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External Heatsink Installation Guide (A1000)

This manual is valid for 200V and 400V versions of A1000 (power range 0.55 to 560 kW HD).

All dimensions are given in mm.

The symbol "□" in the model code can be any letter

1 Power range 0.55 to 18.5 kW (Heavy Duty rating)

1.1 Overview

CIMR-A□2□0004 to 0081

CIMR-A□4□0002 to 0044

The installation differs depending on the environment:

1. In case of clean environment use methods, described in section 1.2 of this document
2. In case of dirty environment, additionally take care to follow the instructions regarding panel cut size and gasket size in section 1.3

The table below and Figure 1 show the mounting dimensions:

Model code	IP20 / NEMA Type 1							
	W	W1	H	H1	D1	D2	D3	a
CIMR-A□2□0004 2□0006 2□0008 2□0010 2□0012	158	122	294	280	109	36.4	50	M5
CIMR-A□2□0018 2□0021	158	122	294	280	109	53.4	60	M5
CIMR-A□2□0030 2□0040	158	122	294	280	112	53.4	60	M5
CIMR-A□2□0056	198	160	329	315	112	73.4	80	M5
CIMR-A□2□0069 2□0081	238	192	380	362	119	76.4	85	M5
CIMR-A□4□0002 4□0004 4□0005	158	122	294	280	109	36.4	50	M5
CIMR-A□4□0007 4□0009 4□0011	158	122	294	280	109	53.4	60	M5
CIMR-A□4□0018 4□0023	158	122	294	280	112	53.4	60	M5
CIMR-A□4□0031	198	160	329	315	112	53.4	60	M5
CIMR-A□4□0038	198	160	329	315	112	73.4	80	M5
CIMR-A□4□0044	238	192	380	362	119	76.4	85	M6

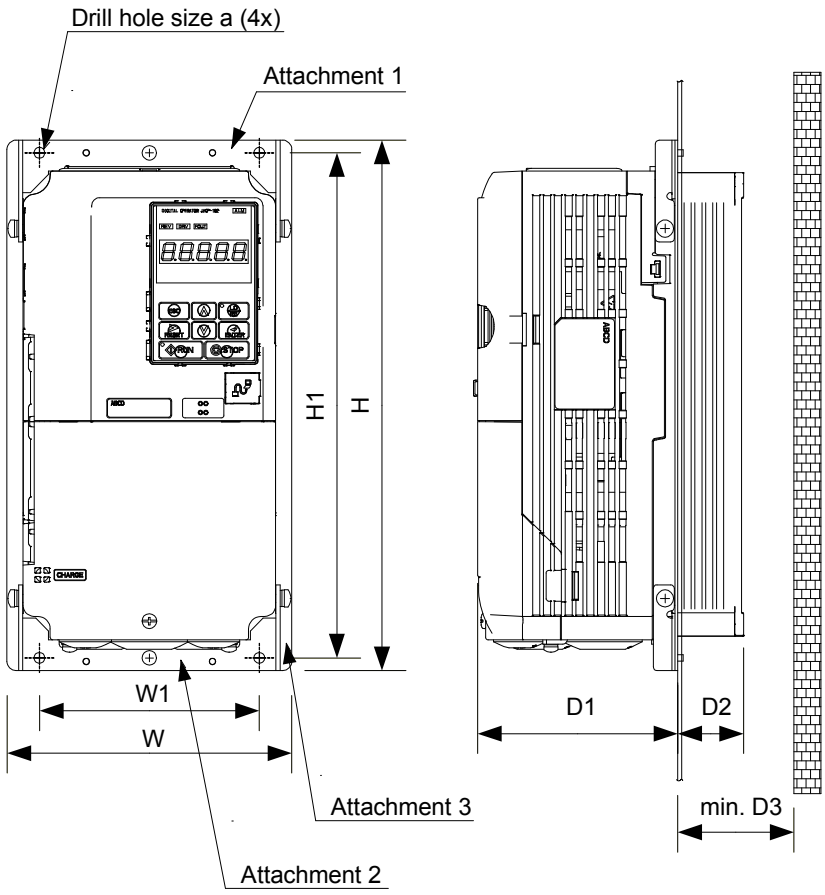

Figure 1: Installation - devices up to 18.5 kW

1.2 Installation in clean environment

Devices up to 200V/15kW and 400V/18.5kW

The figures show CIMR-AA2A0012FAA.

