Units with pedestal and busbars on the short side (+H360, flat mounting)

Delivery check

Check that there are no signs of damage. Before attempting installation and operation, check the information on the type designation label of the drive to verify that the unit is of the correct type.

Item packages

The following tables show what each item package contains:

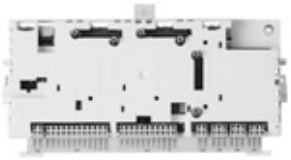
- parts
- part list code
- plus code
- assembling instruction.

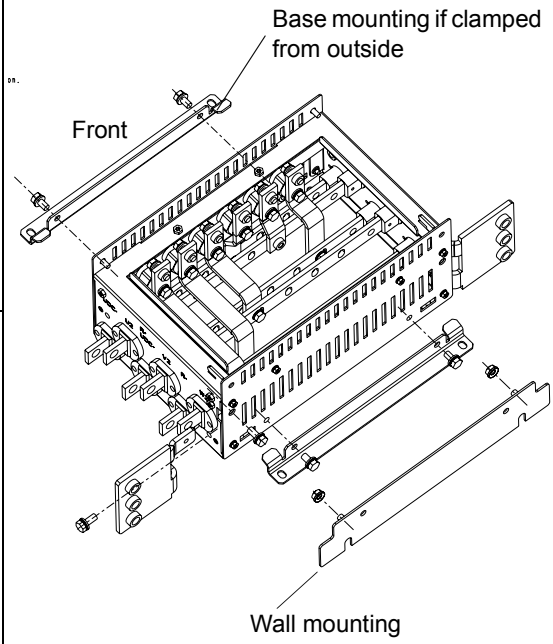
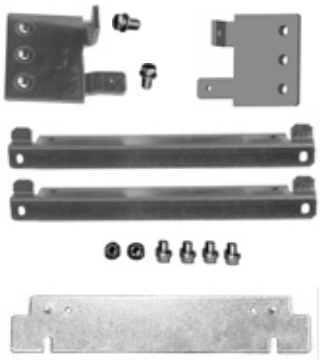
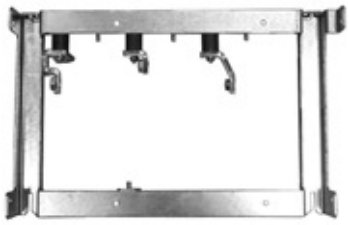
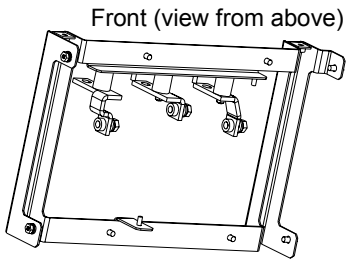
In the tables, the basic unit is described first, then the possible optional parts are listed. Choose the table and options of your delivery in the following sections:

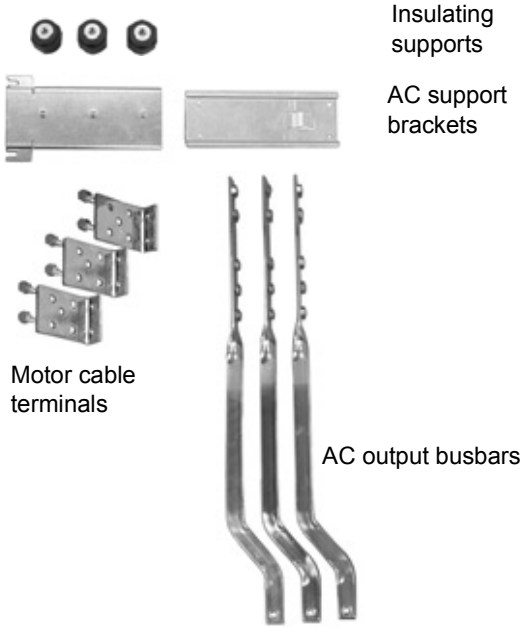
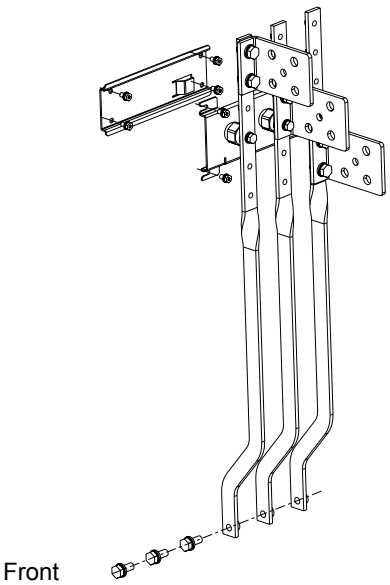
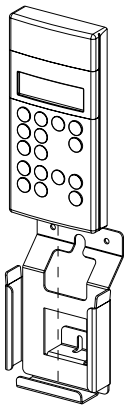
- *Item packages of frame size R7 with busbars on the short side* on page *92.*
- *Item packages of frame size R8 with busbars on the short side* on page *98*.

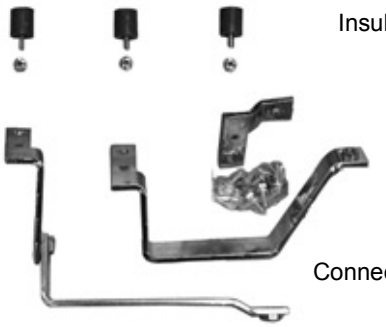
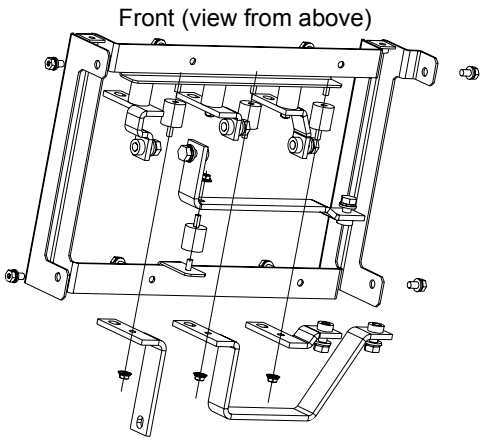
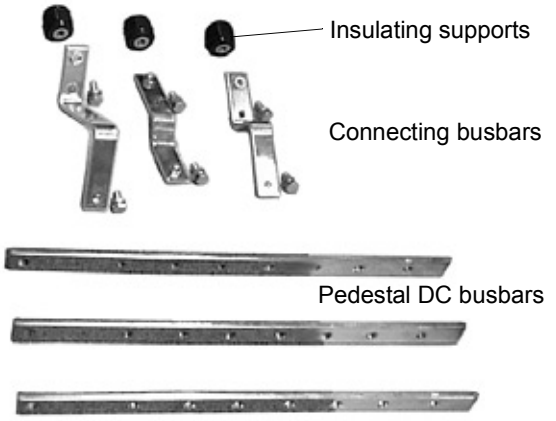
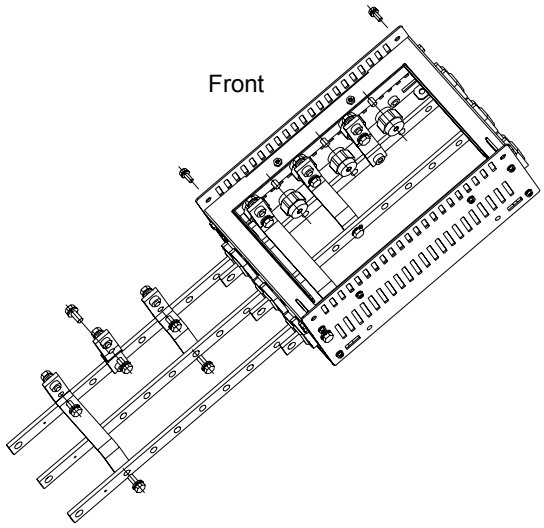
Note: The complete assembling instructions are represented under *Assembling procedure for units with busbars on the short side (+H360)* on page 104.

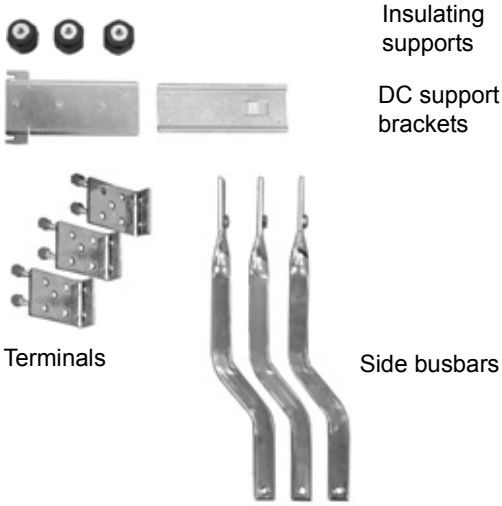
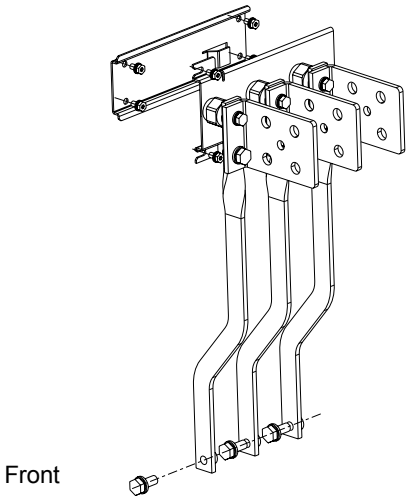
Item packages of frame size R7 with busbars on the short side

ACS800-04M with busbars on the short side (frame size R7)		
Package	**Parts**	**Assembling drawing / reference to instruction** ProE code 64770306 D
Basic unit (type code ACS800-04M-xxxx-x+H355+H360)		
-	 **Front** Drive module	Refer to section *Assembling procedure for units with busbars on the short side (+H360)* on page *104.*
Drive control unit (RDCU)	 RDCU drive control unit	See *RDCU Drive Control Unit Hardware Manual* [3AFE64636324 (English)].

