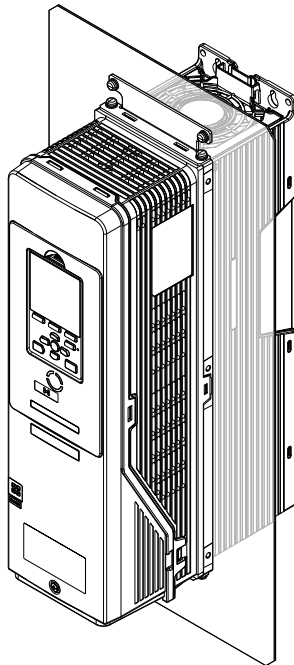


## YASKAWA AC Drive Option External Heatsink Installation Kit Installation Manual

Model        ZPSA-600-EH1-FRx

To properly use the product, read this manual thoroughly and retain for easy reference, inspection, and maintenance. Ensure the end user receives this manual.



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## 1 Receiving

### ◆ Applicable Documentation

Document	Description
YASKAWA AC Drive Option External Heatsink Installation Kit Installation Manual	Read this manual before you install the kit. The manual contains information about how to install the kit to put the heatsink external to the enclosure panel.
YASKAWA AC Drive Manuals	Refer to the manual packaged with the drive for basic information about the drive. Refer to the Technical Reference/Technical Manual for more information about programming and parameter settings. You can download the Technical Reference/Technical Manual from the Yaskawa website shown on the back cover of this manual.

### ◆ Glossary

Terminology Used in this Document	Description
Drive	YASKAWA AC Drive HV600, FP605
Option	External Heatsink Installation Kit

## 2 General Safety

### ◆ Supplemental Safety Information

**▲ DANGER** This signal word identifies a hazard that will cause serious injury or death if you do not prevent it.

**▲ WARNING** This signal word identifies a hazard that can cause death or serious injuries if you do not prevent it.

**▲ CAUTION** Identifies a hazardous situation, which, if not avoided, can cause minor or moderate injury.

**NOTICE** This signal word identifies a property damage message that is not related to personal injury.

### ◆ Section Safety

General Precautions
<ul style="list-style-type: none"> <li>Some figures in the instructions include options and drives without covers or safety shields to more clearly show the inside of the drive. Replace covers and shields before operation. Use options and drives only as specified by the instructions.</li> <li>The figures in this manual are examples only. All figures do not apply to all products included in this manual.</li> <li>Yaskawa can change the products, specifications, and content of the instructions without notice to make the product and/or the instructions better.</li> <li>If you damage or lose these instructions, contact a Yaskawa representative or the nearest Yaskawa sales office on the rear cover of the manual, and tell them the document number on the front cover to order new copies.</li> </ul>

**⚠ DANGER** *Electrical Shock Hazard. Do not examine, connect, or disconnect wiring on an energized drive. Before servicing, disconnect all power to the equipment and wait for the time specified on the warning label at a minimum. The internal capacitor stays charged after the drive is de-energized. The charge indicator LED extinguishes when the DC bus voltage decreases below 50 Vdc. When all indicators are OFF, remove the covers before measuring for dangerous voltages to make sure that the drive is safe. If you do work on the drive when it is energized, it will cause serious injury or death from electrical shock.*

**⚠ WARNING** *Electrical Shock Hazard. Only let approved personnel install, wire, maintain, examine, replace parts, and repair the drive. If personnel are not approved, it can cause serious injury or death.*

**⚠ WARNING** *Sudden Movement Hazard. Tighten the screws to the specified tightening torque. Incorrect tightening torques can cause damage to equipment and cause serious injury or death from falling equipment.*

**⚠ CAUTION** *Burn Hazard. Do not touch a hot drive heatsink. De-energize the drive, wait for a minimum of 15 minutes, then make sure that the heatsink is cool before you replace the cooling fans. If you touch a hot drive heatsink, it can burn you.*

**NOTICE** *Damage to Equipment. When you touch the drive and circuit boards, make sure that you observe correct electrostatic discharge (ESD) procedures. If you do not follow procedures, it can cause ESD damage to the drive circuitry.*

## 3 Overview

You can install the drive with the heatsink external to the enclosure panel. This installation method is “external heatsink installation”. This kit uses brackets to do an external heatsink installation on IP20/UL Open Type and IP20/UL Type 1 drives. When you use this kit to install the drive with the heatsink external, the drive will release its heat external to the enclosure panel. This will let you install the drive in a smaller enclosure panel and prevent too much heat in the enclosure panel. This manual also tells you how to use the mounting brackets included with the drive to do an external heatsink installation.

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### ◆ Compatible Products

This installation kit is compatible with these drives:

- HV600
- FP605

## ◆ Installation Environment

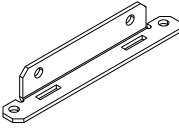
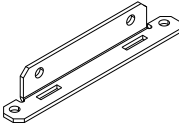

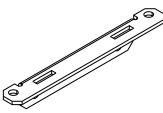
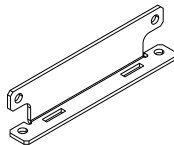

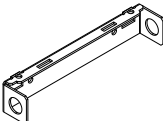
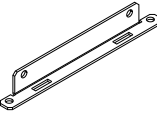

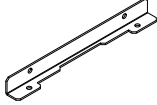

Environment	Conditions
Area of Use	Indoors
Power Supply	Overvoltage Category III
Ambient Temperature Setting	<p>-10 °C - +50 °C (14 °F - 122 °F)</p> <ul style="list-style-type: none"> <li>• Drive reliability is better in environments where the temperature does not increase or decrease quickly.</li> <li>• When you install the drive in an enclosure, use a cooling fan or air conditioner to keep the internal air temperature in the permitted range.</li> <li>• Do not let the drive freeze.</li> <li>• To install the drive in areas with ambient temperatures <math>\leq 60</math> °C (140 °F), derate the output current.</li> </ul>
Humidity	<p>95% RH or less</p> <p>Do not let condensation form on the drive.</p>
Storage Temperature	-20 °C to +70 °C (-4 °F to +158 °F) (short-term temperature during transportation)
Surrounding Area	<p>Pollution degree 2 or less</p> <p>Install the drive in an area without:</p> <ul style="list-style-type: none"> <li>• Oil mist, corrosive or flammable gas, or dust</li> <li>• Metal powder, oil, water, or other unwanted materials</li> <li>• Radioactive or flammable materials.</li> <li>• Harmful gas or fluids</li> <li>• Salt</li> <li>• Direct sunlight</li> </ul> <p>Keep wood and other flammable materials away from the drive.</p>
Altitude	<p>1000 m (3281 ft) Maximum</p> <p><b>Note:</b></p> <p>Derate the output current by 1% for each 100 m (328 ft) to install the drive in altitudes between 1000 m to 4000 m (3281 ft to 13123 ft).</p> <p>It is not necessary to derate the rated voltage in these conditions:</p> <ul style="list-style-type: none"> <li>• Installing the drive at 2000 m (6562 ft) or lower</li> <li>• Installing the drive between 2000 m to 4000 m (6562 ft to 13123 ft) and grounding the neutral point on the power supply.</li> </ul> <p>Contact Yaskawa or your nearest sales representative if you will not ground the neutral point.</p>
Vibration	<ul style="list-style-type: none"> <li>• 10 Hz to 20 Hz: 1 G (9.8 m/s<sup>2</sup>, 32.15 ft/s<sup>2</sup>)</li> <li>• 20 Hz to 55 Hz: Different for different models. Refer to the manual packaged with the drive.</li> </ul>
Installation Orientation	Install the drive vertically for sufficient airflow to cool the drive.

**NOTICE** *Damage to Equipment. Do not let unwanted objects, for example metal shavings or wire clippings, fall into the drive during drive installation. Put a temporary cover over the drive during installation. Remove the temporary cover before start-up. Unwanted objects inside of the drive can cause damage to the drive.*

## 4 Receiving

1. Examine the products for damage.  
If there is damage to the products, contact the shipping company immediately. The Yaskawa warranty does not include damage from shipping.
2. Verify the product model number to make sure that you received the correct model.  
If you have problems with the products, contact the distributor where you purchased the products or the Yaskawa sales office immediately.

### ◆ Option Package Contents

Kit Model	Bracket 1 (Bottom of the Drive)	Bracket 2 (Top of the Drive)	Mounting Screw
ZPSA-600-EH1-FR1 <sup>*1</sup>	 Qty: 1	 Qty: 1	 M5 × 12 pan head screws Qty: 4
ZPSA-600-EH1-FR2	 Qty: 1	 Qty: 1	 M5 × 12 pan head screws Qty: 4
ZPSA-600-EH1-FR3	 Qty: 1	 Qty: 1	 M6 × 12 pan head screws Qty: 4
ZPSA-600-EH1-FR4	-	 Qty: 1	 M6 × 12 pan head screws Qty: 4

\*1 Bracket 1 and bracket 2 are the same product.

