

# Common-mode Filter Kit for FK09a/FB09a and FK10a/FB10a

## iC7 Series Frequency Converters

### 1 Overview

#### 1.1 Description

The common-mode filter kit is designed to fit iC7 Series Frequency Converters in the following frames:

- FK09a/FB09a
- FK10a/FB10a

The frame is listed on the frequency converter product label.

#### 1.2 Kit Numbers

Use these instructions with the following kits.

**Table 1: Numbers for Common-mode Filter Kits**

Number	Kit description
176F4174	HF Common-mode core kit, FK09a/FB09a
176F4175	HF Common-mode core kit, FK10a/FB10a

#### 1.3 Items Supplied

**Table 2: Contents of Common-mode Filter Kit**

Item	Quantity
Common-mode filter	1
Screws M5x12	4
EMC shield	1
Installation instructions	1

## 2 Installation

### 2.1 Safety Information

#### NOTICE

##### QUALIFIED PERSONNEL

Only qualified 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 corresponding service guide.
- Use the standard fastener torque values from the service guide, unless the torque value is specified in these instructions.

#### ⚠ 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.

#### ⚠ WARNING ⚠

##### DISCHARGE TIME (20 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 indicator lights are off.

Failure to wait 20 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, permanent magnet type motors, and remote DC-link supplies, including battery back-ups, UPS, and DC-link connections to other frequency converters.
- Wait 20 minutes for the capacitors to discharge fully before performing any service or repair work.
- Measure the voltage level to verify full discharge.

#### NOTICE

##### ELECTROSTATIC DISCHARGE

Electrostatic discharge can damage components.

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

### 2.2 Removing the Cable Clamps and EMC Shield

Before installing the common-mode filter kit, use the following steps to remove the cable clamps and EMC shield. See [Illustration 1](#) and [Illustration 2](#).

#### Procedure

1. Unfasten 6–10 screws (T25) and open the cabinet door.

Number of screws varies based on cabinet size.

2. If the touch protection option is present, unfasten 6–10 screws (T20) and remove the option.

Number of screws varies based on cabinet size.

3. Remove the customer wiring from the mains and motor terminals.
4. Remove the lower EMC shield by removing 3 M5x12 screws (T25).