1. Remove top cover (Figure 2)

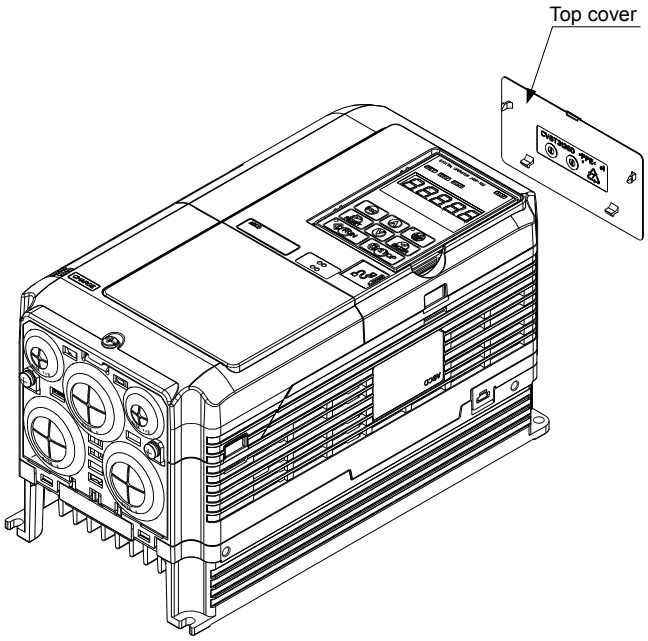

Figure 2: Step 1

2. Fix *Attachment 1* to the top and *Attachment 2* to the bottom of the inverter (Figure 3). Use the holes at the side of the device and screws with spring and washer. Use M5x10 for drives 2A004 to 2A0056 and 4A0002 to 4A0038 and M6x14 for drives 2A0069 and 4A0044.

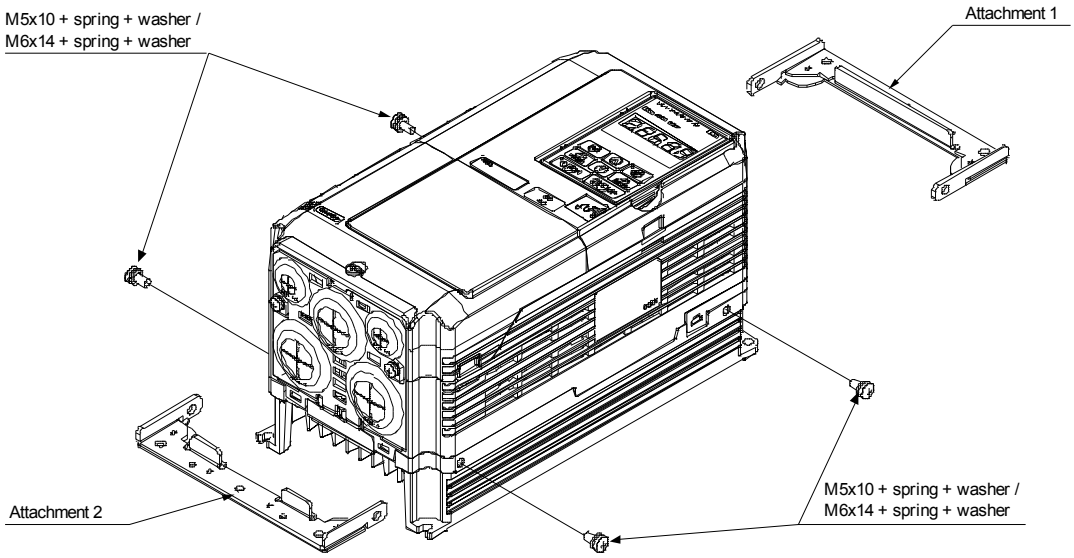

Figure 3: Step 2

3. Fix *Attachment 3* to *Attachments 1* and *2*. Take care to the correct installation orientation: The wide end (indicated by the arrow in the figure) is for the top size. Orientation does no matter for devices 2A0004~0040 and 4A0002~0023. Use screws M4x10 with spring and washer.

