

Installation Instructions

In-back/Out-back Cooling Kit for E1h/E2h Drives

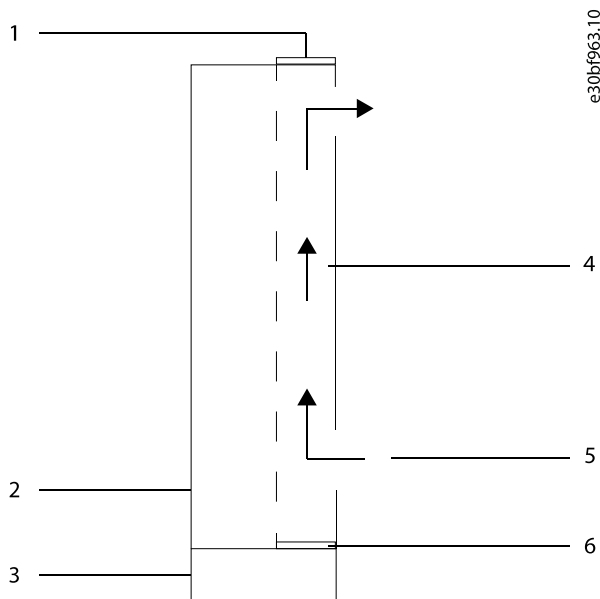
VLT[®] Series FC 102, FC 103, FC 202, and FC 302

Description

The in-back/out-back cooling kit fits the following drives in E1h/E2h enclosures:

- VLT[®] HVAC Drive FC 102
- VLT[®] Refrigeration Drive FC 103
- VLT[®] AQUA Drive FC 202
- VLT[®] AutomationDrive FC 302

When the kit is installed, air flows into the lower back duct and out through the upper back duct of the drive. See *Illustration 1.1*.



1	Top cover plate	4	Cooling channel
2	Enclosure	5	Airflow direction
3	Pedestal	6	Bottom cover plate

Illustration 1.1 Direction of Airflow with Kit Installed

Kit Part Numbers

Use these instructions with the following cooling kits.

Kit number	Kit description
176F6617	In-back/out-back cooling kit for E1h drive
176F6618	In-back/out-back cooling kit for E2h drive

Table 1.1 Part Numbers for Cooling Kits

Items Supplied

The in-back/out-back cooling kit contains the following items.

Item	Quantity
Top cover plate	1
Top gasket	1
Bottom cover plate	1
Bottom gasket	1
M5x14 screws	8–10

Table 1.2 Items Supplied in Cooling Kit

Safety Information

⚠ WARNING

DISCHARGE TIME

The drive contains DC-link capacitors, which can remain charged even when the drive is not powered. High voltage can be present even when the warning LED indicator lights are off. Failure to wait 40 minutes after power has been removed before performing service or repair work can result in death or serious injury.

- Stop the motor.
- Disconnect AC mains and remote DC-link power supplies, including battery back-ups, UPS, and DC-link connections to other drives.
- Disconnect or lock PM motor.
- Wait 40 minutes for capacitors to discharge fully.
- Before performing any service or repair work, use an appropriate voltage measuring device to make sure that the capacitors are fully discharged.

⚠ WARNING**ELECTRICAL SHOCK HAZARD**

VLT® series drives contain dangerous voltages when connected to mains voltage. Improper installation, and installing or servicing with power connected, can cause death, serious injury, or equipment failure.

To avoid death, serious injury, or equipment failure:

- Only use qualified electricians for the installation.
- Disconnect the drive from all power sources before installation or service.
- Treat the drive as live whenever the mains voltage is connected.
- Follow the guidelines in these instructions and local electrical safety codes.

