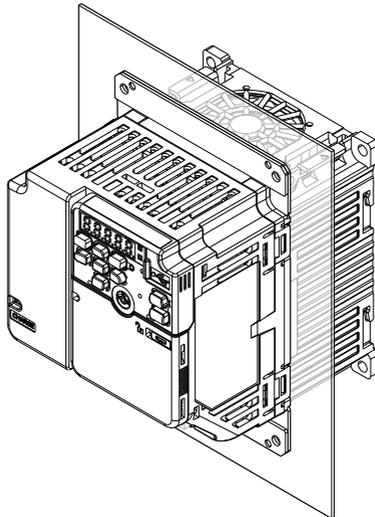


YASKAWA AC Drive Option External Heatsink Installation Kit Installation Manual

Model ZPSA-GA50Vx-x

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



This Page Intentionally Blank

Table of Contents

1.	Receiving	4
	Applicable Documentation	4
	Glossary	4
2.	General Safety	4
	Supplemental Safety Information	4
	Section Safety	4
3.	Overview	5
	Compatible Products	5
	For Yaskawa Customers in the North or South America Regions	5
	Installation Environment	5
4.	Receiving	6
	Drive Model and Kit	7
	Option Package Contents	8
5.	Drive Mounting Dimensions and Panel Cut-Out Dimensions	10
	Drive External Dimensions	11
	Panel Cut-Out Dimensions	14
6.	Install the Attachment	18
	Necessary Tools	18
	Kit Models and Installation Procedure	18
	Install the Kit on Drive Models B001 - B004 and 2001 - 2006 (Procedure A)	19
	Install the Kit on Drive Model 4001 (Procedure B)	20
	Install the Kit on Drive Models B006 - B018, 2008 - 2021, and 4002 - 4012 (Procedure C)	22
	Install the Kit on Drive Models 2030 - 2056 and 4018 - 4038 (Procedure D)	24
	Install the Kit on Drive Models 2070, 2082, 4044, 4060 (Procedure E)	28
	Gasket and Sealant	30
7.	Related Parameters	31
	Revision History	32

1 Receiving

◆ Applicable Documentation

Document	Description
Yaskawa AC Drive Option Heatsink External Mounting 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 Manual for more information about programming and parameter settings. You can download drive manuals from the Yaskawa product and technical information website shown on the back cover of this manual.

◆ Glossary

Terminology Used in this Document	Description
Drive	<ul style="list-style-type: none"> • YASKAWA AC Drive GA400 • YASKAWA AC Drive GA500
Kit	Yaskawa AC Drive Option Heatsink External Mounting 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 This signal word 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"> • 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. • The figures in this manual are examples only. All figures do not apply to all products included in this manual. • Yaskawa can change the products, specifications, and content of the instructions without notice to make the product and/or the instructions better. • 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.

⚠ 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, measure 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.*

⚠ 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.*

⚠ 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.*

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 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.

◆ Compatible Products

This installation kit is compatible with these drives:

- GA400
- GA500

■ For Yaskawa Customers in the North or South America Regions

If your drive series is not shown in the “Compatible Products” section, refer to the web page below to confirm that your drive is compatible with this option. The web page shows a list of drives and compatible options, and also directs you to the correct installation manual and installation procedure for your drive.

Refer to the URL or scan QR code:



<https://www.yaskawa.com/products/option-lookup>

◆ Installation Environment

The installation environment is important for the lifespan of the product and to make sure that the drive performance is correct. Make sure that the installation environment agrees with these specifications.

4 Receiving

Environment	Conditions
Area of Use	Indoors
Power Supply	Overvoltage Category III (IEC60664)
Ambient Temperature Setting	<p>IP20/UL Open Type: -10 °C to +50 °C (14 °F to 122 °F) External Heatsink Installation: -10 °C to +35 °C (14 °F to 95 °F)</p> <ul style="list-style-type: none"> • When you do an external heatsink installation and the ambient temperature exceeds 35 °C (95 °F), derate the output current. • Drive reliability is better in environments where the temperature does not increase or decrease quickly. • When installing the drive in an enclosure, use a cooling fan or air conditioner to keep the internal air temperature in the permitted range. • Do not let the drive freeze.
Humidity	95%RH or less Do not let condensation form on the drive.
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 (IEC 60664-1) Install the drive in an area without:</p> <ul style="list-style-type: none"> • Oil mist, corrosive or flammable gas, or dust • Metal powder, oil, water, or other unwanted materials • Radioactive or flammable materials. • Harmful gas or fluids • Salt • Direct sunlight <p>Keep wood and other flammable materials away from the drive.</p>
Altitude	<p>1000 m (3281 ft) Maximum</p> <p>Note: Derate the output current by 1% for each 100 m (328 ft) to install the drive in altitudes between 1000 to 4000 m (3281 to 13123 ft). It is not necessary to derate the rated voltage in these conditions:</p> <ul style="list-style-type: none"> • Installing the drive at 2000 m (6562 ft) or lower • Installing the drive between 2000 to 4000 m (6562 to 13123 ft) and grounding the neutral point on the power supply. Contact Yaskawa or your nearest sales representative when not grounding the neutral point.
Vibration	<ul style="list-style-type: none"> • 10 Hz to 20 Hz: 1 G (9.8 m/s², 32.15 ft/s²) • 20 Hz to 55 Hz: 0.6 G (5.9 m/s², 19.36 ft/s²)
Installation Orientation	Install the drive vertically for sufficient airflow to cool the drive.

NOTICE Do not put drive peripheral devices, transformers, or other electronics near the drive. Shield the drive from electrical interference if components must be near the drive. Components near the drive can cause incorrect drive operation from electrical interference.

NOTICE 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.

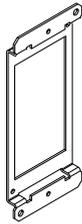
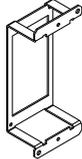
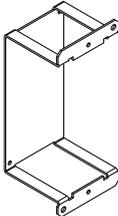
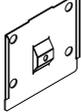
2. Verify the product model number to make sure that you received the correct model. If you have problems with the products, contact the distributor where you purchased the products or the Yaskawa sales office immediately.

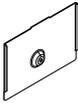
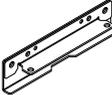
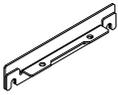
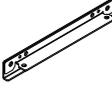
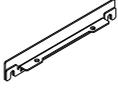
◆ Drive Model and Kit

Table 4.1 Drive Model and Kit

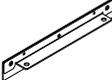
Drive Model		Kit Model ZPSA-xxxxxx-x
GA400 GA500	B001, B002 2001, 2002	GA50V1-1
	B004 2004	GA50V1-2
	2006	GA50V1-3
	4001	GA50V2-1
	B006 4002, 4004	GA50V2-2
	B010 2008, 2010, 2012 4005, 4007, 4009	GA50V2-3
	2018, 2021 4012	GA50V3-1
GA500	B012	GA50V3-1
	B018	GA50V4-1
	2030, 2042 4018, 4023	GA50V5-1
	2056 4031, 4038	GA50V6-1
	2070, 2082	GA50V7-1
	4044, 4060	GA50V8-1

◆ Option Package Contents

Kit Model ZPSA- XXXXXX-X	Bracket 1	Bracket 2	Wind-Tunnel Panel	Frame	Mounting Screw
GA50V1-1	 #1	 #2	-	-	 M4 × 10 pan head screw: #4
GA50V1-2	 #1	 #2	-	-	 M4 × 10 pan head screw: #4
GA50V1-3	 #1	 #2	-	-	 M4 × 10 pan head screw: #4
GA50V2-1	 #2	 #2	-	-	 M4 × 10 pan head screw: #6
GA50V2-2	 #2	-	-	-	 M4 × 10 pan head screw: #4
GA50V2-3	 #2	-	 #1	-	 A - M4 × 10 pan head screw: #4 B - 3 × 8 tapping screw: #1