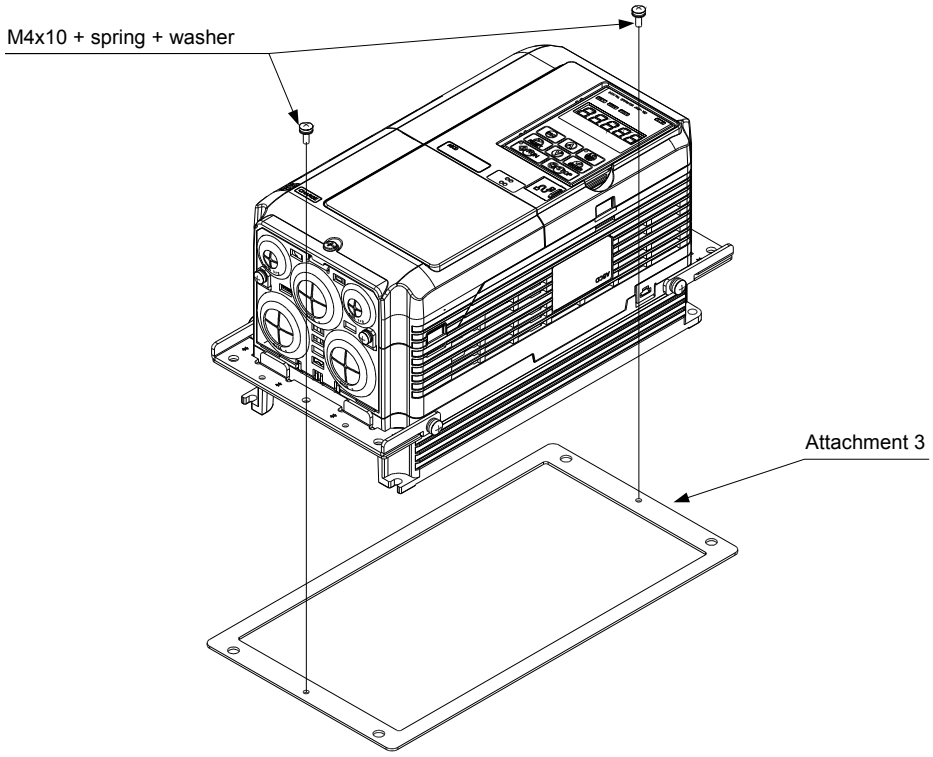

Figure 4: Step 3

4. Reinstall the top cover. Figure 5 shows the completely prepared inverter.

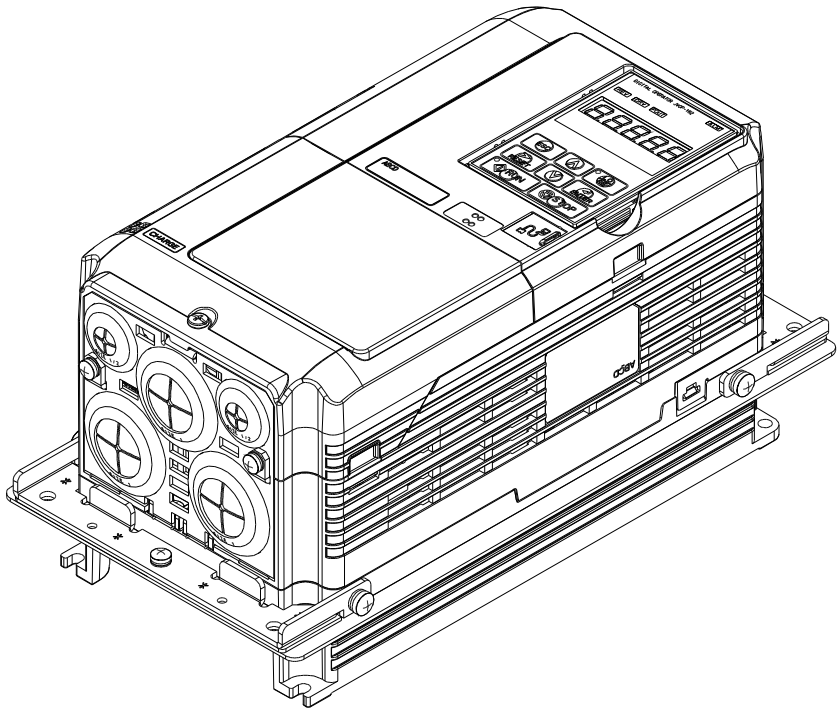

Figure 5: Installation completed

Device CIMR-A□2□0081

The figures show a device with I20/NEMA Type 1 protection

