ABB INDUSTRIAL DRIVES

ACS880 liquid-cooled multidrive cabinets
Mechanical installation instructions
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Mechanical installation instructions

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1. Mechanical installation
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## 1 Mechanical installation

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## Further information
Mechanical installation

Contents of this chapter
This chapter describes the mechanical installation procedure of the drive.

Examining the installation site
Examine the installation site:
• The installation site is sufficiently ventilated or cooled to remove heat from the drive. See the technical data.
• The ambient conditions of the drive meet the specifications. See the technical data.
• There is enough free space above the drive to enable cooling, maintenance, and operation of the pressure relief (if present).
• The floor that the drive cabinet is installed on is of non-flammable material, as smooth as possible, and strong enough to support the weight of the unit. Check the floor flatness with a spirit level. The maximum allowed deviation from the surface level is 5 mm in every 3 meters. Level the installation site, if necessary, as the cabinet is not equipped with adjustable feet.

Necessary tools
The tools required for moving the unit to its final position, fastening it to the floor and wall and tightening the connections are listed below:
• crane, fork-lift or pallet truck (check load capacity!), slate/spud bar, jack and rollers
• Pozidriv and Torx screwdrivers
• torque wrench
• set of wrenches or sockets.
Checking the delivery

The drive delivery contains:
- drive cabinet line-up
- optional modules (if ordered) installed onto the control unit(s) at the factory
- appropriate drive and optional module manuals
- delivery documents.

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

Move the drive in its original packaging to the installation site as shown below to avoid damaging the cabinet surfaces and door devices. When you are using a pallet truck, check its load capacity before you move the drive.

The drive cabinet is to be moved in the upright position.

The center of gravity of the cabinet is high. Be therefore careful when moving the unit. Avoid tilting.

- Moving the drive in its packaging

Lifting the crate with a forklift
Lifting the crate with a crane

a  Lifting point
b  Optimal position for the lifting sling: as close to the traverse board as possible
Moving the crate with a forklift

Removing the transport package

Remove the transport package as follows:

1. Undo the screws that attach the wooden parts of the transport crate to each other.
2. Remove the wooden parts.
3. Remove the clamps with which the drive cabinet is mounted onto the transport pallet by undoing the fastening screws.
4. Remove the plastic wrapping.
Moving the unpacked drive cabinet

Lifting the cabinet with a crane

Lift the drive cabinet by its designated lifting points. Depending on the size of the cabinet, it has either bolt-on lifting eyes, or lifting bars with lifting holes.

Note:
The minimum allowed height of the lifting slings with IP54 units is 2 meters (6’7”).
Moving the cabinet on rollers

**WARNING!**
Do not move marine versions (option +C121) on rollers.

Lay the cabinet on the rollers and move it carefully until close to its final location. Remove the rollers by lifting the unit with a crane, forklift, pallet truck or jack.

Moving the cabinet on its back

**WARNING!**
Do not transport the drive with an LCL or L filter on its back. It will damage the filter.

Support the cabinet from below alongside the cubicle seams.
Final placement of the cabinet

Move the cabinet into its final position with a slate bar (spud bar). Place a piece of wood between the edge of the cabinet and the bar to protect the cabinet frame.
Fastening the cabinet to the floor and wall or roof

- **General rules**
  - The drive must be installed in an upright vertical position.
  - Leave 250 mm (9.85”) of free space above the cabinet for maintenance, and to allow pressure relief operation.
  - The cabinet can be installed with its back against a wall (a), or back-to-back with another unit (b).
  - Leave some space (w) at the side where the cabinet outmost hinges are to allow the doors to open sufficiently. The doors must open 120° to allow supply or inverter module replacement.

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**Note 1:** Any height adjustment must be done before fastening the cabinet sections to the floor or to each other. Height adjustment can be done by using metal shims between the cabinet bottom and floor.

**Note 2:** Depending on the size of the cabinet, it has either bolt-on lifting eyes, or lifting bars with lifting holes. If the cabinet is delivered with lifting bars, remove them. Store the bars for decommissioning. Bolt-on lifting eyes need not be removed unless the holes are used for fastening the cabinet. Plug any unused holes using the existing bolts and sealing rings included. Tighten to 70 N·m (52 lbf·ft).
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Fastening the cabinet (non-marine units)

Alternative 1 – Clamping

1. Insert the clamps (included) into the twin slots along the front and rear edges of the cabinet frame body and fasten them to the floor with a bolt. The recommended maximum distance between the clamps in the front edge is 800 mm (31.5”).

2. If floor mounting at the back is not possible, fasten the top of the cabinet to the wall with L-brackets (not included in the delivery) bolted to the lifting eye/bar holes, and suitable hardware.
Alternative 2 – Using the holes inside the cabinet

1. Fasten the cabinet to the floor through the bottom fastening holes with M10 to M12 (3/8” to 1/2”) bolts. The recommended maximum distance between the front edge fastening points is 800 mm (31.5”).