Kit Model ZPSA- XXXXXX-X	Bracket 1	Bracket 2	Wind-Tunnel Panel	Frame	Mounting Screw
GA50V3-1	 #2	-	 #1	-	 A B A - M4 × 10 pan head screw: #4 B - 3 × 8 tapping screw: #1
GA50V4-1	 #2	-	 #1	-	 M4 × 10 pan head screw: #5
GA50V5-1	 #1	 #1	-	 #1	 A B A - M4 × 10 pan head screw: #4 B - M5 × 12 pan head screw: #4
GA50V6-1	 #1	 #1	-	 #1	 A B A - M4 × 10 pan head screw: #4 B - M5 × 12 pan head screw: #4

5 Drive Mounting Dimensions and Panel Cut-Out Dimensions

Kit Model ZPSA- XXXXXX-X	Bracket 1	Bracket 2	Wind-Tunnel Panel	Frame	Mounting Screw
GA50V7-1	 #1	 #1	-	 #1	 A  B A - M4 × 10 pan head screw: #2 B - M6 × 12 pan head screw: #4
GA50V8-1	 #1	 #1	-	 #1	 A  B A - M4 × 10 pan head screw: #2 B - M6 × 12 pan head screw: #4

5 Drive Mounting Dimensions and Panel Cut-Out Dimensions

Drive Model	Kit Model ZPSA-xxxxx-x	Drive Exterior and Mounting Dimensions	Panel Cut-Out Dimensions
B001, B002	GA50V1-1	Table 5.1	Table 5.6
B004	GA50V1-2		
B006	GA50V2-2		
B010	GA50V2-3		
B012	GA50V3-1		Table 5.7
B018	GA50V4-1		
2001, 2002	GA50V1-1	Table 5.2	Table 5.6
2004	GA50V1-2		
2006	GA50V1-3		
2008, 2010, 2012	GA50V2-3		Table 5.7
2018, 2021	GA50V3-1		

Drive Model	Kit Model ZPSA-xxxxx-x	Drive Exterior and Mounting Dimensions	Panel Cut-Out Dimensions
2030, 2042	GA50V5-1	Table 5.4	Table 5.8
2056	GA50V6-1		
2070, 2082	GA50V7-1		Table 5.9
4001	GA50V2-1	Table 5.3	Table 5.7
4002, 4004	GA50V2-2		
4005, 4007, 4009	GA50V2-3		
4012	GA50V3-1		
4018, 4023	GA50V5-1	Table 5.5	Table 5.8
4031, 4038	GA50V6-1		
4044, 4060	GA50V8-1		Table 5.9

◆ Drive External Dimensions

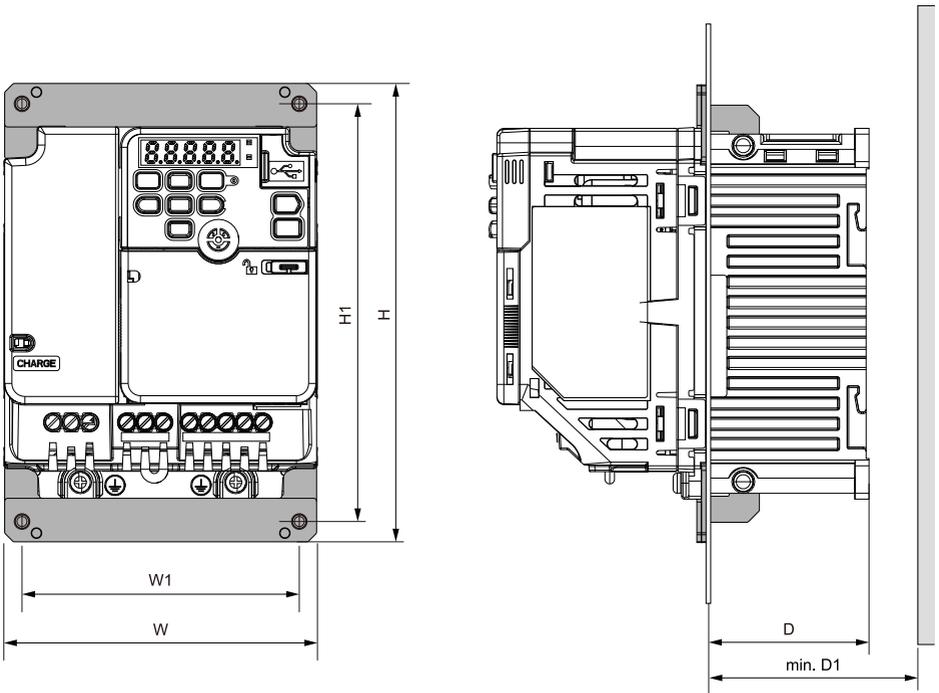


Figure 5.1 Drive External Dimensions 1

Table 5.1 Single-Phase 200 V Class: B001 to B018

Drive Model	Dimensions mm (in)					
	W	H	D	W1	H1	D1
B001 B002	68 (2.68)	160 (6.3)	6.5 (0.26)	56 (2.2)	148 (5.83)	11.5 (0.45)
B004	68 (2.68)	160 (6.3)	38.5 (1.52)	56 (2.2)	148 (5.83)	43.5 (1.71)
B006 B010	108 (4.25)	158 (6.22)	56.5 (2.22)	96 (3.78)	144 (5.67)	61.5 (2.42)
B012	140 (5.51)	158 (6.22)	65 (2.56)	128 (5.04)	144 (5.67)	70 (2.76)
B018	170 (6.69)	158 (6.22)	65 (2.56)	128 (5.04)	144 (5.67)	70 (2.76)

Table 5.2 Three-Phase 200 V Class: 2001 to 2021

Drive Model	Dimensions mm (in)					
	W	H	D	W1	H1	D1
2001 2002	68 (2.68)	160 (6.3)	6.5 (0.26)	56 (2.2)	148 (5.83)	11.5 (0.45)
2004	68 (2.68)	160 (6.3)	38.5 (1.52)	56 (2.2)	148 (5.83)	43.5 (1.71)
2006	68 (2.68)	160 (6.3)	58.5 (2.3)	56 (2.2)	148 (5.83)	63.5 (2.5)
2008 2010 2012	108 (4.25)	158 (6.22)	56.5 (2.22)	96 (3.78)	144 (5.67)	61.5 (2.42)
2018 2021	140 (5.51)	158 (6.22)	65 (2.56)	128 (5.04)	144 (5.67)	70 (2.76)

Table 5.3 Three-Phase 400 V Class: 4001 to 4012

Drive Model	Dimensions mm (in)					
	W	H	D	W1	H1	D1
4001	108 (4.25)	158 (6.22)	8.5 (0.33)	96 (3.78)	144 (5.67)	13.5 (0.53)
4002	108 (4.25)	158 (6.22)	26.5 (1.04)	96 (3.78)	144 (5.67)	31.5 (1.24)
4004 4005 4007 4009	108 (4.25)	158 (6.22)	56.5 (2.22)	96 (3.78)	144 (5.67)	61.5 (2.42)
4012	140 (5.51)	158 (6.22)	65 (2.56)	128 (5.04)	144 (5.67)	70 (2.76)