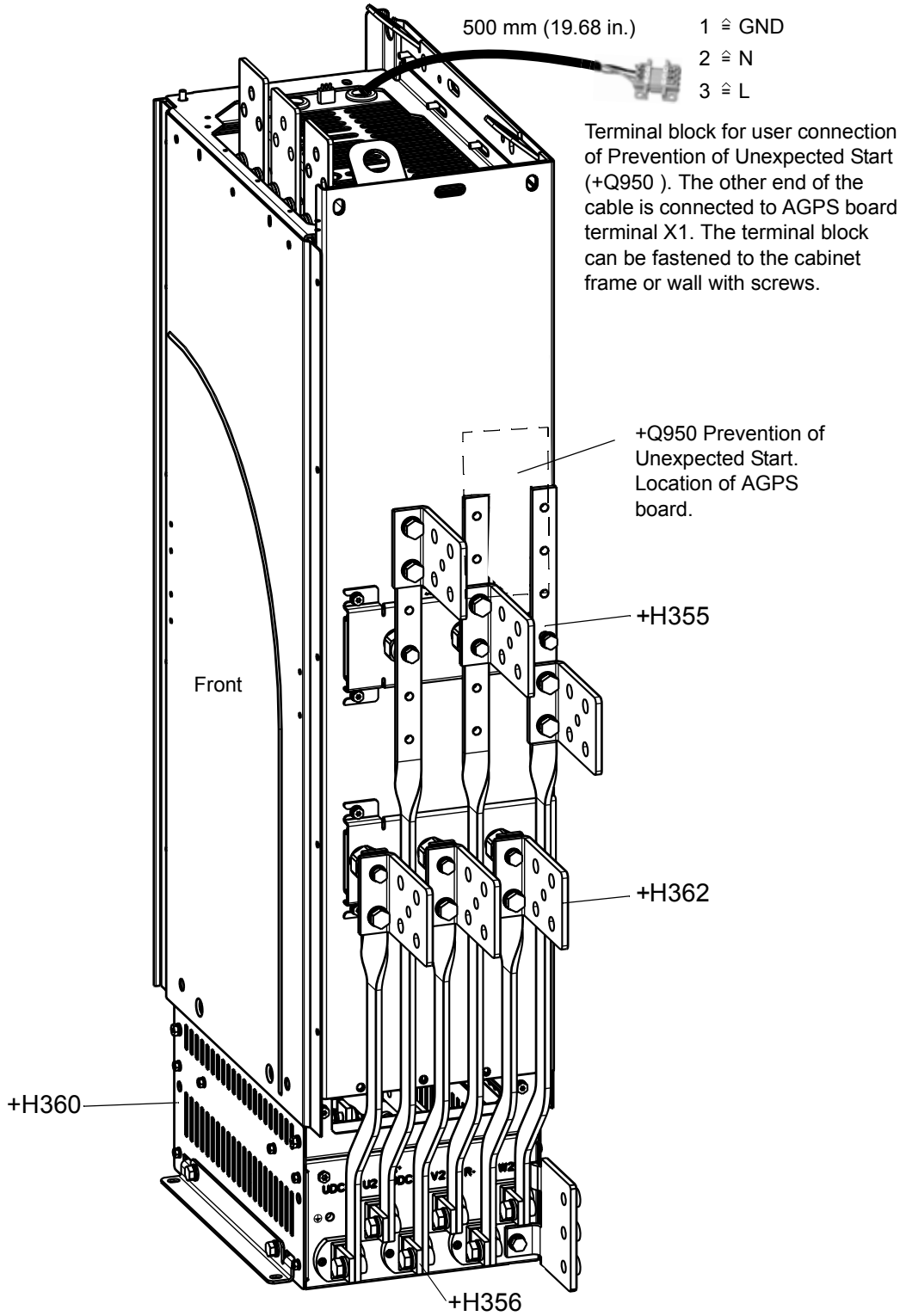
<table>
<tr><th colspan="3">ACS800-04M with busbars on the short side (frame size R7)</th></tr>
<tr><th>Package</th><th>Parts</th><th>Assembling drawing / reference to instruction
ProE code 64770306 D</th></tr>
<tr><td>Pedestal R7 +H360</td><td>64749404
 
Pedestal
Spacers for wall mounitng
  </td><td rowspan="2"> 
Base mounting if clamped from outside
Front
Wall mounting
Note: DC and brake busbars (+H356) are included in the drawing</td></tr>
<tr><td>Mounting bracket and grounding terminal kit R7 +H360</td><td>64745808
 
PE terminals
Base mounting brackets
Wall mounting bracket</td></tr>
<tr><td>Adapter R7 +H360</td><td>64749391
 
Adapter (viewed from the side that will mate with the drive module)</td><td> 
Front (view from above)</td></tr>
</table>

<table>
<tr><th colspan="3">ACS800-04M with busbars on the short side (frame size R7)</th></tr>
<tr><th>Package</th><th>Parts</th><th>Assembling drawing / reference to instruction
ProE code 64770306 D</th></tr>
<tr><td>Motor output busbar kit R7 + H355</td><td>64744402
 
</td><td> 
</td></tr>
<tr><td colspan="3">Optional selection +J413: Control Panel Holder RPMP-21</td></tr>
<tr><td>Control panel holder +J413</td><td>68394961
 
Control panel holder</td><td>  </td></tr>
</table>

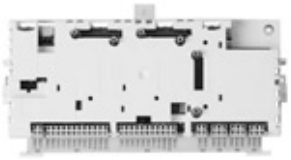
ACS800-04M with busbars on the short side (frame size R7)		
Package	**Parts**	**Assembling drawing / reference to instruction** ProE code 64770306 D
Optional selection +H360**+H356+H362: DC/brake busbars**		
Adapter DC busbar kit R7 +H356 (+H360 required)	64769375  	
Pedestal DC busbar kit R7 +H356 (+H360 required)	 	

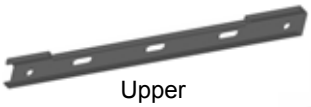
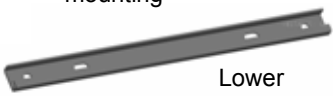
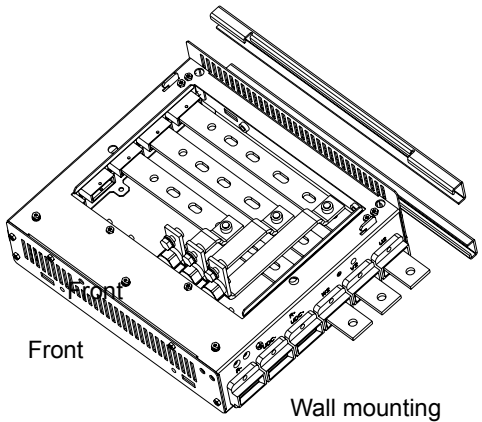
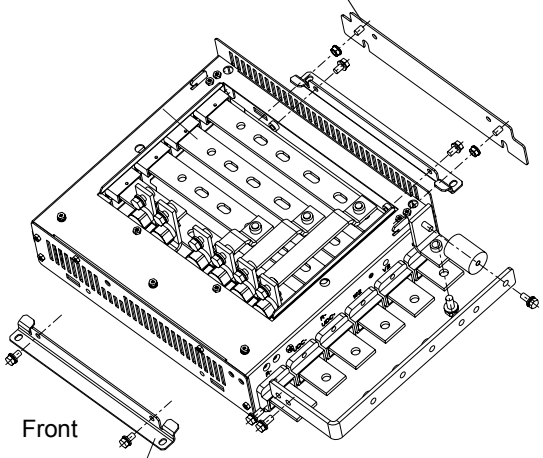
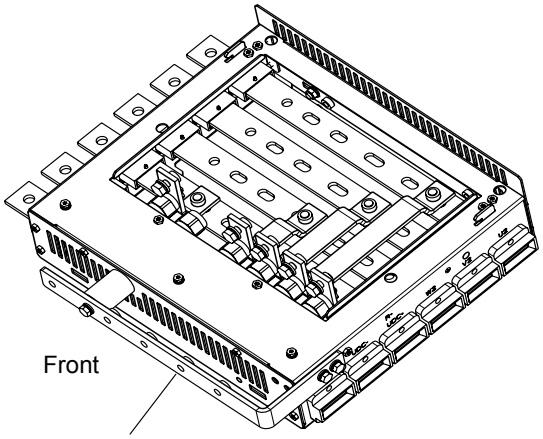
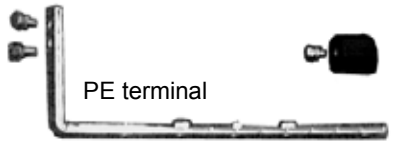
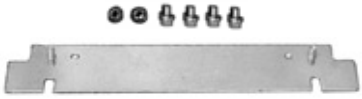
ACS800-04M with busbars on the short side (frame size R7)		
Package	**Parts**	**Assembling drawing / reference to instruction** ProE code 64770306 D
DC output busbar kit R7 +H362 (+H360 required)	64744763  Insulating supports DC support brackets Terminals Side busbars	 Front