1. Remove top cover, terminal cover and NEMA 1 placket (Figure 6).

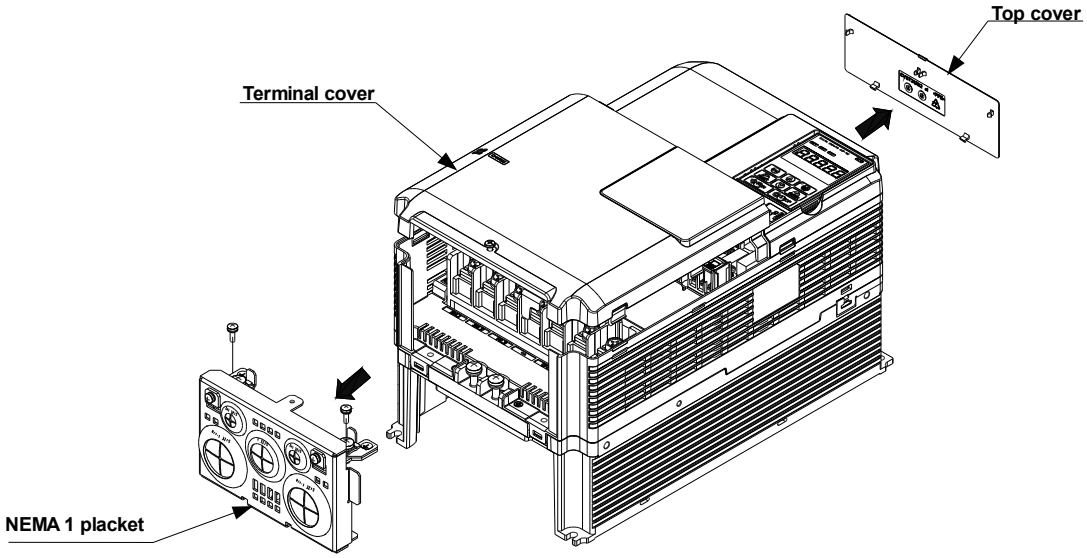

Figure 6: Step 1 - 2A0081

2. Fix *Attachment 1* to the top and *Attachment 2* to the bottom of the inverter. Use the holes at the side of the device and screws M6x14 with spring and washer like shown in Figure 7.