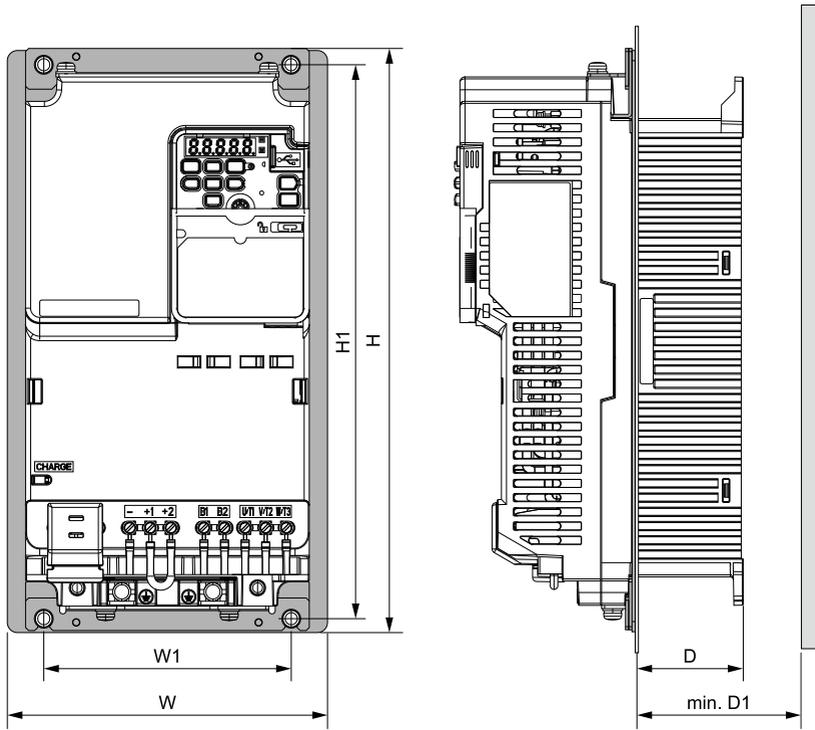


Figure 5.2 Drive External Dimensions 2

Table 5.4 Three-Phase 200 V Class: 2030 to 2082

Drive Model	Dimensions mm (in)					
	W	H	D	W1	H1	D1
2030	158	286	55	122	272	60
2042	(6.22)	(11.26)	(2.17)	(4.8)	(10.71)	(2.36)
2056	198	322	55	160	308	60
	(7.8)	(12.68)	(2.17)	(6.3)	(12.13)	(2.36)
2070	241	380	78	192	362	83
2082	(9.49)	(14.96)	(3.07)	(7.56)	(14.25)	(3.27)

Table 5.5 Three-Phase 400 V Class: 4018 to 4060

Drive Model	Dimensions mm (in)					
	W	H	D	W1	H1	D1
4018	158	286	55	122	272	60
4023	(6.22)	(11.26)	(2.17)	(4.8)	(10.71)	(2.36)
4031	198	322	55	160	308	60
4038	(7.8)	(12.68)	(2.17)	(6.3)	(12.13)	(2.36)
4044	211	380	94	160	362	99
4060	(8.31)	(14.96)	(3.7)	(6.3)	(14.25)	(3.9)

◆ **Panel Cut-Out Dimensions**

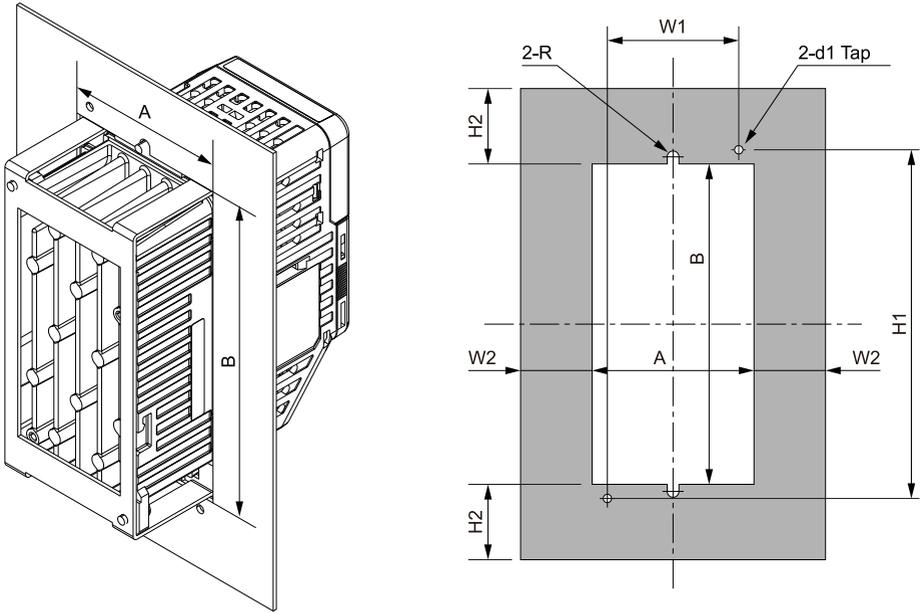


Figure 5.3 Panel Cut-Out Dimensions Diagram 1

Table 5.6 Panel Cut-Out Dimensions 1

Kit Model ZPSA- XXXXXX- X	Dimensions mm (in)							
	W1	W2 *1	H1	H2 *1	A	B	d1	R
GA50V1-1	56	30.5	148	32	69	136	M4	2.5
GA50V1-2	(2.20)	(1.2)	(5.83)	(1.26)	(2.72)	(5.35)		(0.10)
GA50V1-3								

*1 Dimensions of the gasket. Make sure that the gasket is larger than the specified dimension.

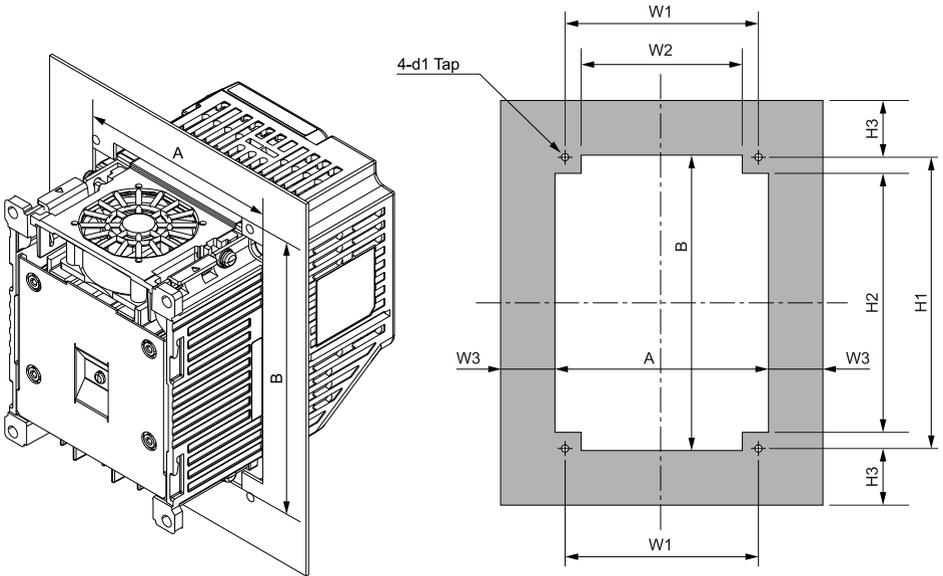


Figure 5.4 Panel Cut-Out Dimensions Diagram 2

Table 5.7 Panel Cut-Out Dimensions 2

Kit Model ZPSA-XXXXXX-X	Dimensions mm (in)								
	W1	W2	W3 *1	H1	H2	H3 *1	A	B	d1
GA50V2-1 GA50V2-2 GA50V2-3 GA50V2-4 GA50V2-5	96 (3.78)	80 (3.15)	27 (1.06)	144 (5.67)	128 (5.04)	27 (10.63)	106 (4.17)	146 (5.75)	M4
GA50V3-1	128 (5.04)	112 (4.41)	27 (1.06)	144 (5.67)	128 (5.04)	27 (10.63)	138 (5.43)	146 (5.75)	M4
GA50V4-1	158 (6.22)	142 (5.59)	27 (1.06)	144 (5.67)	128 (5.04)	27 (10.63)	168 (6.61)	146 (5.75)	M4

*1 Dimensions of the gasket. Make sure that the gasket is larger than the specified dimension.