NOTICE**APPLYING GASKETS**

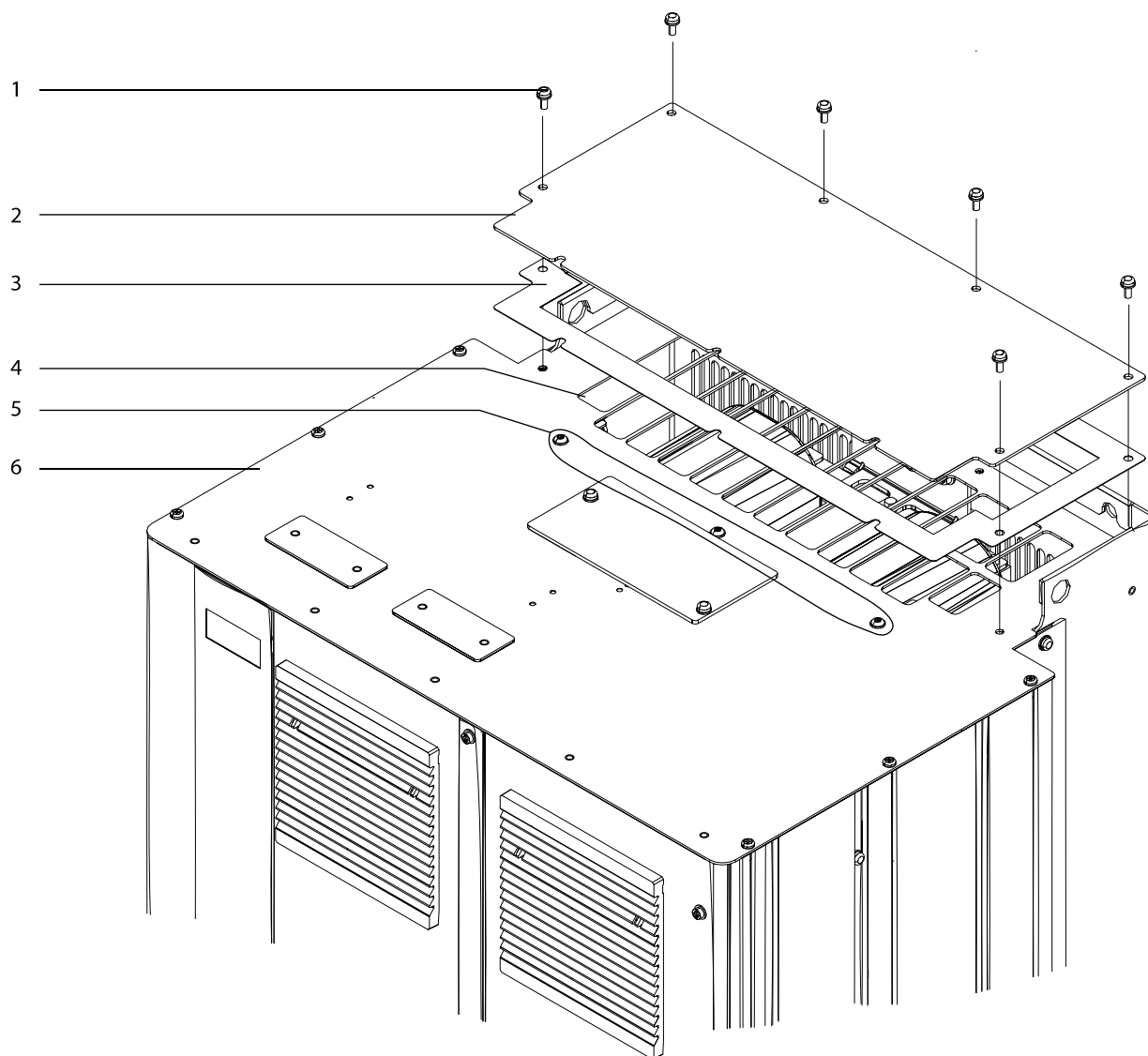
This kit contains gaskets to ensure a proper seal between metal parts. Before adhering a gasket to a part, check that the part matches the gasket and that no holes are covered.

