Installation Guide

In-back/Out-back Cooling Kit for FK11/FB11 and FK12/FB12

iC7 Series Frequency Converters

1 Overview

1.1 Description

The in-back/out-back cooling kit fits iC7 Series FK11/FB11 and FK12/FB12 Frequency Converters. When the kit is installed, air flows into the lower back duct and out through the upper back duct. See Illustration 1.

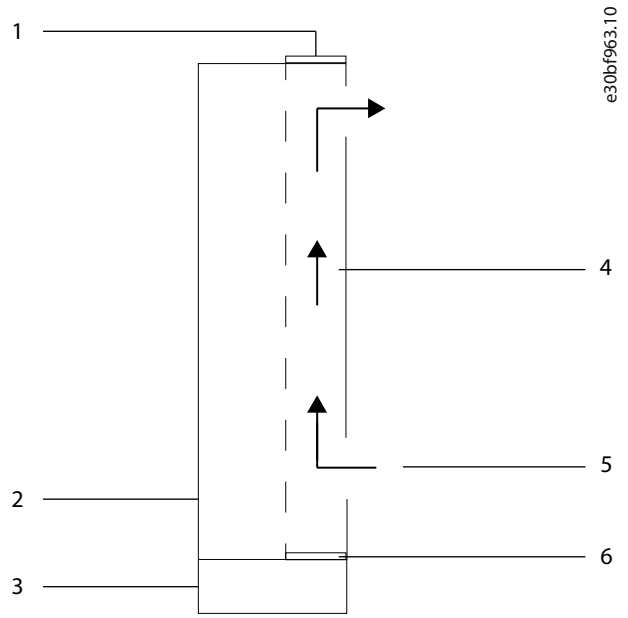

Illustration 1: Direction of Airflow with Kit Installed

1	Top cover	4	Cooling back channel
2	Cabinet	5	Air flow direction
3	Pedestal	6	Bottom cover

1.2 Kit Numbers

Use these instructions with the following kits.

Table 1: Kit Numbers for In-back/Out-back Cooling Kits

Kit number	Kit description
176F4168	Cooling kit, In-Back/Out-Back FK11/FB11
176F4169	Cooling kit, In-Back/Out-Back FK12/FB12

1.3 Items Supplied

The following parts are contained in the kit.

Table 2: Items Supplied in In-back/Out-back Cooling Kits

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

2 Installation

2.1 Safety Information

NOTICE

QUALIFIED PERSONNEL

Only qualified, Danfoss authorized personnel are allowed to install the parts described in these installation instructions.

- Disassembly and reassembly of the frequency converter must be done in accordance with the service guide.
- Use the standard fastener torque values from the service guide, unless the torque value is specified in these instructions.

⚠ WARNING ⚠

DISCHARGE TIME (40 MINUTES)

The frequency converter contains DC-link capacitors, which can remain charged even when the frequency converter 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 frequency converters.
- Disconnect or lock the motor.
- Disconnect any brake option.
- Disconnect any DC connector option.
- Wait 40 minutes for the DC-link capacitors to discharge fully.
- Before performing any service or repair work, measure the voltage level to verify that the capacitors are fully discharged.

⚠ WARNING ⚠

ELECTRICAL SHOCK HAZARD

The frequency converter contains dangerous voltages when connected to mains voltage. Improper installation, and installing or servicing with power connected, can cause death, serious injury, or equipment failure.

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

NOTICE

ELECTROSTATIC DISCHARGE

Electrostatic discharge can damage components.

- Ensure electrostatic discharge before touching internal frequency converter components, for example by touching a grounded, conductive surface or by wearing a grounded armband.

2.2 Installation Overview

NOTICE

APPLYING GASKETS

This kit contains self-adhesive gaskets to ensure a proper seal between metal parts.

- Before affixing a gasket, check that the part matches the gasket and that no holes are covered.

2.3 Installing the Top Cover

To install the top cover, use the following steps. See Illustration 2.

Procedure

1. Remove paper backing from the top gasket to expose the adhesive.
2. Adhere the top gasket to the underside of the top cover.
3. Remove the M5x14 screws (T25) surrounding the sides and back of the vent in the top of the frequency converter.

   Retain the screws. Fx11 frames have 6 screws; Fx12 frames have 7 screws.
4. Loosen 3 M5x12 screws (T25) at the front of the vent in the top surface of the frequency converter.
5. Slide the edge of the top cover plate under the 3 loosened screws, positioning the plate over the vent in the top of the frequency converter.
6. Secure the top cover plate with the M5x14 screws (T25) removed previously in step 3.