## 5 Install the Attachment

### ◆ Necessary Tools

To install the kit, use these tools:

- Phillips screwdrivers #2, #3
- Wrench

### ◆ Drive Mounting Dimensions and Panel Cut-out Dimensions

#### ■ HV600

**Table 5.1 Drive Mounting Dimensions and Panel Cut-out Dimensions (HV600)**

Drive Model	Drive Mounting Dimensions and Panel Cut-out Dimensions	Ref.
2011, 2017, 4005, 4006, 4008, 4011, 4014	1	10
2024, 2031, 4021, 4027, 4034	2	11
2046, 2059, 4040, 4052, 4065	3	12
2075, 2088, 2114, 4077, 4096, 4124	4	13
2143, 2169, 4156	5	14
2211, 2273, 4180, 4240	6	15
4302	7	16

#### ■ FP605

**Table 5.2 Drive Mounting Dimensions and Panel Cut-out Dimensions (FP605)**

Drive Model	Drive Mounting Dimensions and Panel Cut-out Dimensions	Ref.
2011, 2017, 4005, 4008, 4011, 4014	1	10
2024, 2031, 4021, 4027, 4034	2	11
2046, 2059, 4040, 4052, 4065	3	12
2075, 2088, 2114, 4077, 4096, 4124	4	13
2143, 2169, 4156	5	14
2211, 2273, 4180, 4240, 4302	6	15
2343, 2396, 4361, 4414	7	16
4477, 4515, 4590, 4720	8	17