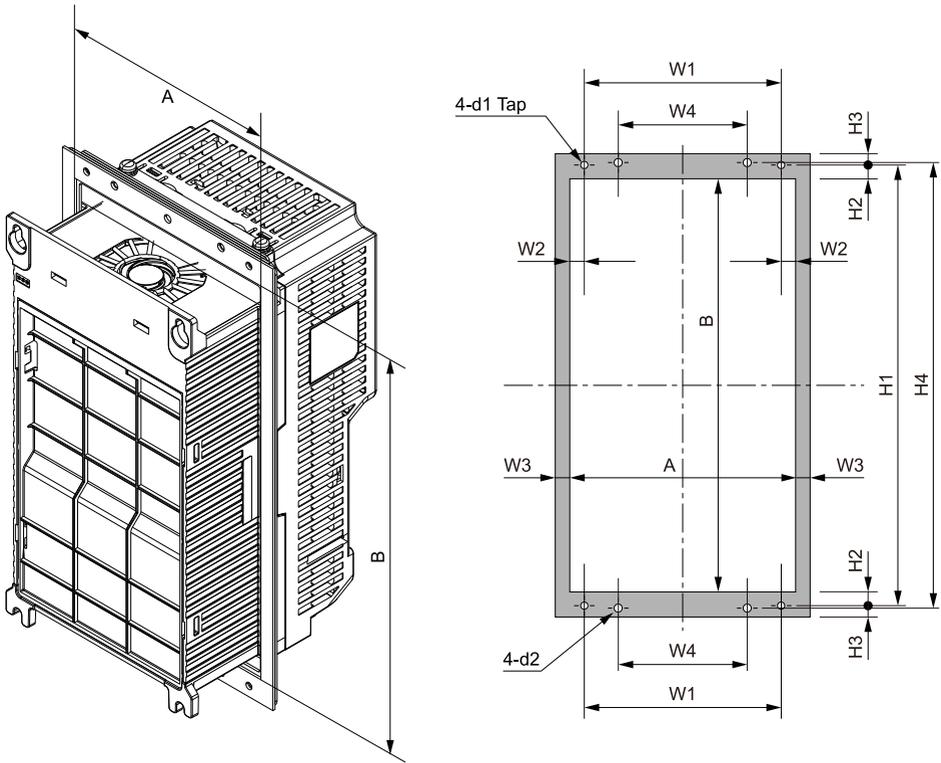


Figure 5.5 Panel Cut-Out Dimensions Diagram 3

Table 5.8 Panel Cut-Out Dimensions 3

Kit Model	Dimensions mm (in)											
	W1	W2	W3 *J	W4	H1	H2	H4 *J	H4	A	B	d1	d2
GA50 V5-1	122 (4.80)	9 (0.35)	9 (0.35)	80 (3.15)	272 (10.71)	8.5 (0.33)	7 (0.28)	275 (10.83)	140 (5.51)	255 (10.04)	M5	5 (0.20)
GA50 V6-1	160 (6.30)	10 (0.39)	9 (0.35)	110 (4.33)	308 (12.13)	10.5 (0.41)	7 (0.28)	313 (12.32)	180 (7.09)	287 (11.30)	M5	5 (0.20)

*1 Dimensions of the gasket. Make sure that the gasket is larger than the specified dimension.

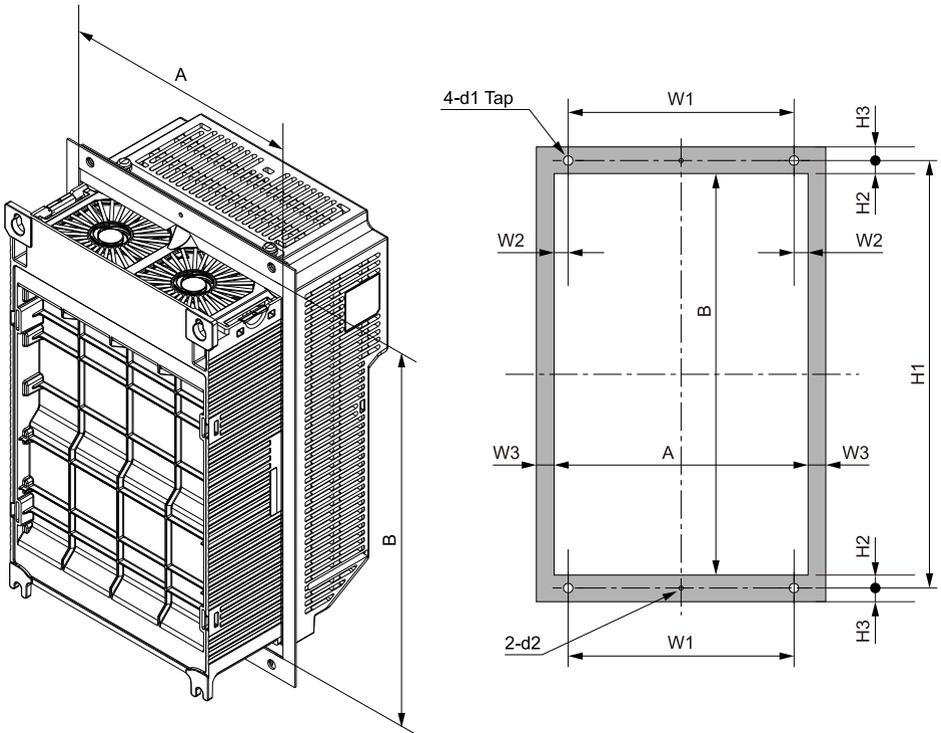


Figure 5.6 Panel Cut-Out Dimensions Diagram 4

Table 5.9 Panel Cut-Out Dimensions 4

Kit Model ZPSA- XXXXXX- X	Dimensions mm (in)									
	W1	W2	W3 *1	H1	H2	H3 *1	A	B	d1	d2
GA50V7-1	192 (7.56)	14 (0.55)	10.5 (0.41)	362 (14.25)	10.5 (0.41)	9 (0.35)	220 (8.66)	341 (13.43)	M6	5 (0.20)
GA50V8-1	162 (6.38)	14 (0.55)	10.5 (0.41)	362 (14.25)	10.5 (0.41)	9 (0.35)	190 (7.48)	341 (13.43)	M6	5 (0.20)

*1 Dimensions of the gasket. Make sure that the gasket is larger than the specified dimension.

6 Install the Attachment

◆ Necessary Tools

To install the attachment, use a Phillips screwdriver #2.

◆ Kit Models and Installation Procedure

⚠ CAUTION *Crush Hazard. Do not hold the drive by the front cover. Tighten the screws correctly when you move the drive. If the drive or covers fall, it can cause moderate injury.*

The installation procedure is different for different kit models. Refer to [Table 6.1](#).

Table 6.1 Kit and Installation Method

Drive Model			Kit Model ZPSA-xxxxxx-x	Procedure	Ref.
Single-Phase 200 V Class	Three-Phase 200 V Class	Three-Phase 400 V Class			
B001, B002	2001, 2002	-	GA50V1-1	Procedure A	19
B004	2004	-	GA50V1-2		
-	2006	-	GA50V1-3		
-	-	4001	GA50V2-1	Procedure B	20
B006	-	4002, 4004	GA50V2-2	Procedure C	22
B010	2008, 2010, 2012	4005, 4007, 4009	GA50V2-3		
B012	2018, 2021	4012	GA50V3-1		
B018	-	-	GA50V4-1		
-	2030, 2042	4018, 4023	GA50V5-1	Procedure D	24
-	2056	4031, 4038	GA50V6-1		
-	2070, 2082	-	GA50V7-1	Procedure E	28
-	-	4044, 4060	GA50V8-1		

■ Install the Kit on Drive Models B001 - B004 and 2001 - 2006 (Procedure A)

Cut an opening in the enclosure panel before you install the kit. Refer to [Panel Cut-Out Dimensions on page 14](#) for more information.