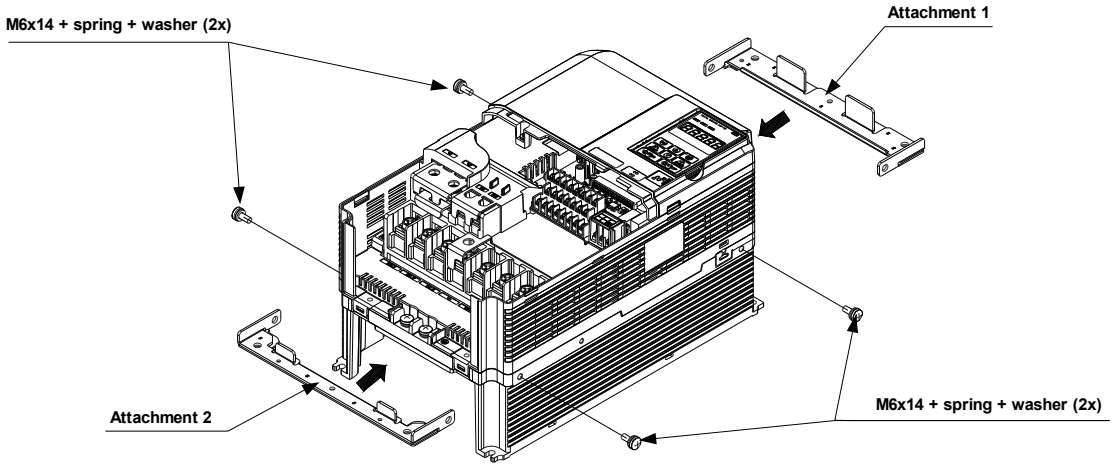

Figure 7: Step 2 - 2A0081

5. Fix *Attachment 3* to *Attachments 1* and *2* (Figure 8). Take care to the correct installation orientation: The wide end (indicated by the arrow in the figure) is for the top size. Use screws M4x10 with spring and washer.

