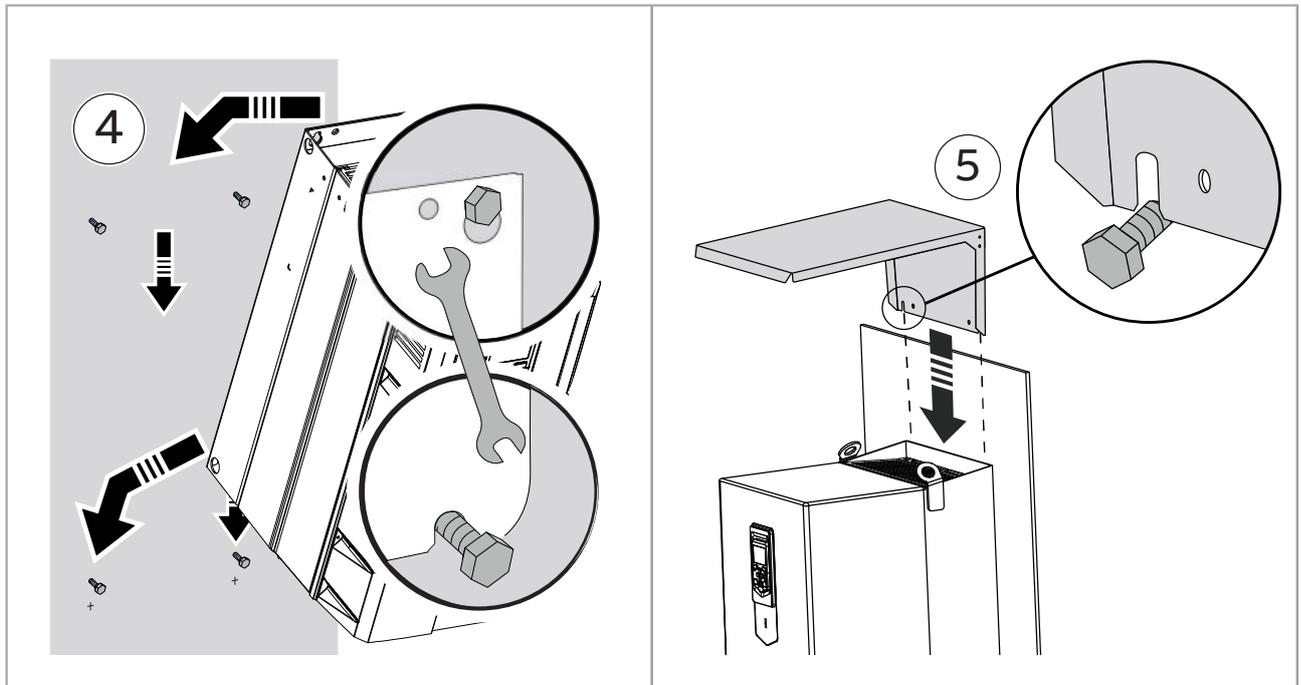
Select also appropriate cable lugs for the cables. The maximum width of the cable lugs for L1, L2, L3, T1/U, T2/V, T3/W terminals: 44 mm (1.73 in). The maximum width of the cable lugs for UDC-, UDC+/R+ and R- terminals: 40 mm (1.57 in).



## Install the drive on the wall

Select fasteners that comply with local requirements applicable to wall surface materials, drive weight and application. Refer to [Technical data \(page 43\)](#) for the dimensions, weights and free space requirements. Refer to [Dimension drawings \(page 48\)](#) for the mounting hole dimensions.

1. Make marks with the help of the mounting template. Remove the mounting template before you install the drive on the wall.
2. Drill the holes and put anchors or plugs into the holes.
3. Install the screws. Leave a gap between the screw head and mounting surface.
4. Put the drive on the wall.
5. UL Type 12 drives: insert the hood behind the drive onto the top screws.
6. Tighten the screws.



## Remove the front cover

1. Loosen the 14 captive screws with a T20 Torx screwdriver.
2. Remove the control panel. Use the control panel slot to lift the front cover.
3. Push the control panel cable through the control panel slot to remove it from the front cover.
4. Remove the front cover.
5. Attach a residual voltage warning sticker in the local language above the main cooling fan.



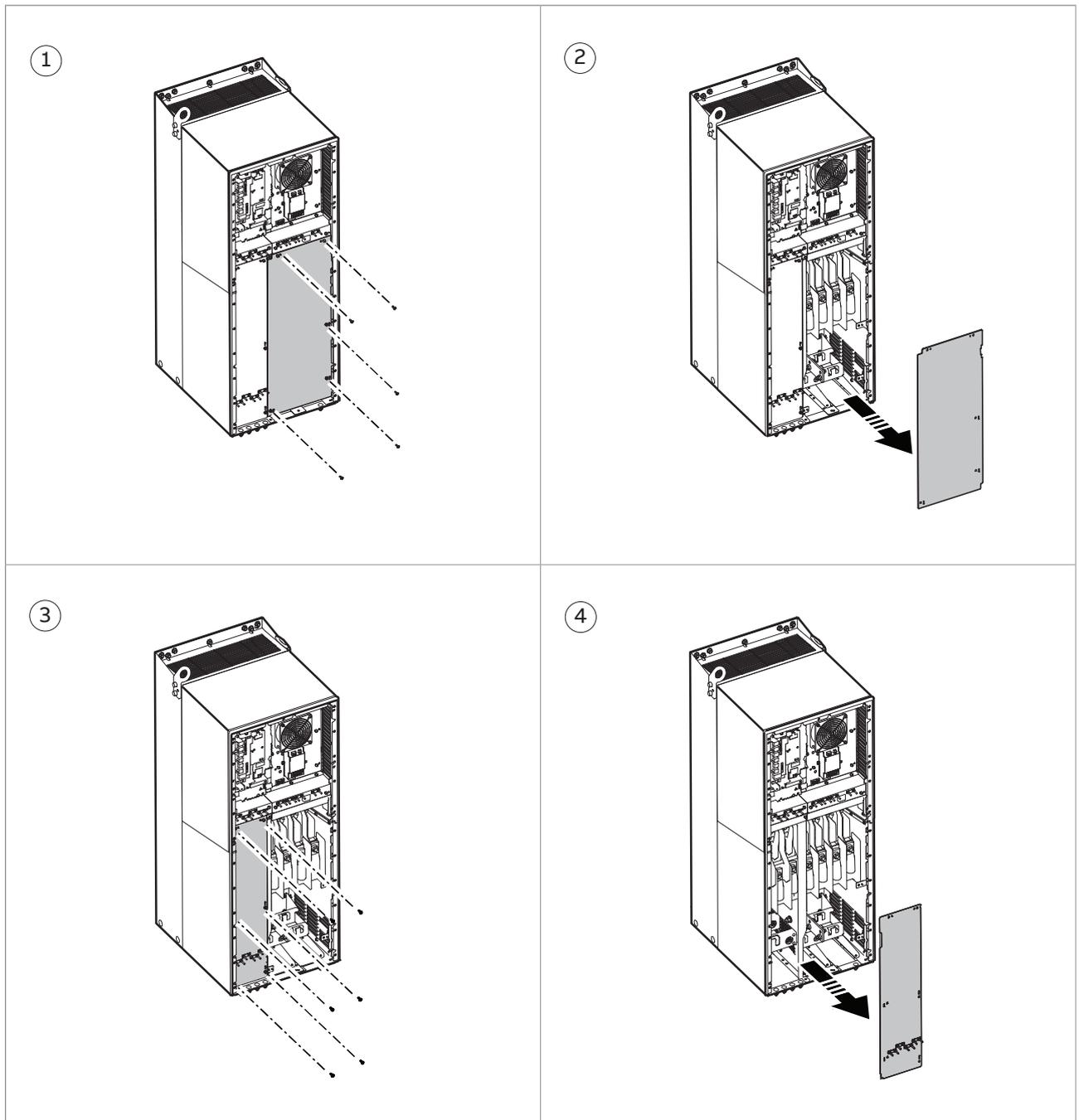
### Fastener type

M4×14 captive screw

### Tightening torque

1.5 N·m (13.3 lbf·in)

## Remove the EMC cover plates



**Fastener type**  
M5×12 combi screw

**Tightening torque**  
3 N·m (26.6 lbf·in)

## Remove the side plates

You can remove the side plates for easier cable installation.

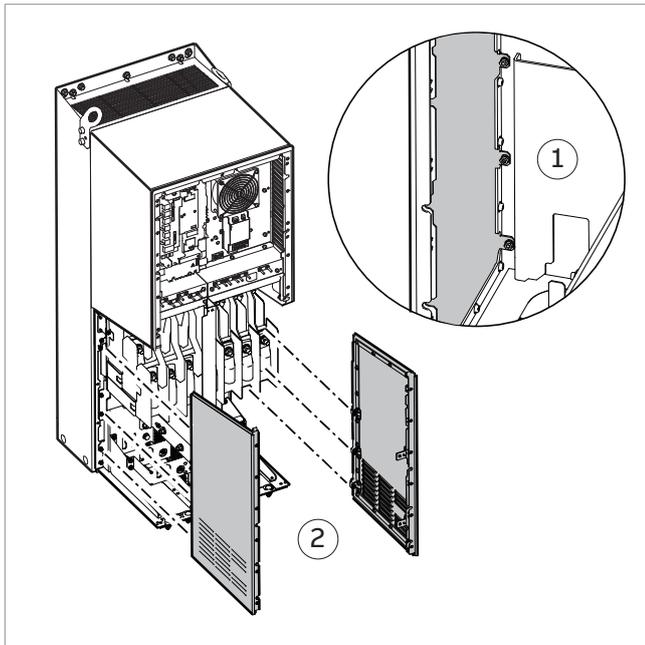
### To remove the side plates:

1. Loosen the three captive screws per side plate. Use a 300 mm (11.8 in) screwdriver extension bit.
2. Remove the side plates.

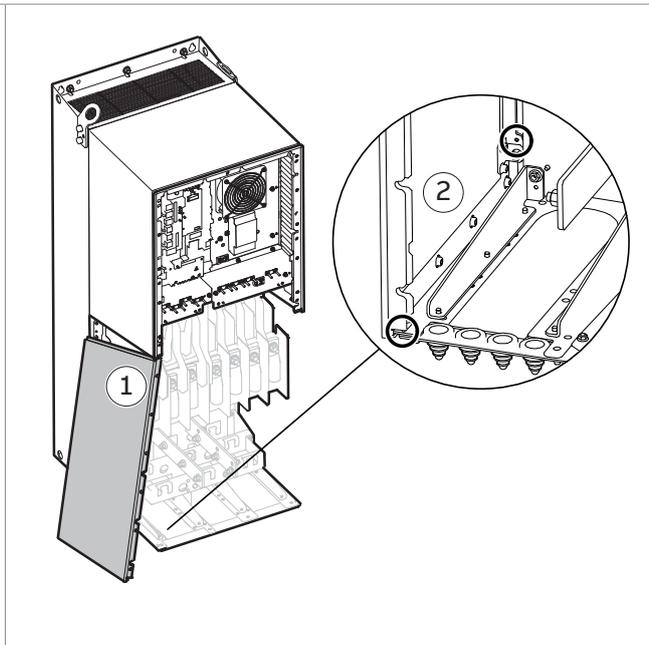
### To install the side plates:

1. Attach the upper front corner of the side plate.
2. Use the guide pins to put the lower edge of the side plate into position.
3. Tighten the three M5×18 captive screws per side plate to 3 N·m (26.6 lbf·in). Use a 300 mm (11.8 in) screwdriver extension bit.

#### Removal



#### Installation



#### Fastener type

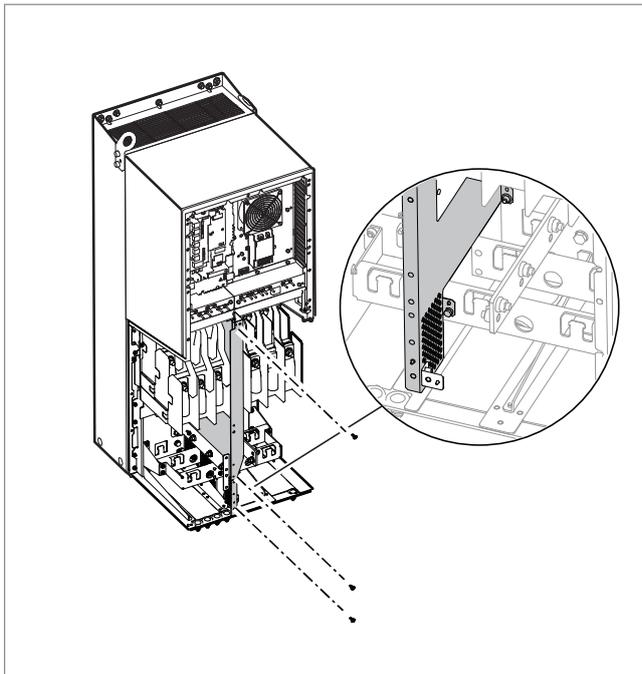
M5×18 captive screw

#### Tightening torque

3 N·m (26.6 lbf·in)

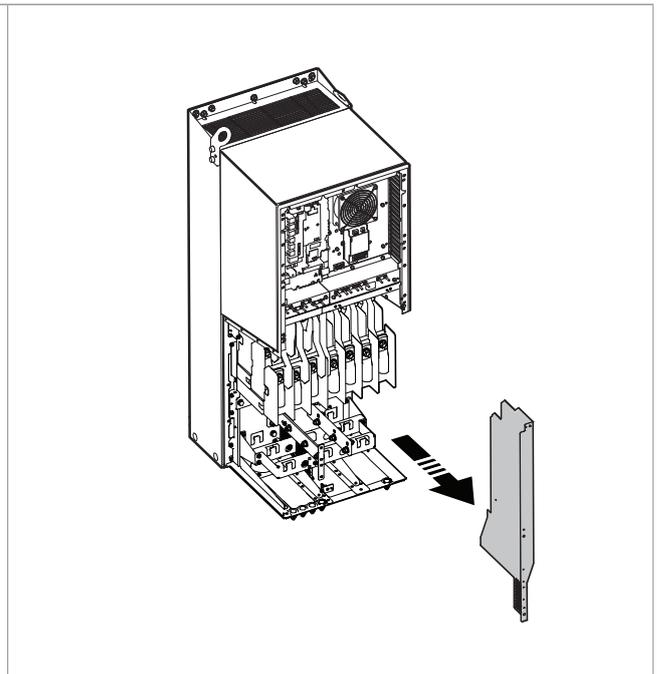


## Remove the EMC side plate



**Fastener type**

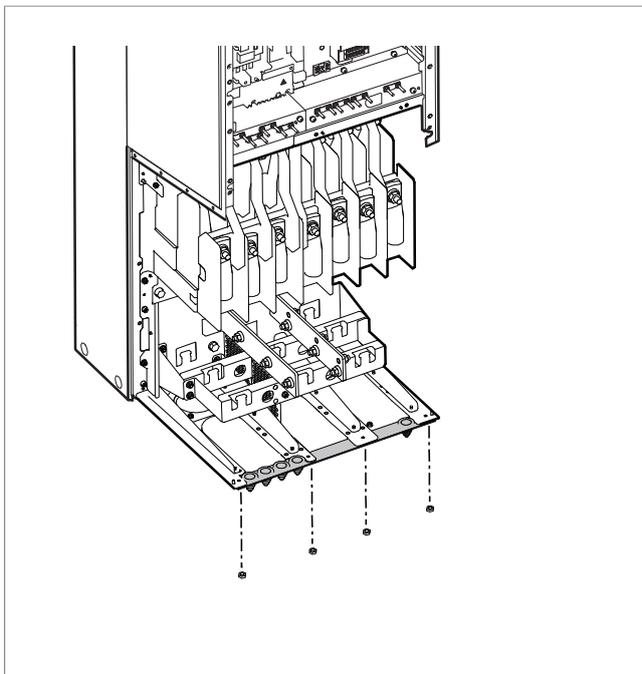
M5x12 combi screw



**Tightening torque**

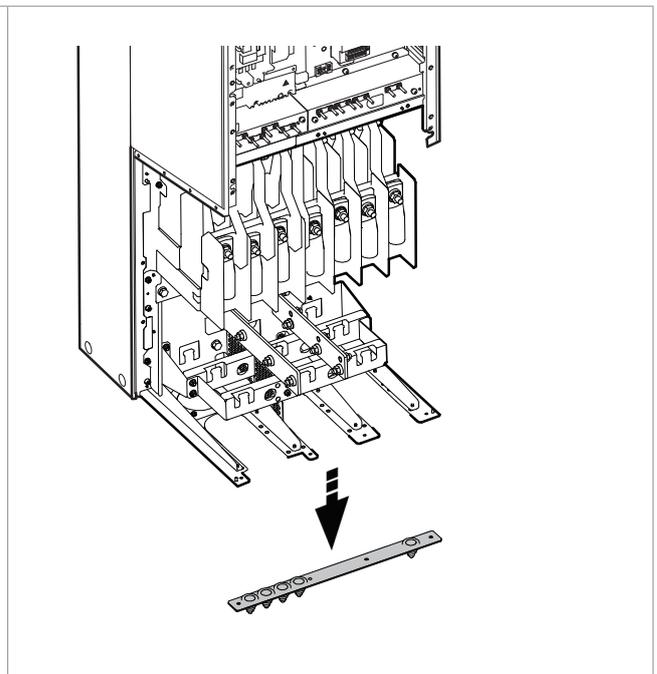
3 N·m (26.6 lbf·in)