■ Drive Mounting Dimensions and Panel Cut-out Dimensions 1

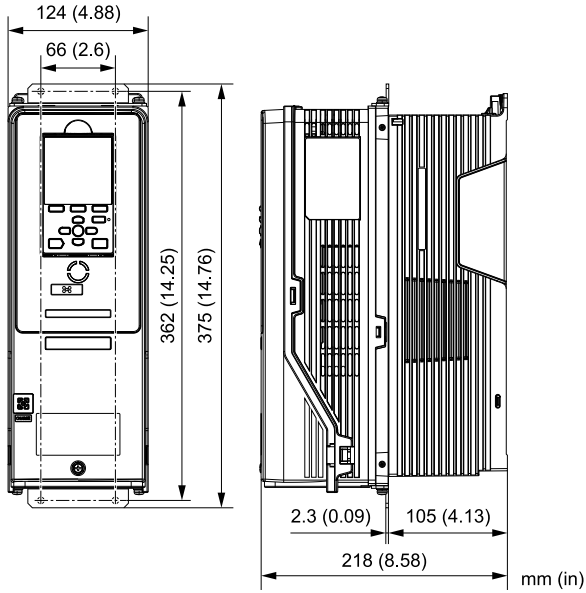


Figure 5.1 Drive Mounting Dimensions 1

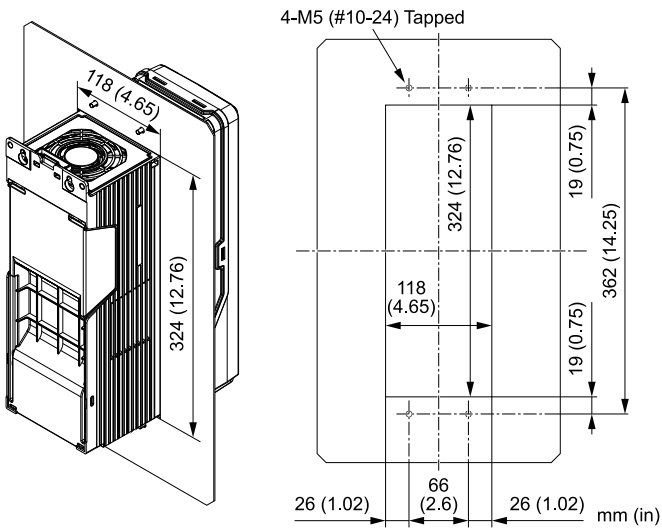


Figure 5.2 Panel Cut-Out Dimensions 1

■ Drive Mounting Dimensions and Panel Cut-out Dimensions 2

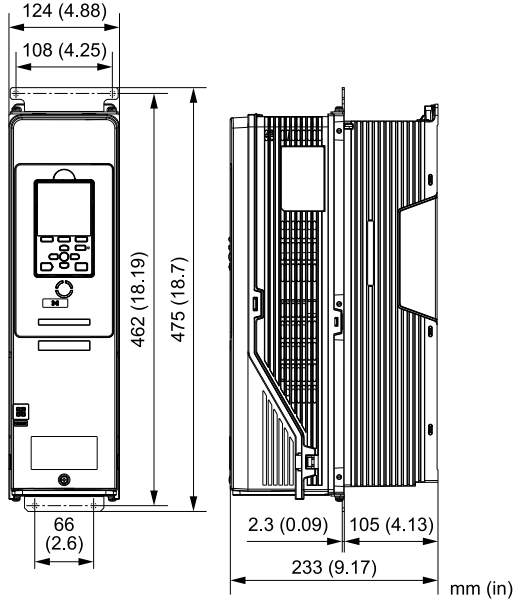


Figure 5.3 Drive Mounting Dimensions 2

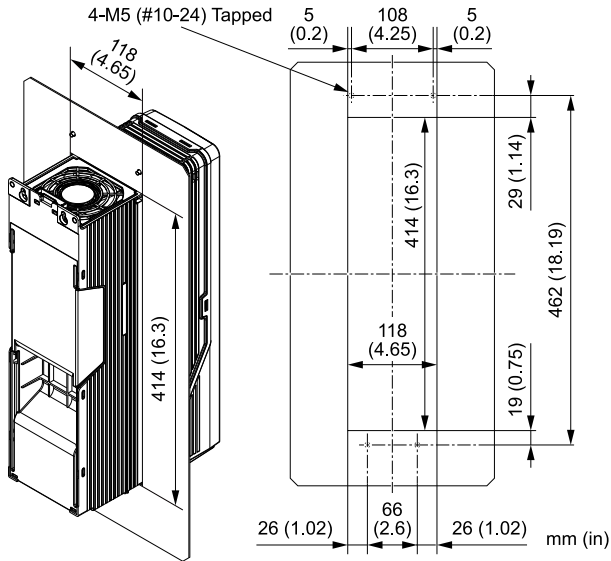


Figure 5.4 Panel Cut-Out Dimensions 2

■ Drive Mounting Dimensions and Panel Cut-out Dimensions 3

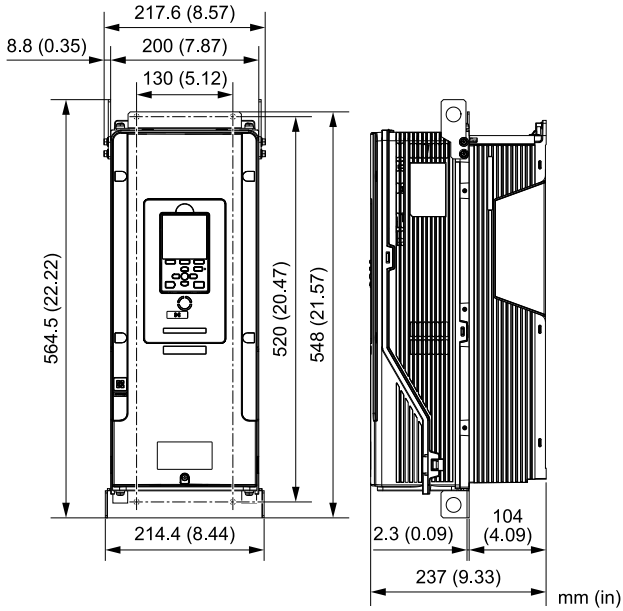


Figure 5.5 Drive Mounting Dimensions 3

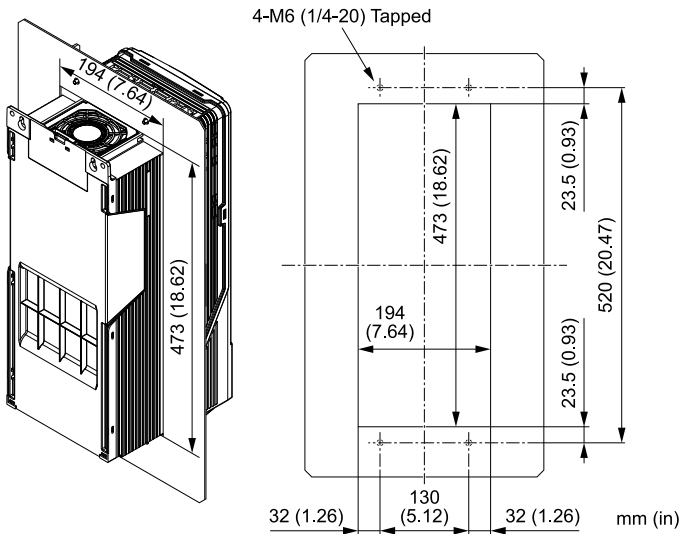


Figure 5.6 Panel Cut-Out Dimensions 3



■ Drive Mounting Dimensions and Panel Cut-out Dimensions 4

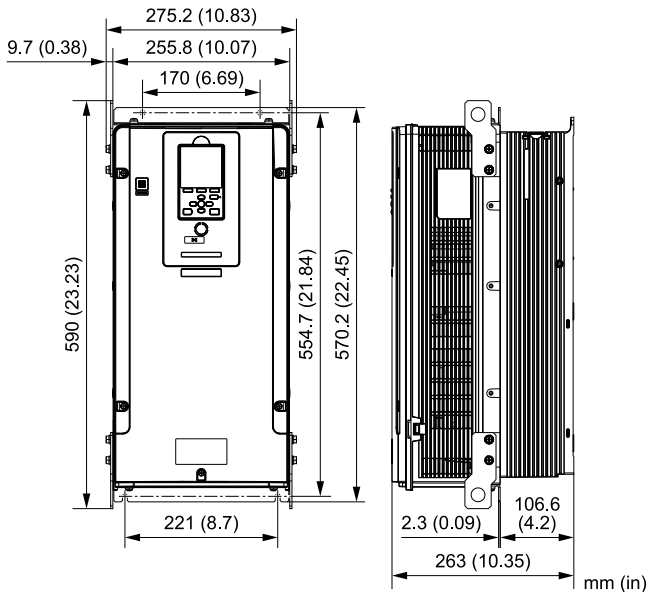


Figure 5.7 Drive Mounting Dimensions 4

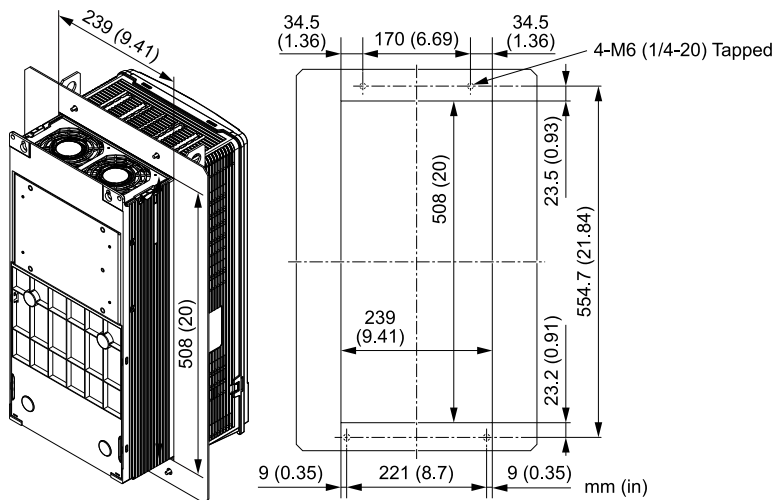


Figure 5.8 Panel Cut-Out Dimensions 4

■ Drive Mounting Dimensions and Panel Cut-out Dimensions 5

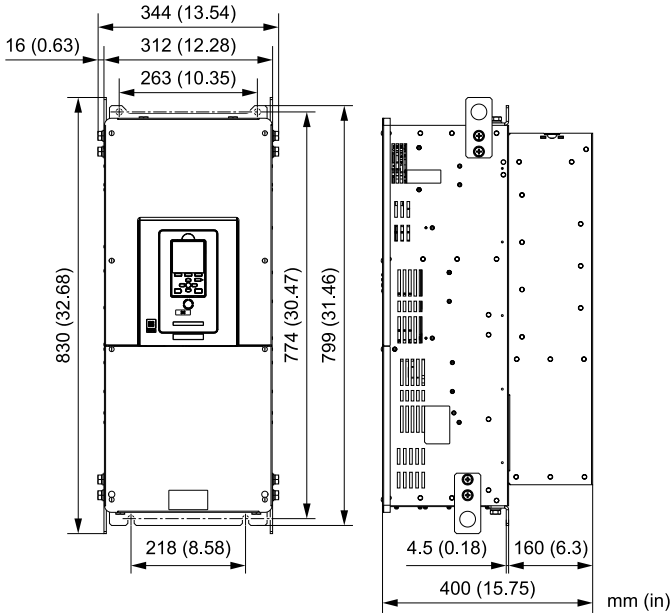


Figure 5.9 Drive Mounting Dimensions 5

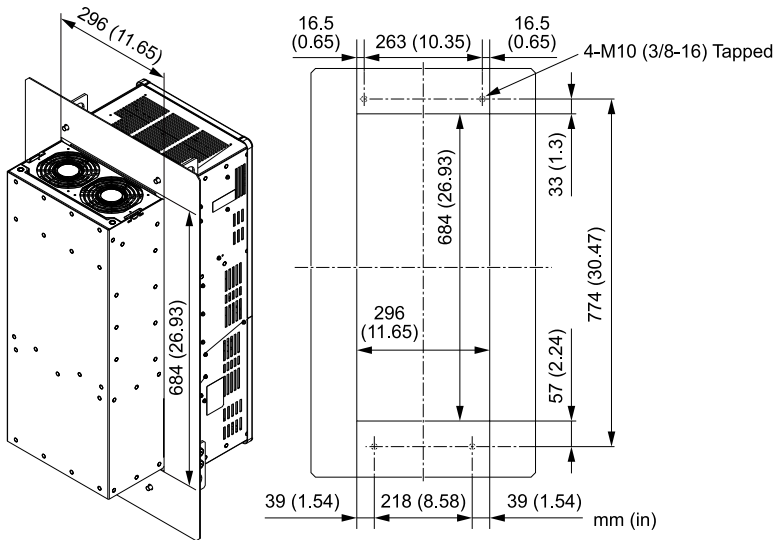


Figure 5.10 Panel Cut-Out Dimensions 5

■ Drive Mounting Dimensions and Panel Cut-out Dimensions 6

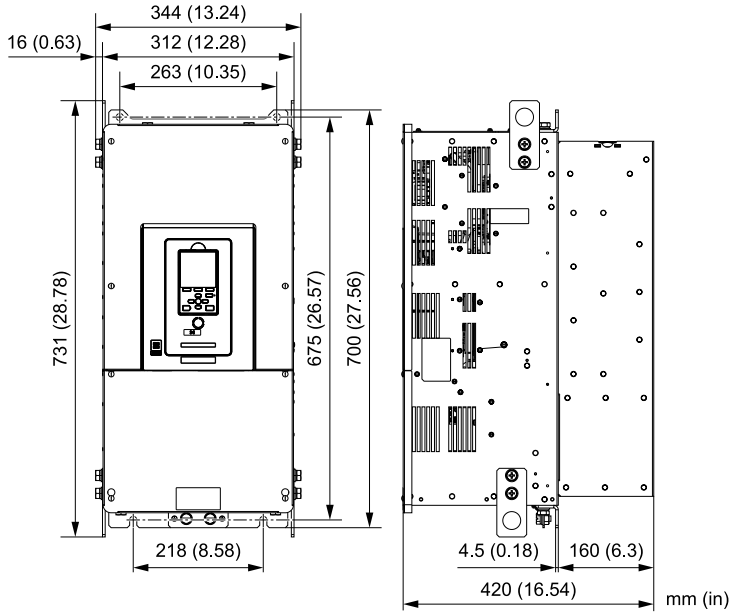


Figure 5.11 Drive Mounting Dimensions 6

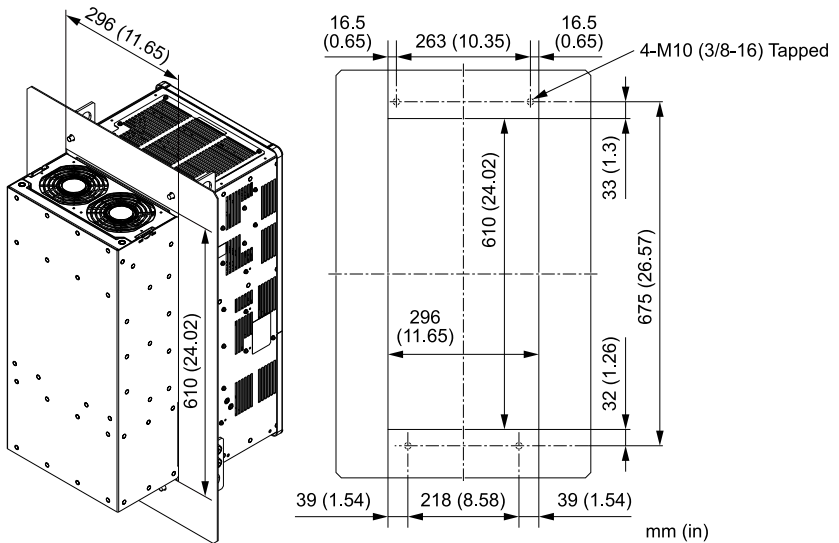


Figure 5.12 Panel Cut-Out Dimensions 6

■ Drive Mounting Dimensions and Panel Cut-out Dimensions 7

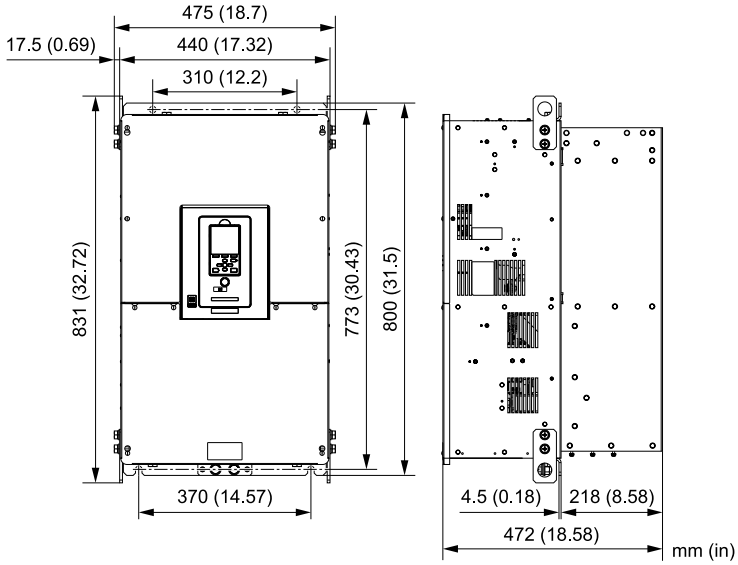


Figure 5.13 Drive Mounting Dimensions 7

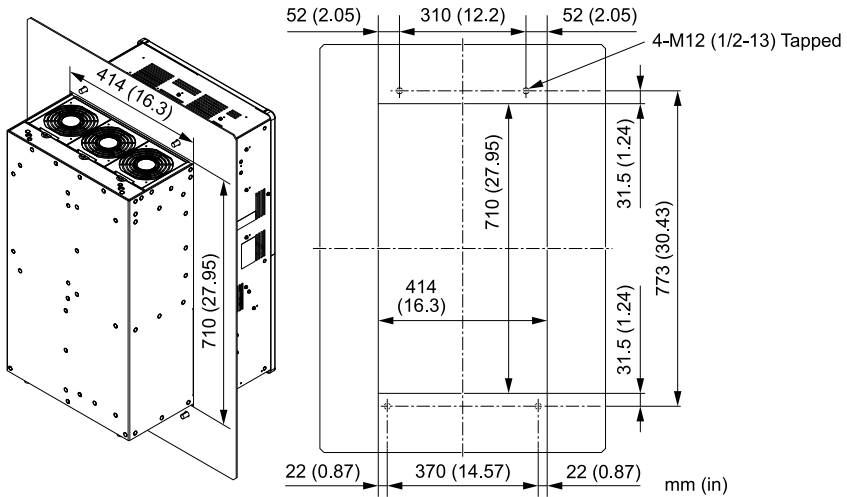


Figure 5.14 Panel Cut-Out Dimensions 7

### ■ Drive Mounting Dimensions and Panel Cut-out Dimensions 8

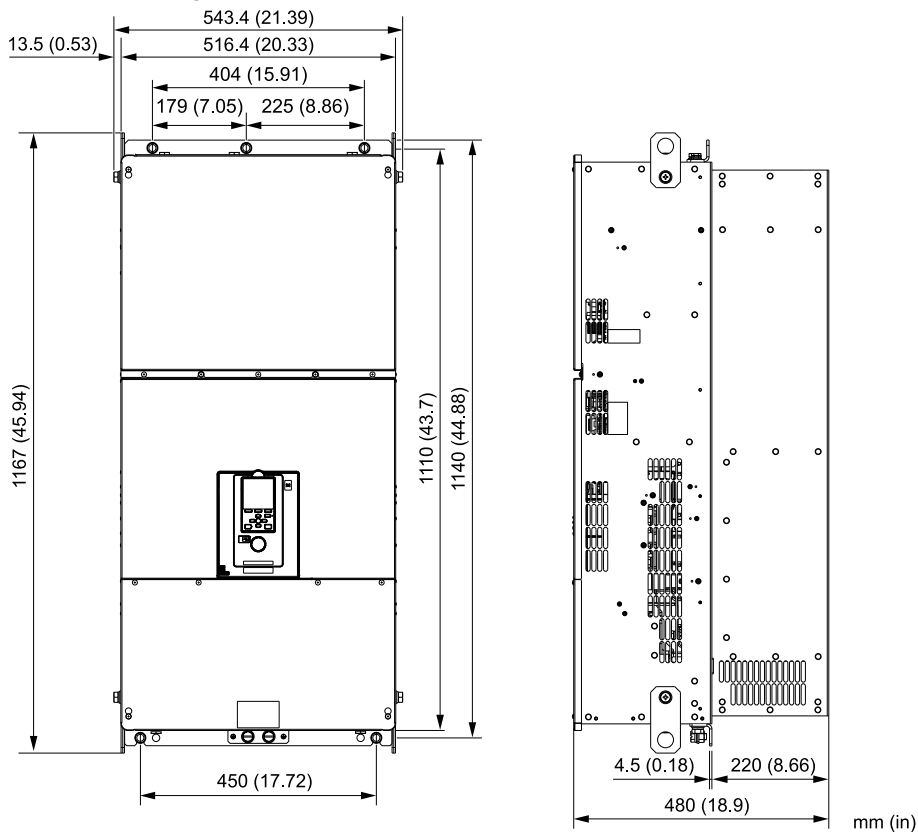


Figure 5.15 Drive Mounting Dimensions 8

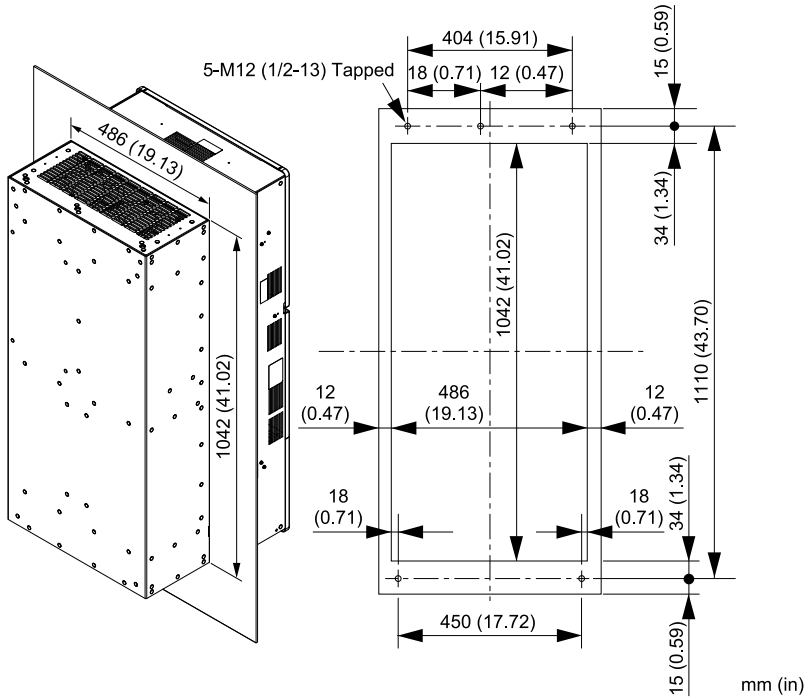
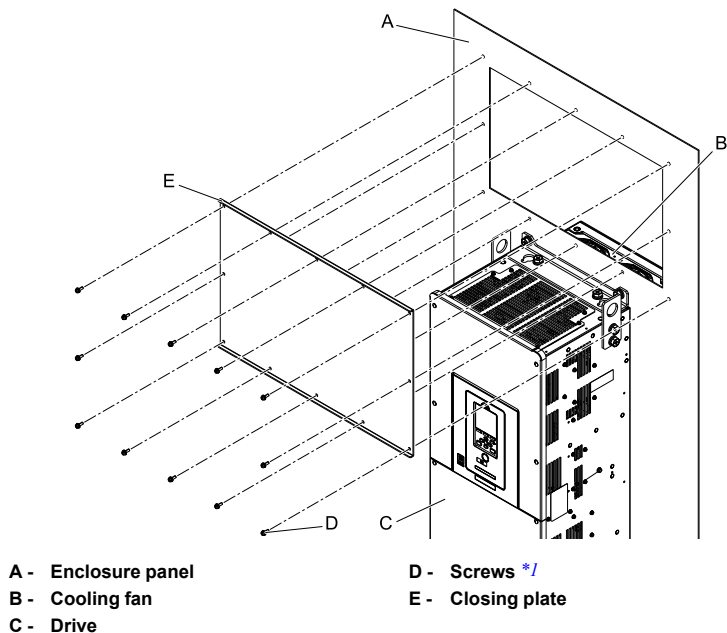


Figure 5.16 Panel Cut-Out Dimensions 8

## ◆ Cut an Opening for Cooling Fan Replacement

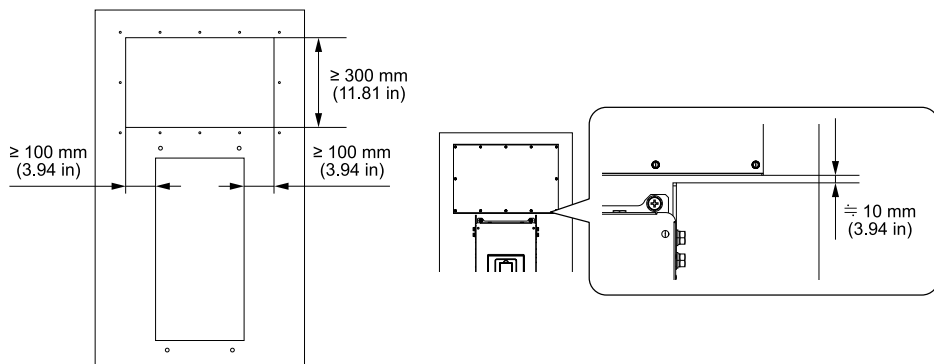