Installation Instructions

Installing the Top Cover Plate

To install the top cover plate of the cooling kit, use the following procedure. See *Illustration 1.2*.

1. Remove paper backing from the top gasket to expose the adhesive. Adhere the top gasket to the underside of the top cover plate.
2. Remove 6 M5x12 screws (T25) surrounding the sides and back of the vent in the top surface of the drive enclosure. Retain the screws.
3. Loosen 3 M5x12 screws (T25) at the front of the vent in the top surface of the drive enclosure.
4. Slide the edge of the top cover plate under the 3 loosened screws, positioning the plate over the vent in the top surface of the enclosure.
5. Secure the top cover plate to the enclosure with the 6 M5x12 screws (T25) removed previously. Torque fasteners to 2.3 Nm (20 in-lb).



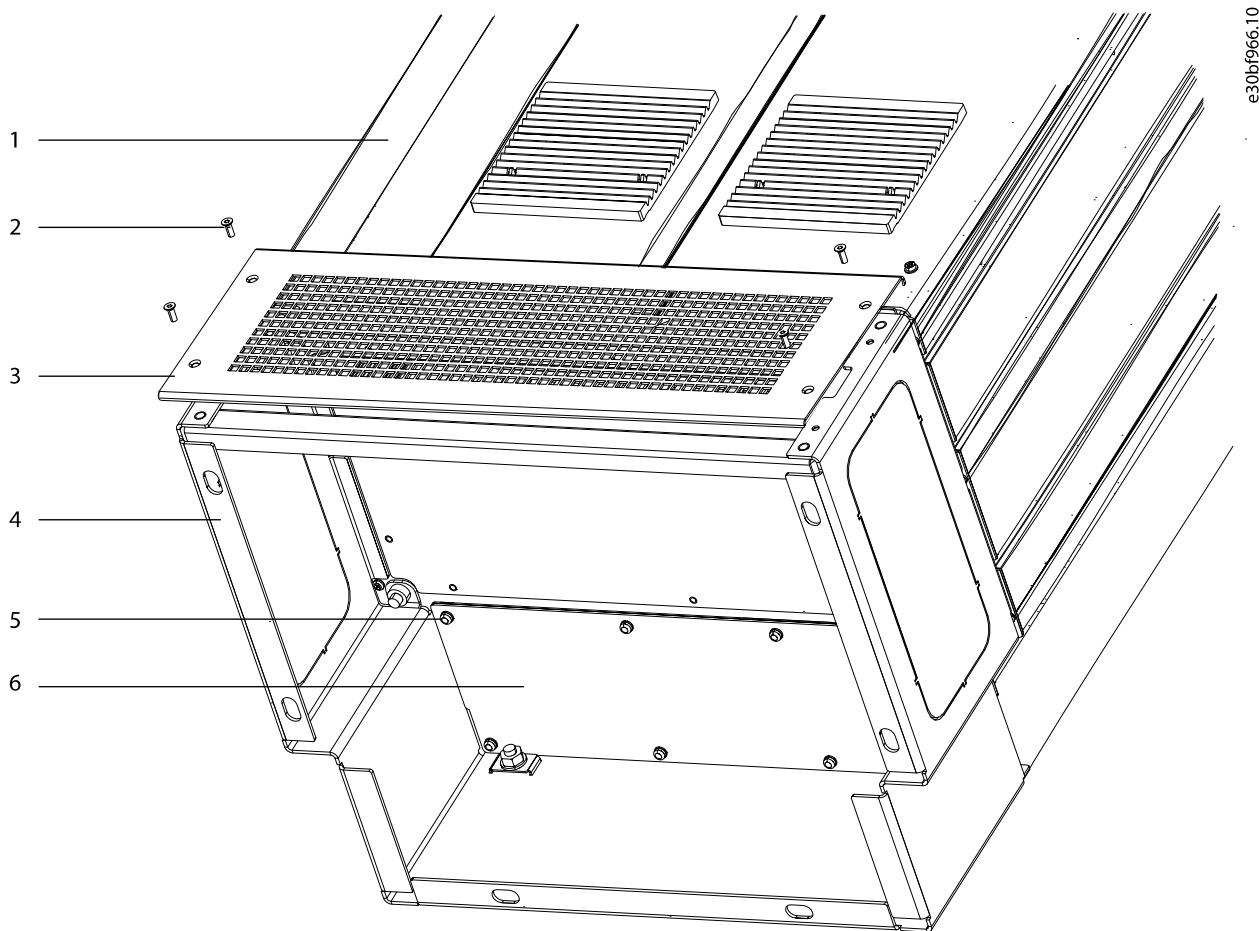
1	M5x12 screw	4	Top vent
2	Top cover plate	5	Front screws (loosened, not removed)
3	Gasket between drive enclosure and top cover plate	6	Top surface of enclosure