## Remove the control cable entry plate



**Fastener type**

M5 nut

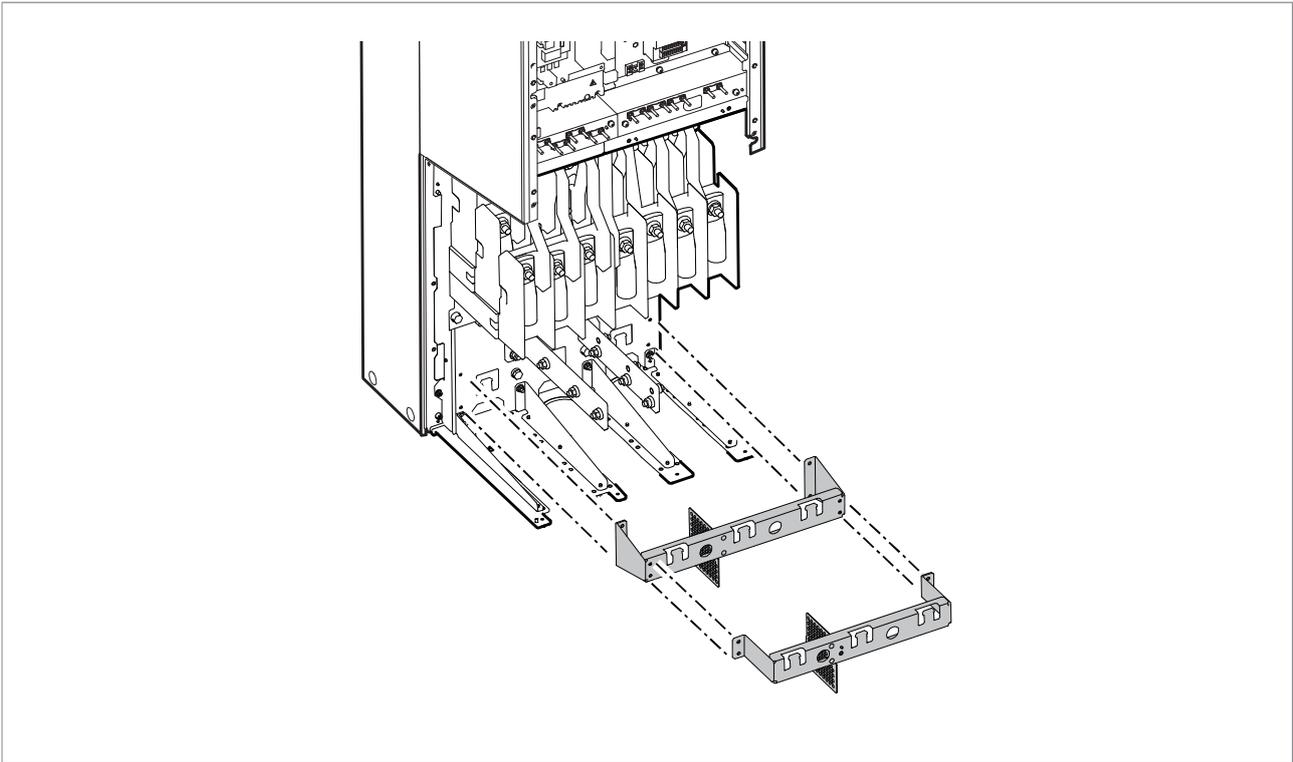


**Tightening torque**

1.5 N·m (13.3 lbf·in)



## Remove the clamping shelves



**Fastener type**

M5 nut

**Tightening torque**

3 N·m (26.6 lbf·in)

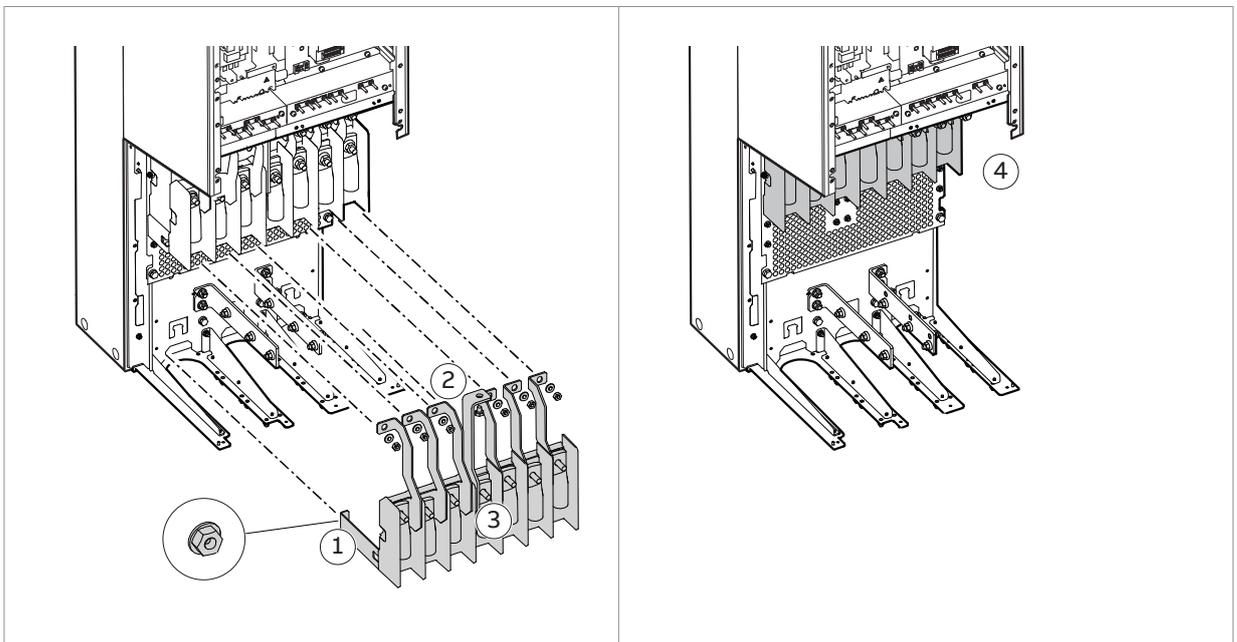


## Remove the terminals

The standard delivery includes three rows of terminals. With option +0P840, the third row (front row) terminals are removed from delivery.

**Note:** Option +0P840 is not available with option +D150.

1. Remove the four M5 nuts. Use a 300 mm (11.8 in) extension bit.
2. The M10 nuts, M10 washers and M10×25 combi screws are delivered in a bag inside the drive. Use them to install the second and third row terminals.
3. Remove the terminal.
4. Repeat until you have only one row of terminals left.



### Fastener type

M5 nut

M10 nut + washers

M10×25 combi screw

### Tightening torque

3 N·m (26.6 lbf·in)

30 N·m (22.1 lbf·ft)

30 N·m (22.1 lbf·ft)





# 4

## Electrical installation (IEC)

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### Contents of this chapter

This chapter gives instructions on how to connect the power and control cables. Refer to [Technical data \(page 43\)](#) for the nominal ratings, fuses, typical power cable sizes and terminal data for the power cables.

For the connection diagram and default I/O connections, refer to:

- [ACS880-01 quick installation and start-up guide \(3AXD50001371753 \[English\]\)](#)
- [ACS580-01 quick installation and start-up guide for global \(IEC\) product types \(3AXD50001317799 \[English\]\)](#)
- [ACH580-01 quick installation and start-up guide for global \(IEC\) product types \(3AXD50001324124 \[English\]\)](#)
- [ACQ580-01 quick installation and start-up guide for global \(IEC\) product types \(3AXD50001324131 \[English\]\)](#).

### Necessary tools

To do the electrical installation, you need these tools:

- wire stripper
  - screwdriver set (Torx, Phillips, flat and/or Pozidriv, as necessary)
  - torque wrench.
- 



## Make sure that the drive is compatible with the grounding system

**NOTICE** Do not install the drive with the EMC filter connected to a system that the filter is not suitable for. This can cause danger, or damage the drive.

**NOTICE** Do not install the drive with the ground-to-phase varistor connected to a system that the varistor is not suitable for. It can cause damage to the varistor circuit.

You can connect all drives to a symmetrically grounded TN-S system (center-grounded wye). If you install the drive to a different system, you must disconnect the EMC screw(s) (disconnect the EMC filter) and/or disconnect the VAR screw (disconnect the varistor circuit).

Drives with EMC C2 filter have two EMC screws. Drives with EMC C3 filter have one EMC screw.

Frame size	Symmetrically grounded TN-S systems (center-grounded wye)	Corner-grounded delta and mid-point-grounded delta systems	IT systems (un-grounded or high-resistance grounded)	TT systems <sup>1) 2)</sup>
R9e	Do not disconnect EMC screw(s) or VAR screw.	Disconnect EMC screw(s) and VAR screw.	Disconnect EMC screw(s) and VAR screw.	Disconnect EMC screw(s) and VAR screw.

1) A residual current device must be installed in the supply system.

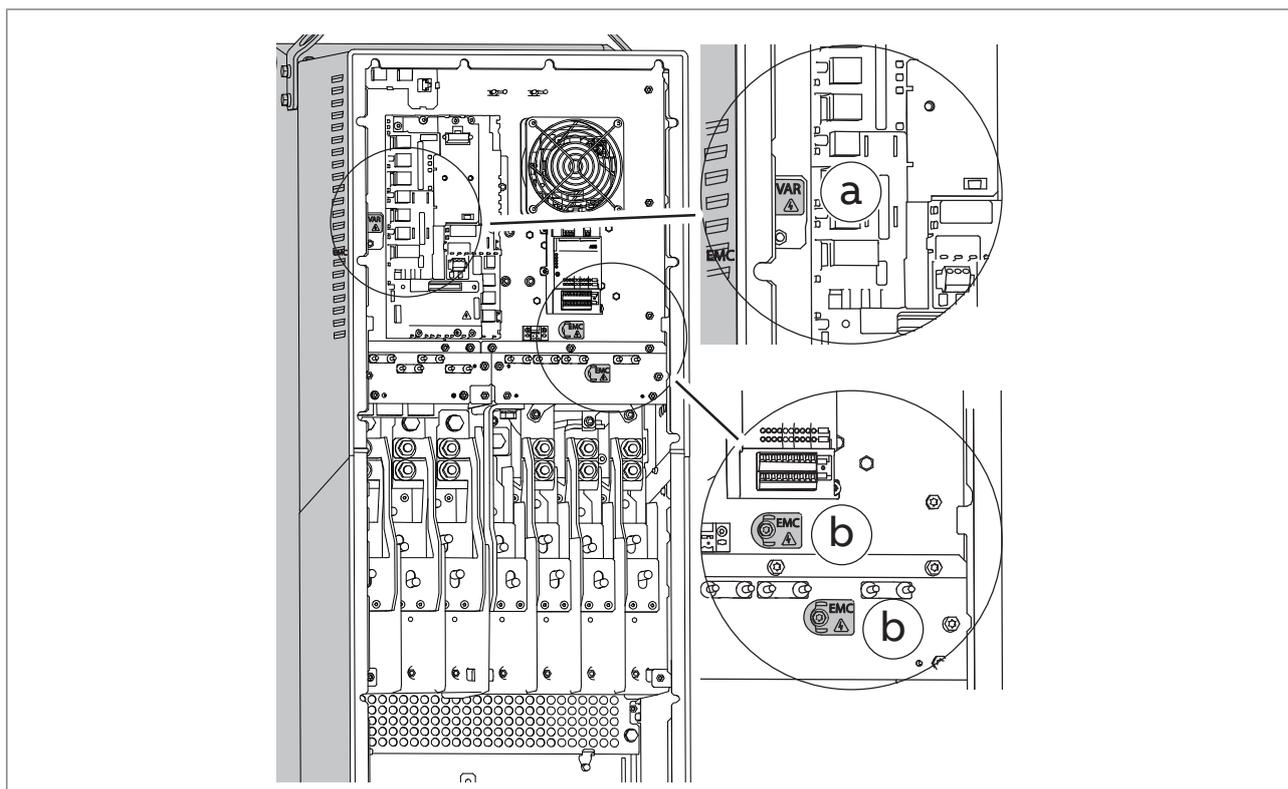
2) ABB does not guarantee the EMC category or the operation of the ground leakage detector built inside the drive.

### ■ Disconnecting internal EMC filter or ground-to phase varistor



**⚠ WARNING** Obey the safety instructions of the drive. If you ignore them, injury or death, or damage to the equipment can occur. If you are not a qualified electrical professional, do not do electrical installation, commissioning or maintenance work.

1. Stop the drive and do the electrical safety precaution steps. Refer to the safety instructions.
2. Remove the cover. Refer to [Remove the front cover \(page 14\)](#).
3. To disconnect the internal EMC filter, remove the EMC screw(s) (b).
4. To disconnect the ground-to-phase varistor, remove the varistor screw (a).

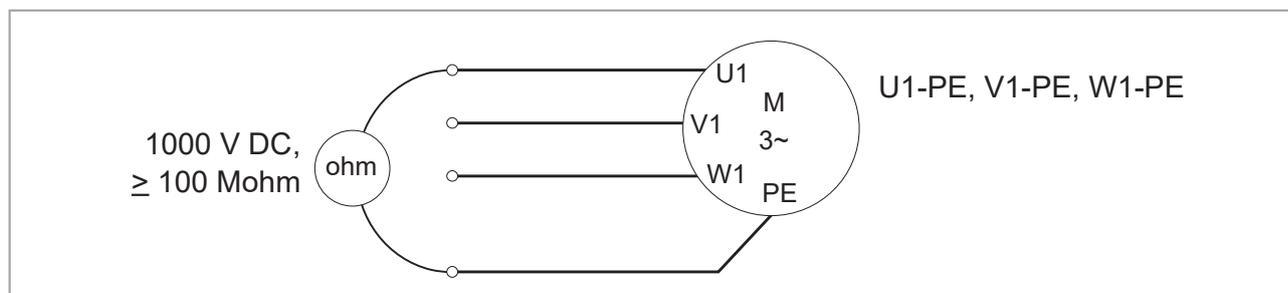


## Measure the insulation resistance of the input and motor cables and the motor

Before you connect the input power cable to the drive, measure its insulation resistance according to local regulations.

Measure the insulation resistance of the motor and motor cable when the motor cable is disconnected from the drive. Measure the insulation resistance between each phase conductor and the Protective Earth conductor using a measuring voltage of 1000 V DC. The insulation resistance of an ABB motor must be greater than 100 Mohm (reference value at 25 °C or 77 °F). For the insulation resistance of other motors, consult the manufacturer's instructions.

**Note:** Moisture inside the motor casing will reduce the insulation resistance. If you suspect moisture, dry the motor and repeat the measurement.



## Connect the power cables

Refer to [ACS880-01 drives with brake resistor cable \(option +D150\) \(page 31\)](#) for the ACS880-01 brake resistor connection instructions.