2. If the back fastening holes are not accessible, fasten the top of the cabinet to the wall with L-brackets (not included in the delivery) bolted to the lifting eye/bar holes.
Fastening the cabinet (marine units)

See the dimension drawing delivered with the drive for details of the fastening points.

Fasten the cabinet to the floor and roof (wall) as follows:

1. Bolt the unit to the floor through the flat bars at the base of the cabinet using M10 or M12 screws.
2. If there is not enough room behind the cabinet for installation, clamp (a) the rear edges of the flat bars (c) to the floor. See the figure below.
3. Attach corner brackets (d) to the lifting eye holes. Fasten the corner brackets to the rear wall and/or roof with suitable hardware such as U-brackets (e).

<table>
<thead>
<tr>
<th>Fastening to floor with a clamp</th>
<th>Fastening to wall</th>
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<tbody>
<tr>
<td><img src="image1.png" alt="Diagram of Fastening to floor with a clamp" /></td>
<td><img src="image2.png" alt="Diagram of Fastening to wall" /></td>
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2. Clamping the cabinet to the floor at the back
3. Fastening the cabinet at the top

<table>
<thead>
<tr>
<th>a - Clamp (not included)</th>
<th>d - Corner bracket (included)</th>
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<tr>
<td>b - Back panel of cabinet</td>
<td>e - U-bracket (not included)</td>
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<tr>
<td>c - Flat bars at base of cabinet</td>
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Joining cabinet sections together

Wide cabinet line-ups are delivered in multiple sections. The sections are to be joined on-site using a 200 mm wide joining cubicle at the end of one section (a common motor terminal cubicle can also act as a joining cubicle). The screws required for the joining are enclosed in a plastic bag inside the cabinet. The threaded bushings are already mounted on the cabinet posts.

1. Fasten the first section to the floor.
2. Remove any plates covering the rear post of the joining cubicle.
3. Slide Axilock connectors onto the coolant pipes at the joint.

4. Align the two sections.
The coolant pipe ends must be aligned as shown.

- 5…15 mm (0.2…0.6”)
- < 2°
- < 3 mm (0.12”)
5. Center the Axilock connectors onto the gaps between coolant pipe ends. Tighten the connector screws to the torque indicated on the connector label.

6. Fasten the front and rear posts of the joining cubicle to the posts of the other section with 14 screws (7 per post). Tighten the screws to 5 N·m (3.7 lbf·ft).

7. Fasten the second section to the floor.

8. Connect the PE busbars using the M10 bolts and nuts included. Tighten to 35…40 N·m (25…30 lbf·ft).

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<tbody>
<tr>
<td>a</td>
<td>b</td>
<td>c</td>
</tr>
<tr>
<td>Plain washer</td>
<td>Spring washer</td>
<td>Bolt and nut</td>
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9. Remove the shroud covering the DC busbars in the joining cubicle.

10. Use the joint pieces to connect the DC busbars. Tighten the bolts to 55…70 N·m (40…50 lbf·ft).

```
| a | Joint piece |
| b | Plain washer with electroplated zinc coating and blue chromate passivation |
| c | Spring washer with mechanically sprayed zinc coating |
| d | Nut |
```

**WARNING!**
Make sure you install the washers in the correct order as shown. For example, placing an unpassivated zinc-coated spring washer directly against the joint piece will cause corrosion.

**WARNING!**
Do not use any joining parts other than those delivered with the unit. The parts are carefully selected to match the material of the busbars. Other parts or materials can form a galvanic couple and cause corrosion.

11. Reinstall any covering plates removed earlier.

12. Repeat procedure for any further sections.
Miscellaneous

- **Cable duct in the floor below the cabinet**

A cable duct can be constructed below the 500 mm wide middle part of the cabinet. The cabinet weight lies on the two 50 mm wide transverse sections which the floor must carry. Prevent the cooling air flow from the cable duct to the cabinet by bottom plates. To ensure the degree of protection for the cabinet, use the original bottom plates delivered with the unit. With user-defined cable entries, take care of the degree of protection, fire protection and EMC compliance.

- **Arc welding**

ABB does not recommend attaching the cabinet by arc welding. However, if arc welding is the only option, connect the return conductor of the welding equipment to the cabinet frame at the bottom within 0.5 meters (1’6’’) of the welding point.

**Note:**
The thickness of the zinc plating of the cabinet frame is 100 to 200 micrometers (4 to 8 mil).

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**WARNING!**
Make sure that the return wire is connected correctly. Welding current must not return via any component or cabling of the drive. If the welding return wire is connected improperly, the welding circuit can damage electronic circuits in the cabinet.

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**WARNING!**
Do not inhale the welding fumes.
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 www.abb.com/searchchannels.

Product training
For information on ABB product training, navigate to new.abb.com/service/training.

Providing feedback on ABB manuals
Your comments on our manuals are welcome. Navigate to new.abb.com/drives/manuals-feedback-form.

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