   Torque all screws to 2.3 Nm (20 in-lb).

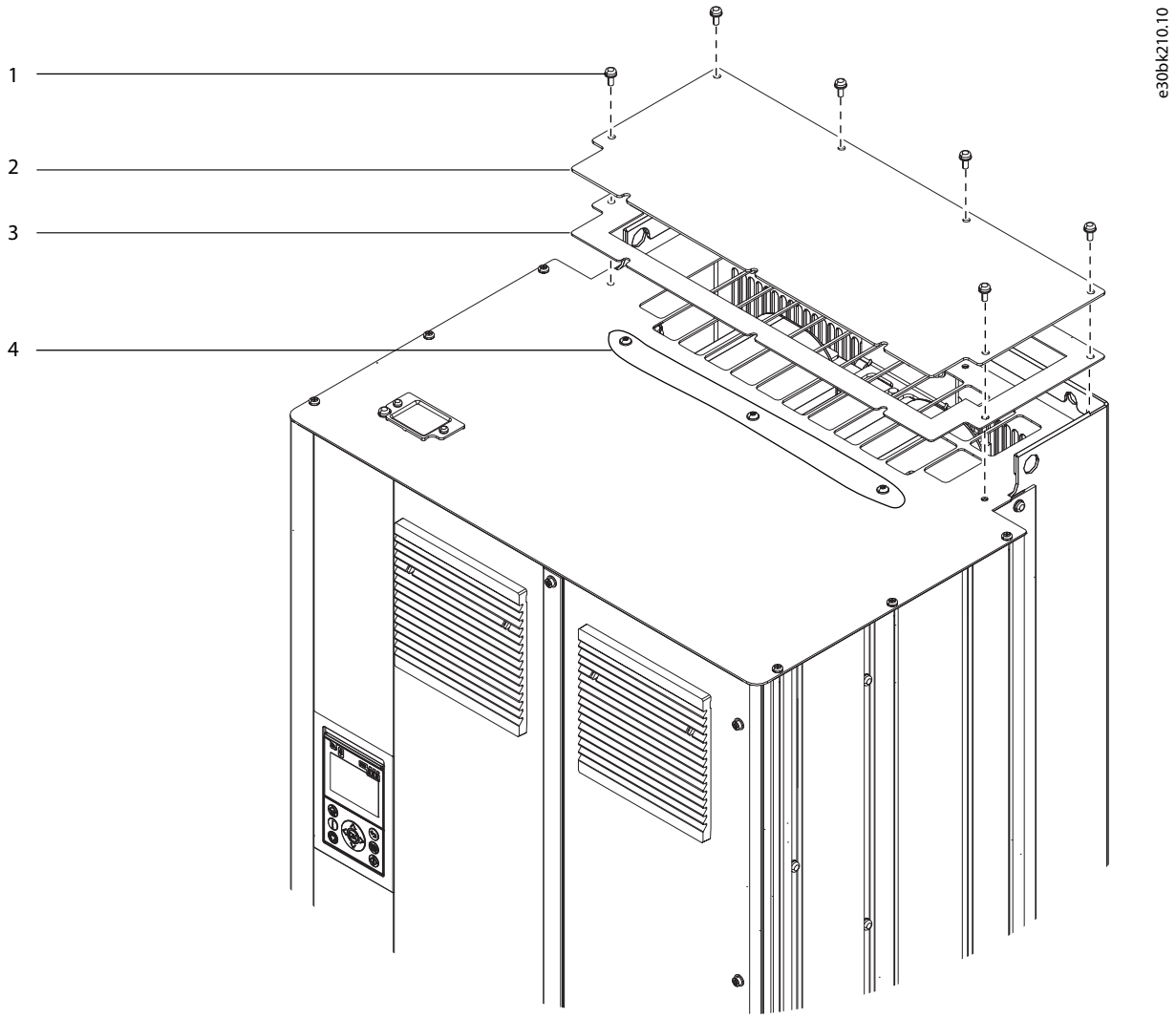

Illustration 2: Installation of Top Cover

1	M5x14 screw	3	Top gasket
2	Top cover	4	M5x12 screws (loosened, not removed)

2.4 Installing the Bottom Cover (Pedestal Attached)

The bottom cover can be installed either before or after the pedestal is attached to the cabinet. To install the bottom cover plate with the pedestal attached, use the following steps. See Illustration 3.
If the pedestal is not attached, see 2.5 Installing the Bottom Cover (Before Pedestal).