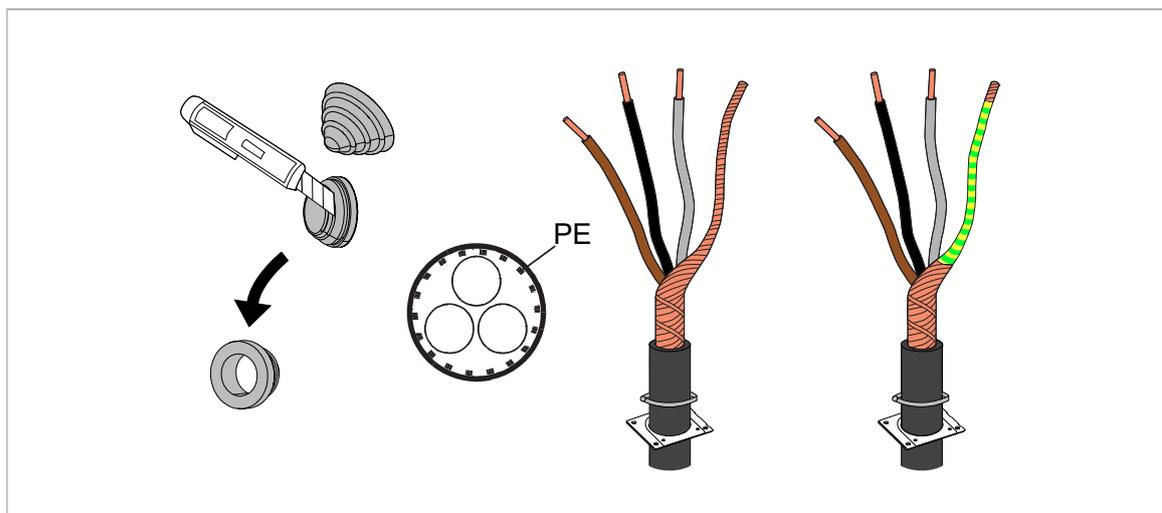
Refer to [Drives with DC connection \(page 27\)](#) for the DC connection instructions.



**WARNING** Obey the safety instructions of the drive. If you ignore them, injury or death, or damage to the equipment can occur. If you are not a qualified electrical professional, do not do electrical installation, commissioning or maintenance work.

### 1. Prepare the cables:

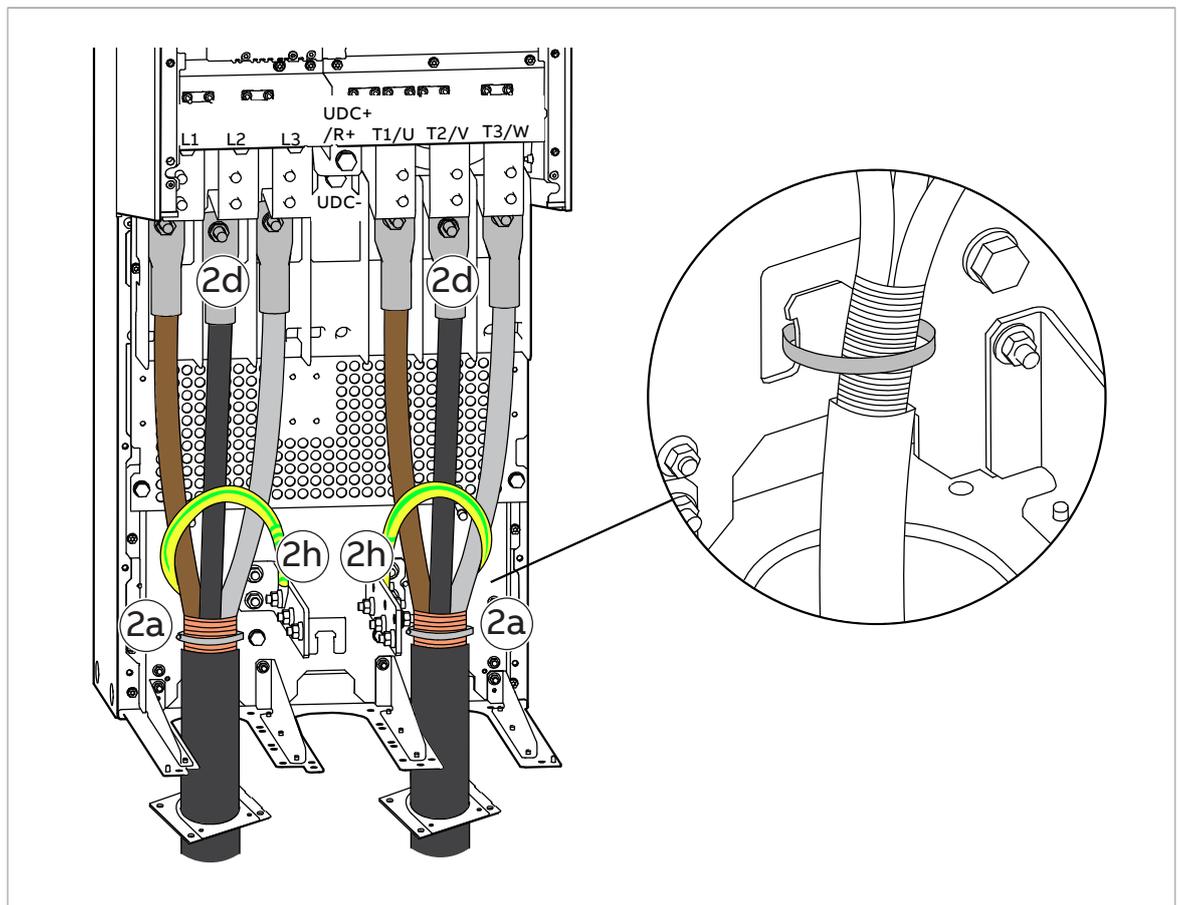
- a. Cut holes into the rubber grommets.
- b. Slide the grommet kits onto the cables.
- c. Slide the hose clamps onto the cables.
- d. Prepare the ends of the input power cable and motor cable as shown in the figure. Leave extra length on each phase conductor.



## 2. Connect the cables:

- a. Ground the shield 360° with the hose clamp around the stripped part of the cable to the grounding support in the backplate. In the next two cable rows, use the grounding supports in the clamping shelf.
 

Do not tighten the hose clamp too much. It can cause damage to the cable insulation.
- b. Measure and cut the final length of the phase conductors.
- c. Install cable lugs to each phase conductor.
- d. Connect the phase conductors of the motor cable to the T1/U, T2/V and T3/W terminals and the phase conductors of the input cable to the L1, L2 and L3 terminals.
- e. Attach the phase conductors to the terminals with M10 nuts.
- f. Measure and cut the final length of the grounding conductor.
- g. Install cable lug to the grounding conductor.
- h. Connect the grounding conductor to the grounding bar and attach it with an M8 nut.



### Fastener type

M8 nut  
M10 nut

### Tightening torque

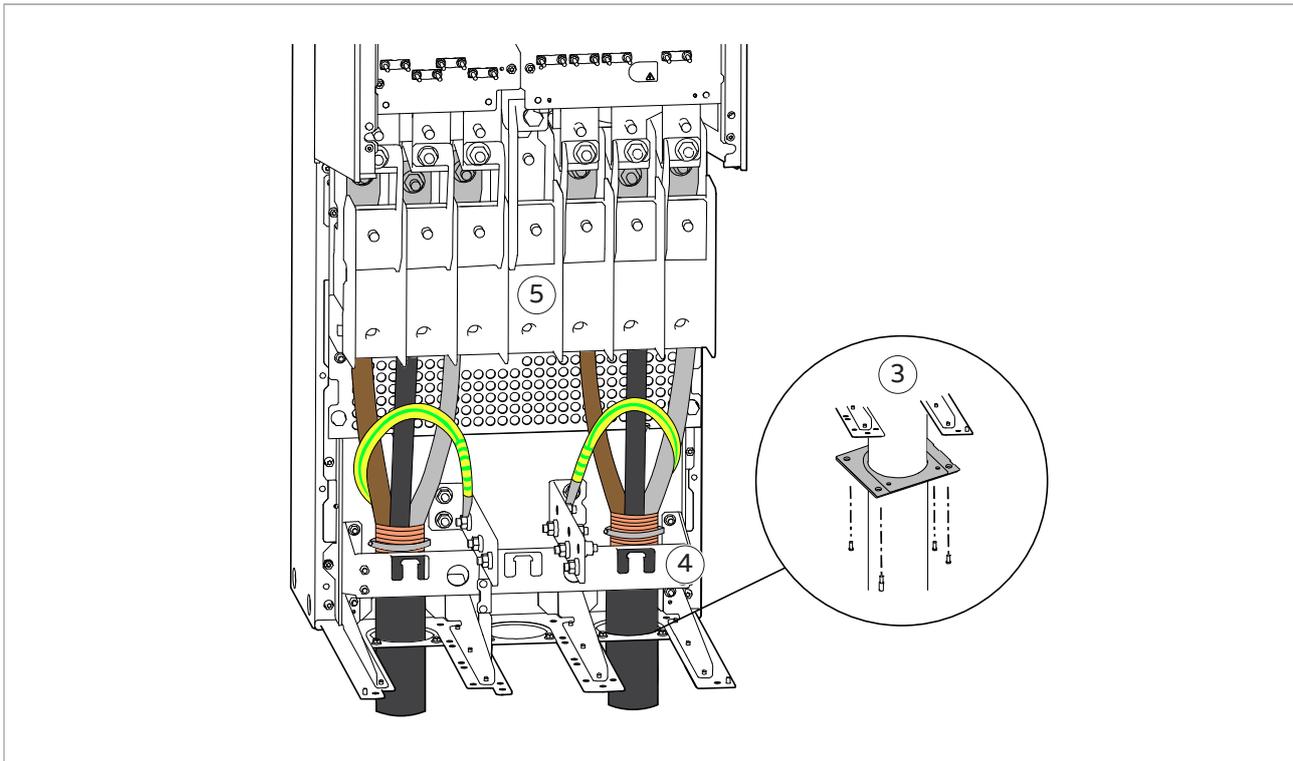
16 N·m (11.8 lbf·ft)  
Minimum: 30 N·m (22.1 lbf·ft)  
Maximum: 50 N·m (36.9 lbf·ft)

For the tightening torques, refer to the instructions of the cable lug manufacturer.

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### Finalize the first row of cables:

3. Install the grommet kits to the cable entry plate with four M5 nuts each and tighten the nuts to 1.5 N·m (13.3 lbf·in).
4. Install the clamping shelf with four M5 nuts and tighten the nuts to 3 N·m (26.6 lbf·in).
  - The clamping shelf installation procedure is the opposite of the removal procedure. Refer to [Remove the clamping shelves \(page 18\)](#).
5. Install terminals for the next row of cables.
  - The terminal installation procedure is the opposite of the removal procedure. Refer to [Remove the terminals \(page 19\)](#).



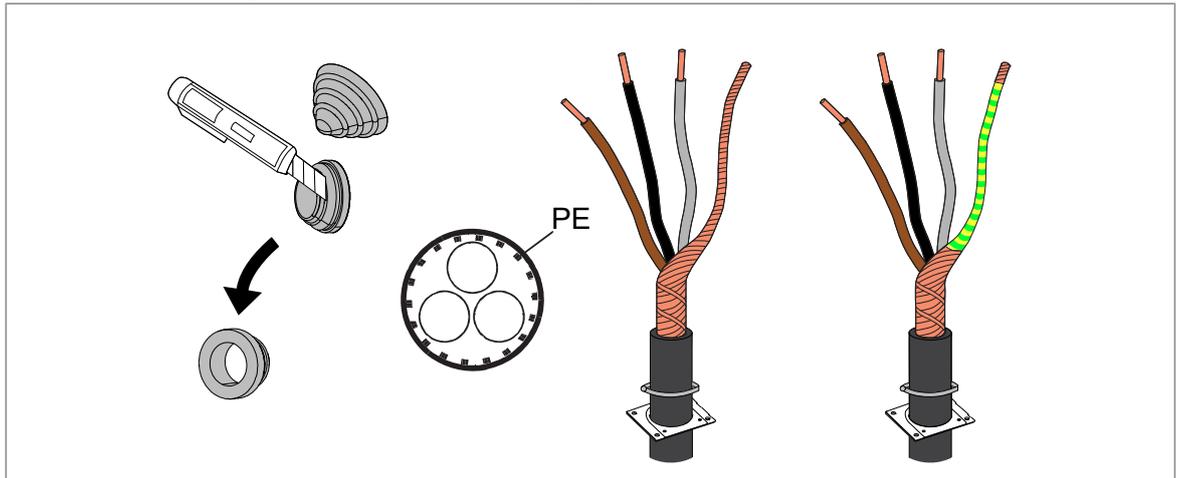
To install the cables to the second row, do steps 1...5.

To install the cables to the third row, do steps 1...3.

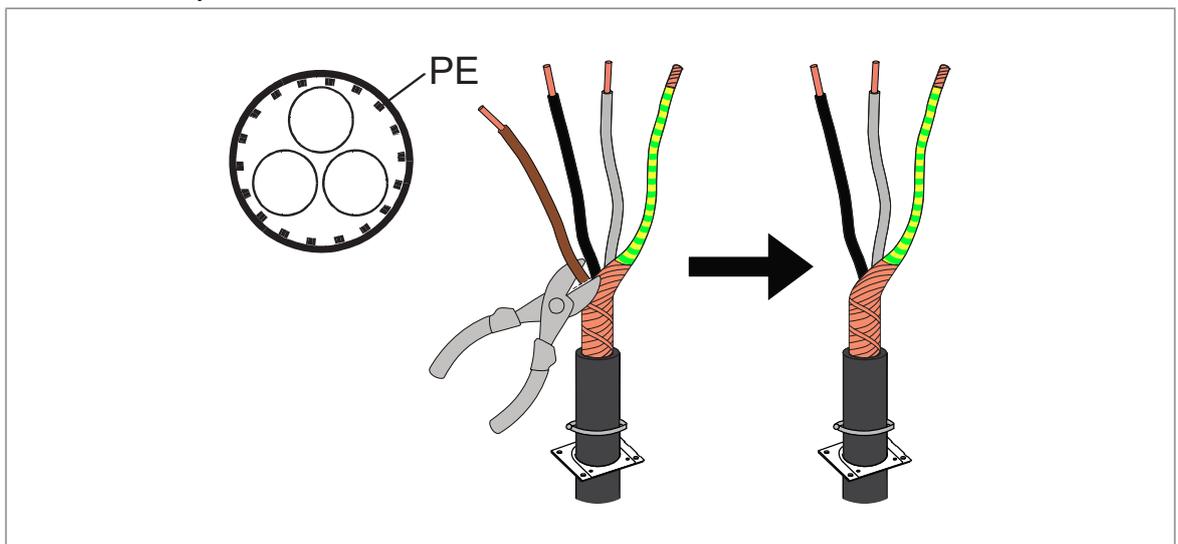
## ■ Drives with DC connection

### First row of cables

1. Prepare the cables:
  - a. Cut holes into the rubber grommets.
  - b. Slide the grommet kits onto the cables.
  - c. Slide the hose clamps onto the cables.
  - d. Prepare the ends of the input power cable, motor cable and DC cable as shown in the figure. Leave extra length on each phase conductor.