1. Use the supplied screws to install bracket 1 on the drive.
Tighten the screws to a correct tightening torque:
 - M4 × 10 pan head screws: 0.98 N·m to 1.33 N·m (8.67 in·lb to 11.77 in·lb)

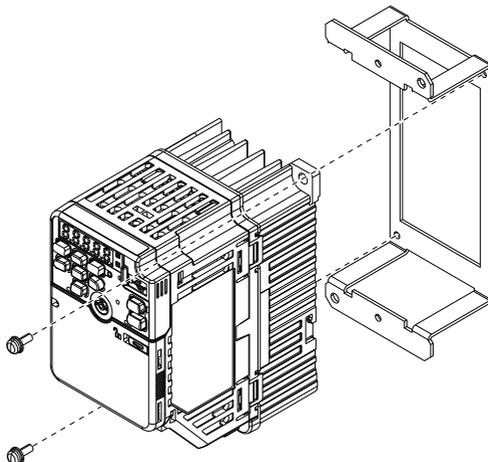


Figure 6.1 Install the Bracket

2. Use the supplied screws to install 2 each of bracket 2 in the positions shown in [Figure 6.2](#).
Tighten the screws to a correct tightening torque:
 - M4 × 10 pan head screws: 0.98 N·m to 1.33 N·m (8.67 in·lb to 11.77 in·lb)

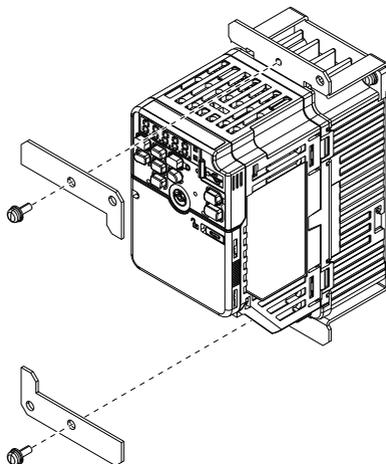


Figure 6.2 Install the Attachment

3. Install the drive in the cut opening of the enclosure panel and use screws to safety it to the enclosure panel.
Tighten the screws to a correct tightening torque:
 - M4 × 10 pan head screws: 0.98 N·m to 1.33 N·m (8.67 in·lb to 11.77 in·lb)

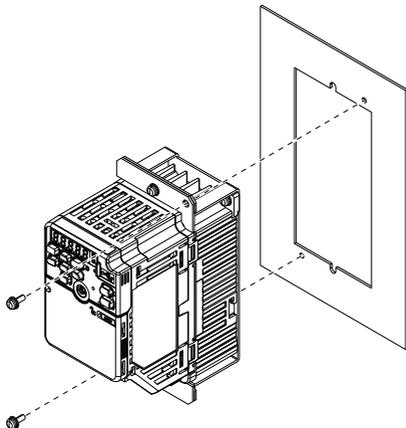


Figure 6.3 Install the Drive into the Opening of the Enclosure Panel

■ Install the Kit on Drive Model 4001 (Procedure B)

Cut an opening in the enclosure panel before you install the kit. Refer to [Panel Cut-Out Dimensions on page 14](#) for more information.

1. Use the supplied screws to install 2 each of bracket 1 in the positions shown in [Figure 6.4](#).
Tighten the screws to a correct tightening torque:
 - M4 × 10 pan head screw: 0.98 N·m to 1.33 N·m (8.67 in·lb to 11.77 in·lb)

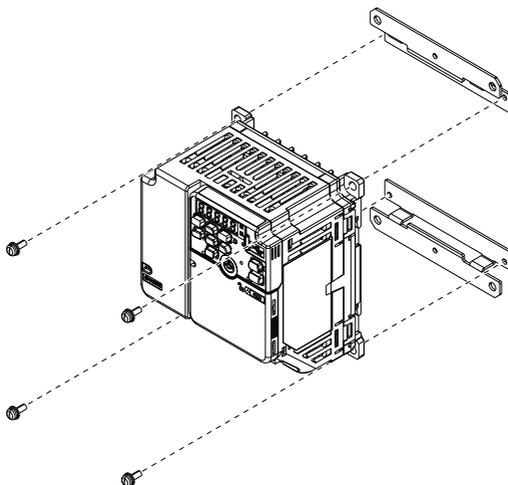


Figure 6.4 Install Bracket 1

2. Use the supplied screws to install 2 each of bracket 2 in the positions shown in [Figure 6.5](#).

Tighten the screws to a correct tightening torque:

- M4 × 10 pan head screw: 0.98 N·m to 1.33 N·m (8.67 in·lb to 11.77 in·lb)

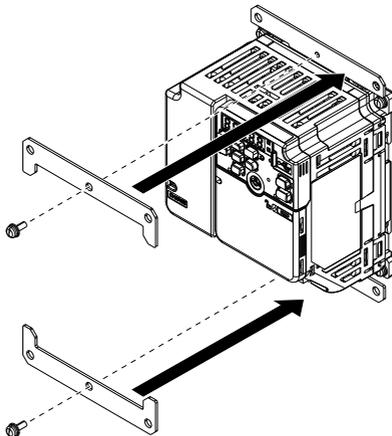


Figure 6.5 Install Bracket 2

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

Tighten the screws to a correct tightening torque:

- M4 × 10 pan head screw: 0.98 N·m to 1.33 N·m (8.67 in·lb to 11.77 in·lb)

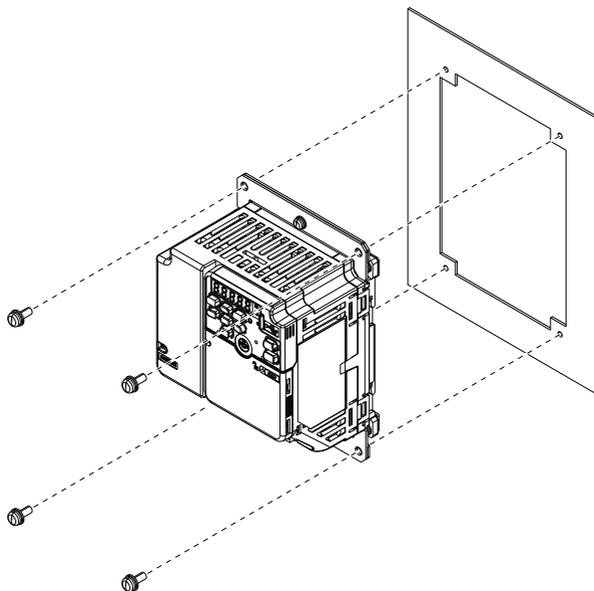


Figure 6.6 Install the Drive into the Opening of the Enclosure Panel

■ Install the Kit on Drive Models B006 - B018, 2008 - 2021, and 4002 - 4012 (Procedure C)

Cut an opening in the enclosure panel before you install the kit. Refer to *Panel Cut-Out Dimensions on page 14* for more information.

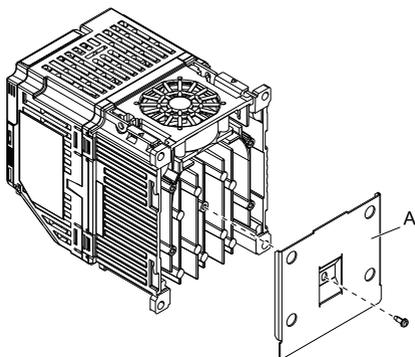
1. Use the supplied screws to install the wind-tunnel panel in the position shown in [Figure 6.7](#).

Tighten the screws to a correct tightening torque:

- 3×8 tapping screw: 0.98 to 1.33 N·m (8.67 to 11.77 in·lb)
- $M4 \times 10$ pan screw: 0.98 to 1.33 N·m (8.67 to 11.77 in·lb)

Note:

This procedure is not necessary for drive models B006 and 4002 to 4004.



A - Wind-Tunnel Panel

Figure 6.7 Install the Wind-Tunnel Panel

2. Use the supplied screws to install bracket 1 to the top of the drive in the position shown in [Figure 6.8](#).

Tighten the screws to a correct tightening torque:

- $M4 \times 10$ pan head screw: 0.98 N·m to 1.33 N·m (8.67 in·lb to 11.77 in·lb)

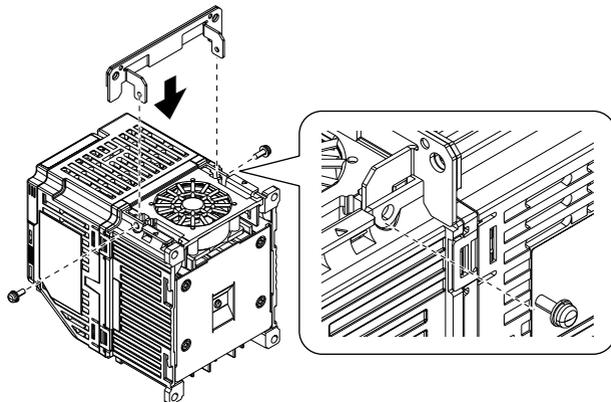


Figure 6.8 Install Bracket 1 (Top of the Drive)