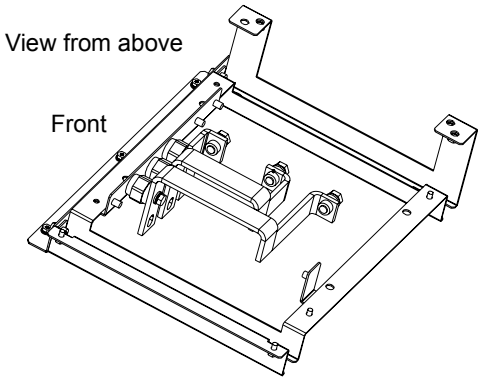
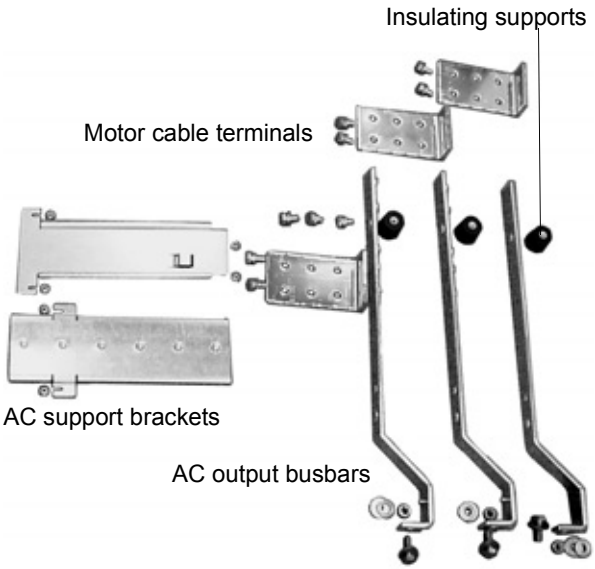
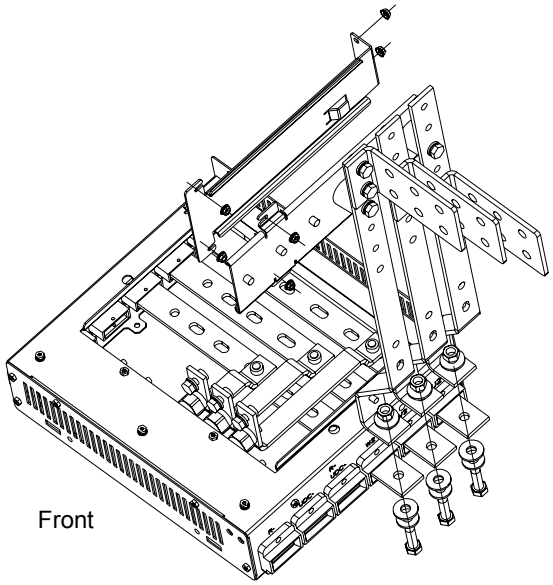
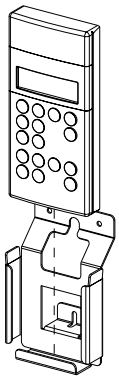
ACS800-04M with busbars on the short side (frame size R7)		
Package	**Parts**	**Assembling drawing / reference to instruction** ProE code 64770306 D
Example assembly +H360+H355+H356+H362: DC and brake busbars included		

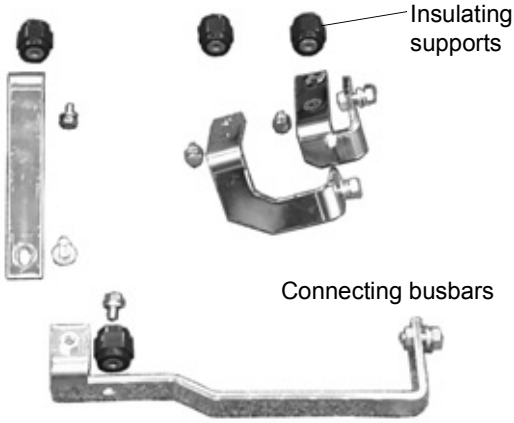
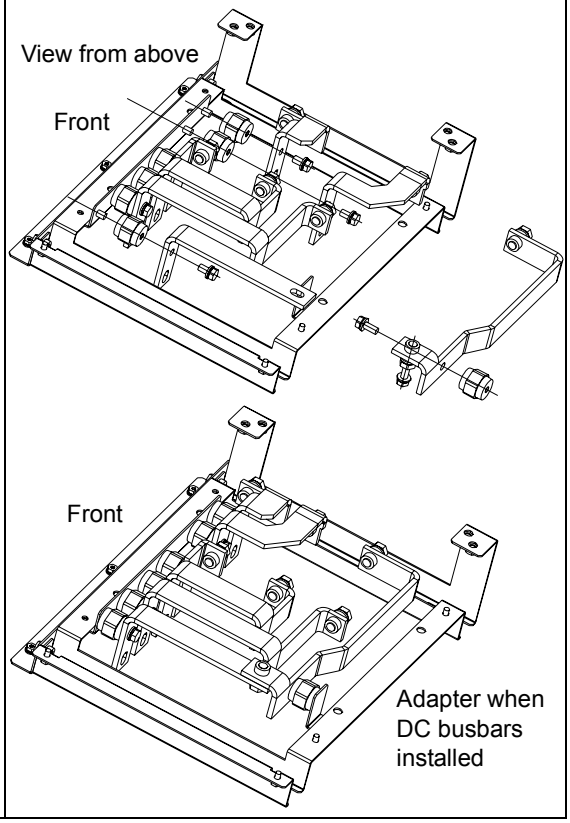


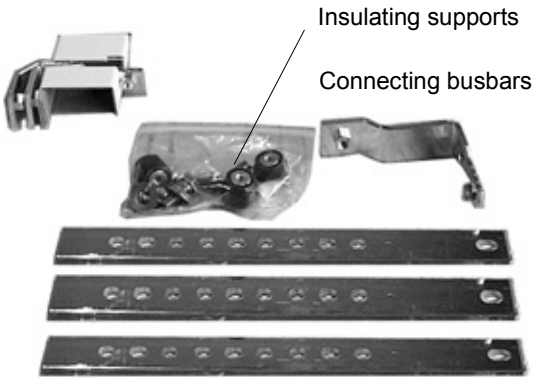
Item packages of frame size R8 with busbars on the short side

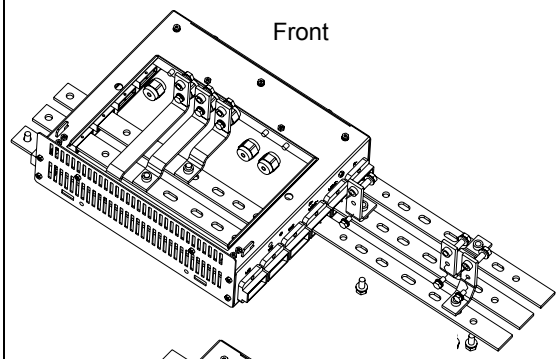
ACS800-04M with busbars on the short side (frame size R8)		
Package	**Parts**	**Assembling drawing / reference to instruction** ProE code 64772023 E
Basic unit (type code ACS800-04M-xxxx-x**+H355+H360)**		
-	 Drive module	Refer to section *Assembling procedure for units with busbars on the short side (+H360)* on page *104.*
Drive control unit (RDCU)	 RDCU drive control unit	See *RDCU Drive Control Unit Hardware Manual* [3AFE64636324 (English)].

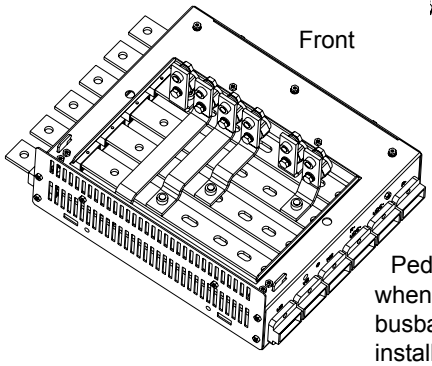
<table>
<tr><th colspan="3">ACS800-04M with busbars on the short side (frame size R8)</th></tr>
<tr><th>Package</th><th>Parts</th><th>Assembling drawing / reference to instruction
ProE code 64772023 E</th></tr>
<tr><td>Pedestal R8 +H360</td><td>64749978
 
Pedestal
 
Spacers for wall mounting
Upper
 
Lower</td><td rowspan="2"> 
Front
Front
Wall mounting
 
Front
Base mounting if clamped from outside
 
Front
PE busbar if pedestal busbars are swapped to the left. Note: vertical busbars cannot be used.</td></tr>
<tr><td>Mounting bracket and grounding terminal kit R8 +H360</td><td>64745794
 
Insulating support
PE terminal
 
L-bracket (used when U2 output busbar is not installed)
 