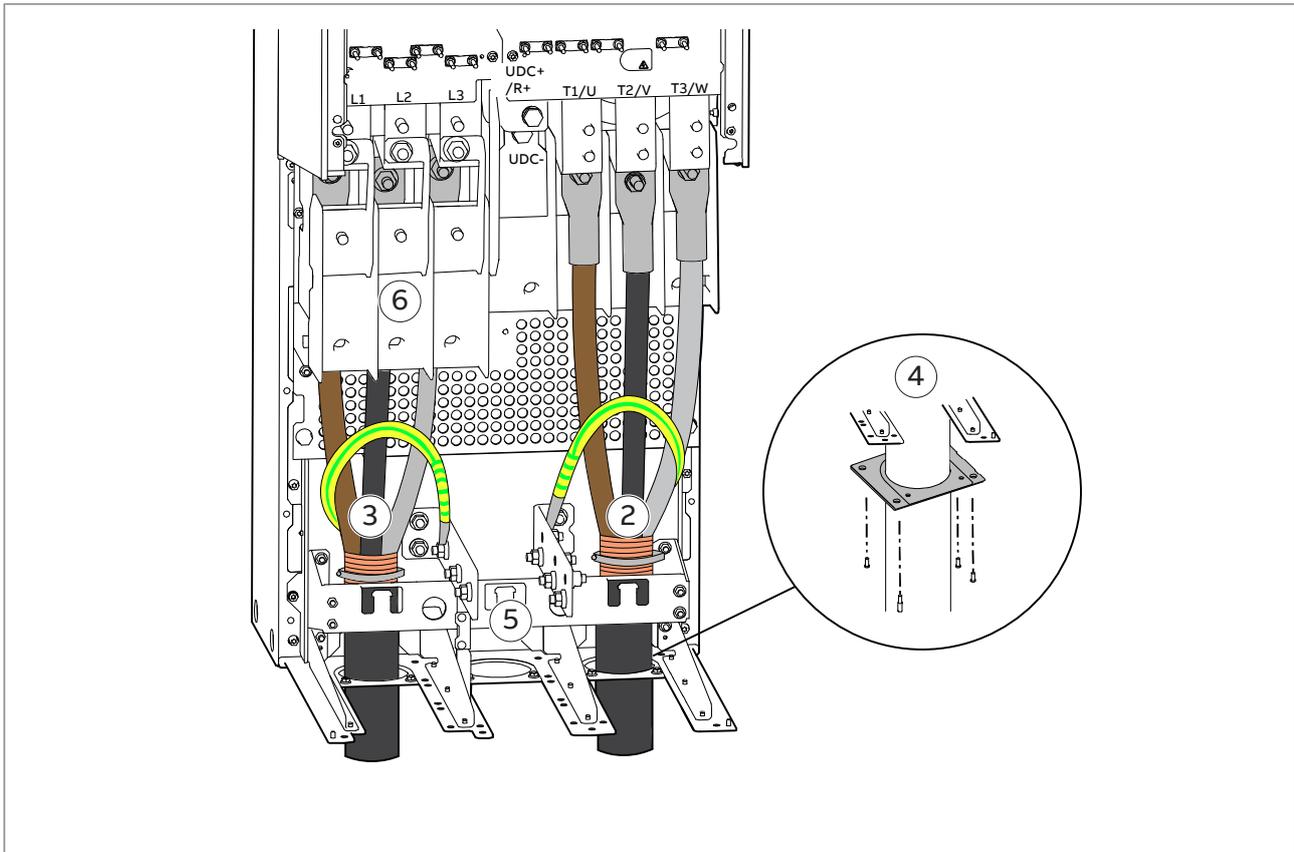


- e. Cut off one phase conductor from the DC cable.



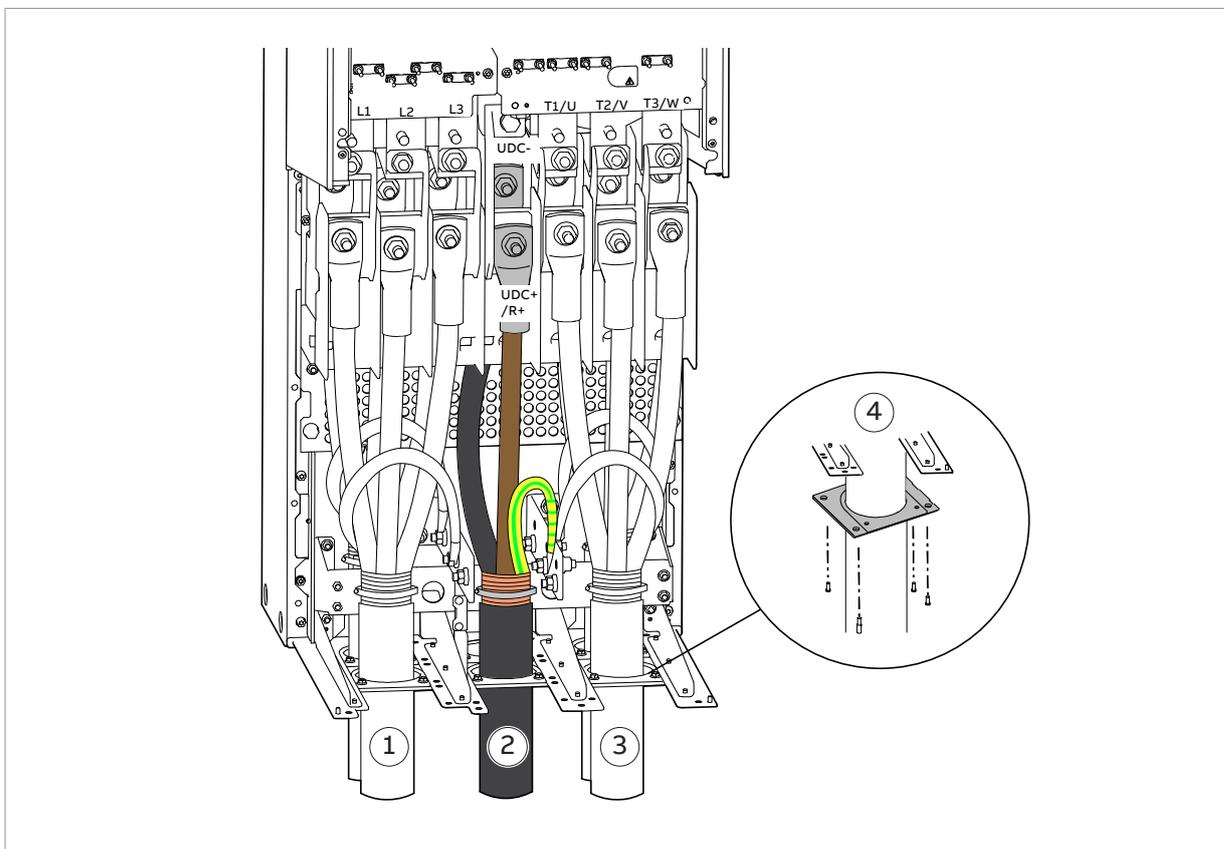
## 28 Electrical installation (IEC)

2. Connect the motor cable as instructed in [Connect the power cables \(page 24\)](#).
3. Connect the input cable as instructed in [Connect the power cables \(page 24\)](#).
4. Install the grommet kits to the cable entry plate with four M5 nuts each and tighten the nuts to 1.5 N·m (13.3 lbf·in).
5. Install the clamping shelf with four M5 nuts and tighten the nuts to 3 N·m (26.6 lbf·in).
  - The clamping shelf installation procedure is the opposite of the removal procedure. Refer to [Remove the clamping shelves \(page 18\)](#).
6. Install terminals L1, L2, L3 for the second row of cables.



## Second row of cables

1. Connect the input cable as instructed in [Connect the power cables \(page 24\)](#).
2. Connect the DC cable:
  - a. Ground the shield 360° with the hose clamp around the stripped part of the cable to the hole in the clamping shelf.  
Do not tighten the hose clamp too much. It can cause damage to the cable insulation.
  - b. Measure and cut the final length of the phase conductors.
  - c. Install cable lugs to each phase conductor.
  - d. Connect the DC- conductor of the DC cable to terminal UDC- and attach it with an M10 nut.
  - e. Install UDC+/R+, T1/U, T2/V and T3/W terminals.
  - f. Connect the DC+ conductor of the DC cable to terminal UDC+/R+ and attach it with an M10 nut.
  - g. Measure and cut the final length of the grounding conductor.
  - h. Install cable lug to the grounding conductor.
  - i. Connect the grounding contactor to the grounding bar and attach it with an M8 nut.
3. Connect the motor cable as instructed in [Connect the power cables \(page 24\)](#).
4. Install the grommet kits to the cable entry plate with four M5 nuts each and tighten the nuts to 1.5 N·m (13.3 lbf·in).



For the tightening torques, refer to [Connect the power cables \(page 24\)](#).

## 30 Electrical installation (IEC)

5. Install the clamping shelf with four M5 nuts and tighten the nuts to 3 N·m (26.6 lbf·in).
  - The clamping shelf installation procedure is the opposite of the removal procedure. Refer to [Remove the clamping shelves \(page 18\)](#).
6. Install terminals for the third row of cables.
  - The terminal installation procedure is the opposite of the removal procedure. Refer to [Remove the terminals \(page 19\)](#).

### **Third row of cables**

To install cables to the third row, do steps 1...3 in [Connect the power cables \(page 24\)](#).

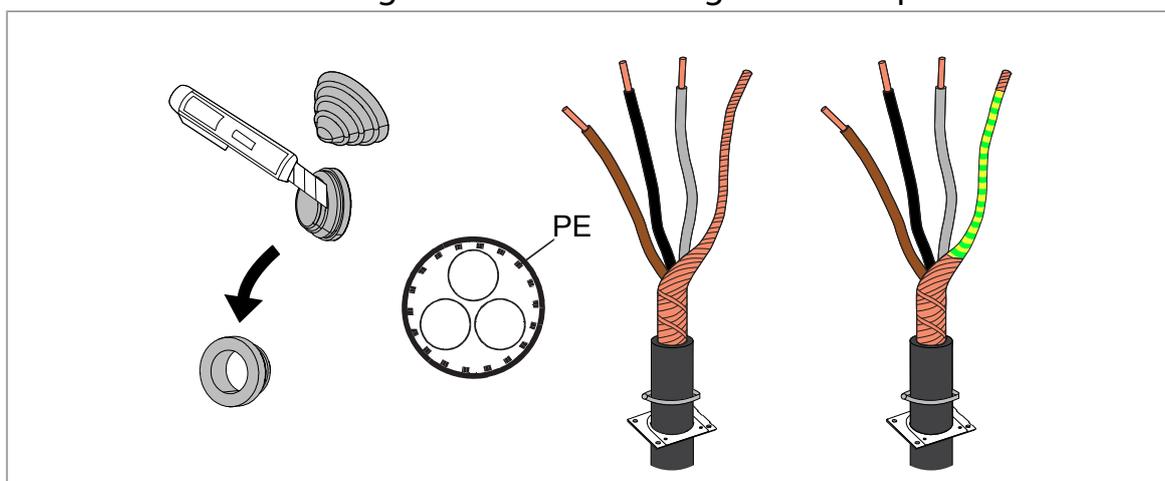


## ■ ACS880-01 drives with brake resistor cable (option +D150)

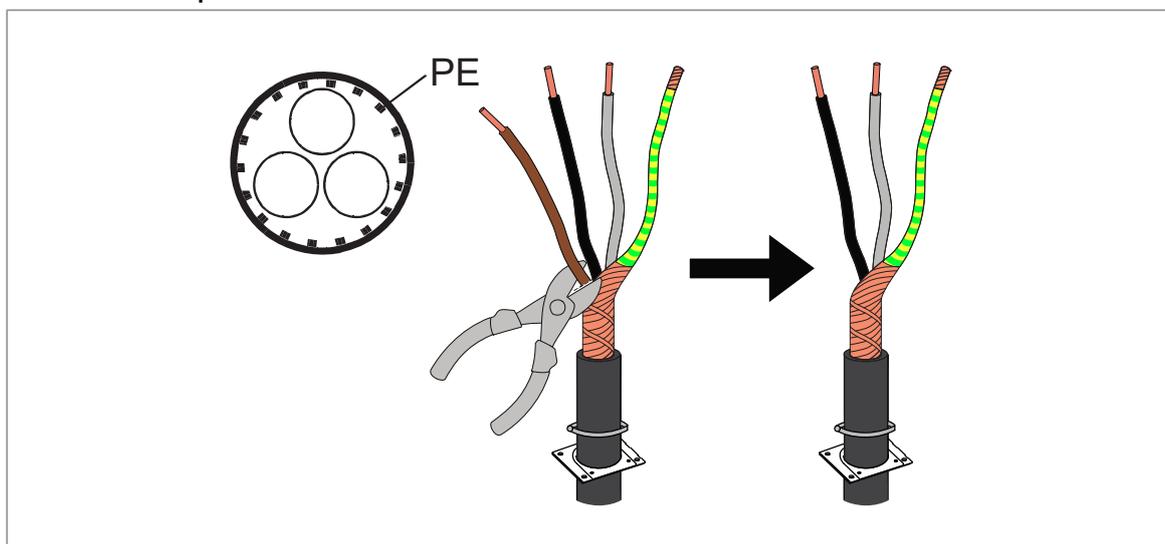
**Note:** You can connect only one cable to the UDC+/R+ terminal of the drive. To connect both the UDC supply cable and brake resistor cable to the drive, connect them into one cable outside of the drive.

### First row of cables

1. Prepare the cables:
  - Cut holes into the rubber grommets.
  - Slide the grommet kits onto the cables.
  - Slide the hose clamps onto the cables.
  - Prepare the ends of the input power cable, motor cable and brake resistor cable as shown in the figure. Leave extra length on each phase conductor.



- Cut off one phase conductor from the brake resistor cable.

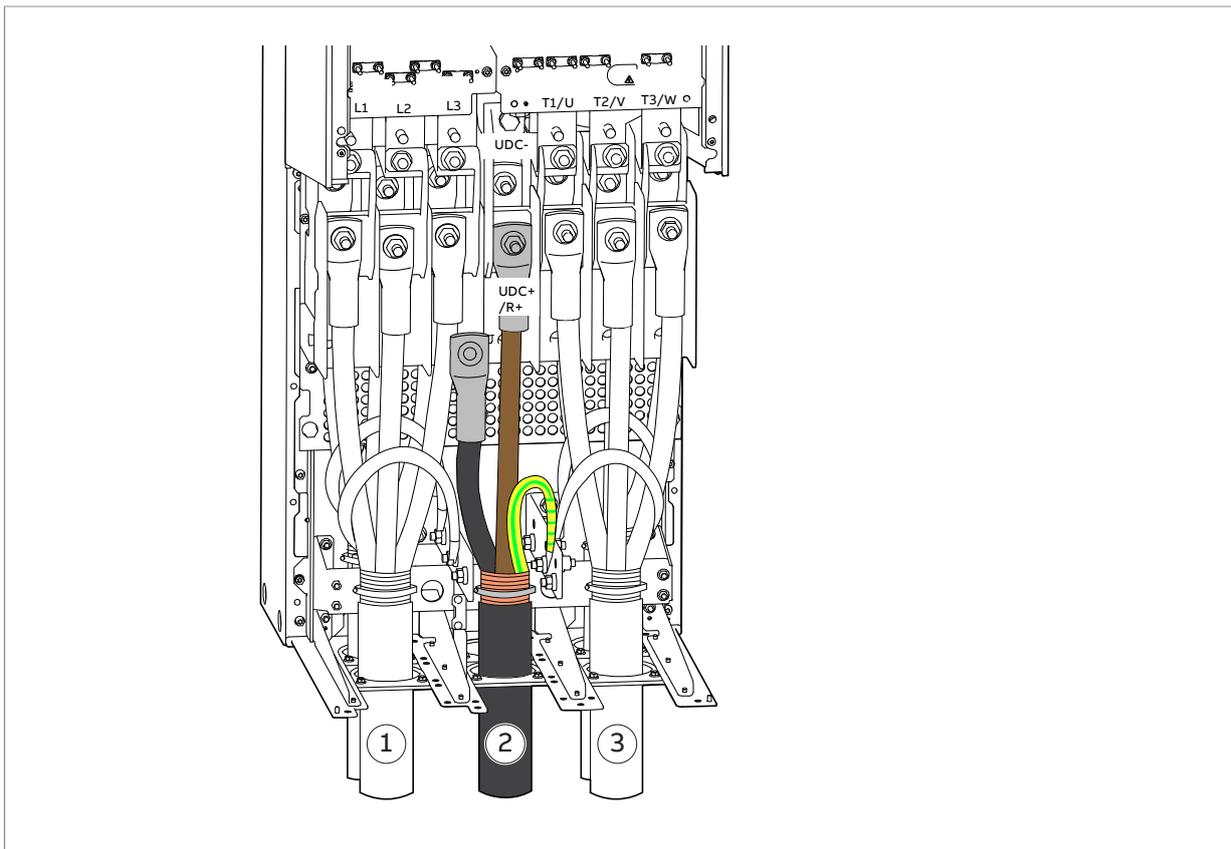


2. Connect the motor cable and input cable and finalize the first row of cables as instructed in [Connect the power cables \(page 24\)](#).