Replace the cooling fan from outside of the enclosure panel.

When you must replace a drive cooling fan that is in an enclosure panel, cut a cooling fan replacement opening before you install the drive to make it easier to replace the cooling fan. Open the opening only when you replace the cooling fan. Refer to [Figure 5.17](#) and [Figure 5.18](#) for more information.



**Figure 5.17 Cooling Fan Replacement Opening**

\*1 You must select the correct screw size for the installation environment.



**Figure 5.18 Opening Dimensions for Cooling Fan Replacement**

## ◆ Kit Models and Installation Procedure

**⚠ WARNING** *Crush Hazard. Before you hang the drive vertically, use screws to correctly attach the drive front cover and other drive components. If you do not secure the front cover, it can fall and cause minor injury.*

**⚠ WARNING** *Crush Hazard. When you use a crane or hoist to lift the drive during installation or removal, prevent more than 1.96 m/s<sup>2</sup> (0.2 G) vibration or impact. Too much vibration or impact can cause serious injury or death from falling equipment.*

**⚠ WARNING** *Crush Hazard. When you lift the drive during installation or removal, do not try to turn the drive over and do not ignore the hanging drive. If you move a hanging drive too much or if you ignore it, the drive can fall and cause serious injury or death.*

**⚠ CAUTION** *Crush Hazard. Tighten terminal cover screws and hold the case safely when you move the drive. If the drive or covers fall, it can cause moderate injury.*

**NOTICE** *Damage to Equipment. Do not remove the top protective cover of model 4065. If you remove the cover, the drive temperature will increase and it can cause damage to the drive.*

The installation procedure is different for different drive models. Refer to [Table 5.3](#) and [Table 5.4](#) for more information.