Procedure

1. Remove paper backing from the bottom gasket.
2. Adhere the bottom gasket to the upper side of the bottom cover.
3. Remove the front panel of the pedestal by removing 4 M5x12 screws.

   Retain the screws.
4. Inside the pedestal, position the bottom cover and gasket over the opening at the lower end of the cooling channel.
5. Secure the bottom cover using the M5x14 screws (T25) included with the kit.

   Torque screws to 2.3 Nm (20 in-lb). Installation in FK11/FB11 frequency converters requires 8 screws; installation in FK12/FB12 frequency converters requires 10 screws.
6. Install the pedestal front panel and secure with 4 M5x12 screws previously removed in step 3.

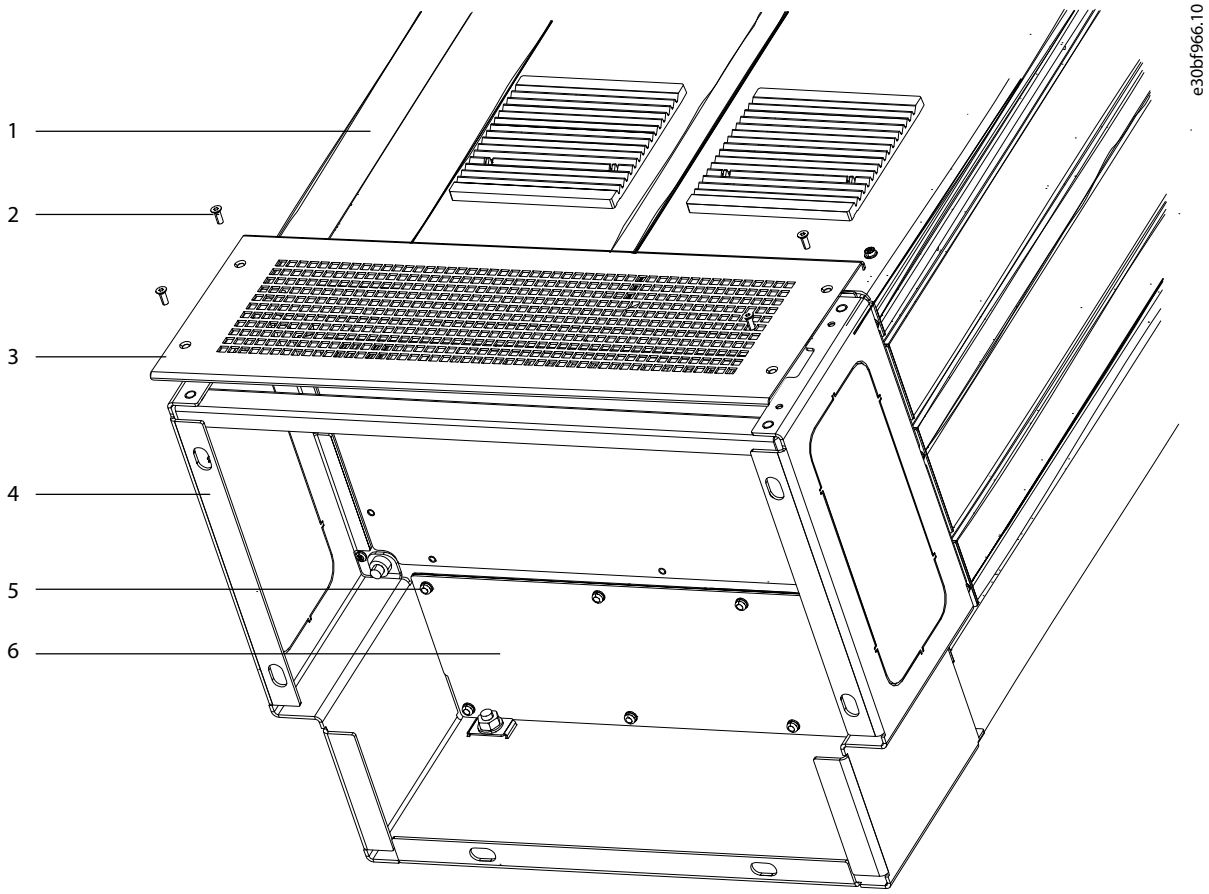

Illustration 3: Bottom View of Cabinet and Pedestal

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

2.5 Installing the Bottom Cover (Before Pedestal)

Use the following steps to install the bottom cover before attaching the pedestal. See Illustration 4.