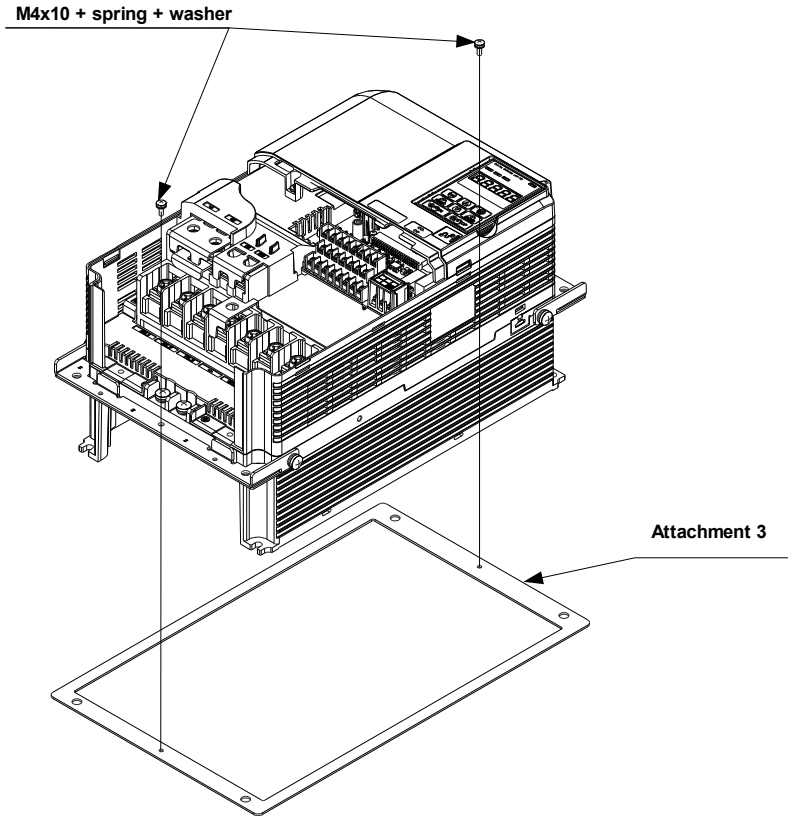

Figure 8: Step 3 - 2A0081

3. Reinstall top cover, terminal cover and NEMA 1 placket (Figure 9)

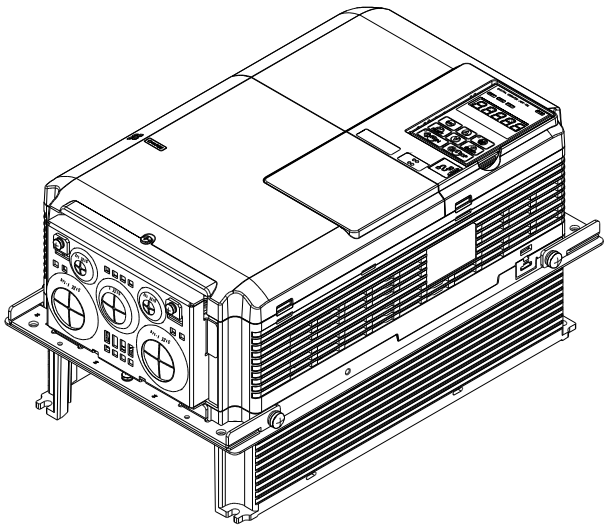

Figure 9: Installation completed (2A0081)

1.3 Installation in dirty environment

After installing the attachments, cut the panel like shown in Figure 10. The dimensions for the respective device can be taken from the table below. The cut sizes are the inner dimensions. The hatched area and the outer dimensions show the dimensioning of the gasket.

Note:

1. In case that the gap between attachments and inverter is a problem, apply a sealing.
2. As material of the gasket, EPDM or CR should be used. Use a thickness of approximately 2 mm. Recommended products are:
    - Gasket: C-4205
    - Sealing: KE-3494

Model code	W	H	W1	W2	W3	H1	H2	H3	H4	A	B	d
CIMR-A□2□0004 2□0006 2□0008 2□0010 2□0012 2□0018 2□0021 2□0030 2□0040	150	294	122	9	9	280	8.5	8.5	7	140	263	M5
CIMR-A□2□0056	198	329	160	10	9	315	17.5	10.5	7	180	287	M5
CIMR-A□2□0069 2□0081	238	380	192	14	9	362	13.0	8.0	9	220	341	M6
CIMR-A□4□0002 4□0004 4□0005 4□0007 4□0009 4□0011 4□0018 4□0023	158	294	122	9	9	280	8.5	8.5	7	140	263	M5
CIMR-A□4□0031 4□0038	198	329	160	10	9	315	17.5	10.5	7	180	287	M5
CIMR-A□4□0044	238	380	192	14	9	362	13.0	8.0	9	220	341	M6