3. Use the supplied screws to install bracket 1 to the bottom of the drive in the position shown in [Figure 6.9](#).

Tighten the screws to a correct tightening torque:

- M4 × 10 pan head screw: 0.98 N·m to 1.33 N·m (8.67 in·lb to 11.77 in·lb)

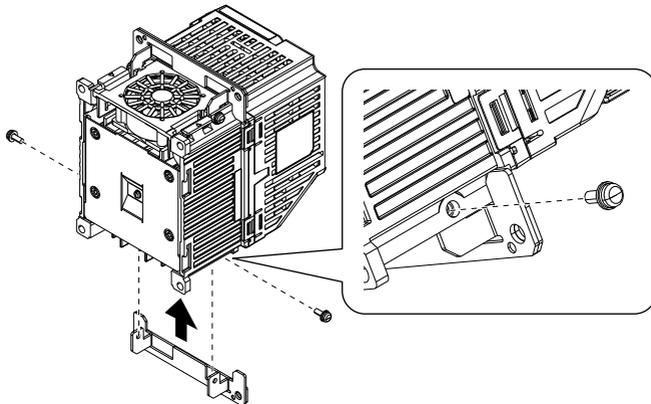


Figure 6.9 Install Bracket 1 (Bottom of the Drive)

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

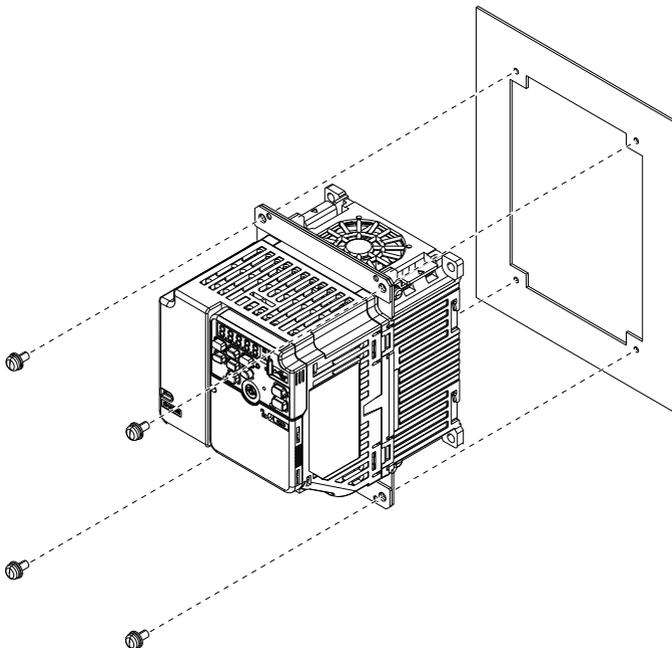


Figure 6.10 Install the Drive into the Opening of the Enclosure Panel

■ **Install the Kit on Drive Models 2030 - 2056 and 4018 - 4038 (Procedure D)**

Cut an opening in the enclosure panel before you install the kit. Refer to [Panel Cut-Out Dimensions on page 14](#) for more information.

1. Use the supplied screws to install bracket 1 to the top of the drive in the position shown in [Figure 6.11](#).

Tighten the screws to a correct tightening torque:

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

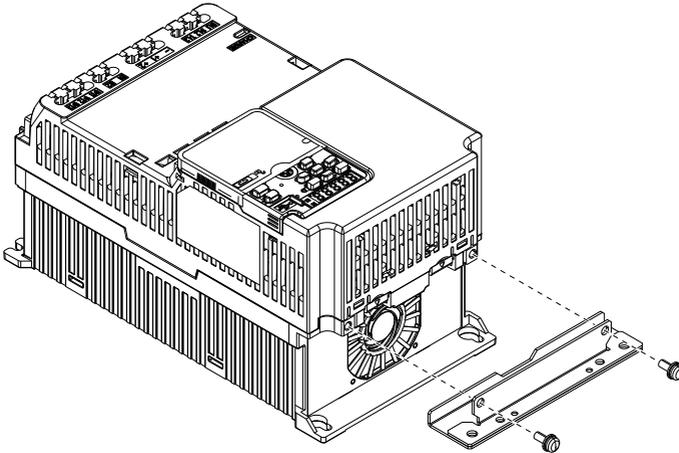


Figure 6.11 Install Bracket 1 (Top of the Drive)

2. Use the supplied screws to install bracket 2 to the bottom of the drive in the position shown in [Figure 6.12](#).

Tighten the screws to a correct tightening torque:

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

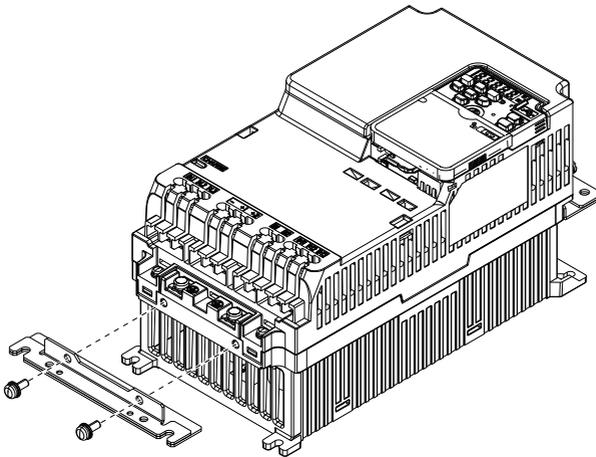


Figure 6.12 Install Bracket 2 (Bottom of the Drive)

3. Install the frame to the drive and use screws to safety it to the drive.
Tighten the screws to a correct tightening torque:
 - M4 × 10 pan head screw: 0.98 N·m to 1.33 N·m (8.67 in·lb to 11.77 in·lb)

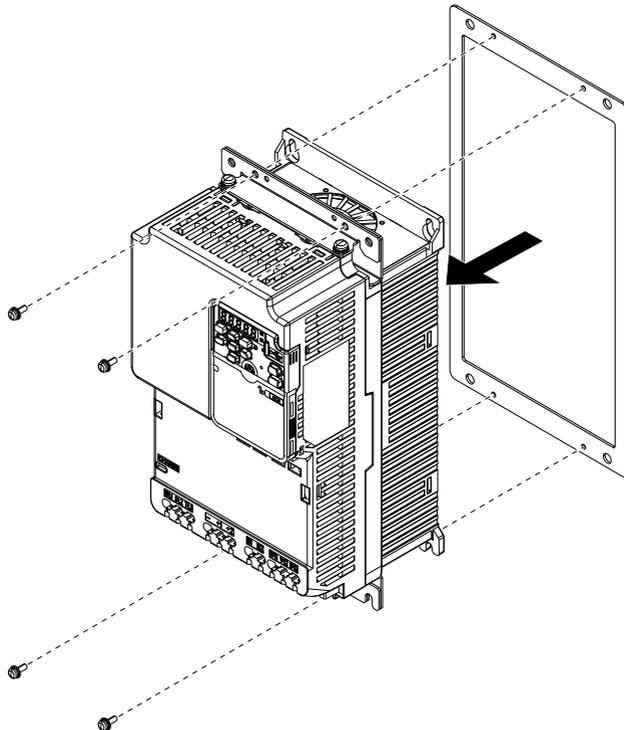
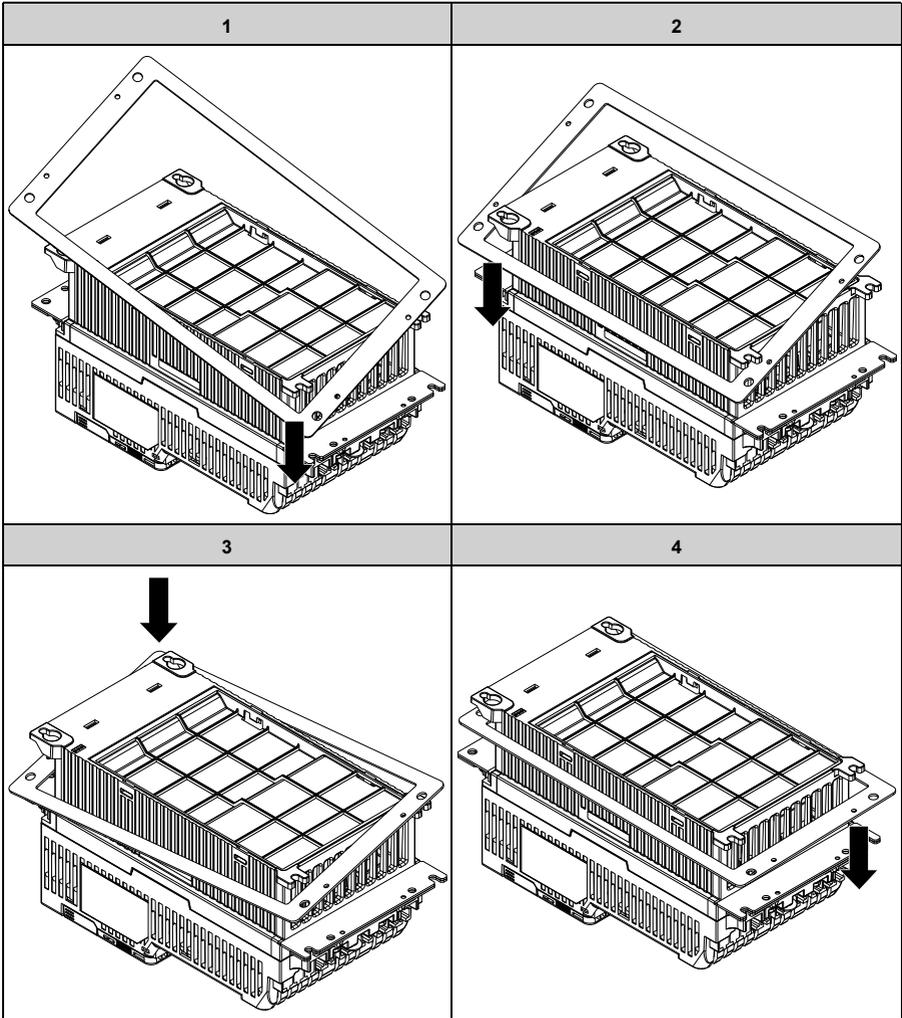