Procedure

1. Remove paper backing from the bottom gasket.
2. Adhere the bottom gasket to the upper side of the bottom cover.
3. Position the bottom cover and gasket over the opening at the lower end of the cooling channel.
4. Secure the bottom cover using the M5x14 screws (T25) provided with the kit.

Torque screws to 2.3 Nm (20 in-lb). FK11/FB11 frequency converters require 8 screws; FK12/FB12 frequency converters require 10 screws.

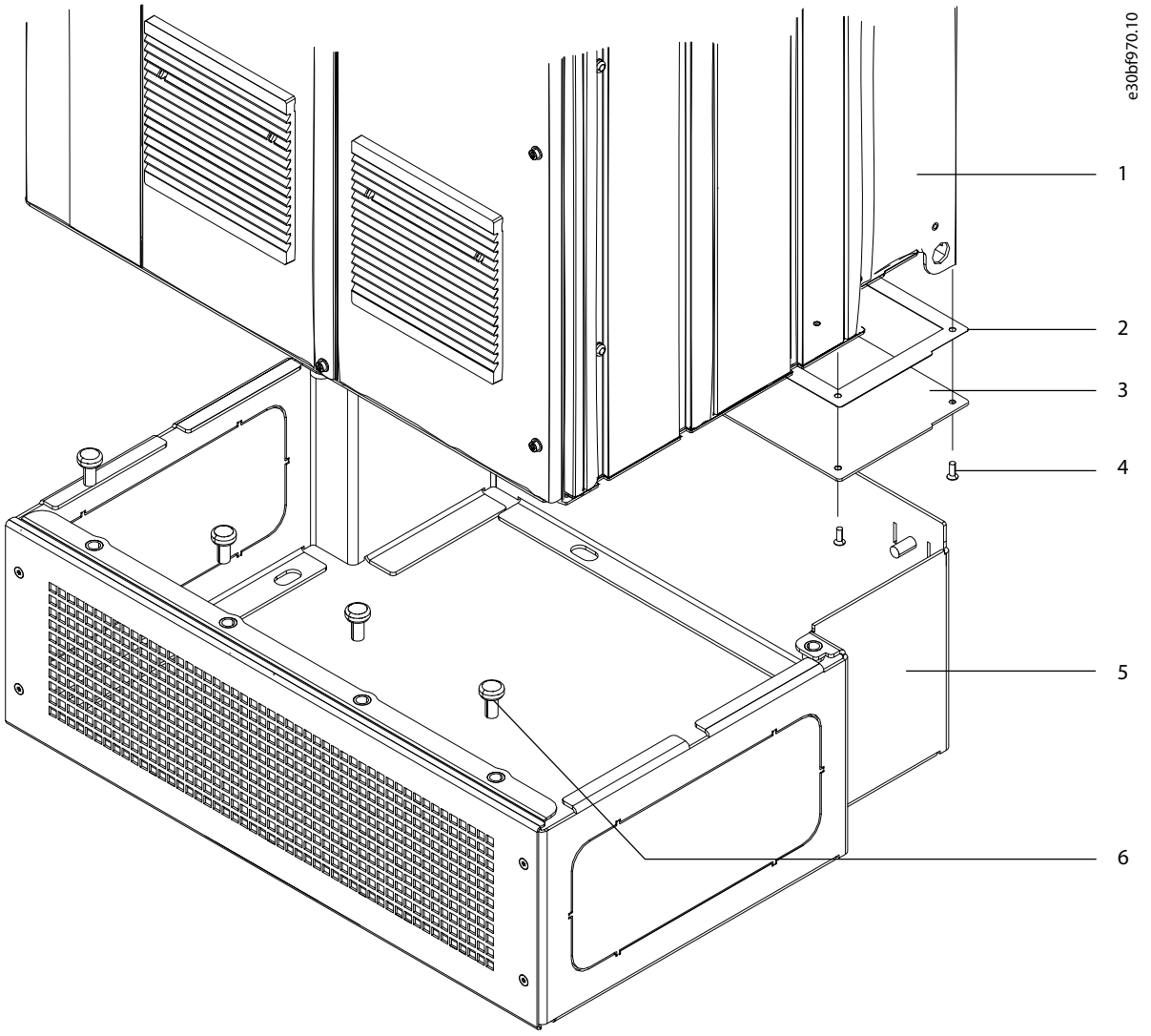

Illustration 4: Installation of Bottom Cover and Pedestal

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

2.6 Attaching the Cabinet to the Pedestal

After installing the bottom cover, attach the pedestal to the frequency converter cabinet using the following steps.