Base mounting brackets
 
Wall mounting bracket</td></tr>
</table>

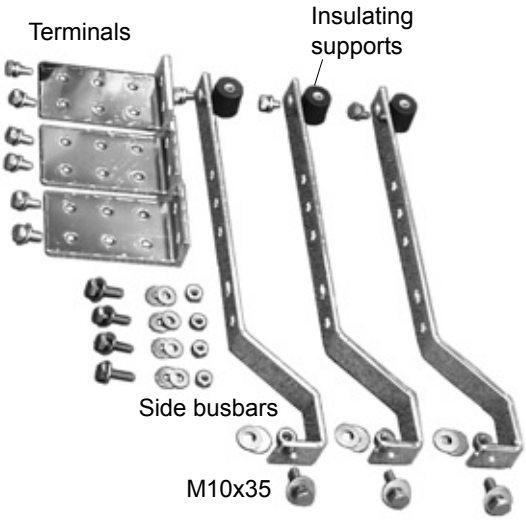
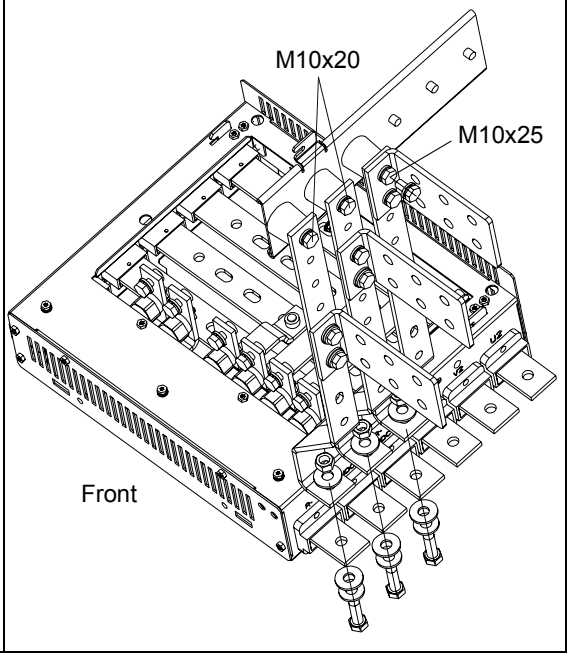
<table>
<tr><th colspan="3">ACS800-04M with busbars on the short side (frame size R8)</th></tr>
<tr><th>Package</th><th>Parts</th><th>Assembling drawing / reference to instruction
ProE code 64772023 E</th></tr>
<tr><td>Adapter R8
+H360</td><td>64749871
 
Adapter (viewed from the side that will mate with the drive module)</td><td> 
View from above
Front</td></tr>
<tr><td>Motor output busbar kit R8 + H355</td><td>64744453
 
Insulating supports
Motor cable terminals
AC support brackets
AC output busbars</td><td> 
Front</td></tr>
<tr><td colspan="3">Optional selection +J413: Control Panel Holder RPMP-21</td></tr>
<tr><td>Control panel holder
+J413</td><td>68394961
 
Control panel holder</td><td>  </td></tr>
</table>

ACS800-04M with busbars on the short side (frame size R8)		
Package	**Parts**	**Assembling drawing / reference to instruction** ProE code 64772023 E
Optional selection +H356+H362+H360: DC/brake busbars		
Adapter DC busbar kit R8 +H356 (+H360 required)	64769456  	

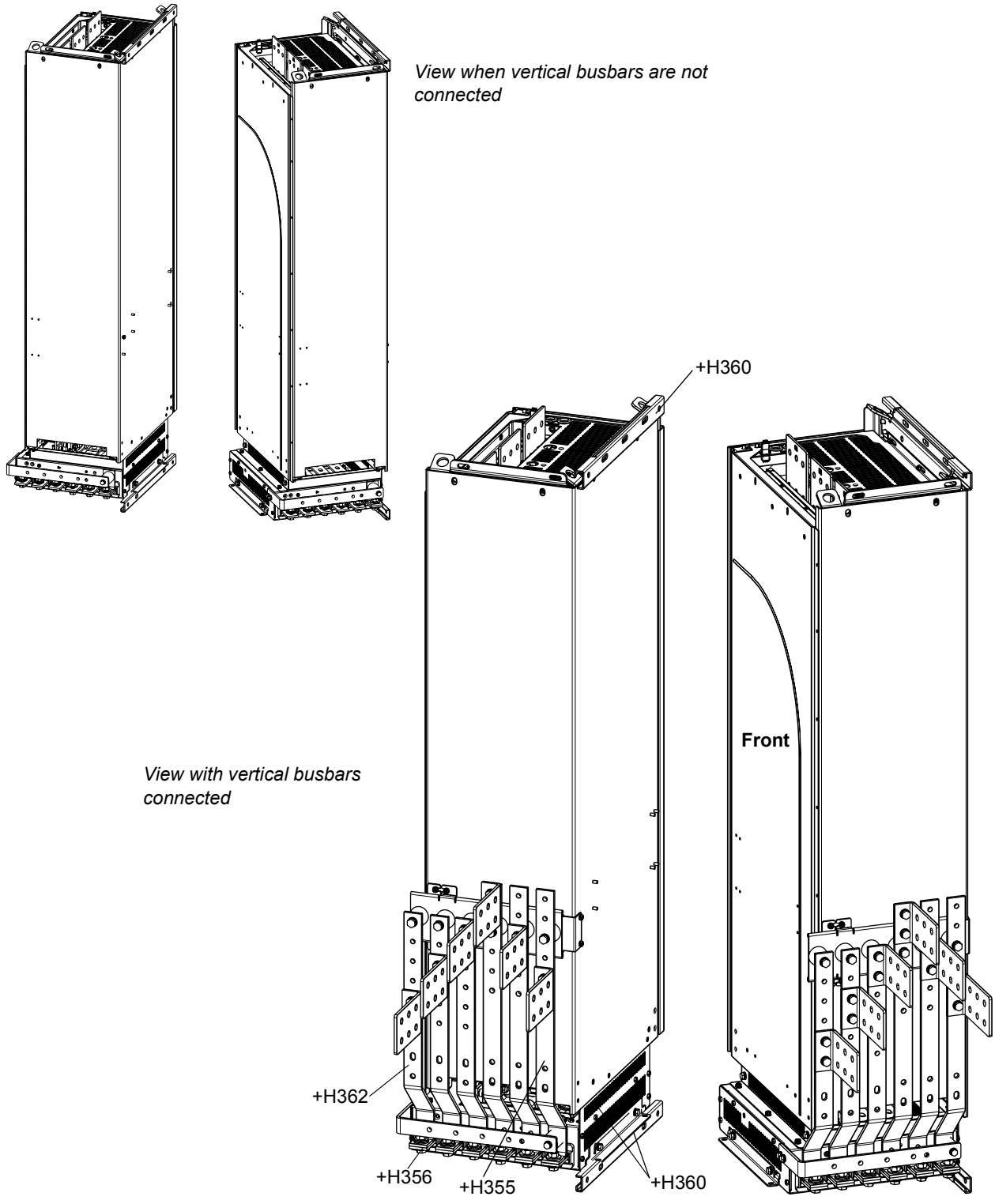
<table>
<tr><th colspan="3">ACS800-04M with busbars on the short side (frame size R8)</th></tr>
<tr><th>Package</th><th>Parts</th><th>Assembling drawing / reference to instruction
ProE code 64772023 E</th></tr>
<tr><td>Pedestal DC busbar kit R8
+H356 (+H360 required)</td><td> 

Pedestal DC busbars</td><td> 



Pedestal when DC busbars installed</td></tr>
<tr><td>DC output busbar kit R8
+H362 (+H360 required)</td><td>64744771
 
</td><td> 
</td></tr>
</table>

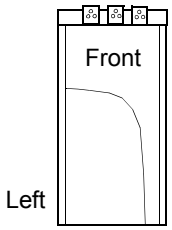
ACS800-04M with busbars on the short side (frame size R8)		
Package	**Parts**	**Assembling drawing / reference to instruction** ProE code 64772023 E
Example assembly +H355+H356+H360+H362: DC/brake busbars included		



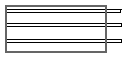
Assembling procedure for units with busbars on the short side (+H360)

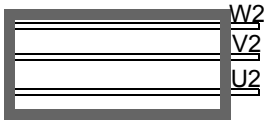
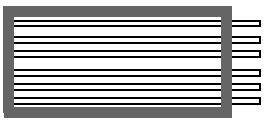
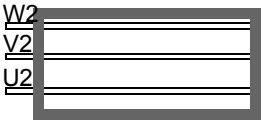
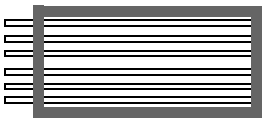
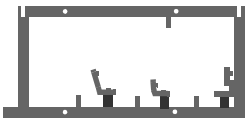
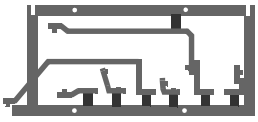
Working order

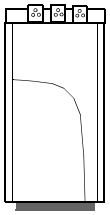
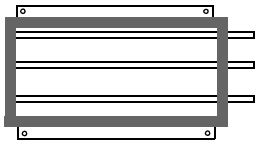
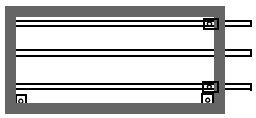
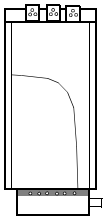
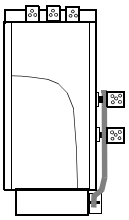
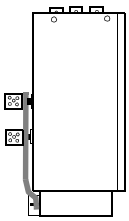
References to instructions in this chapter are printed in italic in the table below. The pictures represent frame size R7 with the following orientations.