### ■ HV600

**Table 5.3 Kit and Installation Method (HV600)**

Drive Model	Kit Model	Installation Procedure	Ref.
2011, 2017, 4005, 4006, 4008, 4011, 4014	ZPSA-600-EH1-FR1	Procedure A	22
2024, 2031, 4021, 4027, 4034	ZPSA-600-EH1-FR2		
2046, 2059, 4040, 4052, 4065	ZPSA-600-EH1-FR3	Procedure B	25
2075, 2088, 2114, 4077, 4096, 4124	ZPSA-600-EH1-FR4	Procedure C	28
2143, 2169, 4156	*1	Procedure D	31
2211, 2273, 4180, 4240			
4302			

\*1 Use the mounting bracket supplied with the drive.



## ■ FP605

**Table 5.4 Kit and Installation Method (FP605)**

Drive Model	Kit Model	Installation Procedure	Ref.
2011, 2017, 4005, 4008, 4011, 4014	ZPSA-600-EH1-FR1	Procedure A	22
2024, 2031, 4021, 4027, 4034	ZPSA-600-EH1-FR2		
2046, 2059, 4040, 4052, 4065	ZPSA-600-EH1-FR3	Procedure B	25
2075, 2088, 2114, 4077, 4096, 4124	ZPSA-600-EH1-FR4	Procedure C	28
2143, 2169, 4156	*J	Procedure D	31
2211, 2273, 4180, 4240, 4302			
2343, 2396, 4361, 4414			
4477, 4515, 4590, 4720		Procedure E	35

\*1 Use the mounting bracket supplied with the drive.

■ **Use the Kit (Procedure A)**

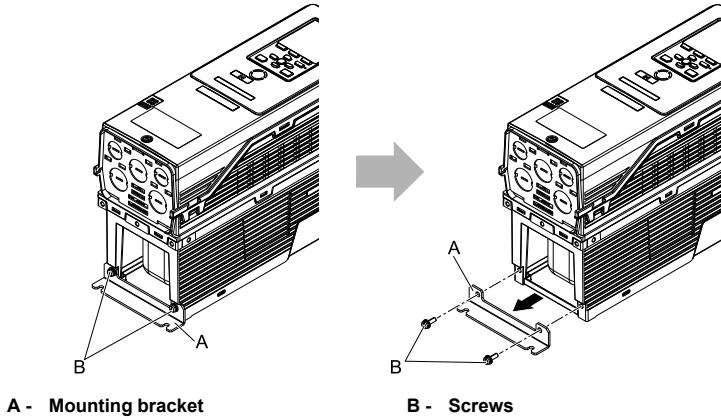
Use the figures in this procedure to make sure that the orientation is correct, then install the kit to the drive.

Cut an opening in the enclosure panel before you install the kit. Refer to *Drive Mounting Dimensions and Panel Cut-out Dimensions on page 9* for more information.

1. Remove the mounting bracket from the bottom of the drive.

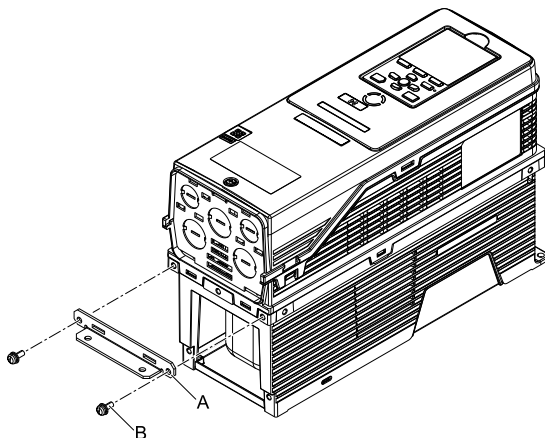
**Note:**

You will not use the removed screws for installation.



**Figure 5.19 Remove the Mounting Bracket**

2. Use the screws included with the kit to install the bracket 1 to the bottom of the drive in the position shown in [Figure 5.20](#).  
Tighten the screws to a correct tightening torque:
  - M5 × 12 pan head screws: 1.96 N·m to 2.53 N·m (17.35 lbf·in to 22.39 lbf·in)



A - Bracket 1

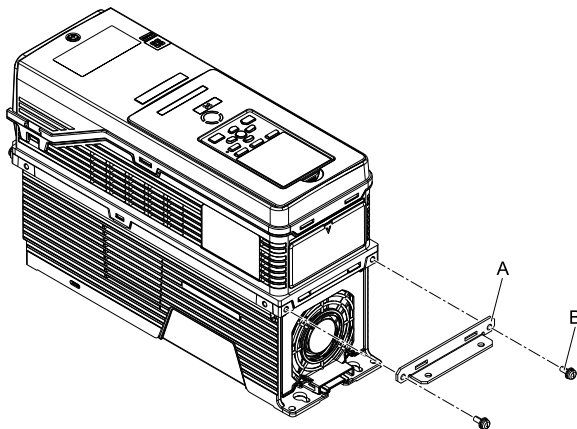
B - M5 × 12 pan head screws

**Figure 5.20 Install Bracket 1 (Bottom of the Drive)**

3. Use the screws included with the kit to install the bracket 2 to the top of the drive in the position shown in [Figure 5.21](#).

Tighten the screws to a correct tightening torque:

- M5 × 12 pan head screws: 1.96 N·m to 2.53 N·m (17.35 lbf·in to 22.39 lbf·in)

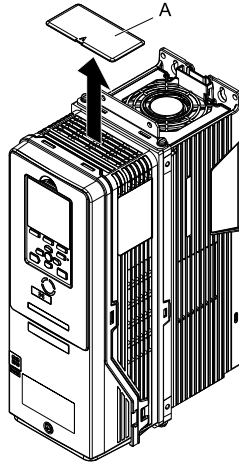


A - Bracket 2

B - M5 × 12 pan head screws

**Figure 5.21 Install Bracket 2 (Top of the Drive)**

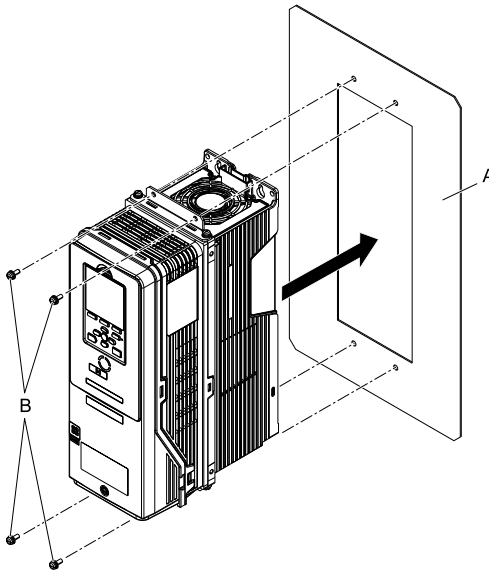
4. Remove the top protective cover.



A - Top protective cover

**Figure 5.22 Remove the Top Protective Cover**

5. Install the drive in the cut opening of the enclosure panel and use screws to safety it to the enclosure panel.



A - Enclosure panel

B - M5 screws \*1

**Figure 5.23 Install the Drive into the Opening of the Enclosure Panel**

\*1 You must select the correct screw length for the enclosure panel.

### ■ Use the Kit (Procedure B)

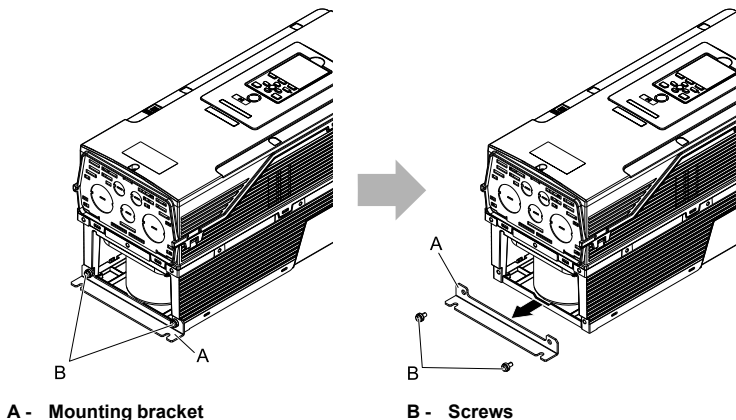
Use the figures in this procedure to make sure that the orientation is correct, then install the kit to the drive.

Cut an opening in the enclosure panel before you install the kit. Refer to *Drive Mounting Dimensions and Panel Cut-out Dimensions on page 9* for more information.

1. Remove the mounting bracket from the bottom of the drive.

**Note:**

You will not use the removed screws for installation.