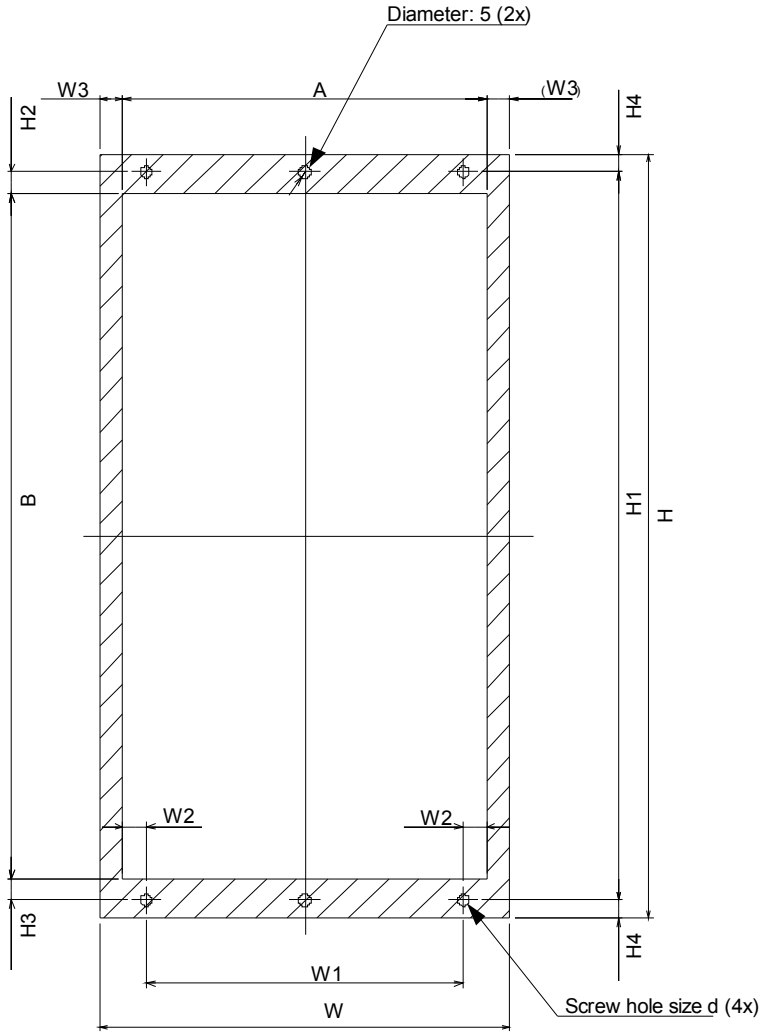

Figure 10: Panel cut dimensions

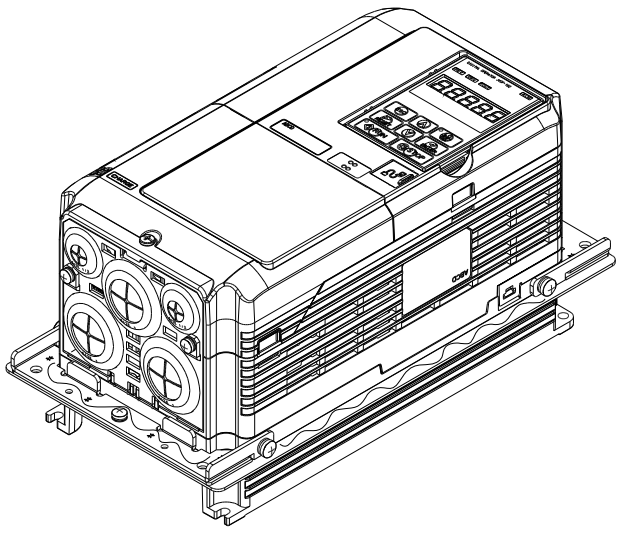

Figure 11: Dirty environment - Installation completed

2 Power range 22 kW to 560 kW(Heavy Duty rating)

2.1 Overview

CIMR-A□2□0110 to 0415

CIMR-A□4□0058 to 1200

Depending on the environment, there are different installation methods:

1. For devices up to 200V/30kW and 400V/45kW refer to section 2.2 (method 1).
2. For devices above 200V/30kW or 400V/45kW refer to section 2.3 (method 2).

2.2 Installation method 1 (models 2□0110, 0138 and 4□0058 to 0103)

The figures show CIMR-AA2A0110AAA.

Remove the installation attachments, which are already installed on the backside of the inverter

- Re-install them on the position, shown in Figure 12. Use the same screws, which had been used on the previous position of the attachment. Figure 13 shows the completely prepared inverter.