Figure 6.13 Install the Frame

Note:

To install the frame on models 2030 to 2042 and 4018 to 4023, put the drive heatsink through the frame as shown in [Table 6.2](#).

Table 6.2 Procedure to Put the Heatsink through the Frame



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

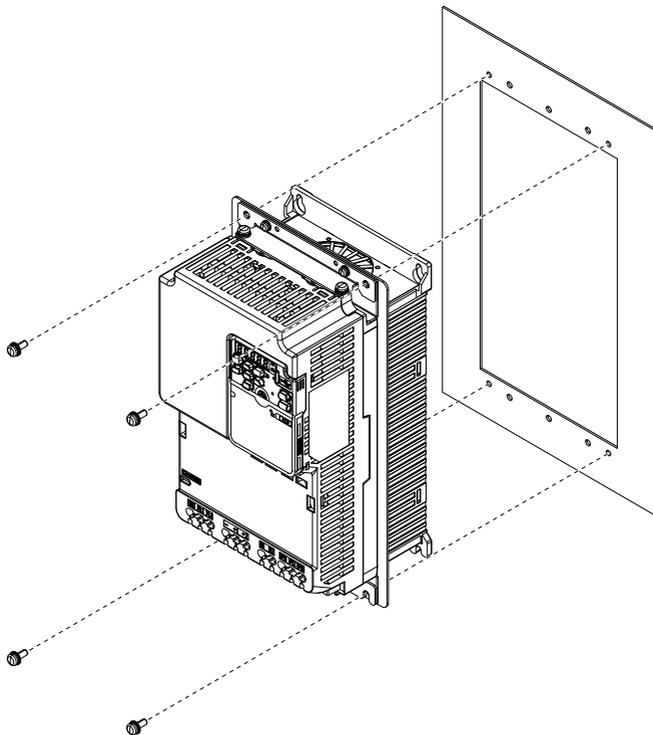


Figure 6.14 Install the Drive into the Opening of the Enclosure Panel

■ **Install the Kit on Drive Models 2070, 2082, 4044, 4060 (Procedure E)**

Cut an opening in the enclosure panel before you install the kit. Refer to *Panel Cut-Out Dimensions on page 14* for more information.

1. Use the supplied screws to install bracket 1 to the top of the drive in the position shown in [Figure 6.15](#).

Tighten the screws to a correct tightening torque:

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

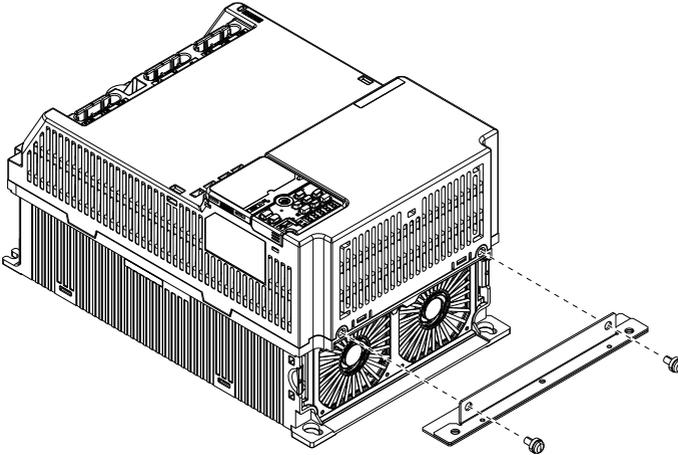


Figure 6.15 Install Bracket 1 (Top of the Drive)

2. Use the supplied screws to install bracket 2 to the bottom of the drive in the position shown in [Figure 6.16](#).

Tighten the screws to a correct tightening torque:

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

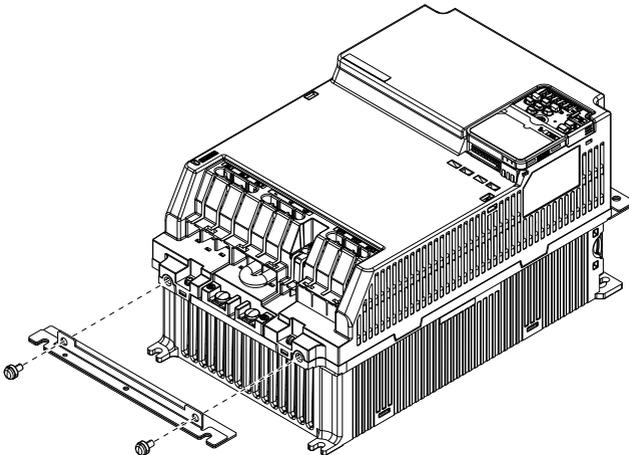


Figure 6.16 Install Bracket 2 (Bottom of the Drive)

3. Install the frame to the drive and use screws to safety it to the drive.
Tighten the screws to a correct tightening torque:
 - M4 × 12 pan head screw: 0.98 N·m to 1.33 N·m (8.67 in·lb to 11.77 in·lb)