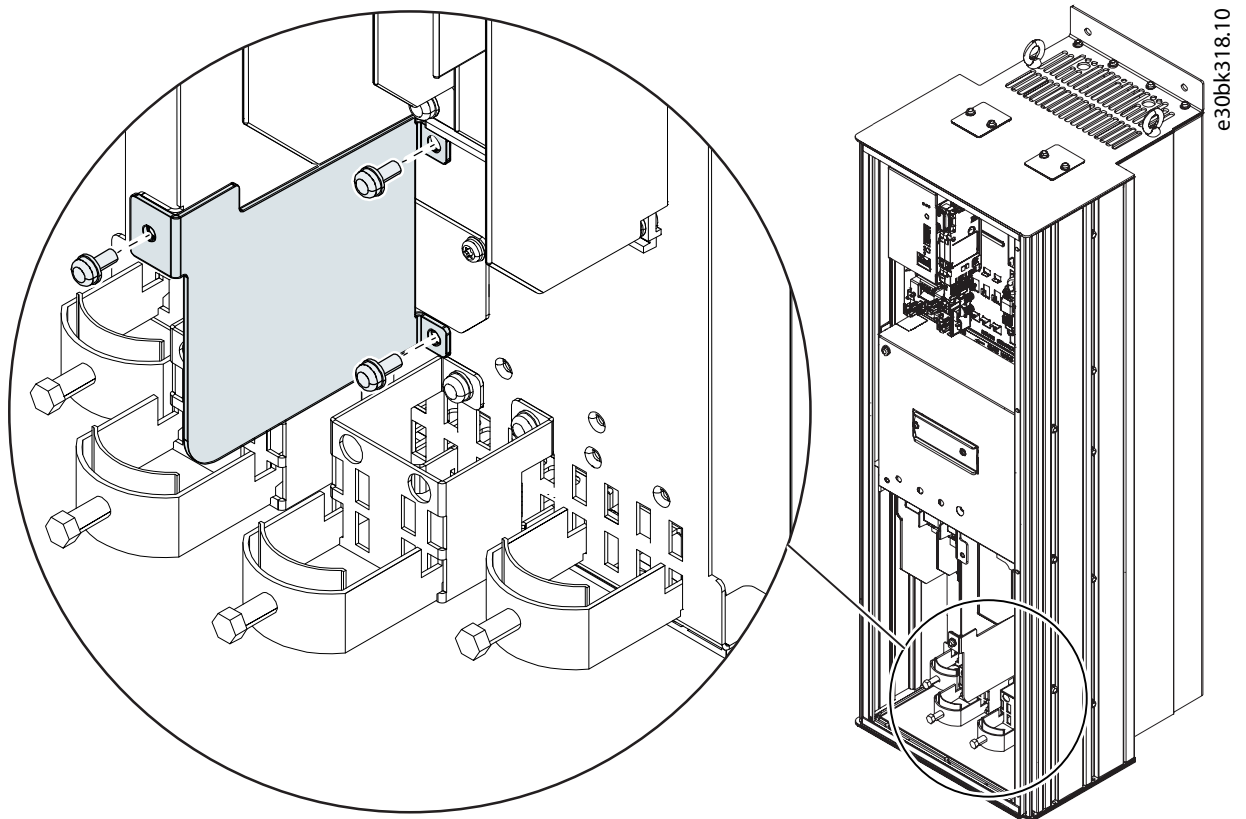


Illustration 1: EMC Shield Removal

5. Remove the cable clamps that sit below the mains and motor terminal blocks.

No tools are required to remove the clamps. Tip the clamps upward at a 45° angle to unhook them from the cable clamp brackets and mounting plate.

6. Unfasten 4 screws (T25), 2 from each cable clamp bracket.

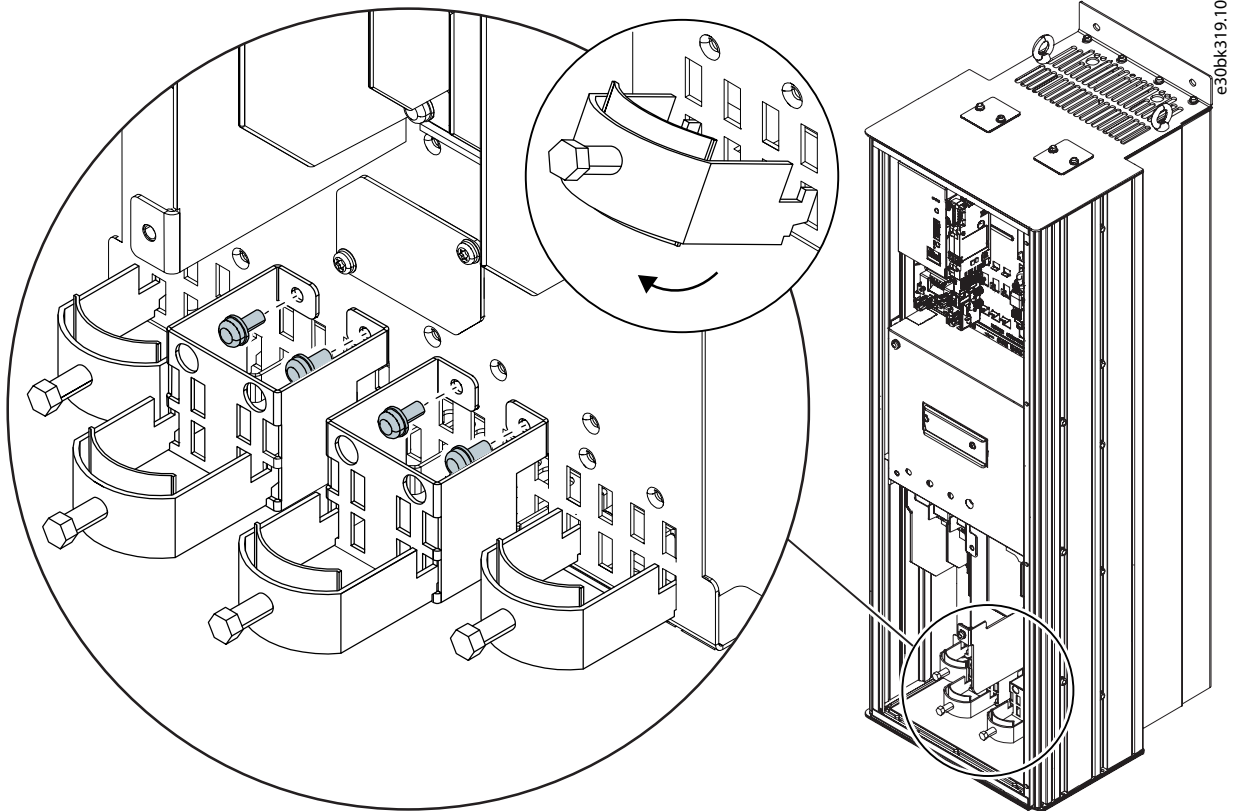


Illustration 2: Removal of Cable Clamps and Brackets

## 2.3 Installing the Common-mode Filter

To install the common-mode filter, use the following steps. See [Illustration 3](#) and [Illustration 4](#).