Illustration 1.2 Installation of Top Cover Plate

Installing the Bottom Cover Plate (with Pedestal Attached)

The bottom cover can be installed either before or after the pedestal is attached to the drive enclosure. The following procedure describes how to install the bottom cover plate with the pedestal attached. See *Illustration 1.3*. If the pedestal has not been attached, continue to the next procedure.

1. Remove paper backing from the bottom gasket. Adhere the bottom gasket to the upper side of the bottom cover plate.
2. Remove the front panel of the pedestal by removing 4 M5x12 screws. Retain the screws.
3. Inside the pedestal, position the bottom cover plate and gasket over the opening at the bottom of the cooling channel.
4. Secure the bottom cover plate using the M5x14 screws (T25) included with the kit. Installation in E1h drives requires 8 screws, and installation in E2h drives requires 10 screws. Torque screws to 2.3 Nm (20 in-lb).
5. Replace the pedestal front panel and secure with 4 M5x12 screws previously removed.



1	Drive enclosure	4	Pedestal
2	M5x12 screw	5	M5x14 screw
3	Front panel of pedestal	6	Bottom cover plate

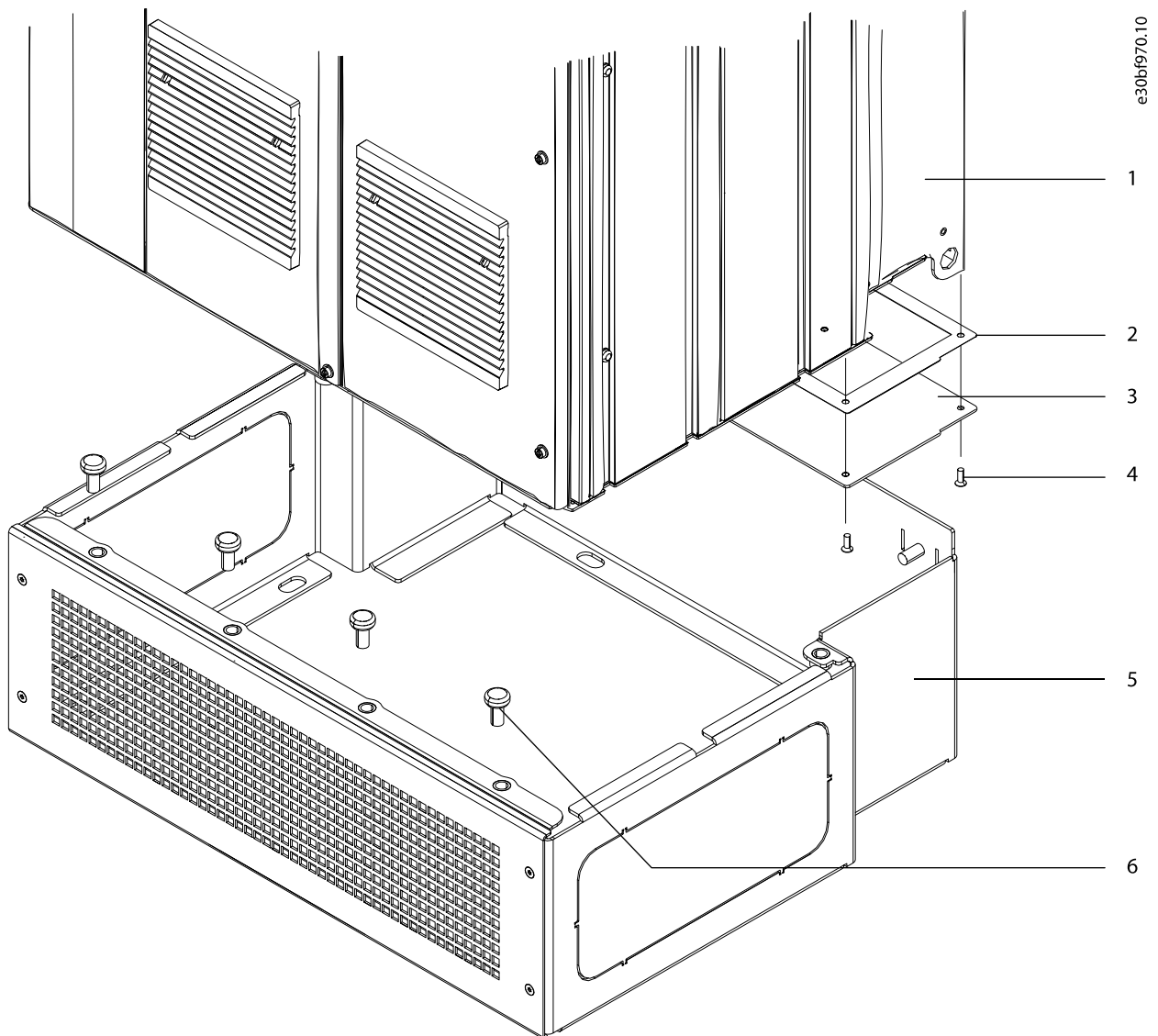
Illustration 1.3 Bottom View of Drive Enclosure and Pedestal