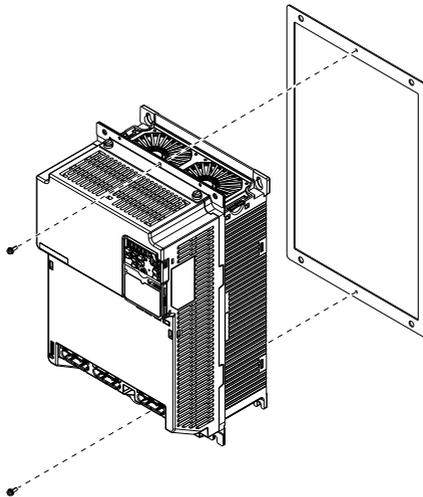


Figure 6.17 Install the Frame

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

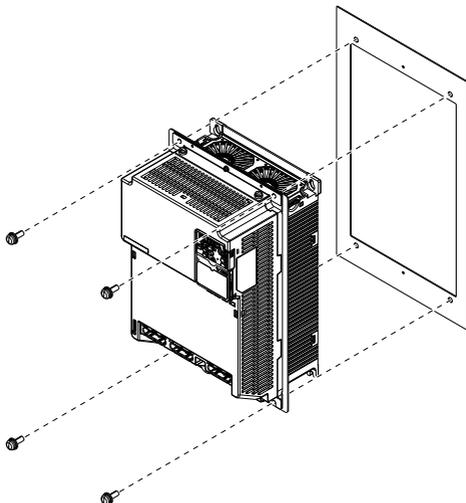


Figure 6.18 Install the Drive into the Opening of the Enclosure Panel

◆ **Gasket and Sealant**

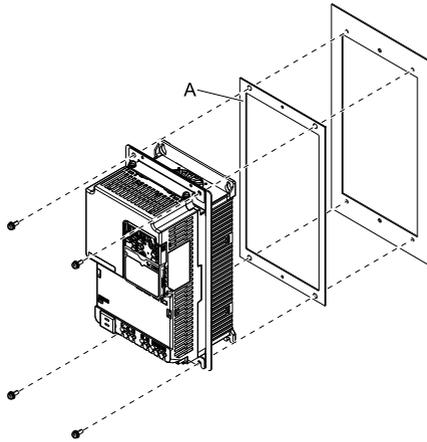
If the environment around the heatsink does not meet the recommendations for the drive installation environment, install a gasket or apply sealant as shown in [Figure 6.19](#) and [Figure 6.20](#). Make sure that the drive is safe from unsatisfactory environmental conditions.

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 or equivalents:

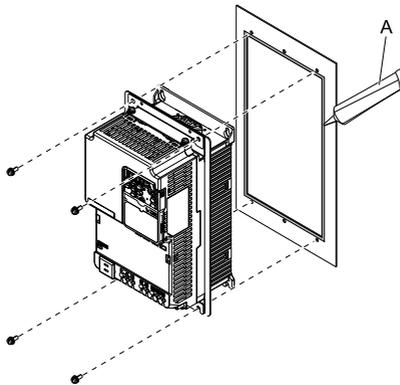
- Gasket: INOAC CORPORATION C-4205
- Sealant: Shin-Etsu Silicone KE-3494 from Shin-Etsu Chemical Co., Ltd.

Refer to [Panel Cut-Out Dimensions on page 14](#) for the gasket dimensions.



A - Gasket

Figure 6.19 Install a Gasket



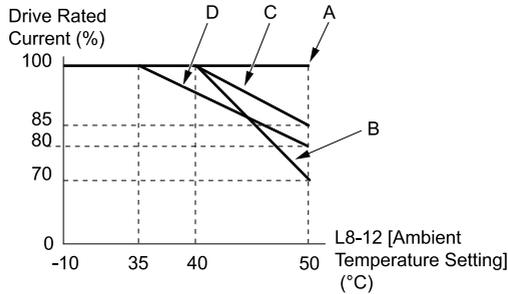
A - Sealant

Figure 6.20 Apply Sealant

7 Related Parameters

When you install the kit to the drive and do an External Heatsink Installation, set $L8-35 = 3$ [*Installation Method Selection = External Heatsink*]. Refer to the drive manual for information about setting parameters.

No.	Name	Description	Default (Range)
L8-12	Ambient Temperature Setting	Sets the ambient temperature of the drive installation area. The setting range changes when the $L8-35$ [<i>Installation Method Selection</i>] value changes:	40 °C (-10 °C - +60 °C)
L8-35	Installation Method Selection	Sets the type of drive installation. 0 : IP20/UL Open Type 1 : Side-by-Side Mounting 2 : IP20/UL Type 1 3 : External Heatsink	0 (0 - 3)



- A - L8-35 = 0 [IP20/UL Open Type]** **C - L8-35 = 2 [IP20/UL Type 1]**
B - L8-35 = 1 [Side-by-Side Mounting] **D - L8-35 = 3 [External Heatsink]**

Figure 7.1 Derating Depending on Drive Installation Method

Revision History

Date of Publication	Revision Number	Section	Revised Content
June 2023	3	All	Revision: Reviewed and corrected entire documentation
		1	Addition: Compatible Models GA400
		3	
		4	
May 2022	2	3	Addition: Addition: For Yaskawa Customers in the North or South America Regions
July 2019	1	All	Revision: Reviewed and corrected entire documentation
		6	Addition: Procedure "Install the Kit on Drive Models 2030 - 2056 and 4018 - 4038 (Procedure D)"
March 2019	-	-	First Edition



YASKAWA AC Drive Option External Heatsink Installation Kit Installation Manual

DRIVE CENTER (INVERTER PLANT)

2-13-1, Nishimiyachi, Yukuhashi, Fukuoka,
824-8511, Japan
Phone: +81-930-25-2548 Fax: +81-930-25-3431
www.yaskawa.co.jp

YASKAWA ELECTRIC CORPORATION

New Pier Takeshiba South Tower, 1-16-1, Kaigan,
Minatoku, Tokyo, 105-6891, Japan
Phone: +81-3-5402-4502 Fax: +81-3-5402-4580
www.yaskawa.co.jp

YASKAWA AMERICA, INC.

2121, Norman Drive South, Waukegan, IL 60085, U.S.A.
Phone: +1-800-YASKAWA (927-5292) or +1-847-887-7000
Fax: +1-847-887-7310
www.yaskawa.com

YASKAWA ELÉTRICO DO BRASIL LTDA.

777, Avenida Piraporinha, Diadema, São Paulo,
09950-000, Brasil
Phone: +55-11-3585-1100 Fax: +55-11-3585-1187
www.yaskawa.com.br

YASKAWA EUROPE GmbH

Philipp-Reis-Str. 6, 65795 Hattersheim am Main, Germany
Phone: +49-6196-569-300 Fax: +49-6196-569-398
www.yaskawa.eu.com
E-mail: info@yaskawa.eu.com

YASKAWA ELECTRIC KOREA CORPORATION

6F, 112, LS-ro, Dongan-gu, Anyang-si, Gyeonggi-do, Korea
Phone: +82-31-8015-4224 Fax: +82-31-8015-5034
www.yaskawa.co.kr

YASKAWA ASIA PACIFIC PTE. LTD.

30A, Kallang Place, #06-01, 339213, Singapore
Phone: +65-6282-3003 Fax: +65-6289-3003
www.yaskawa.com.sg

YASKAWA ELECTRIC (THAILAND) CO., LTD.

59, 1F-5F, Flourish Building, Soi Ratchadapisek 18,
Ratchadapisek Road, Huaykwang, Bangkok, 10310,
Thailand
Phone: +66-2-017-0099 Fax: +66-2-017-0799
www.yaskawa.co.th

YASKAWA ELECTRIC (CHINA) CO., LTD.

22F, Link Square 1, No.222, Hubin Road, Shanghai,
200021, China
Phone: +86-21-5385-2200 Fax: +86-21-5385-3299
www.yaskawa.com.cn

YASKAWA ELECTRIC (CHINA) CO., LTD. BEIJING OFFICE

Room 1011, Tower W3 Oriental Plaza, No. 1,
East Chang An Avenue,
Dong Cheng District, Beijing, 100738, China
Phone: +86-10-8518-4086 Fax: +86-10-8518-4082

YASKAWA ELECTRIC TAIWAN CORPORATION

12F, No. 207, Section 3, Beishin Road, Shindian District,
New Taipei City 23143, Taiwan
Phone: +886-2-8913-1333
Fax: +886-2-8913-1513 or +886-2-8913-1519
www.yaskawa.com.tw

YASKAWA INDIA PRIVATE LIMITED

#17/A, Electronics City, Hosur Road, Bengaluru,
560 100 (Karnataka), India
Phone: +91-80-4244-1900 Fax: +91-80-4244-1901
www.yaskawaindia.in

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.

© 2019 YASKAWA Electric Corporation



TOEPC7206009

MANUAL NO. TOEP C720600 09C <3>-0
Published in Japan June 2023
Z3-2-25
Original instructions.