## 32 Electrical installation (IEC)

### Second row of cables

1. Connect the input cable as instructed in [Connect the power cables \(page 24\)](#).
2. Connect the brake resistor cable (option +D150):
  - Ground the shield 360° with the hose clamp around the stripped part of the cable to the hole in the clamping shelf.  
Do not tighten the hose clamp too much. It can cause damage to the cable insulation.
  - Measure and cut the final length of the phase conductors and the grounding conductor.
  - Install cable lugs to each phase conductor and to the grounding conductor.
  - Connect the grounding conductor to the grounding bar and attach it with an M8 nut.
  - Connect the R+ conductor of the brake resistor cable to terminal UDC+/R+ and attach it with a M10 nut. You will connect the R- conductor in the third row of cables.
3. Connect the motor cable as instructed in [Connect the power cables \(page 24\)](#).



#### Fastener type

M8 nut

M10 nut

#### Tightening torque

16 N·m (11.8 lbf·ft)

Refer to the instructions of the cable lug manufacturer.

Minimum: 30 N·m (22.1 lbf·ft)

Maximum: 50 N·m (36.9 lbf·ft)

4. Install the grommet kits to the cable entry plate with four M5 nuts each and tighten the nuts to 1.5 N·m (13.3 lbf·in).
5. Install the clamping shelf with four M5 nuts and tighten the nuts to 3 N·m (26.6 lbf·in).
  - The installation procedure of the clamping shelf is the opposite of the removal procedure. Refer to [Remove the clamping shelves \(page 18\)](#).
6. Install terminals for the third row of cables.
  - The terminal installation procedure is the opposite of the removal procedure. Refer to [Remove the terminals \(page 19\)](#).

### Third row of cables

1. Prepare and connect the input cable and motor cable as instructed in [Connect the power cables \(page 24\)](#).
2. Connect the R- conductor of the brake resistor cable to terminal R- and attach it with a M10 nut.
3. Install the grommet kits to the cable entry plate with four M5 nuts each and tighten the nuts to 1.5 N·m (13.3 lbf·in).

## Install the control cable entry plate

The installation procedure is the opposite of the removal procedure. Refer to [Remove the control cable entry plate \(page 17\)](#)

## Install the EMC plates and side plates

Install all the plates that you removed before installing the cables. The installation procedure is the opposite of the removal procedure. Refer to sections [Remove the side plates \(page 16\)](#), [Remove the EMC side plate \(page 17\)](#) and [Remove the EMC cover plates \(page 15\)](#).



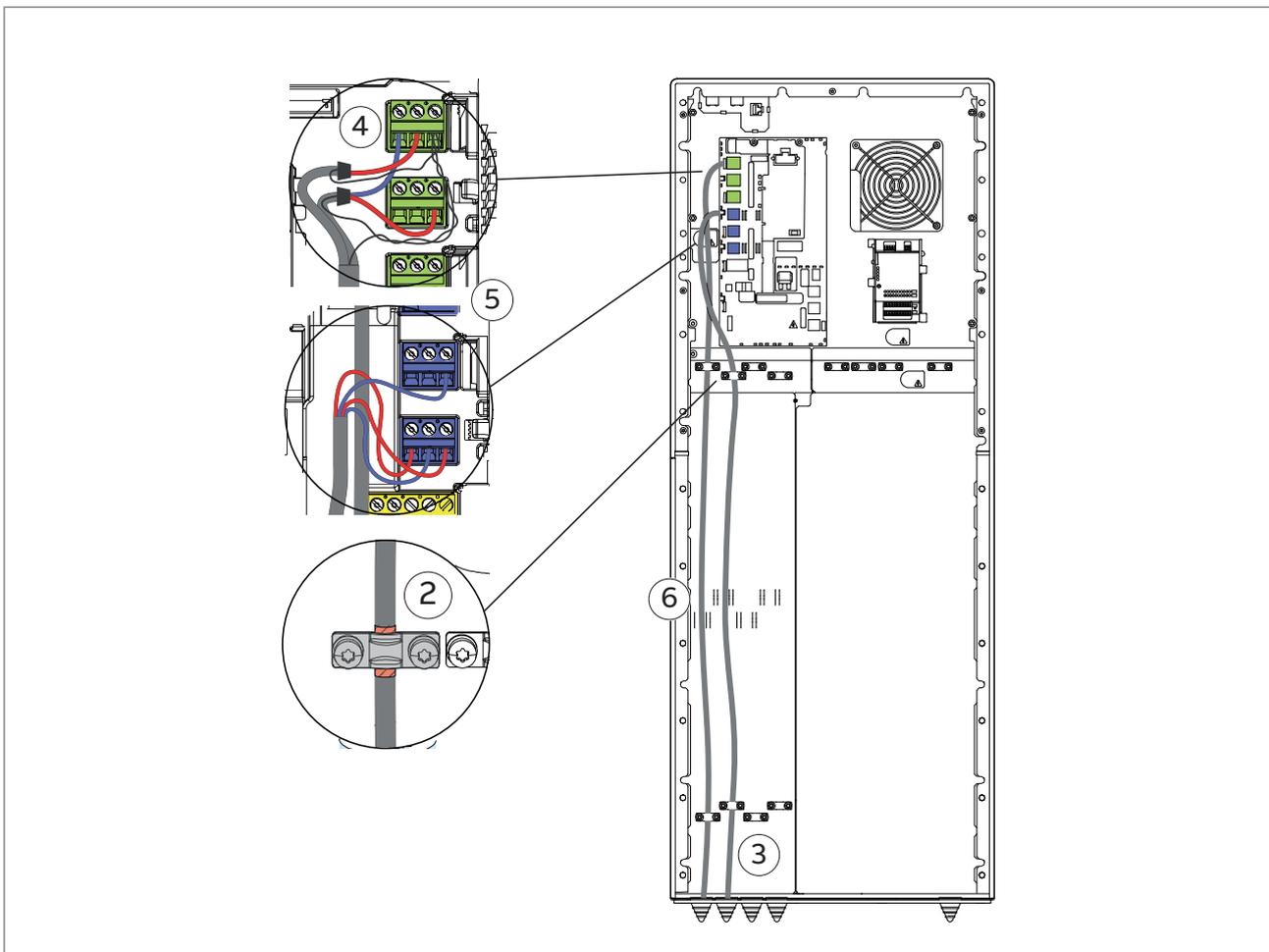
## Connect the control cables



**⚠ WARNING** Obey the safety instructions of the drive. If you ignore them, injury or death, or damage to the equipment can occur. If you are not a qualified electrical professional, do not do electrical installation, commissioning or maintenance work.

Make the connections according to the macro in use. Keep the signal wire pairs twisted as near to the terminals as possible to prevent inductive coupling.

1. Cut a hole into the rubber grommet and slide the grommet onto the cable.
2. Ground the outer shield of the cable 360° under the grounding clamp. Keep the cable unstripped as close to the terminals of the control unit as possible.
3. Secure the cables mechanically at the bottom clamps.
4. If you use double-shielded cables, ground also the pair-cable shields and grounding wire at the SCR terminal.
5. Connect the conductors to the applicable terminals of the control unit and tighten to 0.5...0.6 N·m (0.4 lbf·ft).
6. Tie all control cables with zip ties to the provided cable tie mounts.



## Connect the GDPI-01 panel bus adapter

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**⚠ WARNING** Obey the safety instructions of the drive. If you ignore them, injury or death, or damage to the equipment can occur. If you are not a qualified electrical professional, do not do electrical installation, commissioning or maintenance work.

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Use the GDPI-01 panel bus adapter when you want to install the control panel to the cabinet door or control several drives with one control panel (or PC).

ACS880-01 R9e drives have GDPI-01 as a standard. For ACS580-01, ACH580-01 and ACQ580-01 R9e drives, GDPI-01 is available as an option.

### To install the control panel to the cabinet door:

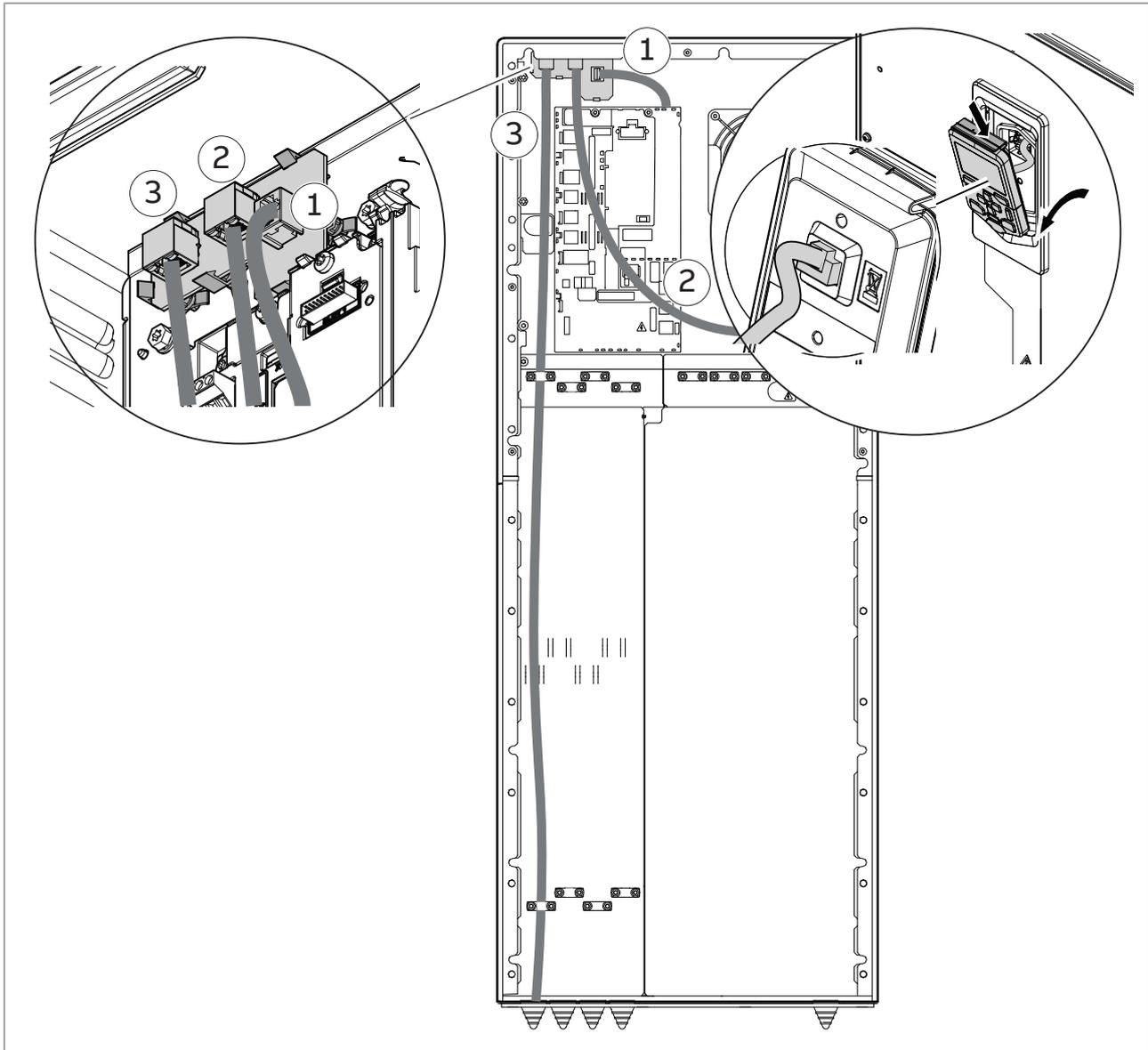
1. Connect an Ethernet cable from the GDPI-01 X100 connector to the X13 connector of the control unit
2. Connect an Ethernet cable from the GDPI-01 X101 connector to the control panel mounted on the cabinet door.

### To connect one control panel to multiple drives:

1. Connect an Ethernet cable from the GDPI-01 X100 connector to the X13 connector of the control unit.
2. Connect an Ethernet cable from the GDPI-01 X101 connector to the control panel.
3. Connect an Ethernet cable from the GDPI-01 X102 connector to the GDPI X102 connector on the other drive.



## 36 Electrical installation (IEC)



### Install the front cover

The installation procedure is the opposite of the removal procedure. Refer to [Remove the front cover \(page 14\)](#).

# 5

## Electrical installation (NEC)

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### Contents of this chapter

This chapter gives instructions on how to remove the conduit plate and make holes into it. Otherwise, the connection procedure for power cables is the same as in the IEC installation. Refer to [Connect the power cables \(page 24\)](#) for the complete connection procedure.

Refer to [Technical data \(page 43\)](#) for the nominal ratings, fuses, typical power cable sizes and terminal data for the power cables.

For the connection diagram and default I/O connections, refer to:

- [ACS880-01 quick installation and start-up guide \(3AXD50001371753 \[English\]\)](#)
- [ACS580-01 quick installation and start-up guide for North American \(NEC\) product types \(3AXD50000745524 \[English\]\)](#)
- [ACH580-01 quick installation and start-up guide for North American \(NEC\) product types \(3AXD50000788286 \[English\]\)](#)
- [ACQ580-01 quick installation and start-up guide for North American \(NEC\) product types \(3AXD50000788309 \[English\]\)](#)

### Make sure that the drive is compatible with the grounding system

Refer to [Make sure that the drive is compatible with the grounding system \(page 22\)](#).

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## Measure the insulation resistance of the input and motor cables and the motor

Refer to [Measure the insulation resistance of the input and motor cables and the motor](#) (page 23).

### Connect the power cables

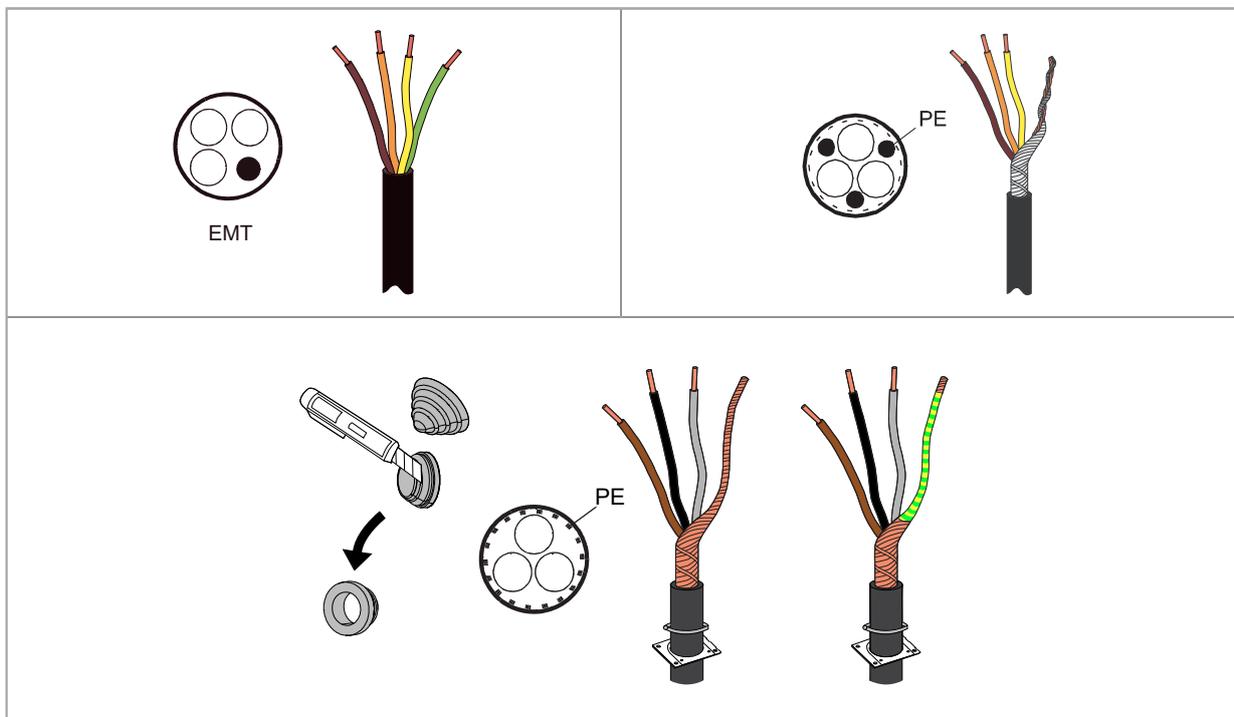


**WARNING** Obey the safety instructions of the drive. If you ignore them, injury or death, or damage to the equipment can occur. If you are not a qualified electrical professional, do not do electrical installation, commissioning or maintenance work.