### Procedure

1. Position the new EMC shield between the mains terminals and motor terminals.

- Secure the EMC shield to the power terminal mounting plate with 3 M5x12 screws (T25).

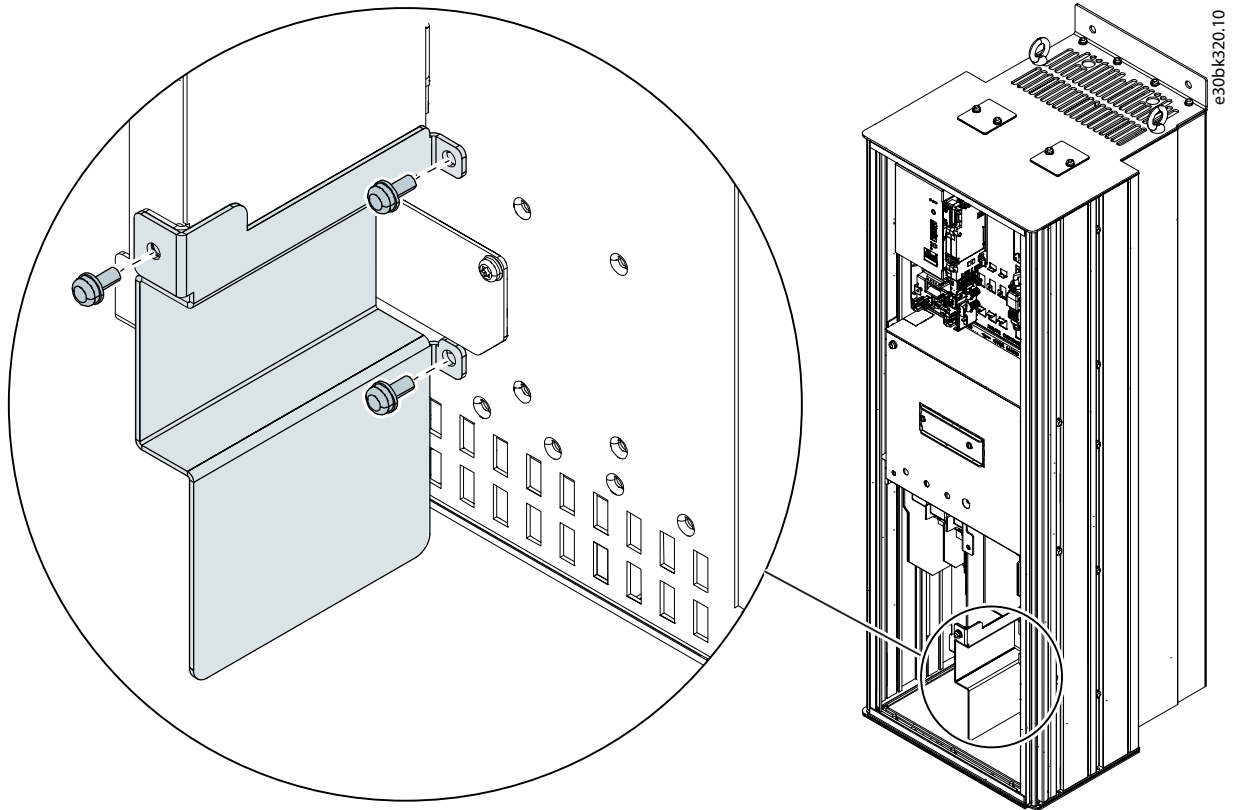


Illustration 3: EMC Shield Installation

- Position the common-mode filter below the motor terminal block and to the right of the new EMC shield.

- Secure the common-mode filter with 4 M5x12 screws (T25).