Pedestal viewed from above



Step	If		Instruction
1 Preparing the pedestal		AC busbars on the right side	Go to step 2.
		AC busbars, R-, R+/UDC+ and UDC- busbars on the right side (+H356 required)	1. See *Connecting the DC busbars to the pedestal (+H360 +H356 only)* on page *107*. 2. Go to step 2.
		AC busbars on the left side	1. See *Swapping the pedestal output busbars to the left-hand side* on page *106*. 2. Go to step 2.
		AC busbars, R-, R+/UDC+ and UDC- busbars on the left side (+H356 required)	1. See *Swapping the pedestal output busbars to the left-hand side* on page *106*. 2. See *Connecting the DC busbars to the pedestal (+H360 +H356 only)* on page *107*. 3. Go to step 2.
2 Preparing the adapter		AC busbars on the right or left side	Go to step 3.
		AC busbars, R-, R+/UDC+ and UDC- busbars on the right or left side (+H356 required)	1. See *Preparing the adapter (+H360 +H356 only)* on page *108*. 2. Go to step 3.

Step	If		Instruction
3 Fastening the adapter to the drive module		-	*1.* See *Fastening the adapter to the drive module* on page *109*. 2. Go to step 4.
4 Fastening the pedestal by the base (not performed for wall-mounted units)		Base mounting from outside	*1.* See *Clamping the pedestal with the outside brackets* on page *80*. 2. Go to step 5.
		Base mounting from inside	*1.* See *Fastening the pedestal through the holes inside the pedestal* on page *80*. 2. Go to step 5.
5 Fastening the adapter to the pedestal		-	*1.* See *Fastening the drive module to the pedestal via the adapter* on page *110.* 2. Go to step 6.
6 Connecting the output busbars		Units with vertical busbars	*1.* See *Connecting the output busbars on the short side of the module* on page *111*. 2. Go to step 7.
7 Wall mounting (not performed for base-mounted units)		wall-mounted unit	*1.* See *Fastening the drive module to wall (wall-mounted units only, not for base-mounted units)* on page *81*.
8 Fastening by top		base-mounted unit	*1.* See *Fastening the drive module by top to the cabinet frame* on page *81.*

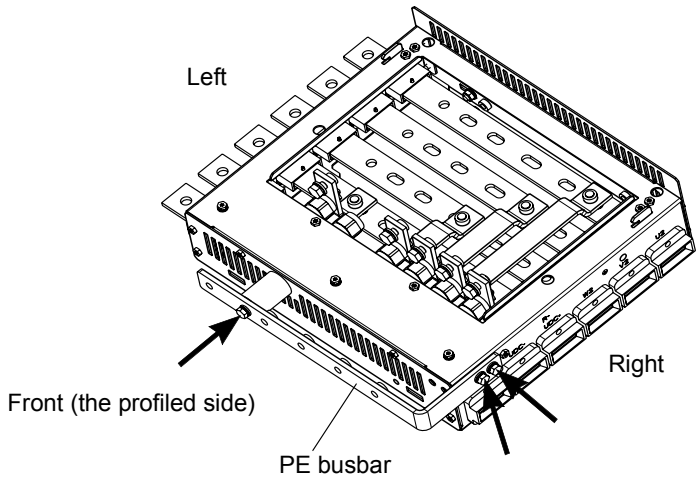
Swapping the pedestal output busbars to the left-hand side

- Disconnect the horizontal pedestal busbars from the busbars that connect them to the adapter.
- Push the horizontal busbars to the left.
- Reconnect the horizontal busbars to the adapter connecting busbars.

Note:

When the pedestal busbars are swapped to the left:

- vertical output busbars cannot be installed.
- the unit cannot be mounted on a wall with the wall mounting bracket included in the delivery.
- ensure that the required clearance between the cabinet base or floor and the cable lugs or busbars used in the cabling is at least 13 mm (1/2 in.). Otherwise, insulating material must be used below the drive module.
- fasten the left-hand side PE terminal in frame size R7. In frame size R8, fasten the PE busbar as follows.

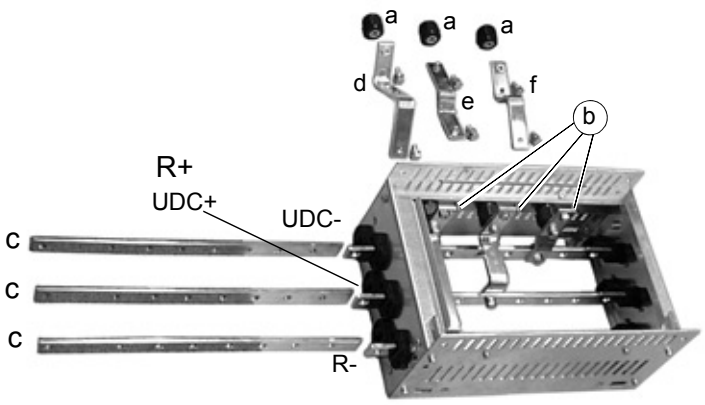


Fastening of the PE busbar in frame size R8

Connecting the DC busbars to the pedestal (+H360 +H356 only)

Required parts

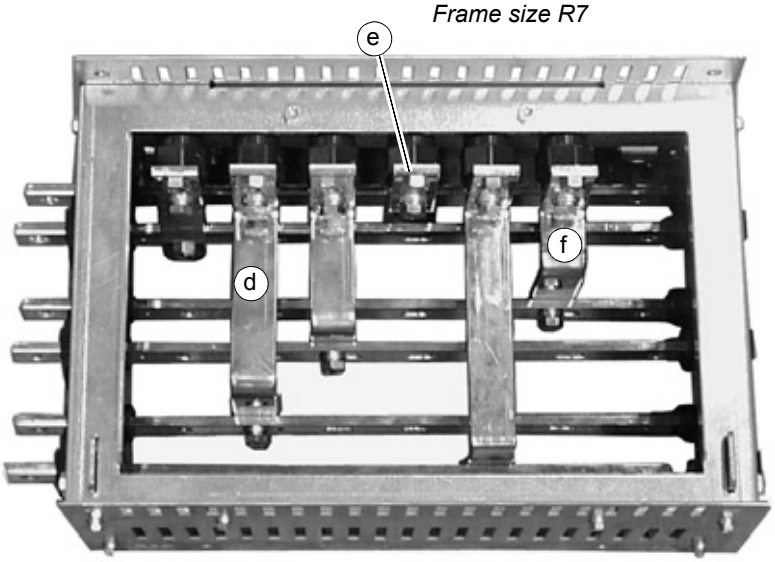
Frame size R7



Procedure

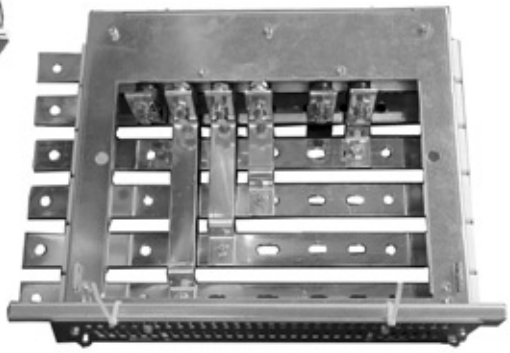
1. Screw insulating supports (“a” above) onto the free pins (“b” above) on the inner sides of the pedestal.
2. Push busbars (c) through the R-, R+/UDC+ and UDC- lead-through insulators.
3. Connect the connecting busbars (d, e, f) to the insulating supports and to the R-, R+/UDC+ and UDC busbars as shown below.

Frame size R7



DC busbars connected

Frame size R8

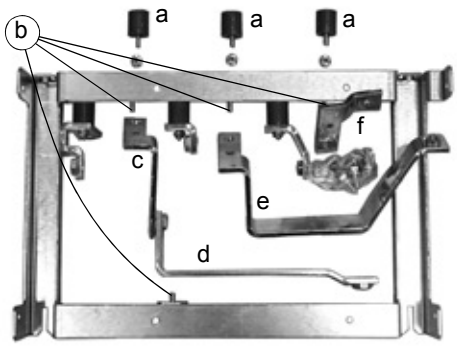


See also chapter *Assembly drawings*.