Prepare the cables:

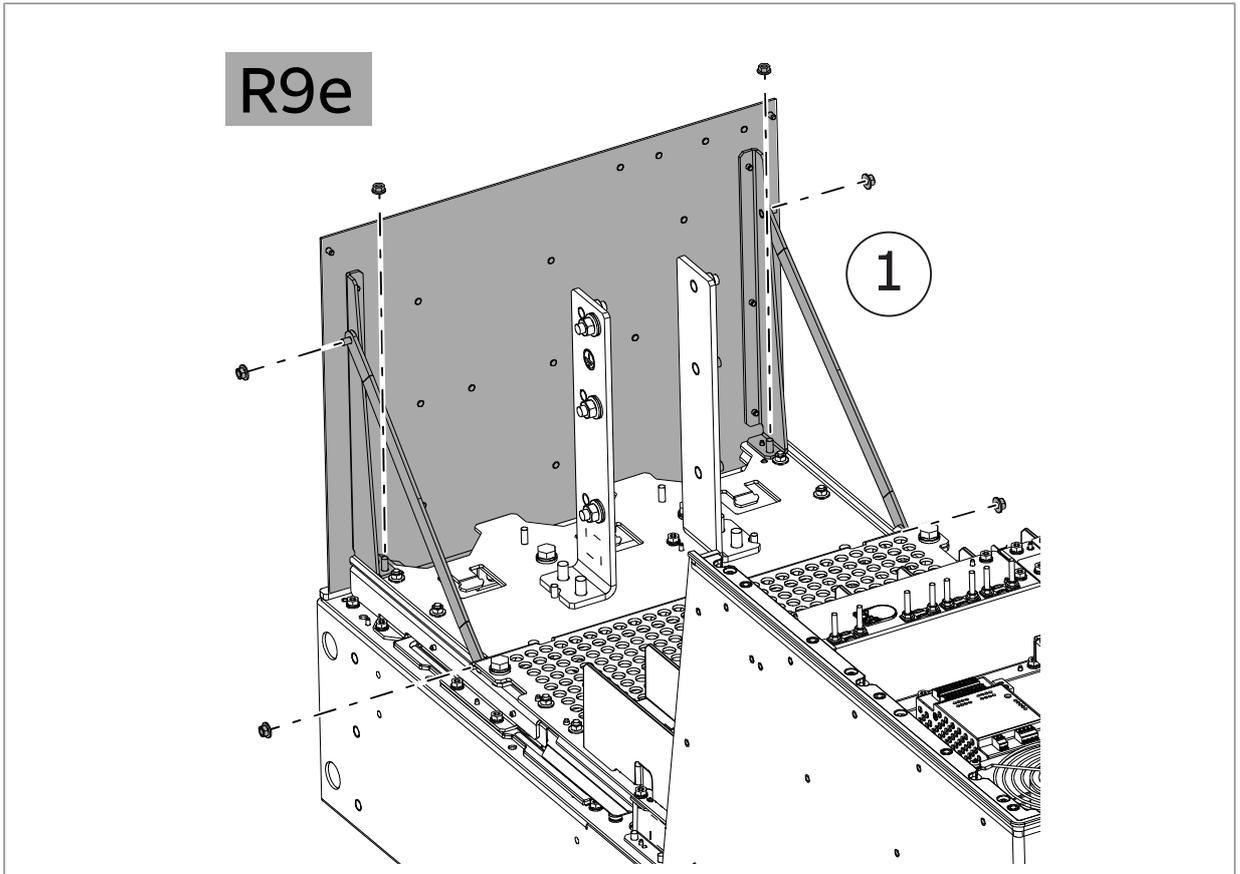
1. Cut the cables to suitable length.
2. If you use discrete conductors, connect the insulated ground conductor to the grounding terminal.

If you use symmetrical shielded VFD cable, twist the grounding wires together with the cable shield and connect them to the grounding terminals. Ground the shield 360° with the hose clamp around the stripped part of the cable to the grounding support in the backplate.

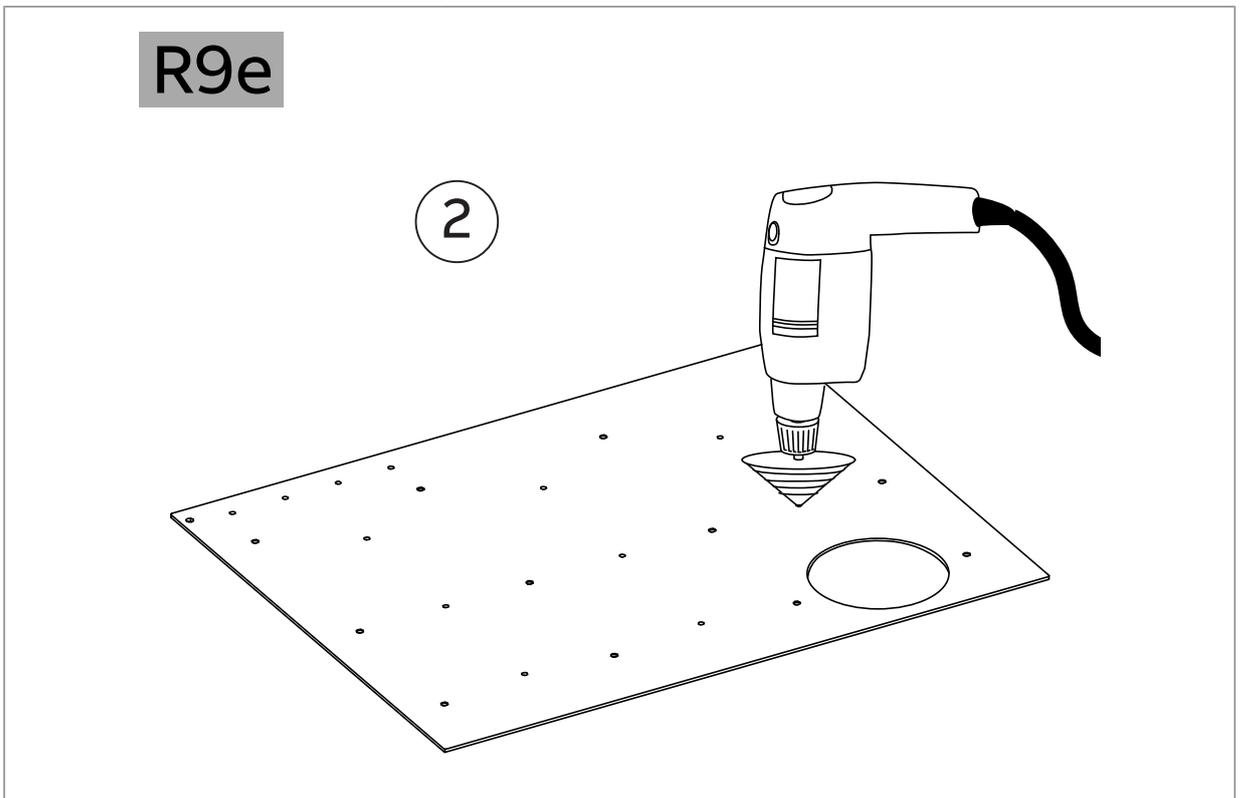


Remove the conduit plate and install the conduit hubs:

1. Remove the six M5 nuts to remove the conduit plate and side supports.

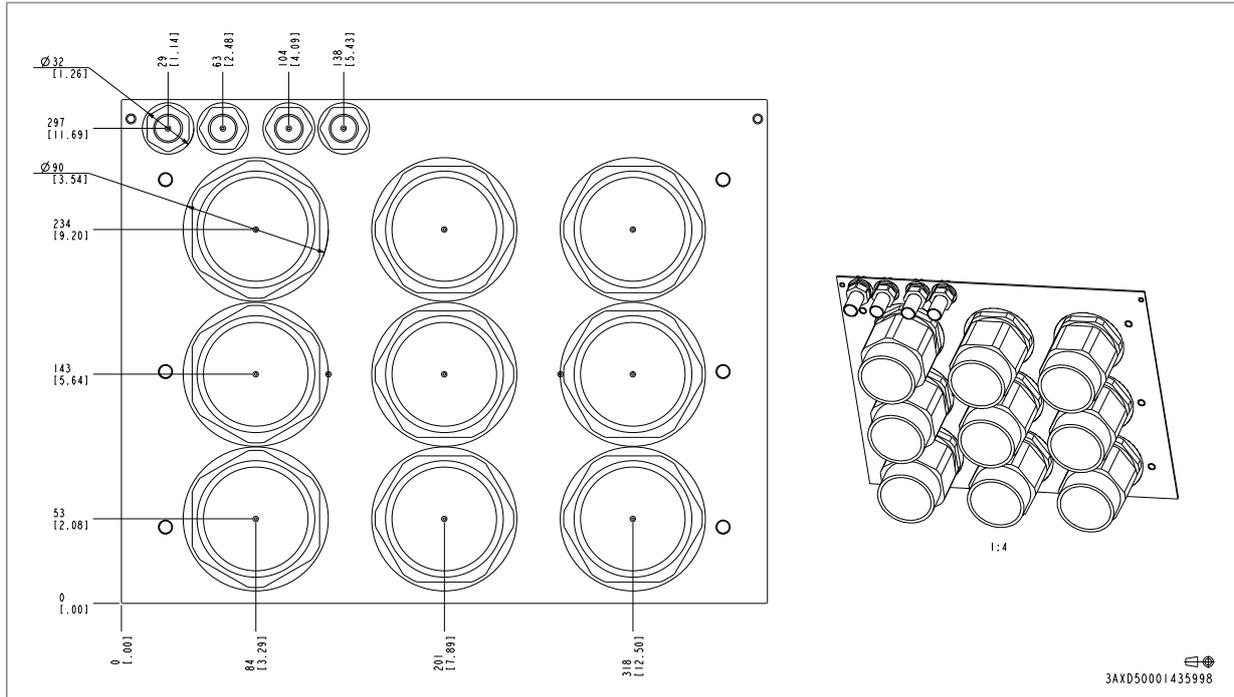


2. Drill holes into the conduit plate for the conduit hubs.

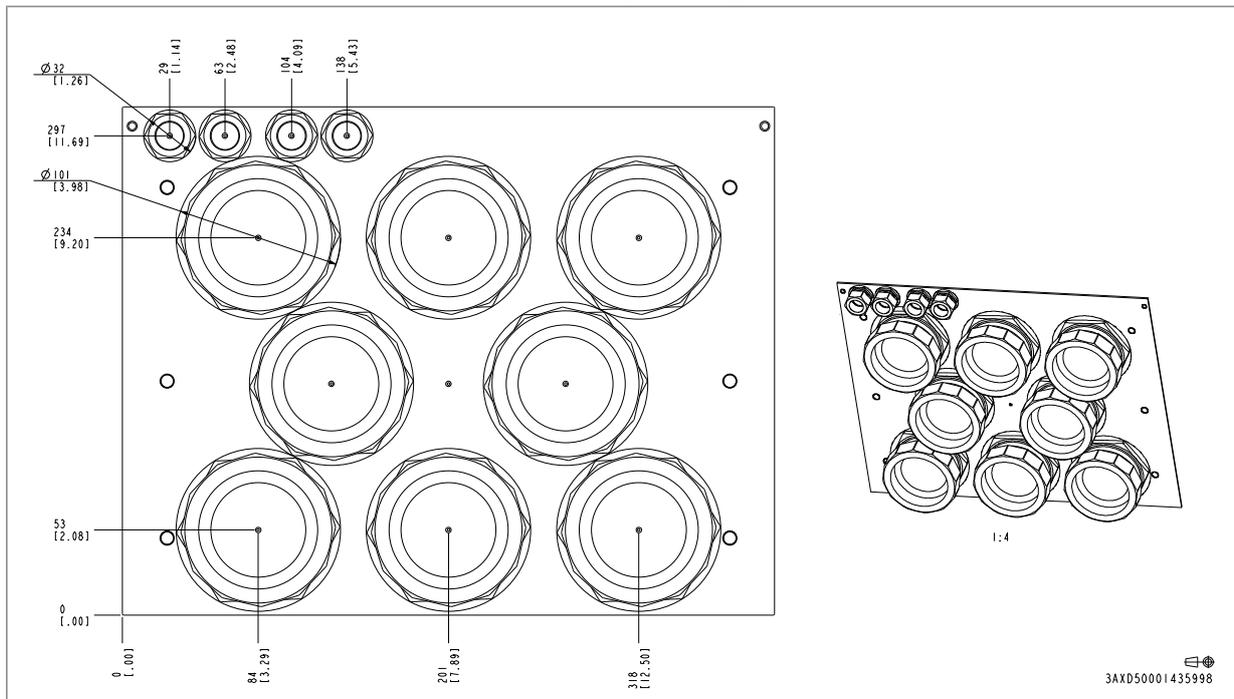


## 40 Electrical installation (NEC)

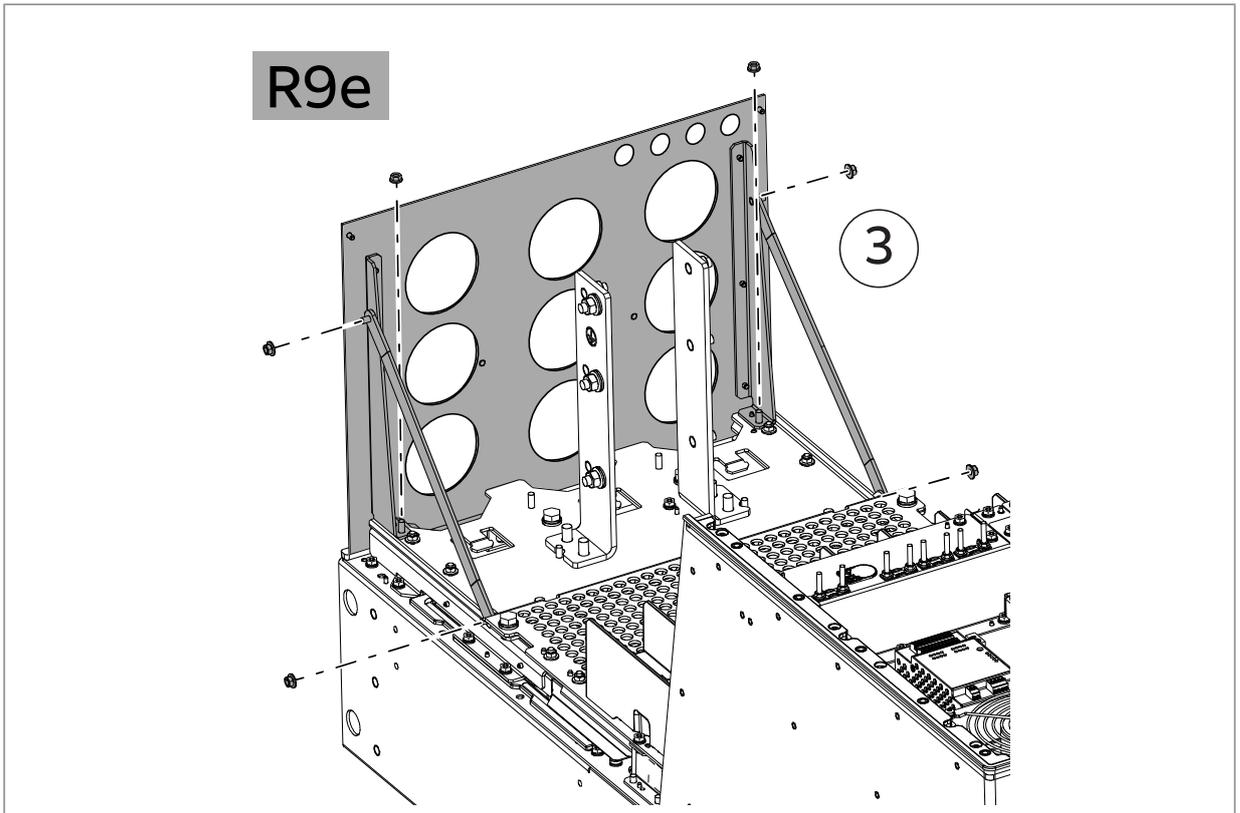
If the conduit diameter is maximum 90 mm (3.54 in), you can make up to 9 holes for the power cables in the conduit plate. The conduit plate has punched center marks for the holes.