Procedure

1. Lift the frequency converter and place it on the pedestal.
2. Slide 2 bolts at the rear of the pedestal into the 2 slotted holes on the rear of the cabinet.

   Position the frequency converter by adjusting the bolts up or down.

3. Loosely fasten the frequency converter with 2 M10 nuts and locking brackets.

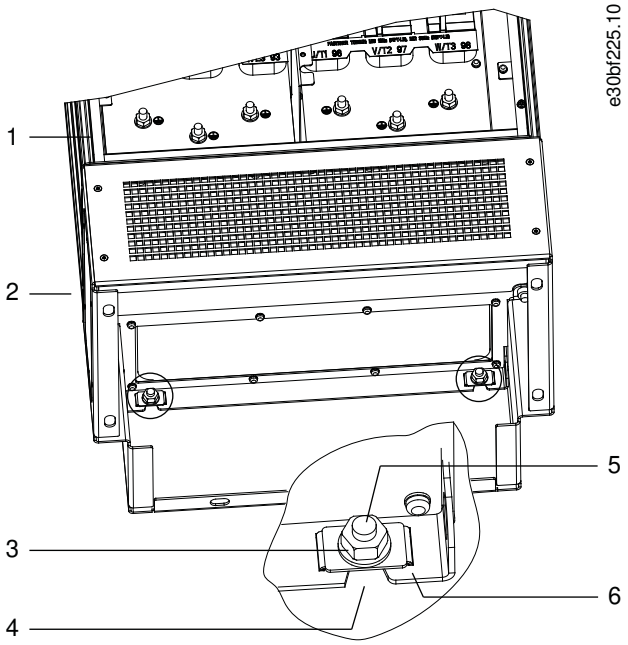

Illustration 5: Pedestal-to-Cabinet Back Mounting Points

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

4. Loosely fasten the cabinet using 6 M10x30 bolts around the top of the pedestal.

5. When all bolts are installed, torque to 19 Nm (169 in-lb).