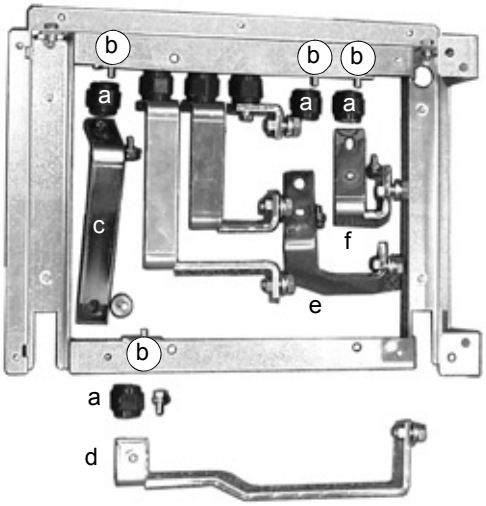
Preparing the adapter (+H360 +H356 only)

Required parts

Frame size R7



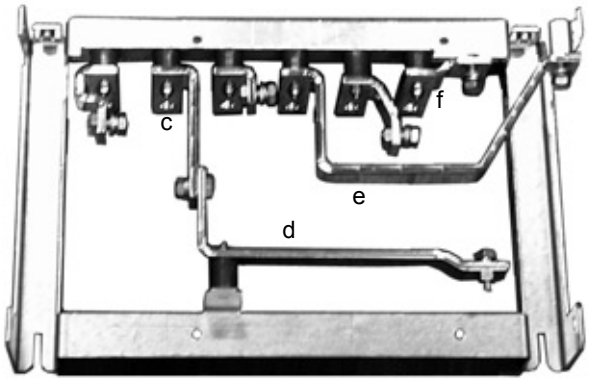
Frame size R8



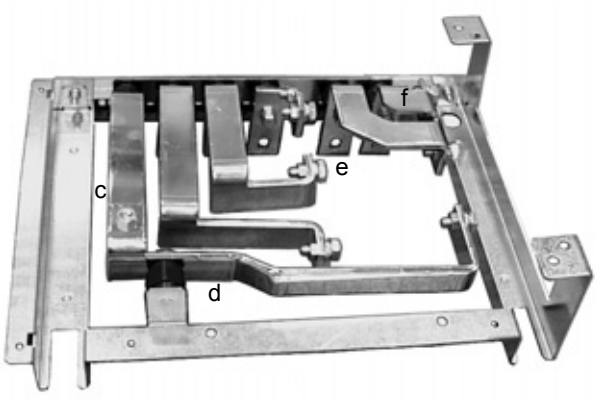
Procedure

1. Screw insulating supports (“a” above) onto the free pins (“b” above).
2. Connect the connecting busbars to the insulating supports as shown below. Connect busbar c to busbar d.

Frame size R7



Frame size R8



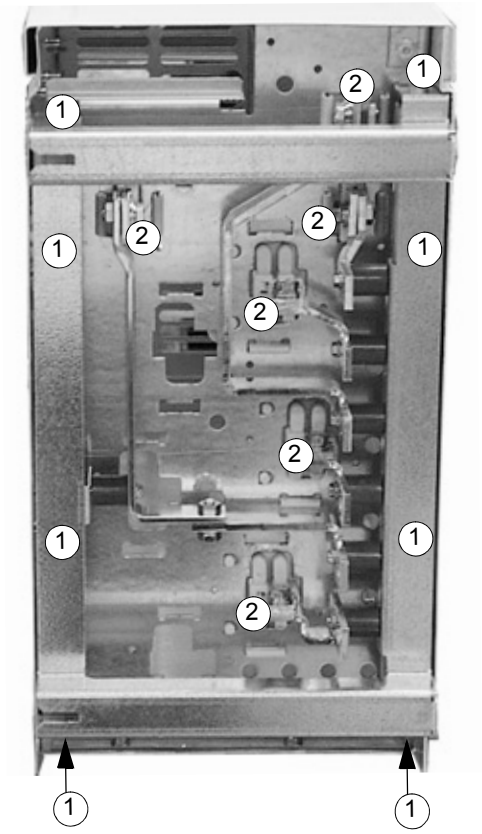
See also chapter *Assembly drawings*.

Fastening the adapter to the drive module

The DC busbars (+H356) are included in the installation examples below.

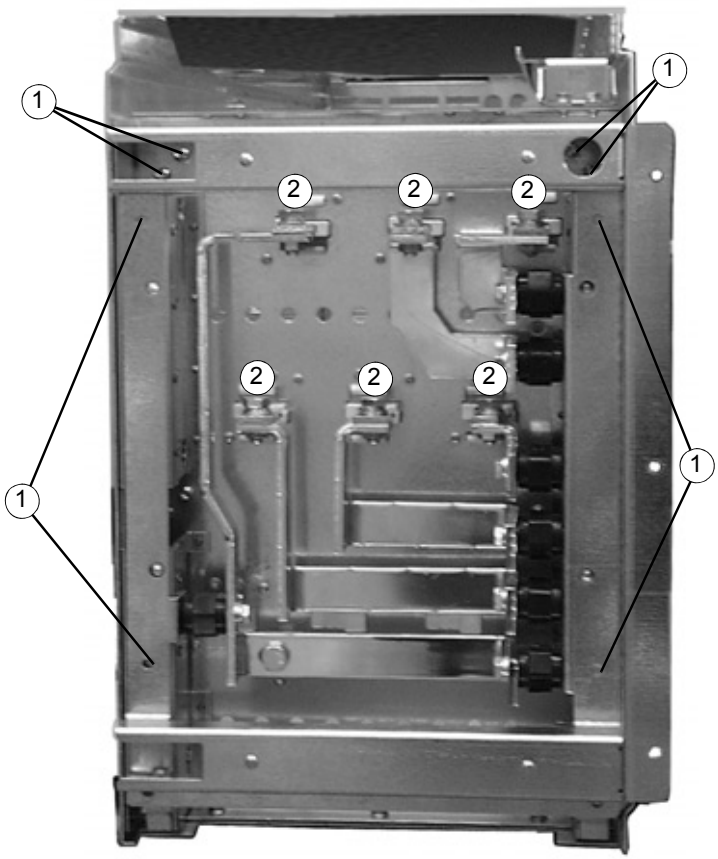
1. Fasten the screws.
2. Connect the busbars.

Frame size R7



(2) *Tightening torque*
M8: 15...22 Nm (3.7 lbf ft)

Frame size R8



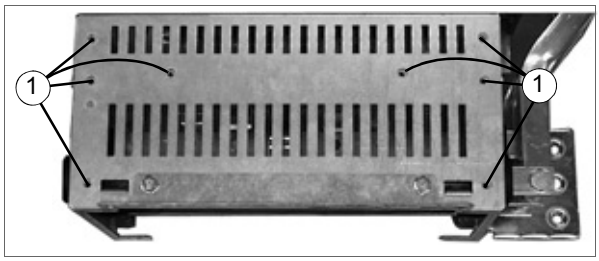
(2) *Tightening torque*
M10: 30...44 Nm (22...32 lbf ft)

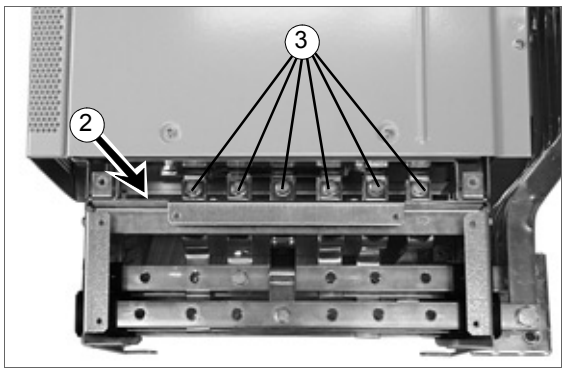
Fastening the drive module to the pedestal via the adapter

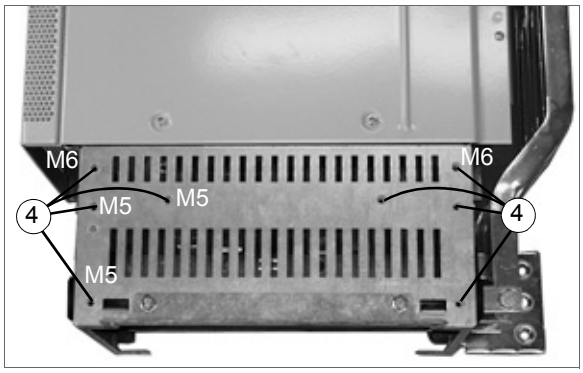
The DC busbars (+H356) are included in the installation examples below. The adapter has been connected to the drive module.

1. Frame size R7: Remove the “long front” side plate of the pedestal.
   Frame size R8: Remove the “long front” side plate of the adapter.
2. Slide the drive module with the adapter fastened onto the pedestal.
3. Connect the busbars.
4. Frame size R7: Fasten the side plate of the pedestal.
   Frame size R8: Fasten the side plate to the adapter and the pedestal.