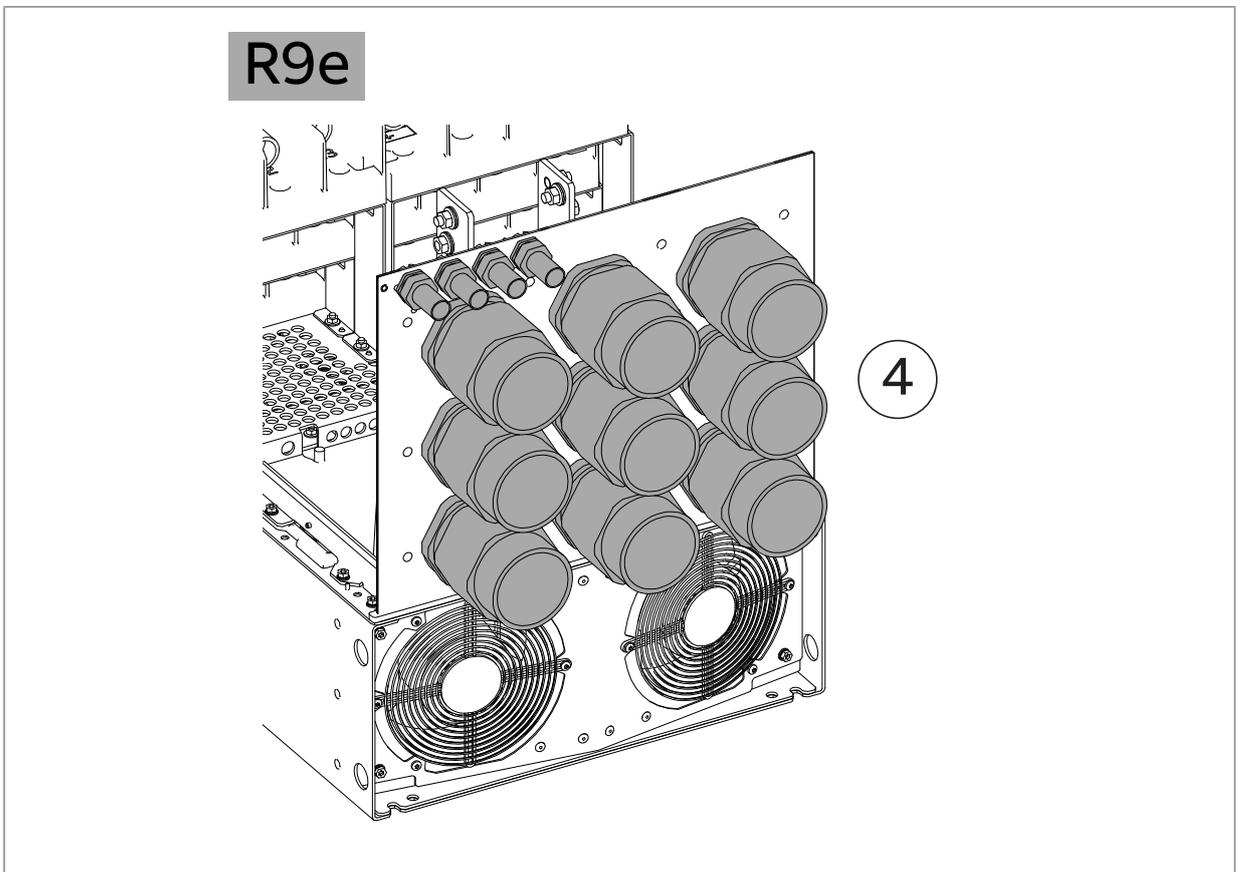
If the conduit diameter is maximum 101 mm (3.98 in), you can make up to 8 holes for the power cables in the conduit plate. The conduit plate has punched center marks for the holes. Do not use the punched center marks for conduits with a diameter of more than 101 mm (3.98 in).



3. Install the conduit plate and side supports back to the drive with six M5 nuts. Tighten the nuts to a torque of 3 N·m (26.6 lbf·in).

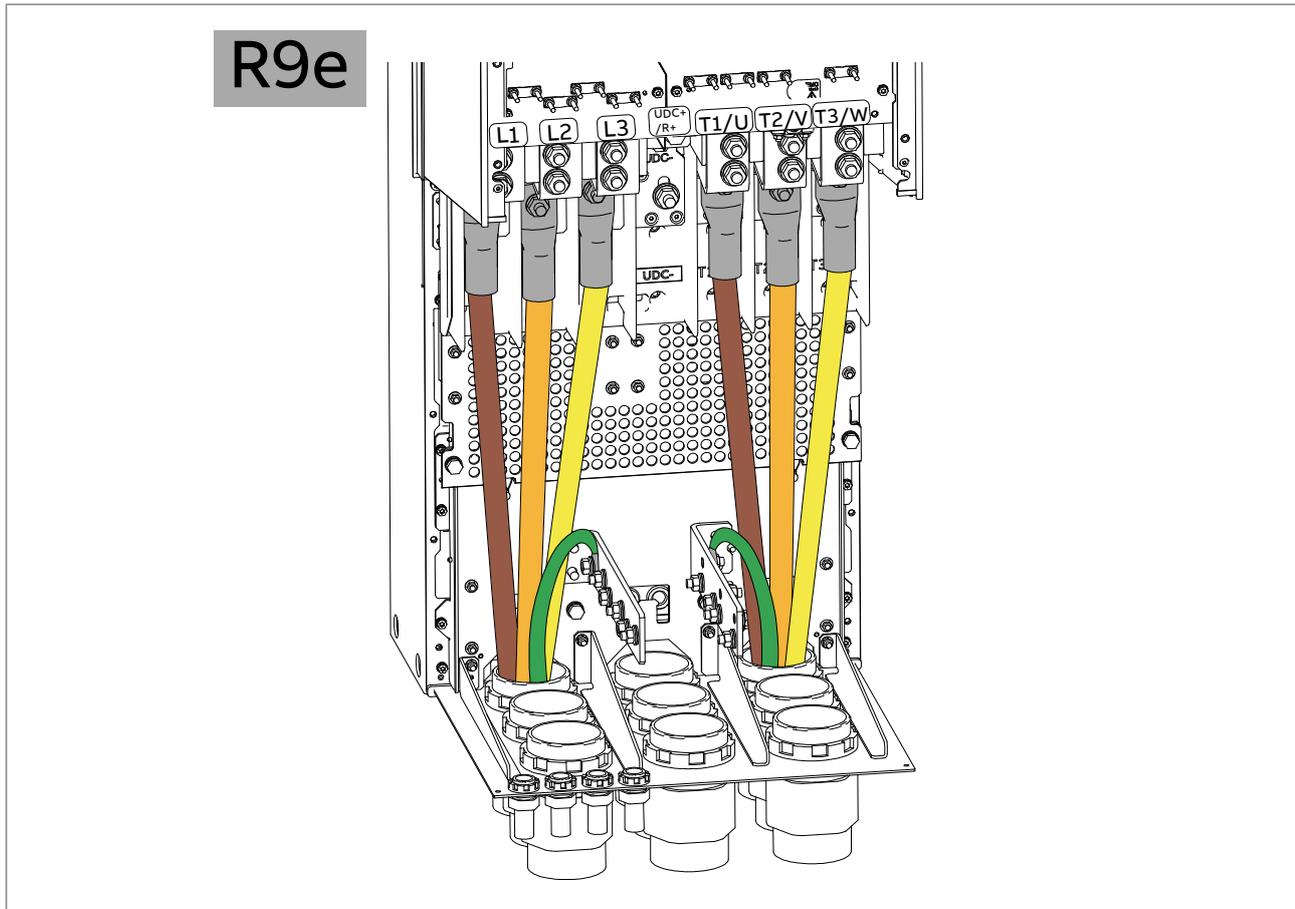


4. Install the conduit hubs into the conduit plate.



## 42 Electrical installation (NEC)

The connection procedure for power cables is the same as in the IEC installation. This is an example of the NEC installation:



Refer to [Connect the power cables \(page 24\)](#) for the connection procedure for power cables.

### Connect the control cables

Refer to [Connect the control cables \(page 34\)](#).



# 6

## Technical data

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### Contents of this chapter

This chapter contains the technical specifications of the drive. For the complete technical data of the drive, refer to the drive hardware manual.

### Nominal ratings

#### ■ ACS580-01, ACH580-01 and ACQ580-01

#### IEC

ACx580-01-...	Frame	Input current		Output current		Motor power	
		$I_1$	$I_1$ (480 V)	$I_2$	$I_{Ld}$ (480 V)	$P_n$	$P_{Ld}$ (480 V)
		A	A	A	A	kW	hp
3-phase $U_n = 400\text{ V}$ or $480\text{ V}$							
595A-4	R9e	529	575	595	575	315	450
670A-4	R9e	596	625	670	625	355	500

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**NEC**

ACx580-01-...	Frame	Input current	Output current	Motor power	
		$I_1$	$I_{Ld}$	$P_{Ld}$	
		A	A	hp	
3-phase $U_n = 480$ V (440...480 V)					
515A-4	R9e	469	515	450	
590A-4	R9e	521	590	500	

■ **ACS880-01****IEC**

ACS880-01-...	Frame	Input current	Output current	Motor power	
		$I_1$	$I_2$	$P_n$	
		A	A	kW	hp
$U_n = 400$ V					
595A-3	R9e	529	595	315	450
670A-3	R9e	596	670	355	500
$U_n = 500$ V					
585A-5	R9e	423	585	315	450
635A-5	R9e	477	635	355	500

**NEC**

ACS880-01-...	Frame	Input current	Output current	Motor power	
		$I_1$	$I_{Ld}$	$P_{Ld}$	
		A	A	hp	
$U_n = 480$ V					
585A-5	R9e	468	575	450	
635A-5	R9e	520	625	500	

## Fuses

### ■ ACS580-01, ACH580-01 and ACQ580-01

ACx580-01-...	Frame	gG fuse (IEC 60269)	uR/aR fuse (DIN 43653)	UL class T
		ABB type	Bussmann type	
3-phase $U_n = 400\text{ V}$ or $480\text{ V}$				
595A-4	R9e	-	170M6014	JJS-800
670A-4	R9e	-	170M6014	JJS-800
3-phase $U_n = 480\text{ V}$ (440...480 V)				
515A-4	R9e	-	170M6014	JJS-800
590A-4	R9e	-	170M6014	JJS-800

### ■ ACS880-01

ACS880-01-...	Frame	gG fuse (IEC 60269)	uR/aR fuse (DIN 43653)	UL class T
		ABB type	Bussmann type	
$U_n = 400\text{ V}$				
595A-3	R9e	-	170M6014	JJS-800
670A-3	R9e	-	170M6014	JJS-800
$U_n = 480\text{ V}, 500\text{ V}$				
585A-5	R9e	-	170M6014	JJS-800
635A-5	R9e	-	170M6014	JJS-800

## Typical power cable sizes

ACx580-01-...	Frame	Typical power cable sizes, Cu	
		mm <sup>2</sup>	AWG
3-phase $U_n = 400\text{ V}$ or $480\text{ V}$			
595A-4	R9e	3 x (3x120)	3 x 300 MCM
670A-4	R9e	3 x (3x150)	3 x 350 MCM
3-phase $U_n = 480\text{ V}$ (440...480 V)			
515A-4	R9e	3 x (3x120)	3 x 300 MCM

## 46 Technical data

ACx580-01-...	Frame	Typical power cable sizes, Cu	
		mm <sup>2</sup>	AWG
590A-4	R9e	3 x (3x150)	3 x 350 MCM

ACS880-01-...	Frame	Typical power cable sizes, Cu	
		mm <sup>2</sup>	AWG
U <sub>n</sub> = 400 V			
595A-3	R9e	3 x (3x120)	3 x 300 MCM
670A-3	R9e	3 x (3x150)	3 x 350 MCM
U <sub>n</sub> = 480 V, 500 V			
585A-5	R9e	3 x (3x120)	3 x 300 MCM
635A-5	R9e	3 x (3x150)	3 x 350 MCM

## Terminal data for the power cables

Frame	L1, L2, L3, T1/U, T2/V, T3/W, UDC-, UDC+/R+ and R- terminals					
	Min wire size (solid/stranded)		Max wire size (solid/stranded)		Tightening torque <sup>1)</sup>	
	mm <sup>2</sup>	AWG	mm <sup>2</sup>	AWG	N·m	lbf·ft
R9e	120	300 MCM	240	500 MCM	30–50	22.1–36.9

<sup>1)</sup> Refer to the instructions of the cable lug manufacturer.

Frame	Grounding terminals			
	Max wire size (solid/stranded)		Tightening torque <sup>1)</sup>	
	mm <sup>2</sup>	AWG	N·m	lbf·ft
R9e	120	300 MCM	16	11.8

<sup>1)</sup> Refer to the instructions of the cable lug manufacturer.

## Dimensions, weights and free space requirements

Frame	Dimensions and weights, IP21 (UL Type 1)							
	Height		Width		Depth		Weight	
	mm	in	mm	in	mm	in	kg	lb
R9e	1130	44.49	444 <sup>1)</sup>	17.47	516	20.31	188	414

1) 420 mm (16.54 in) without lifting eyes

Frame	Dimensions and weights, IP55							
	Height		Width		Depth		Weight	
	mm	in	mm	in	mm	in	kg	lb
R9e	1130	44.49	444 <sup>1)</sup>	17.47	540	21.26	191	421

1) 420 mm (16.54 in) without lifting eyes

Frame	Dimensions and weights, UL Type 12							
	Height with hood		Width with hood		Depth with hood		Weight with hood	
	mm	in	mm	in	mm	in	kg	lb
R9e	1325	52.17	460	18.12	540	21.26	193.7	427