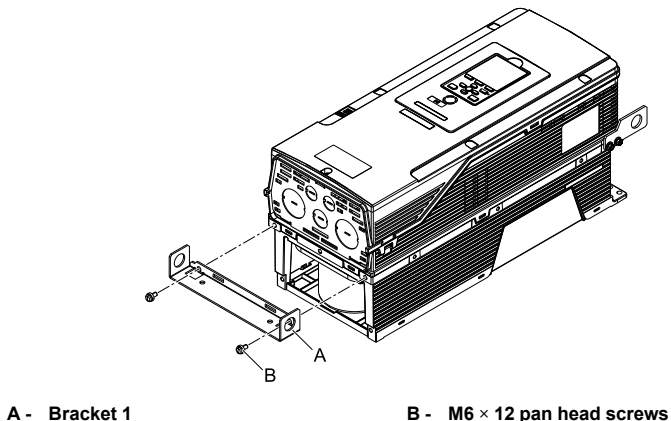


**Figure 5.24 Remove the Mounting Bracket**

2. Use the screws included with the kit to install the bracket 1 to the bottom of the drive in the position shown in [Figure 5.25](#).

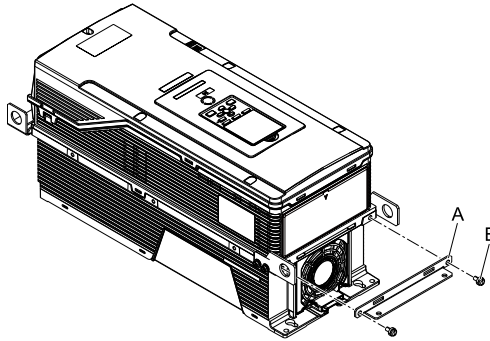
Tighten the screws to a correct tightening torque:

- M6 × 12 pan head screws: 3.92 N·m to 4.90 N·m (34.70 lbf·in to 43.37 lbf·in)



**Figure 5.25 Install Bracket 1 (Bottom of the Drive)**

- Use the screws included with the kit to install the bracket 2 to the top of the drive in the position shown in [Figure 5.26](#).  
Tighten the screws to a correct tightening torque:
  - M6 × 12 pan head screws: 3.92 N·m to 4.90 N·m (34.70 lbf·in to 43.37 lbf·in)



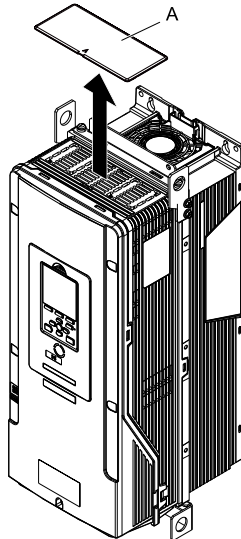
A - Bracket 2

B - M6 × 12 pan head screws

**Figure 5.26 Install Bracket 2 (Top of the Drive)**

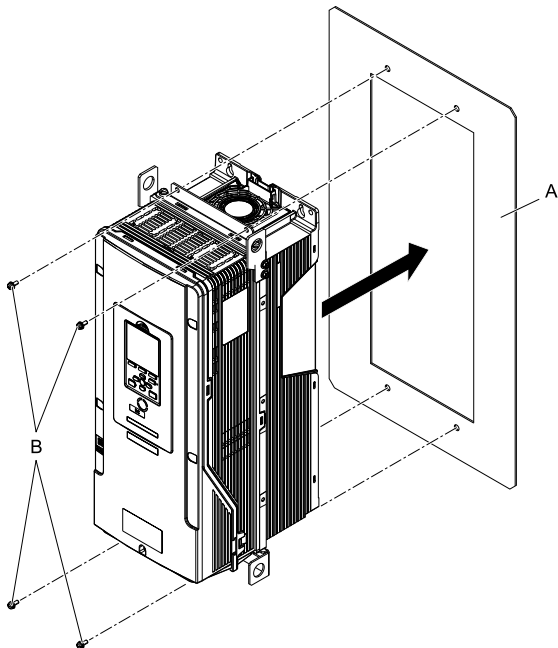
- Remove the top protective cover.

**NOTICE** *Damage to Equipment. Do not remove the top protective cover of model 4065. If you remove the cover, the drive temperature will increase and it can cause damage to the drive.*



**Figure 5.27 Remove the Top Protective Cover**

5. Install the drive in the cut opening of the enclosure panel and use screws to safety it to the enclosure panel.



A - Enclosure panel

B - M6 screws <sup>\*1</sup>

**Figure 5.28 Install the Drive into the Opening of the Enclosure Panel**

\*1 You must select the correct screw length for the enclosure panel.

■ **Use the Mounting Bracket Included with the Drive and the Kit (Procedure C)**

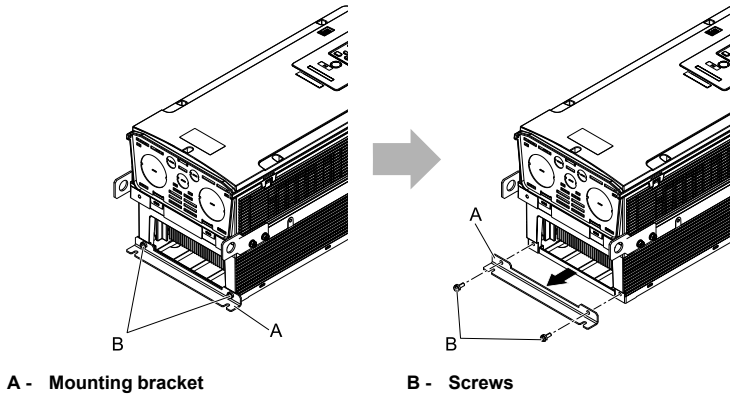
Use the figures in this procedure to make sure that the orientation is correct, then install the mounting bracket and the kit to the drive.

Cut an opening in the enclosure panel before you install the kit. Refer to *Drive Mounting Dimensions and Panel Cut-out Dimensions on page 9* for more information.

1. Remove the mounting bracket from the bottom of the drive.

**Note:**

You will not use the removed screws for installation.

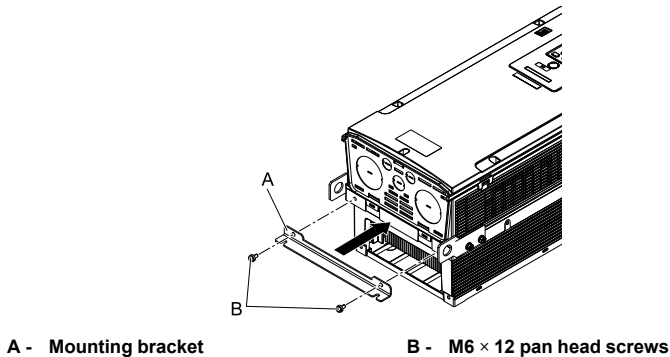


**Figure 5.29 Remove the Mounting Bracket**

2. Use the screws included with the kit to install the removed mounting bracket to the bottom of the drive in the position shown in [Figure 5.30](#).

Tighten the screws to a correct tightening torque:

- M6 × 12 pan head screws: 3.92 N·m to 4.90 N·m (34.70 lbf·in to 43.37 lbf·in)



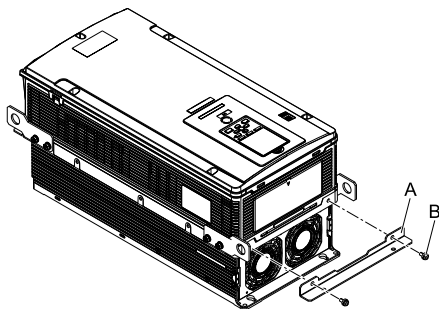
**Figure 5.30 Install the Mounting Bracket (Bottom of the Drive)**

3. Use the screws included with the kit to install bracket 2 to the top of the drive in the position shown in [Figure 5.31](#).

Tighten the screws to a correct tightening torque:

- M6 × 12 pan head screws: 3.92 N·m to 4.90 N·m (34.70 lbf·in to 43.37 lbf·in)



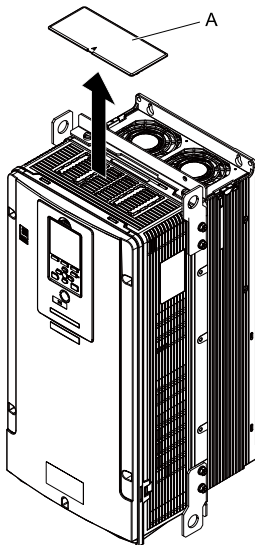


A - Bracket 2

B - M6 × 12 pan head screws

**Figure 5.31 Install Bracket 2 (Top of the Drive)**

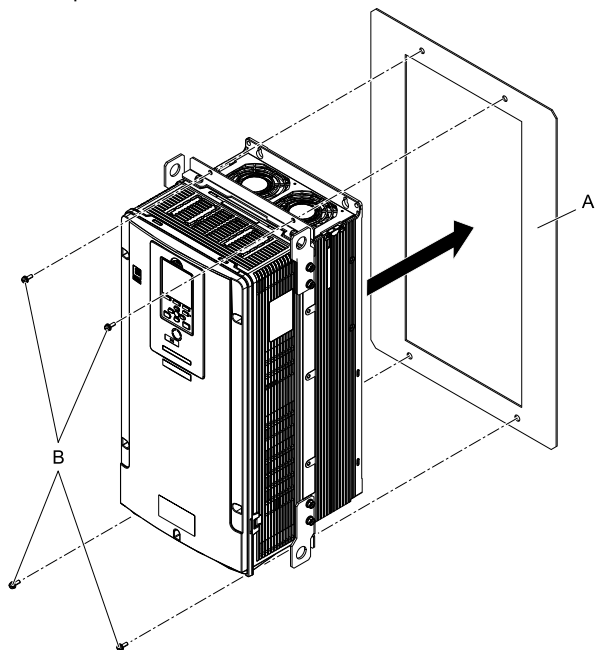
4. Remove the top protective cover.