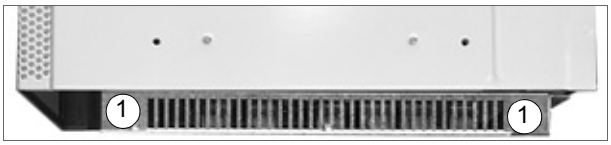
Frame size R7

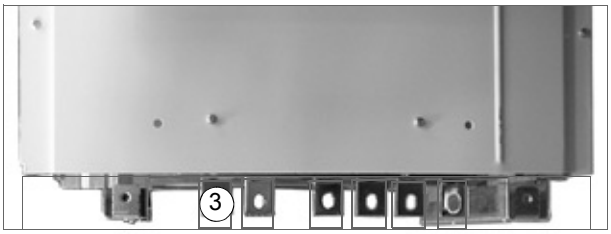


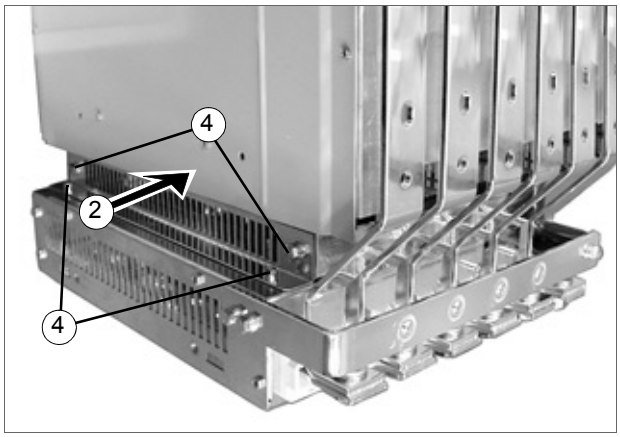




Frame size R8





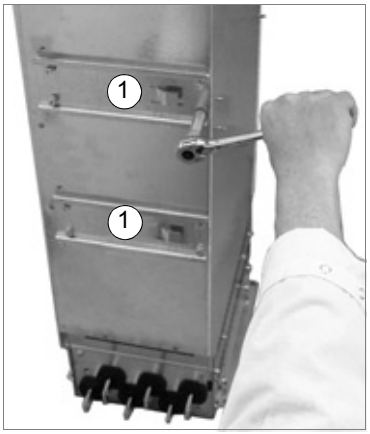


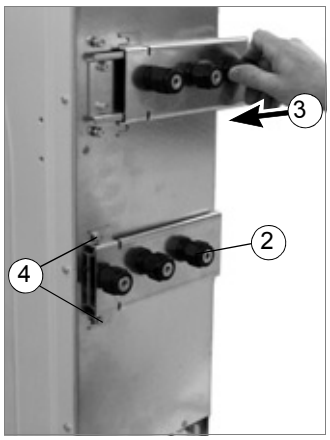
Connecting the output busbars on the short side of the module

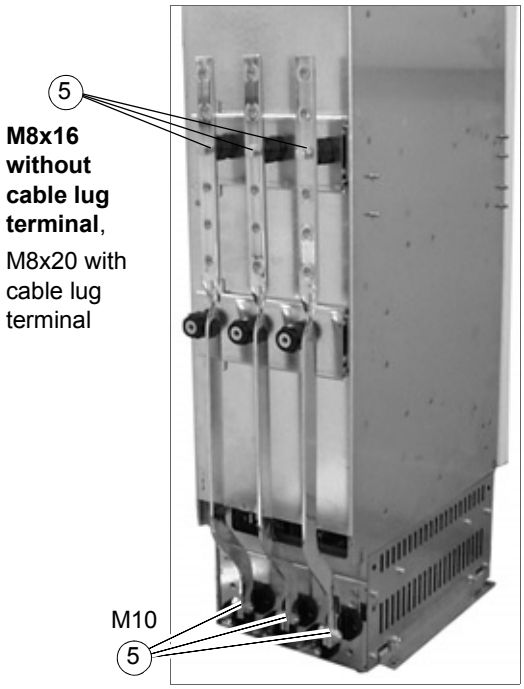
Procedure for frame size R7

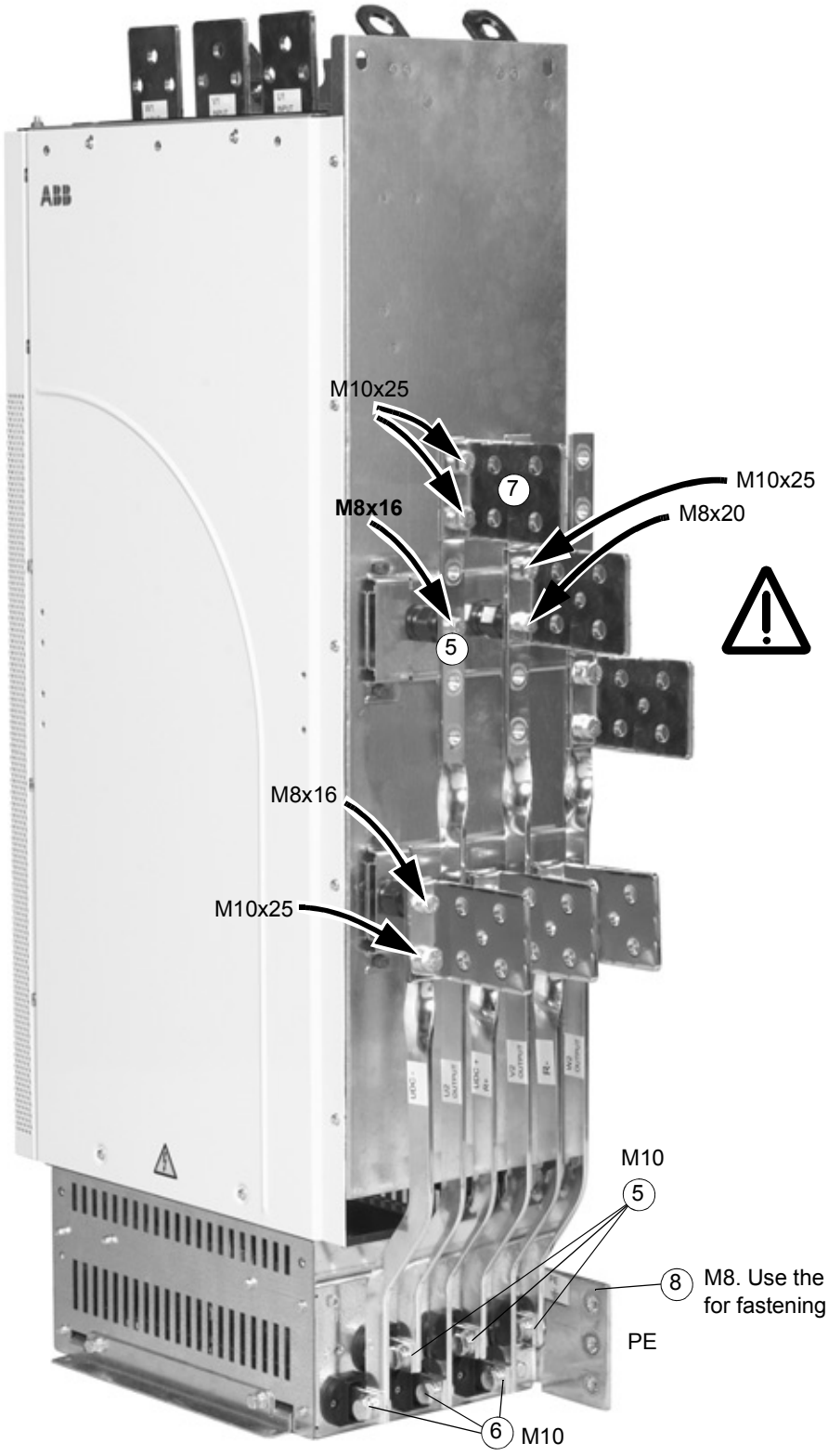
The steps of this installation procedure are shown in the photos below and on the next page.

1. Fasten the inner support bracket (brackets if DC busbars ordered) to the drive module with four M6 screws.
2. Screw the insulating supports onto the pins on the outer support bracket (s).
3. Slide the outer support bracket(s) on the inner bracket(s).
4. Fasten the outer support bracket(s) with two M6 screws.
5. Connect the AC busbars.
6. Connect the DC busbars (if ordered).
7. Connect the cable lug terminals. Use a M8x20 screw when the terminal is placed on an insulating support and M10x25 screws elsewhere.
8. Connect the PE busbar.









WARNING! Fasten the output busbars to the insulating supports with **M8x16** screws when no cable lug terminal is connected, but with M8x20 screws when a cable lug terminal is connected as well. Screwing an M8x20 screw without a cable lug terminal through the busbar into the insulating support will break the insulating support.