Installing the Bottom Cover Plate (before Attaching Pedestal)

The bottom cover plate can be installed either before or after the pedestal is attached to the drive enclosure. The following procedure explains how to install the bottom cover plate before attaching the pedestal to the drive. See *Illustration 1.4*.

1. Remove paper backing from the bottom gasket. Adhere the bottom gasket to the upper side of the bottom cover plate.
2. Position the bottom cover plate and gasket over the opening at the lower end of the cooling channel.

3. Secure the bottom cover plate using the M5x14 screws (T25) provided with the kit. Installation in E1h drives requires 8 screws, and installation in E2h drives requires 10 screws. Torque screws to 2.3 Nm (20 in-lb).



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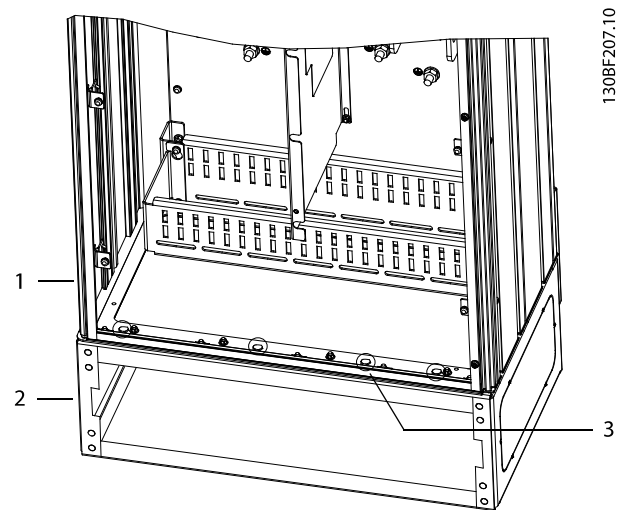
1	Cooling channel	4	M5x14 screw
2	Bottom gasket	5	Pedestal
3	Bottom cover plate	6	M10x30 fastener

Illustration 1.4 Installation of Bottom Cover Plate and Pedestal

Attaching the Drive Enclosure to the Pedestal

After installing the bottom cover plate, attach the pedestal to the drive enclosure if it is not attached. To attach the pedestal to the drive enclosure, use the following procedure. Refer to *Illustration 1.5* and *Illustration 1.6*.