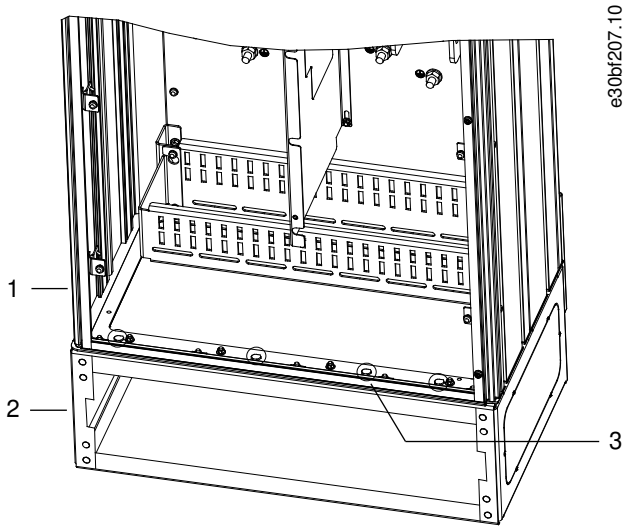

Illustration 6: Pedestal-to-Cabinet Mounting Points

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

6. Torque the 2 M10 nuts at the rear of the cabinet to 19 Nm (169 in-lb).

7. Ensure that the air intake and exhaust vents at the back of the cabinet are not obstructed.

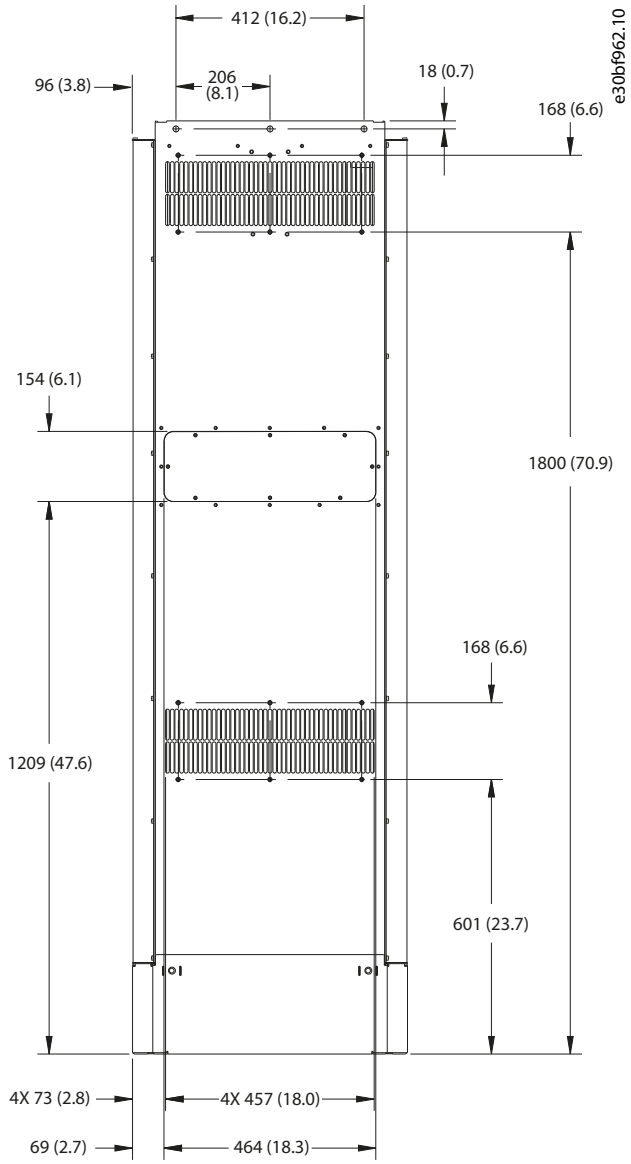

Illustration 7: Back Vents in FK11/FB11 Frequency Converter

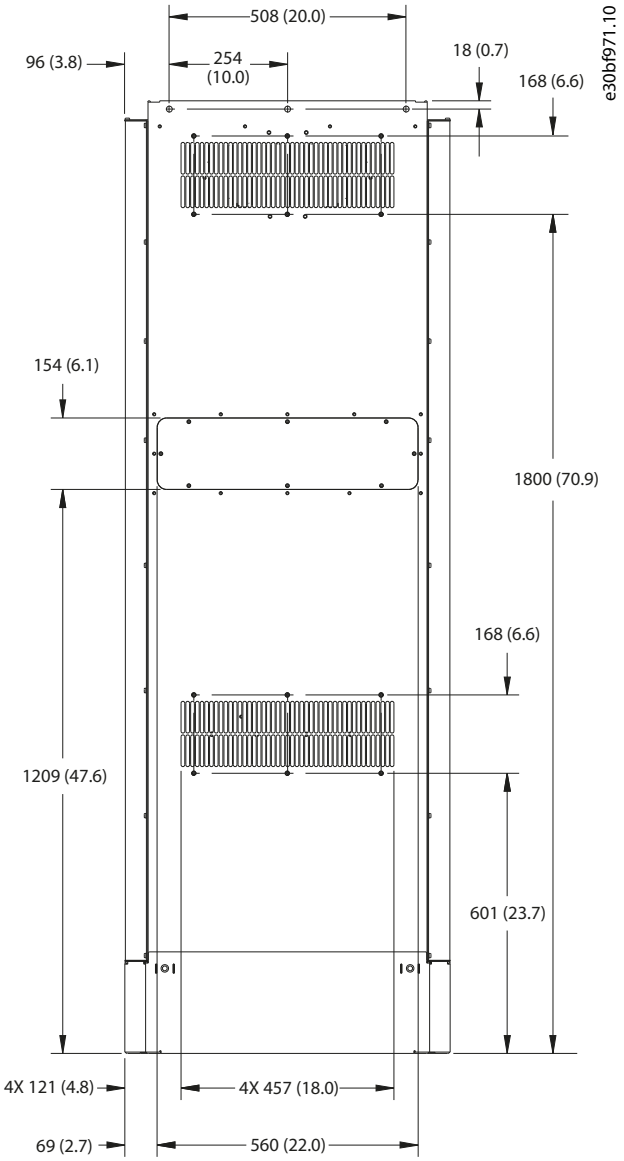

Illustration 8: Back Vents in FK12/FB12 Frequency Converter

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