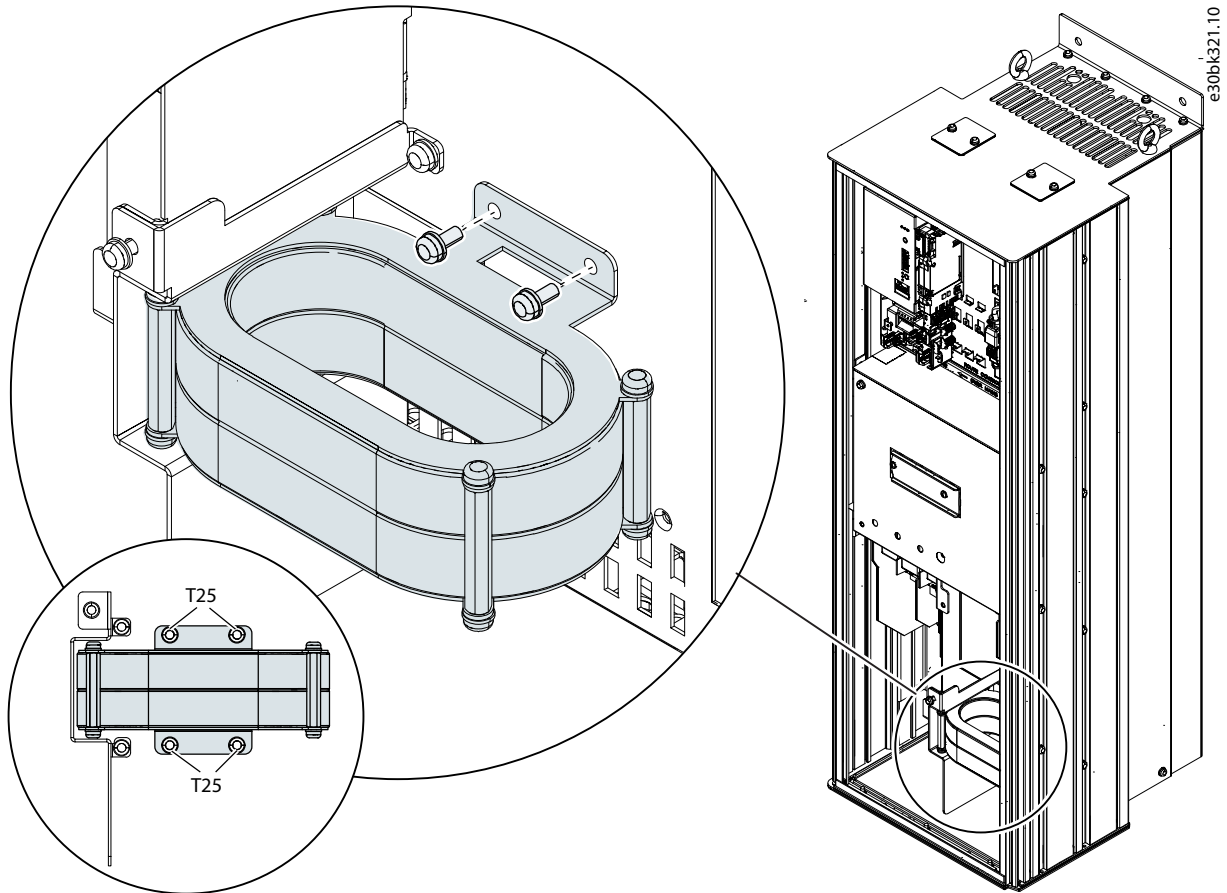


Illustration 4: Common-mode Filter Installation

- Reconnect the customer wiring to the mains and motor terminals.

Use EMC metal cable glands to ground the EMC shields of the cables. Danfoss recommends SKINTOP® or similar EMC metal cable glands for passing cables through the cable entry plate and for grounding the cable shield. (Cable glands not provided.) See [Illustration 5](#).

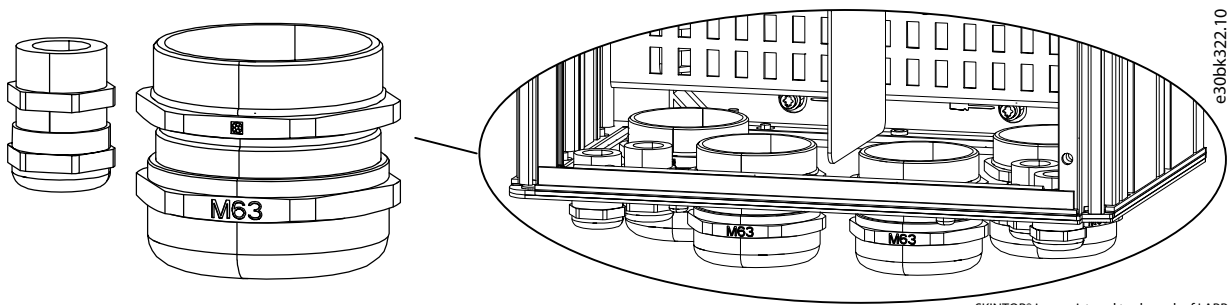


Illustration 5: Cable Entry Plate with SKINTOP® Cable Glands

- If present, install the touch protection option and fasten 6–10 screws (T25).

Number of screws varies based on cabinet size.

- Close the door and tighten 6–10 screws (T25).

Number of screws varies based on cabinet size.



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