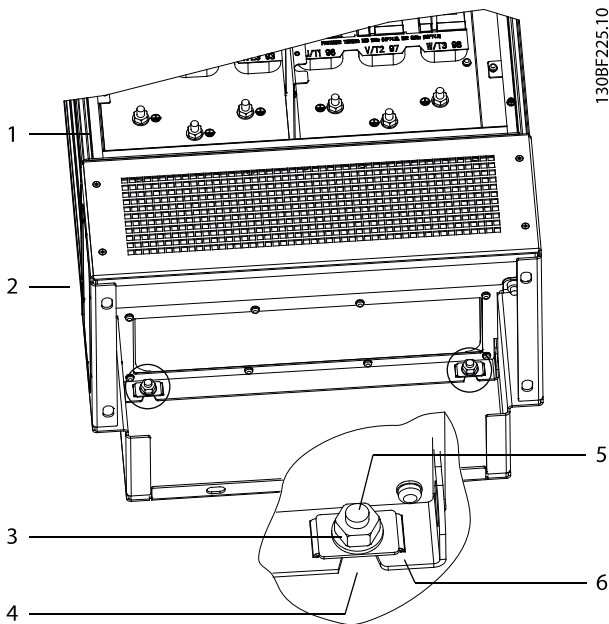
1. Lift the drive and position it on the pedestal. There are 2 bolts in the rear of the pedestal that slide into the 2 slotted holes in the rear of the enclosure. Position the drive by adjusting the bolts up or down. Loosely secure with 2 M10 nuts and locking brackets. See *Illustration 1.5*.
2. Around the top of the pedestal, secure the enclosure using 6 M10x30 fasteners. See *Illustration 1.6*. Loosely tighten each bolt until all bolts are installed.
3. Fasten each bolt securely and torque to 19 Nm (169 in-lb).
4. Torque the 2 M10 nuts at the rear of the enclosure to 19 Nm (169 in-lb).
5. Ensure that the air intake and exhaust vents at the back of the enclosure are not obstructed. Refer to *Illustration 1.7* and *Illustration 1.8*.



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1	Enclosure
2	Pedestal
3	M10x30 fasteners (rear corner bolts not shown)

Illustration 1.6 Pedestal to Enclosure Mounting Points



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1	Enclosure
2	Pedestal
3	M10 nut
4	Slotted hole in enclosure
5	Bolt at rear of pedestal
6	Locking bracket