A - Top protective cover

**Figure 5.32 Remove the Top Protective Cover**

5. Install the drive in the cut opening of the enclosure panel and use screws to safety it to the enclosure panel.



A - Enclosure panel

B - M6 screws <sup>\*1</sup>

**Figure 5.33 Install the Drive into the Opening of the Enclosure Panel**

\*1 You must select the correct screw length for the enclosure panel.

## ■ Use the Mounting Bracket Included with the Drive (Procedure D)

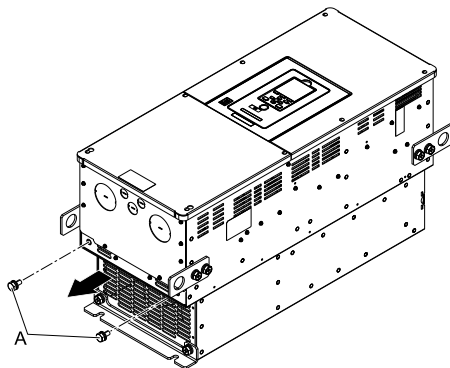
Use the figures in this procedure to make sure that the orientation is correct, then install the mounting bracket to the drive.

Cut an opening in the enclosure panel before you install the mounting bracket. Refer to [Drive Mounting Dimensions and Panel Cut-out Dimensions on page 9](#) for more information.

1. Remove the bolts from the bottom of the drive.

**Note:**

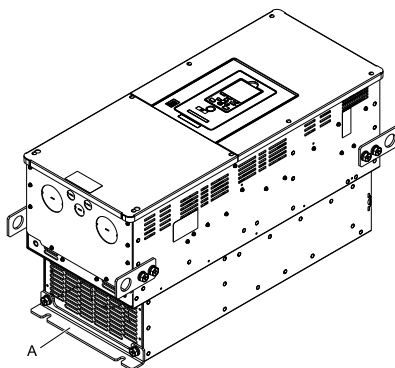
- Drive models HV60x2211, 2273, 4180, 4240, and FP65x4302 do not have these bolts on the bottom of the drive.
- You will not use the removed bolts for installation.



A - Bolts

**Figure 5.34 Remove the Bolts**

2. Remove the mounting bracket from the bottom of the drive.



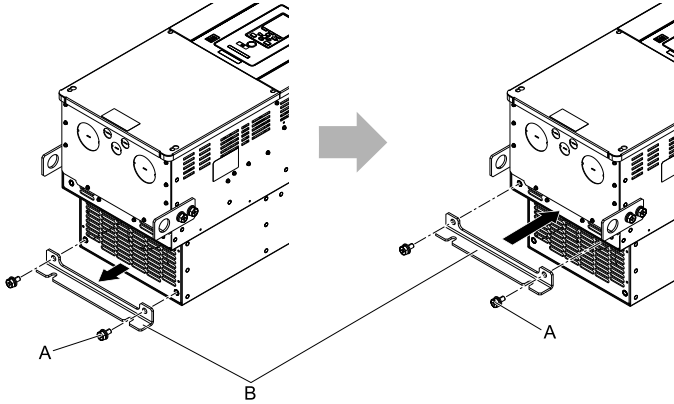
A - Mounting bracket

**Figure 5.35 Remove the Mounting Bracket**

3. Use the bolts included with the drive to install the removed mounting bracket to the bottom of the drive in the position shown in [Figure 5.36](#).  
Tighten the bolts to a correct tightening torque:
  - Drive models HV60x2143 to 2273, 4156 to 4240, and FP65x4302:

## 5 Install the Attachment

- M10 × 20 hex bolts: 17.65 N·m to 22.56 N·m (156.22 lbf·in to 199.67 lbf·in)
- Drive models HV60x4302 and FP65x2343, 2396, 4361, 4414:  
M12 × 30 hex bolts: 31.38 N·m to 39.23 N·m (277.74 lbf·in to 347.21 lbf·in)



A - M10 × 20 hex bolts or M12 × 30 hex bolts

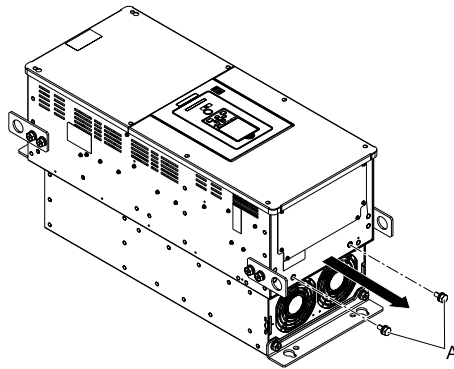
B - Mounting bracket

**Figure 5.36 Install the Mounting Bracket (Bottom of the Drive)**

### 4. Remove the bolts from the top of the drive.

**Note:**

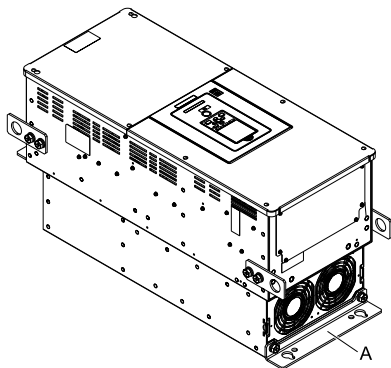
- Drive models HV60x2211, 2273, 4180, 4240, and FP65x4302 do not have these bolts on the top of the drive.
- You will not use the removed bolts for installation.



A - Bolts

**Figure 5.37 Remove the Bolts**

5. Remove the mounting bracket from the top of the drive.

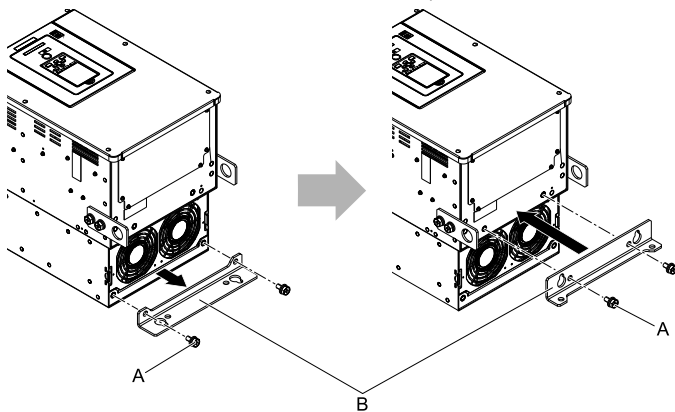


A - Mounting bracket

**Figure 5.38 Remove the Mounting Bracket**

6. Change the direction of the removed mounting bracket and use the bolts included with the drive to install it to the top of the drive in the position shown in [Figure 5.39](#). Tighten the bolts to a correct tightening torque:

- Drive models HV60x2143 to 2273, 4156 to 4240, and FP65x4302:  
M10 × 20 hex bolts: 17.65 N·m to 22.56 N·m (156.22 lbf·in to 199.67 lbf·in)
- Drive models HV60x4302 and FP65x2343, 2396, 4361, 4414:  
M12 × 30 hex bolts: 31.38 N·m to 39.23 N·m (277.74 lbf·in to 347.21 lbf·in)



A - M10 × 20 hex bolts or M12 × 30 hex bolts

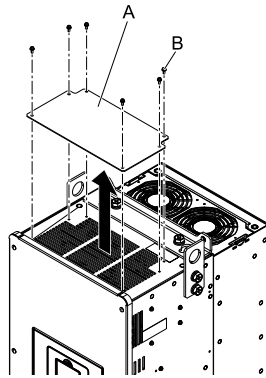
B - Mounting bracket

**Figure 5.39 Install the Mounting Bracket (Top of the Drive)**

7. Remove the top protective cover.

**Note:**

Drive models HV60x2211 to 2273, 4180 to 4302, and FP65x2211, 2273, 4180 to 4414 do not have the top protective cover.

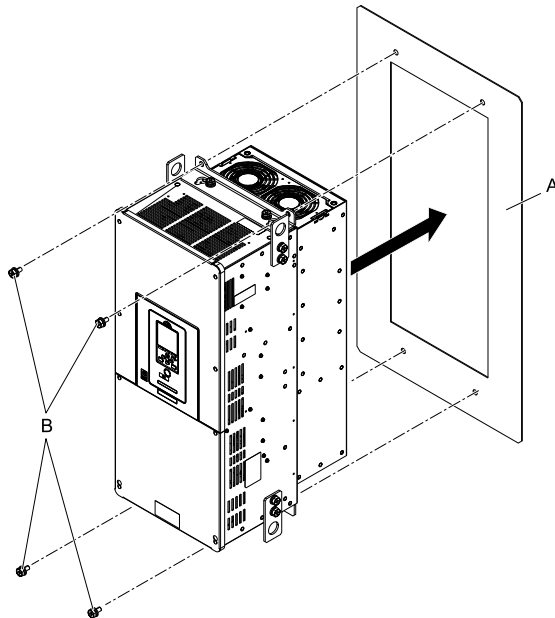


A - Top protective cover

B - M4 × 10 pan head screws

**Figure 5.40 Remove the Top Protective Cover**

8. Install the drive in the cut opening of the enclosure panel and use bolts to safety it to the enclosure panel.



A - Enclosure panel

B - M10 hex bolts or M12 hex bolts <sup>\*1</sup>

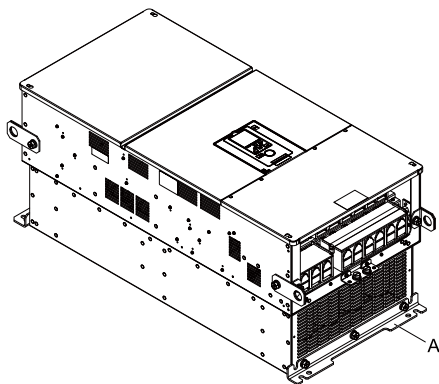
**Figure 5.41 Install the Drive into the Opening of the Enclosure Panel**

<sup>\*1</sup> Refer to the drive manual for more information about the bolt size. You must select the correct bolt length for the enclosure panel.