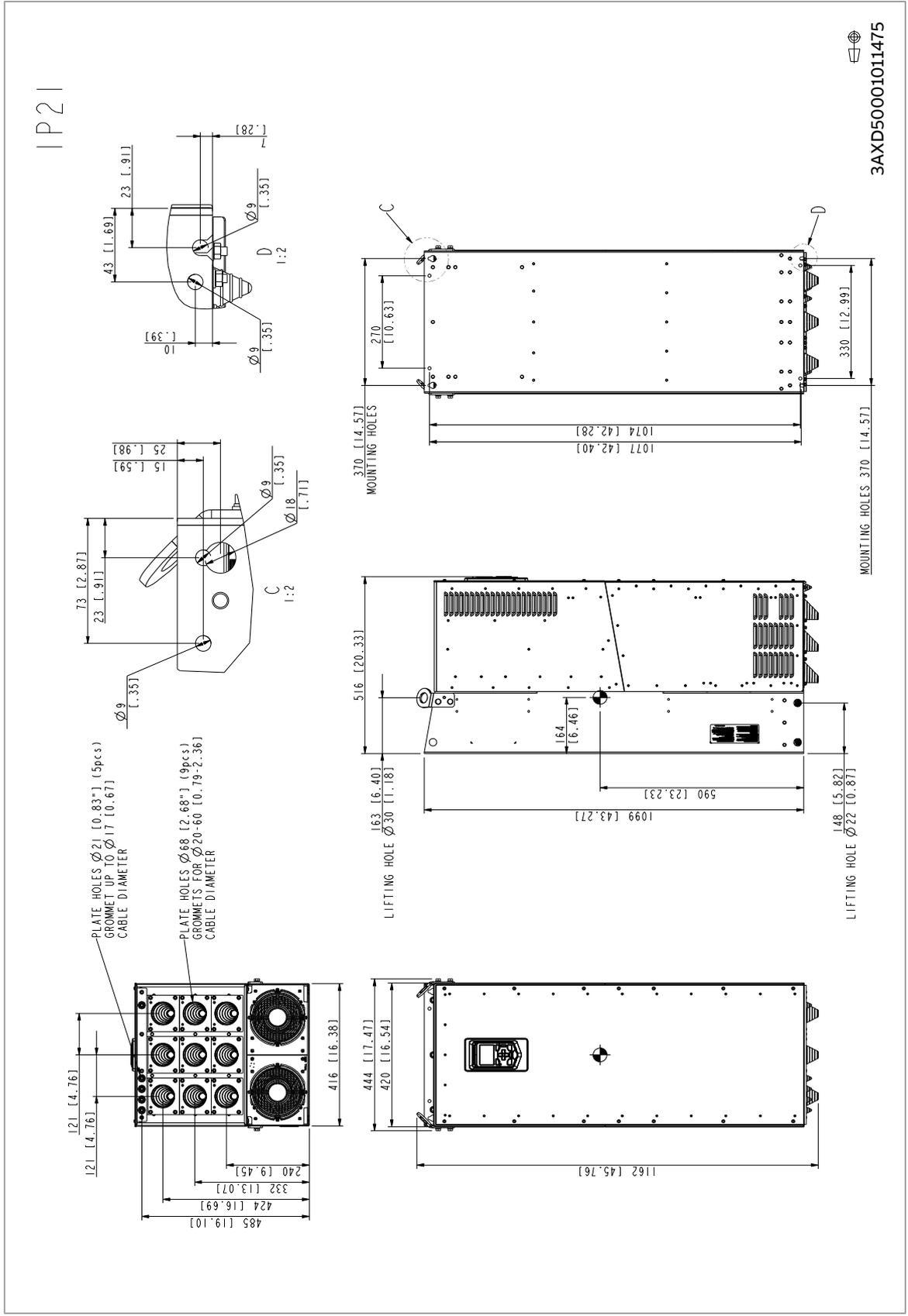
Frame	Free space, IP21 (UL Type 1)											
	Vertical mounting stand alone						Vertical mounting side by side					
	Above		Below		Beside		Above		Below		Between	
	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
R9e	200	7.87	300	11.8	50	1.97	200	7.87	300	11.8	50	1.97

Frame	Free space, IP55 (UL Type 12)											
	Vertical mounting stand alone						Vertical mounting side by side					
	Above		Below		Beside		Above		Below		Between	
	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
R9e	200	7.87	300	11.8	20	0.8	200	7.87	300	11.8	20	0.8

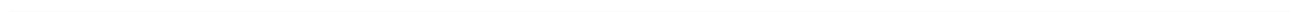
IP55 (UL Type 12) drives: Leave 30 mm (1.2 in) free space in front of the drive.

■ Dimension drawings

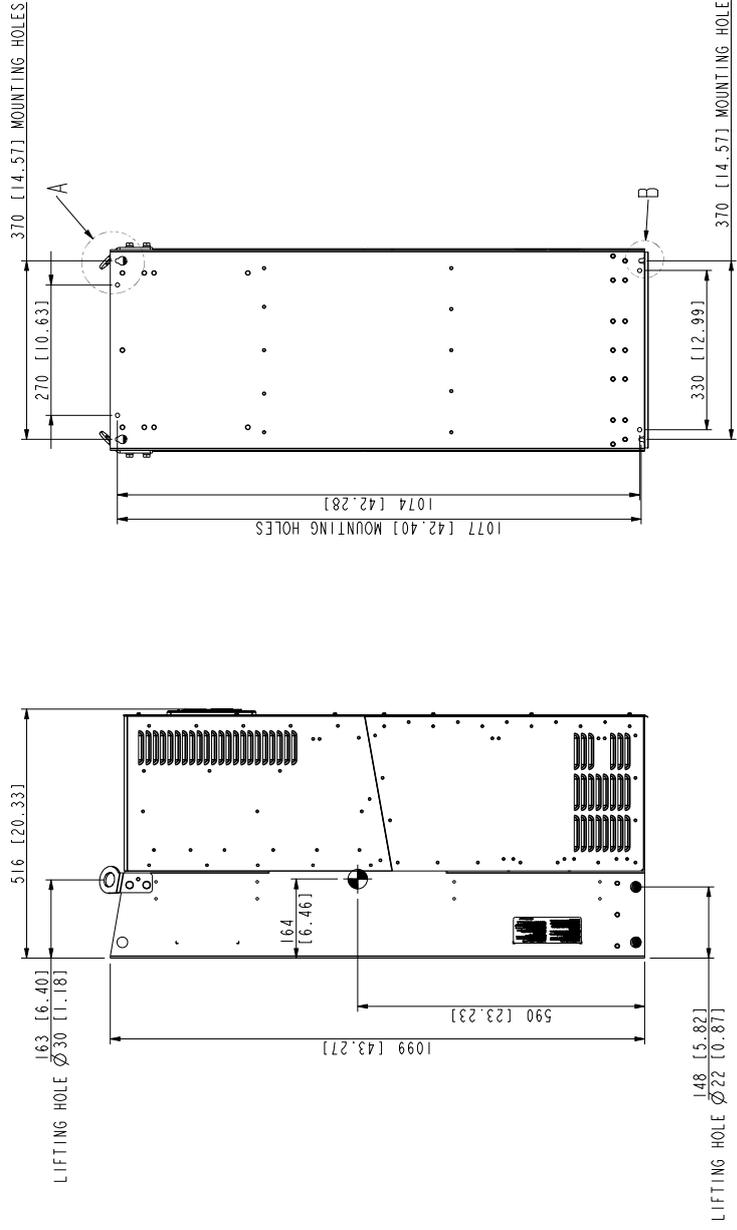
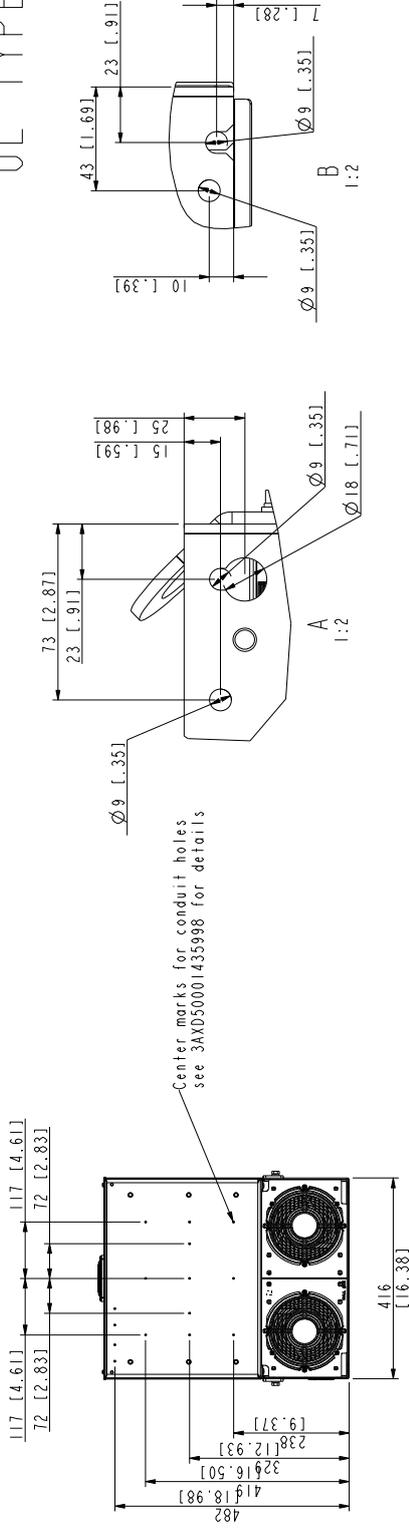
IP21



## UL Type 1



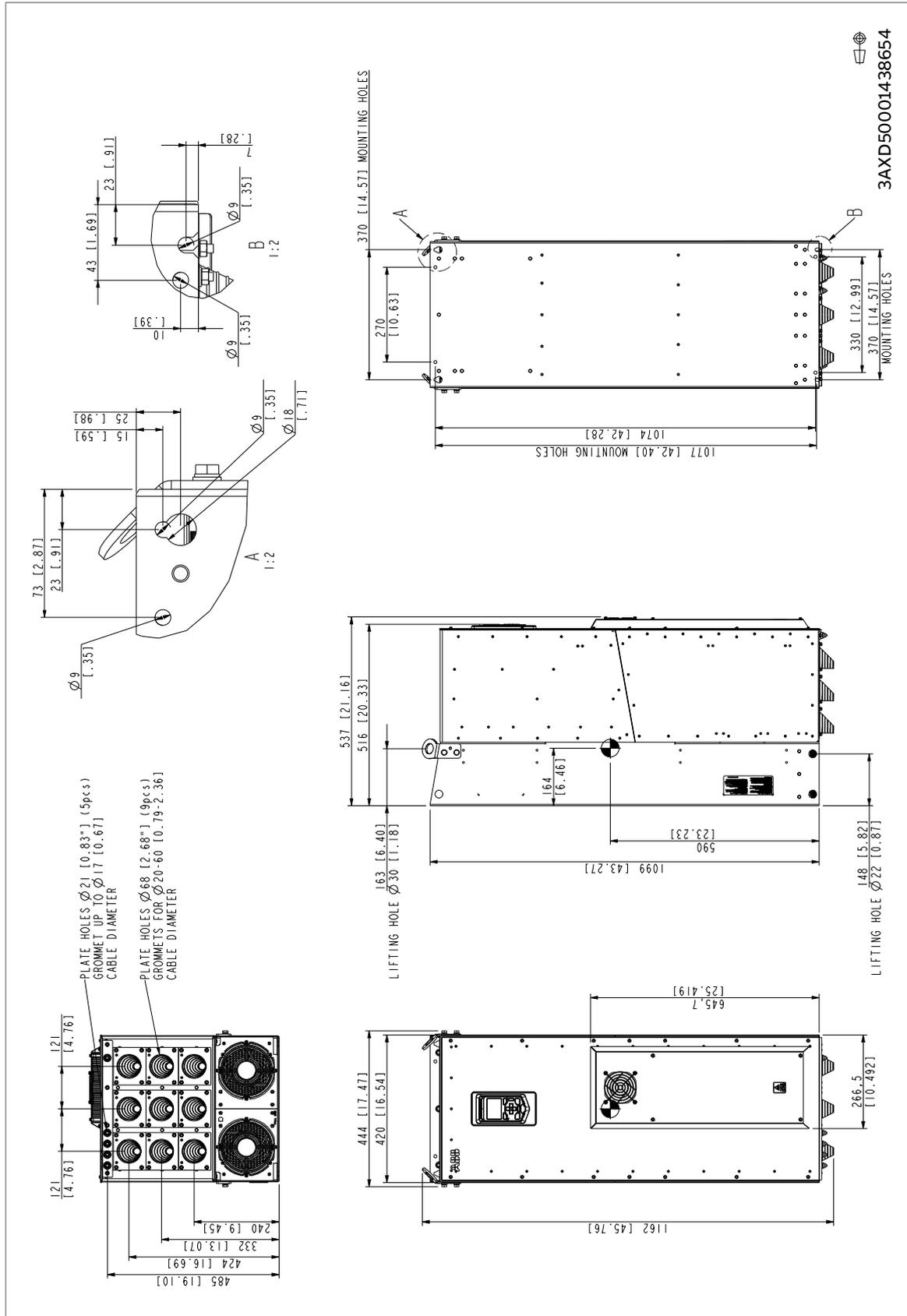
UL TYPE I



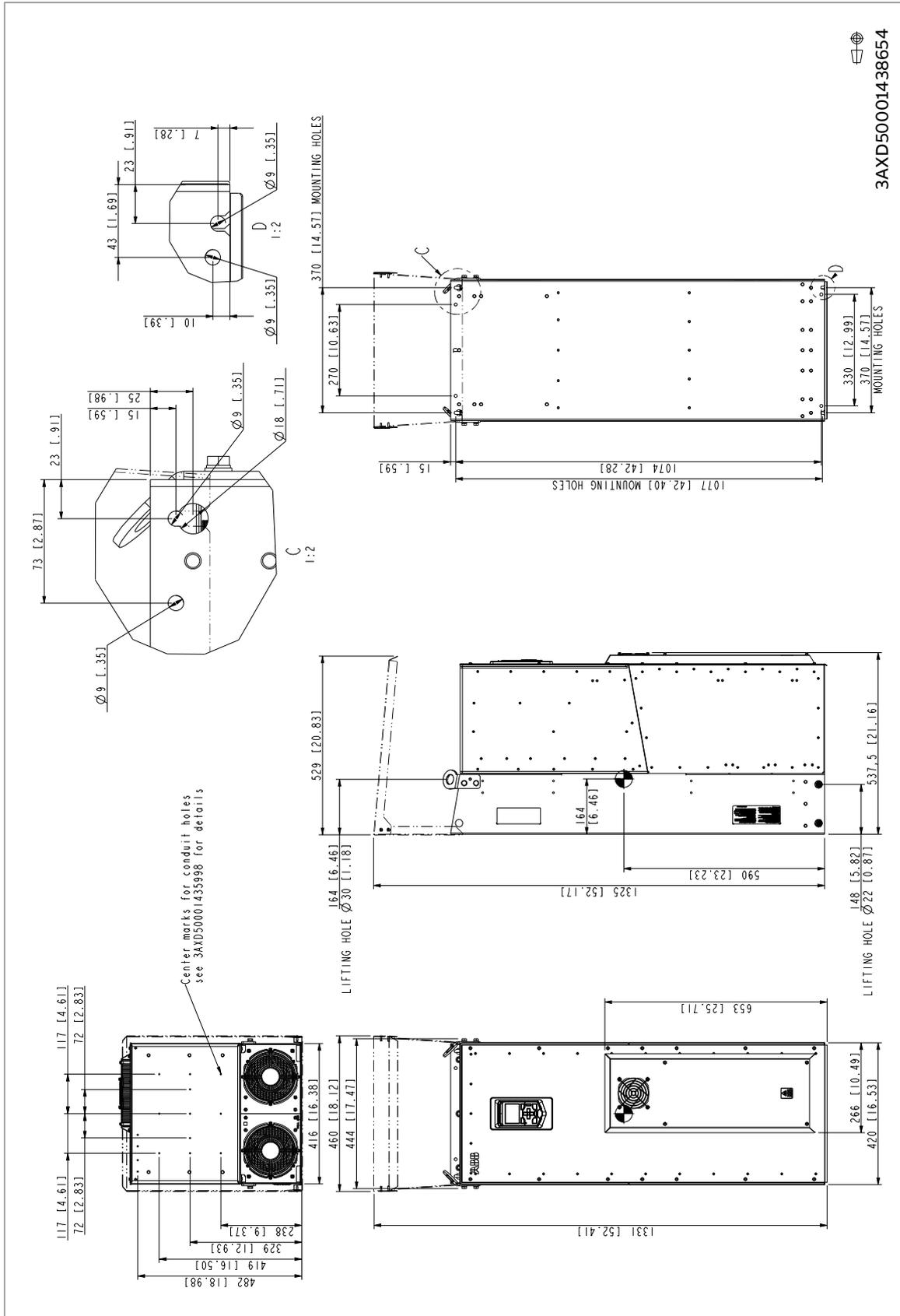
3AXD50001011475



IP55



UL Type 12



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## Further information

### Product and service inquiries

Address any inquiries about the product to your local ABB representative, quoting the type designation and serial number of the unit in question. A listing of ABB sales, support and service contacts can be found by navigating to [new.abb.com/contact-centers](http://new.abb.com/contact-centers).

### Product training

For information on ABB product training, navigate to [new.abb.com/service/training](http://new.abb.com/service/training).

### Providing feedback on ABB manuals

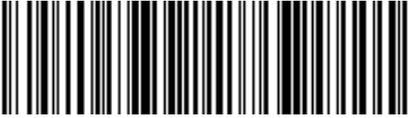
Your comments on our manuals are welcome. Navigate to [forms.abb.com/form-26567](http://forms.abb.com/form-26567).

### Document library on the Internet

You can find manuals and other product documents in PDF format on the Internet at [www.abb.com/drives/documents](http://www.abb.com/drives/documents).



[www.abb.com/drives](http://www.abb.com/drives)



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