Illustration 1.5 Pedestal to Enclosure Back Mounting Points

E1h Drive Back Exterior Dimensions

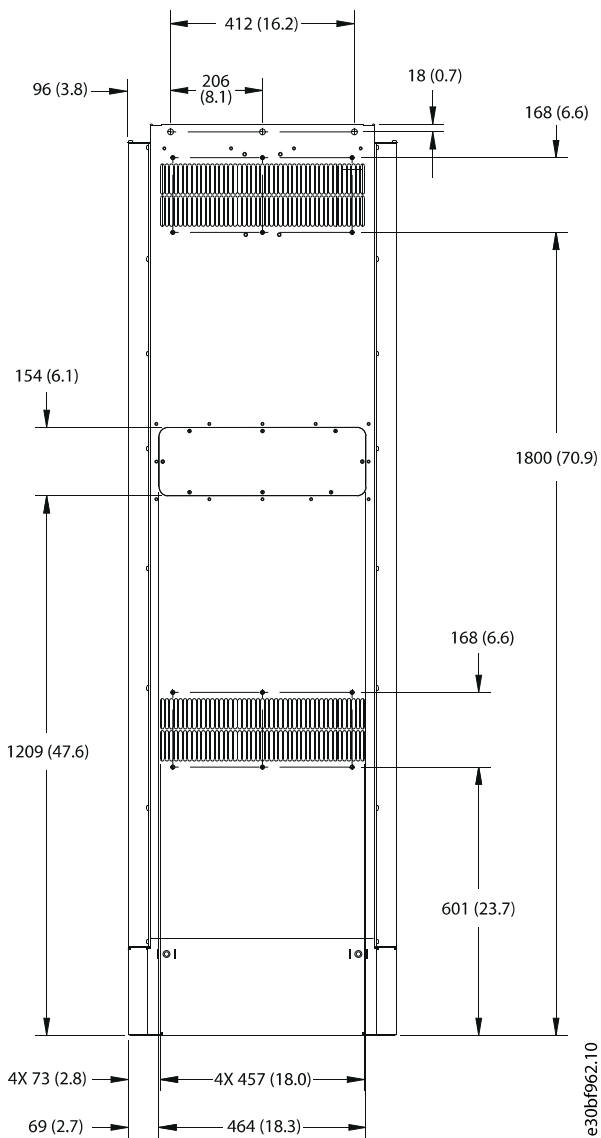


Illustration 1.7 Back View of E1h Drive

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E2h Drive Back Exterior Dimensions

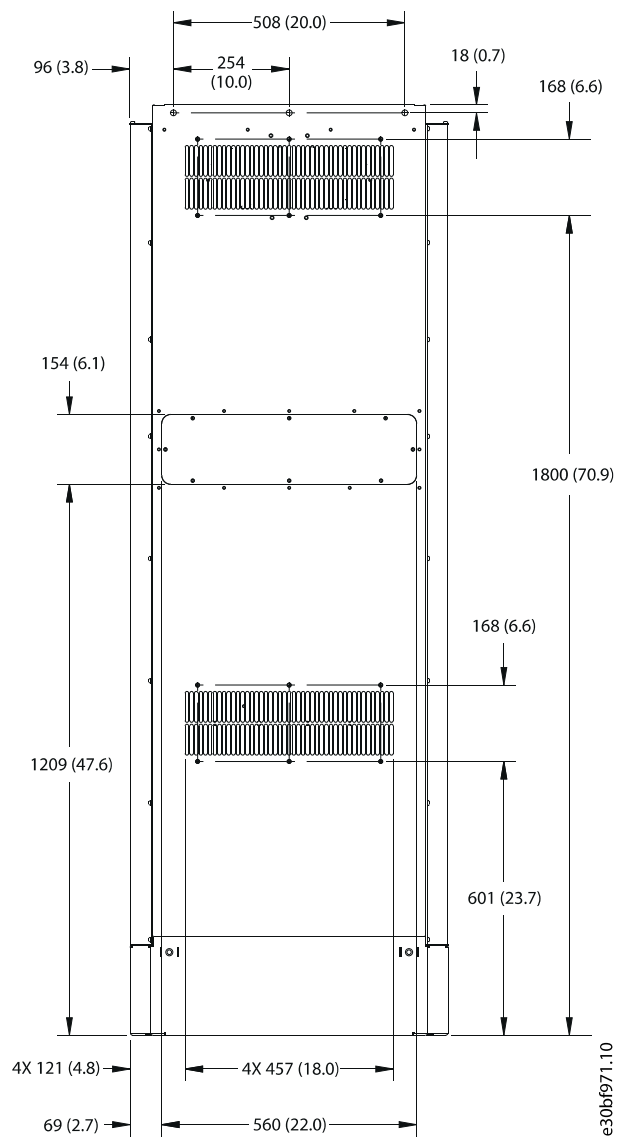


Illustration 1.8 Back View of E2h Drive

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