### ■ Use the Mounting Bracket Included with the Drive (Procedure E)

Cut an opening in the enclosure panel before you install the kit. Refer to *Drive Mounting Dimensions and Panel Cut-out Dimensions 8 on page 17* for more information.

1. Remove the mounting bracket from the bottom of the drive.

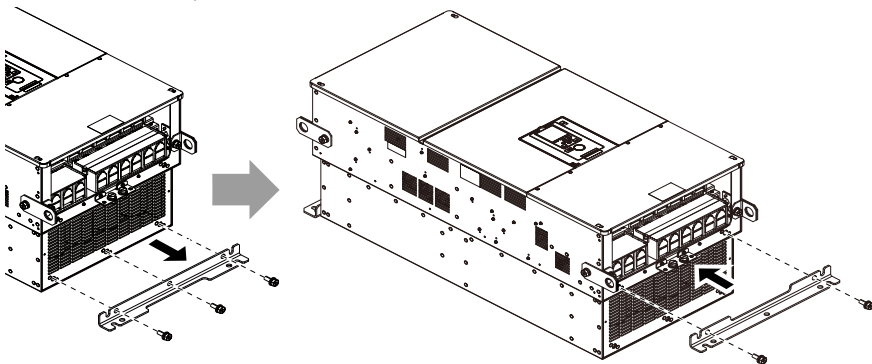


A - Mounting bracket

**Figure 5.42 Remove the Mounting Bracket**

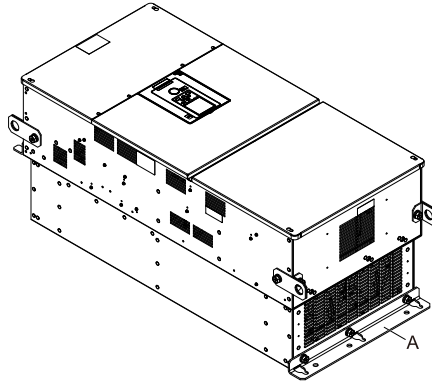
2. Change the position of the mounting bracket and install it in the position shown in [Figure 5.43](#).

Tighten the screws to a tightening torque of 31.38 N·m to 39.23 N·m (277.74 lbf·in to 347.21 lbf·in).



**Figure 5.43 Install the Mounting Bracket**

3. Remove the mounting bracket from the top of the drive.

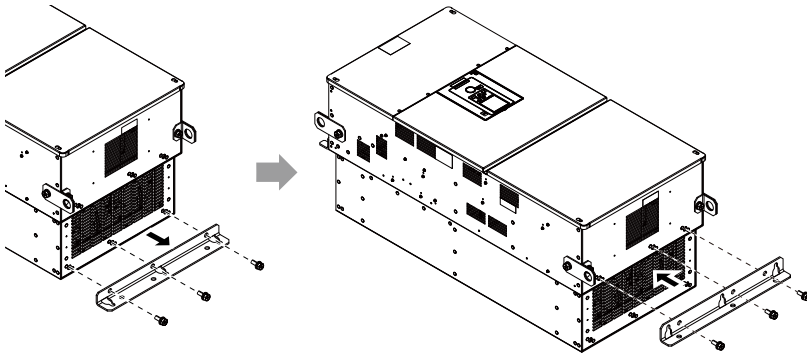


A - Mounting bracket

**Figure 5.44 Remove the Mounting Bracket**

4. Change the position of the mounting bracket and install it in the position shown in [Figure 5.45](#).

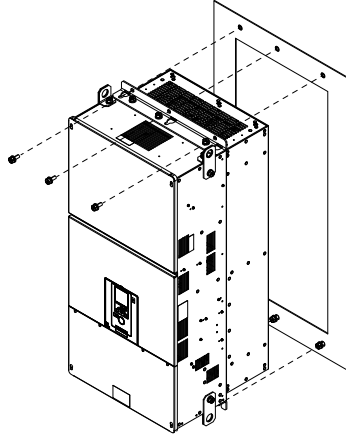
Tighten the screws to a tightening torque of 31.38 N·m to 39.23 N·m (277.74 lbf·in to 347.21 lbf·in).



**Figure 5.45 Install the Mounting Bracket**



5. Install the drive in the cut opening of the enclosure panel and use screws to safety it to the enclosure panel.



**Figure 5.46 Install the Drive into the Opening of the Enclosure Panel**

## ◆ Gasket and Sealant

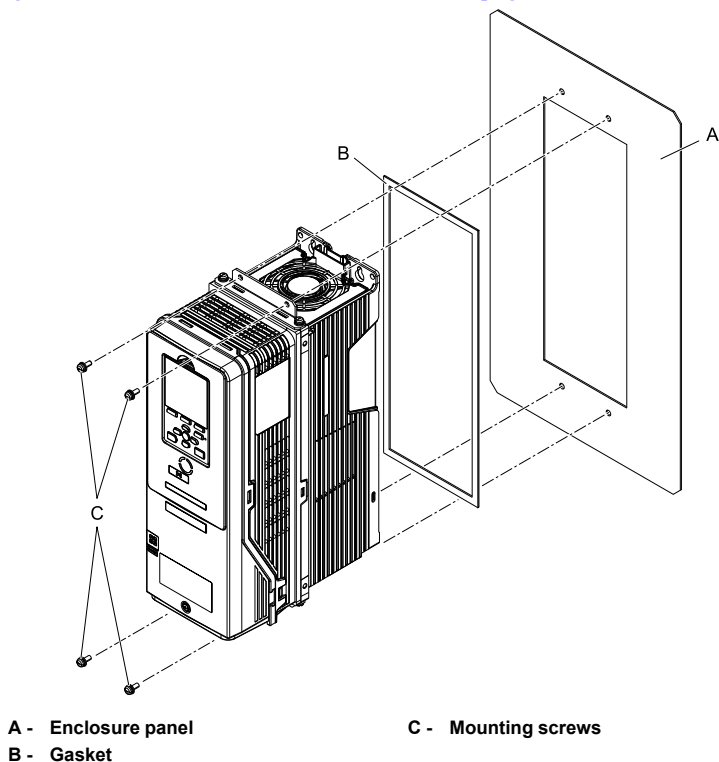
If the environment around the heatsink does not meet the recommendations for the drive installation environment, install a gasket or apply sealant as shown in [Figure 5.47](#) and [Figure 5.48](#). Make sure that the drive is safe from unsatisfactory environmental conditions.

Use a gasket that is approximately 2 mm (0.08 in) thick and made from CR or an EPDM-based rubber sponge.

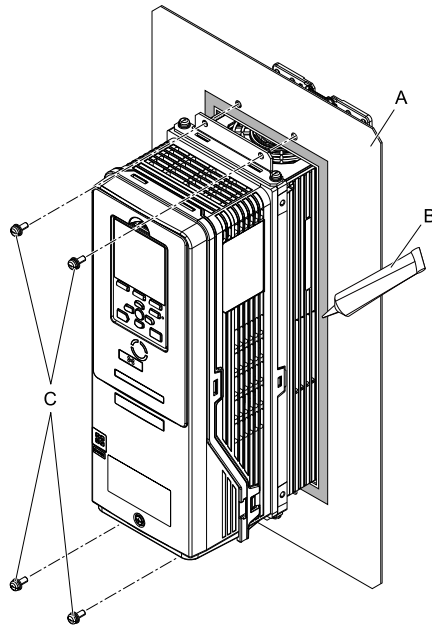
Yaskawa recommends these products:

- Gasket: INOAC CORPORATION C-4205
- Sealant: Shin-Etsu Silicone KE-3494 from Shin-Etsu Chemical Co., Ltd.

The gasket must have a width of 7 mm (0.28 in) or more around the opening. Refer to [Drive Mounting Dimensions and Panel Cut-out Dimensions on page 9](#) for more information.



**Figure 5.47 Install a Gasket**



A - Enclosure panel

B - Sealant

C - Mounting screws

Figure 5.48 Apply Sealant

## 6 Related Parameters

When you install the heatsink (cooling fin) to the outside of the enclosure panel, set  $L8-35 = 0$  [*Installation Method Selection = IP20/UL Open Type*]. Refer to the Technical Reference/ Technical Manual of your drive for more information.

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## Revision History

Date of Publication	Revision Number	Section	Revised Content
May 2021	1	All	Revision: Reviewed and corrected entire documentation Addition: Information on compatible models • FP605
January 2020	-	-	First Edition



# YASKAWA AC Drive Option External Heatsink Installation Kit Installation Manual

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# YASKAWA

YASKAWA ELECTRIC CORPORATION

In the event that the end user of this product is to be the military and said product is to be employed in any weapons systems or the manufacture thereof, the export will fall under the relevant regulations as stipulated in the Foreign Exchange and Foreign Trade Regulations. Therefore, be sure to follow all procedures and submit all relevant documentation according to any and all rules, regulations and laws that may apply.

Specifications are subject to change without notice for ongoing product modifications and improvements.

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\*TOEPC72060011\*

MANUAL NO. TOEP C720600 11B <1>->0  
Published in Japan May 2021  
20-2-22  
Original Instructions