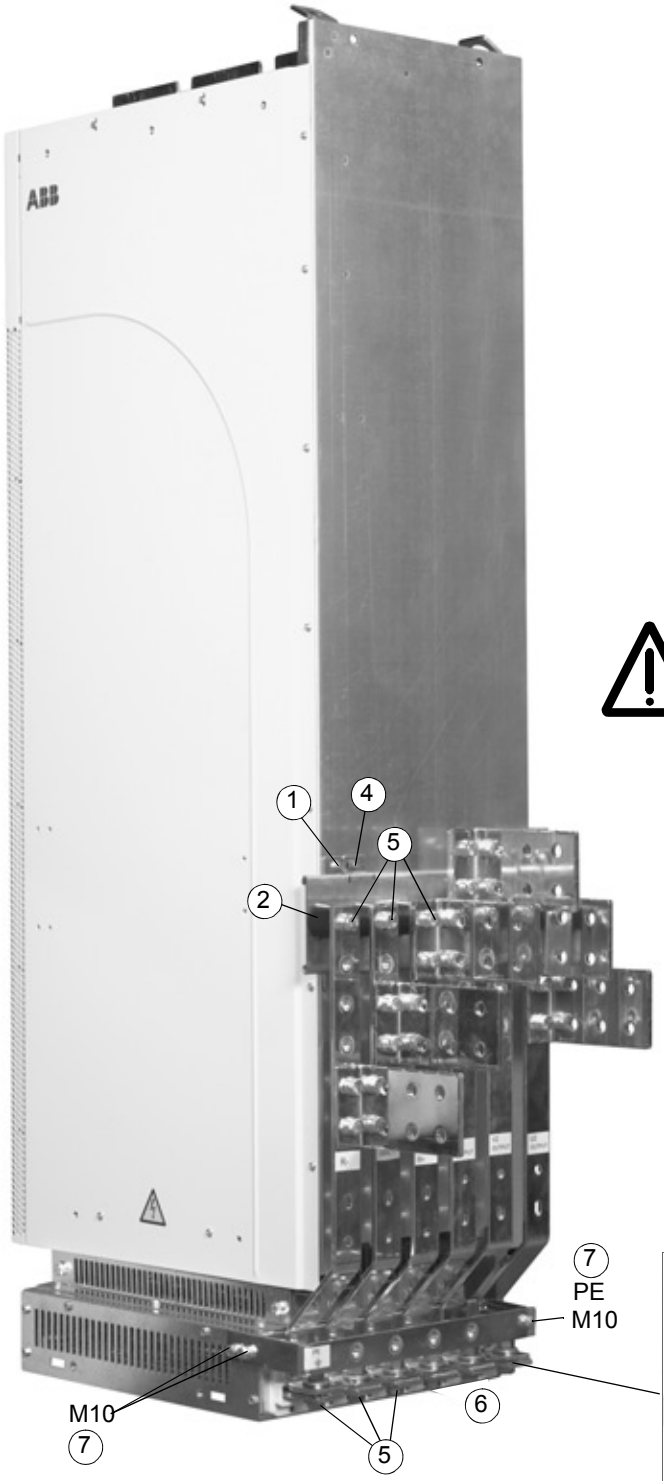
Tightening torque
M8: 15...22 Nm (3.7 lbf ft)
M10: 30...44 Nm (22...32 lbf ft)

Frame size R7 +H360: AC, DC and brake busbars connected (+H356 included)

Procedure frame size R8

The steps of this installation procedure are shown in the photo on the next page.

1. Fasten the inner support bracket to the drive module.
2. Screw the insulating supports onto the pins on the outer support bracket.
3. Slide the outer support bracket on the inner bracket.
4. Fasten the outer support bracket to the drive module.
5. Connect the AC busbars.
6. Connect the DC busbars (if ordered).
7. Connect the PE busbar.

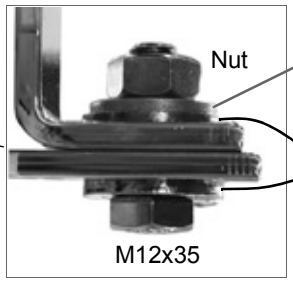


WARNING! Fasten the output busbars to the insulating supports with **M10x20** screws when no cable lug terminal is connected, but with M10x25 screws when a cable lug terminal is connected as well. Screwing an M10x25 screw without a cable lug terminal through the busbar into the insulating support will break the insulating support.

Tightening torque

M10: 30...44 Nm (22...32 lbf ft)

M12: 50...75 Nm (37...55 lbf ft)



Spring washer with mechanically sprayed zinc coating

Plain washer with electroplated zinc coating and passivation

Frame size R8 +H360: AC, DC and brake busbars connected (+H356 included)

Checking the installation

What this chapter contains

This chapter contains checklists according to which the assembly of converter modules into a cabinet is inspected at ABB factory.

Visual inspection

Inspect the mechanical and electrical installation of the converter module visually to ensure safe testing and use of the drive.

Cabinet construction

Checks for cabinet construction are listed below.

Step	Check item
1	**Cabinet construction**
1.1	Frame, wall, floor and roof structures, busbar enclosures and cable entries are correct and completely assembled.
1.2	Mechanical joints are tightened and not broken.
1.3	Parts are clean and painted surfaces not scratched. The cabinet frame and parts which are in metal to metal contact with the frame (e.g. seams, component fixing points on assembly plates, back of control panel mounting plate) are **not** finished with non-conducting paint or material.
1.4	IP enclosure class
1.5	There is a sufficient number of supports, bolts and nuts for cables.

Instrumentation, busbars and cabling

Checks for instrumentation, busbars, cabling, clearances and creepage distances are listed below. For more information, refer to *ACS800-04/04M/U4 Hardware Manual* [3AFE64671006 (English)]: *Planning the electrical installation.*

Step	Check item
2	**Instrumentation**
2.1	Type and number of option modules and other equipment is correct. Option modules and other equipment are not damaged.
2.2	Option modules and terminals are labelled correctly.
2.3	The placement of option modules and other equipment inside the cabinet and on the cabinet door is correct.
2.4	The mounting of option modules and other equipment is correct.

Step	Check item
3	**Busbars**
3.1	The types (Al/Cu) and cross-sections of busbars are correct.
3.2	Busbars are intact and joint surfaces are clean. There are no metal scraps on the busbars that could cause a short-circuit.
3.3	The placement and mounting of busbars is correct.
3.4	**The electrical connection of busbars.** Check that the surfaces in electrical connections of aluminium and uncoated busbars are rubbed. Check that anti-oxidant joint compound is used in electrical connections of aluminium busbars. Check that the number of washers and the sizes of bolts are correct.
3.5	Busbar supports and lead-in insulators are visually intact and degreased, and placed and mounted correctly.
3.6	The electrical connections on the main circuit are tightened to required torque and marked with a green marking.
4	**Cabling and wiring**
4.1	Wiring of the main circuit. Check • AC supply input • AC output • supply for brake resistor (if used).
4.2	Wiring of the 230 VAC circuit. Check • terminal strips and relays • supply of cabinet fans (if used) • 24 VDC auxiliary voltage circuit (optional module supply) • supply for cooling fan of the braking resistor(s) (if used).
4.3	Wiring of the converter module circuit. Check • RDCU module (RMIO board) connections • control cable connections • control panel cable connections.
4.4	Cable types, cross-sections, colours and optional markings are correct.
4.5	Check the cabling for circuits susceptible to interference. Check the twisting of cables and cable routes.
4.6	Check that cables without short-circuit protection • can carry the load current • are shorter than 3 m (10 ft) • are assembled separate to other cables • are protected by an enclosure or duct.
4.7	Cable connectors and fibre optic cables are intact and according to instructions. Check the termination of cables (e.g. AMP connectors), the crimping of cable lugs and ferrules. Check that the connectors are suitable for the cables and the correct crimping tool has been used. Check that • insulation of the cable is not underneath the connector • all strands of the cable are inside the connector • connector is not broken • cable is deep enough in its connector.

Step	Check item
4.8	Connection of cables to devices and terminal blocks. Check that • cables are connected to terminals tight enough by pulling the cable • cable termination on terminals chaining is done correctly • bare conductors are not too far outside the terminal causing an insufficient clearance or loss of shielding against contact.
4.9	Cables are not lying against sharp edges or bare live parts. Bending radius of fibre optic cables at least 3.5 cm (1.38 in.).
4.10	The type, markings, insulation plates and cross connections of terminal blocks are correct.
5.	**Clearances and creepage distances**
5.1	Clearances outside the modules are at least 12.7 mm (0.5 in.).
5.2	Creepage distances outside the modules are at least 12.7 mm (0.5 in.).

Groundings and protection

Checks for groundings and protections are listed below. Tips for installations where EMC emissions must be minimised are given in column *Extra requirements for EMC*.

Step	Check item	Extra requirements for EMC
6	**Groundings and protection**	
6.1	The grounding colours, cross-section and grounding points of modules and other equipment match the circuit diagrams.	No long routes for pigtails
6.2	Connections of PE cables and busbars are tight enough. Pull the cable to test that it does not loosen.	No long routes for pigtails
6.3	Doors equipped with electrical equipment are grounded.	No long grounding routes. From EMC standpoint best result is achieved with a flat copper braid.
6.4	Fans that can be touched are shrouded.	
6.5	Live parts inside the doors are protected against direct contact to at least IP 2x (if required).	

Labels, switches, fuses and doors

Checks for labels, switches, fuses and doors are listed below.

Step	Check item
7	**Labels**
7.1	The name plates are correct. The name plates are located correctly. Check the name plates for • cabinet • main circuit fuses • settings of the circuit-breakers • safety switches of the main circuit.
7.2	The warning and instruction stickers are located correctly. *Stickers required inside the cabinet:* • ⏚ near all grounding connections • inside the cabinet door main fuse specification label, fuse installation (centring) note •  on contact covers • warning of live terminals of a blown fuse on contact cover on the main fuses • warning about apparatus not disconnected from the supply network by the main switch on contact covers of these busbars and apparatus • warning sticker for residual voltages of the converter capacitor banks placed on the converter module. *Stickers required on the cabinet door:* • five-minute warning of residual voltage •  • sticker on the control panel mounting platform (if used) • emergency stop and start switch label (if applicable) • main switch label.
8.	**Switches, fuses and doors**
8.1	Check the functioning of mechanical switches by closing and opening them.
8.2	Check that fuses can be changed with a fuse handle. Check that fuse disconnectors and sockets match each other.
8.3	Check the appropriate length and fastening of the operation rod of the main disconnecting switch. When switch fuses or disconnecting switches are closed, the corresponding cabinet doors cannot be opened: 1. Lock the cabinet door with the main switch in OPEN position (0). 2. Close the main switch (position 1). 3. Unlock the door. It must not be possible to open the door by pulling the handle.