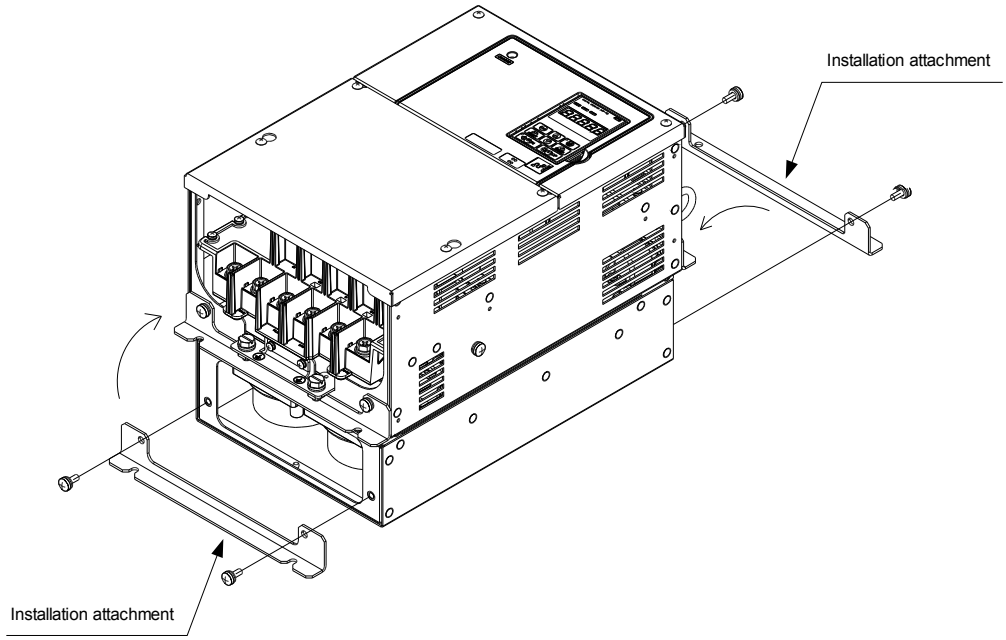

Figure 12: Method 1

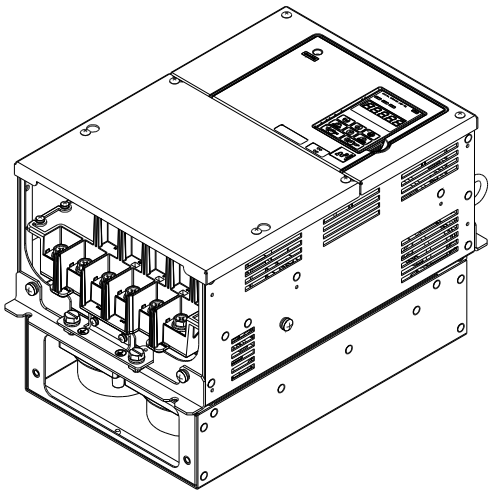

Figure 13: Method 1 - Installation completed

2.3 Installation method 2 (models 2□0169, to 0415 and 4□0139 to 1200

The figures show CIMR-AA2A0211AAA.

- Remove the installation attachments, which are already installed on the backside of the inverter. After that, re-install the screws to their original positions.
- Re-install the attachments to their new position like shown in figure below. Use 4 screws of the same size as the original screws.

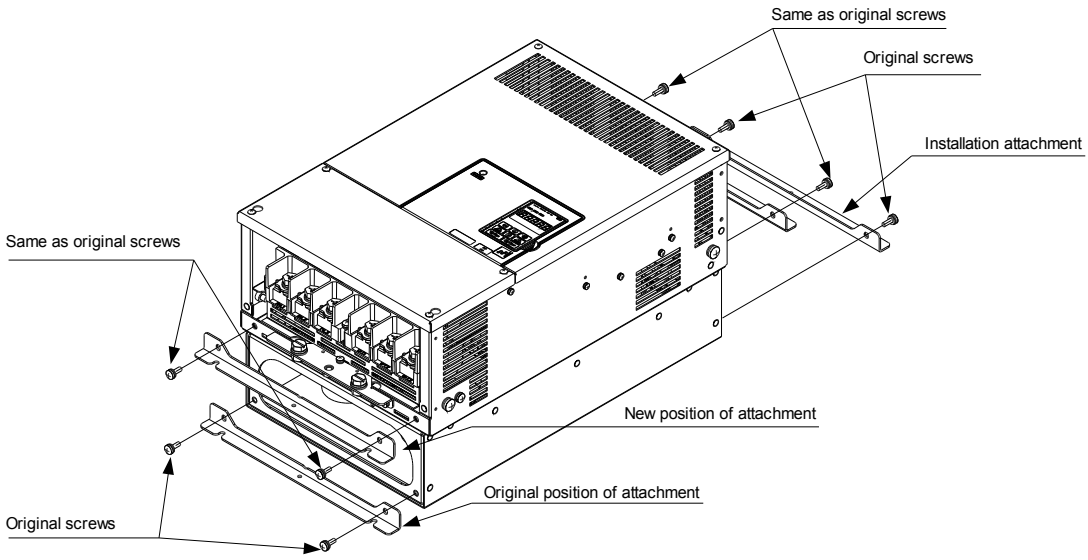

Figure 14: Installation method 2

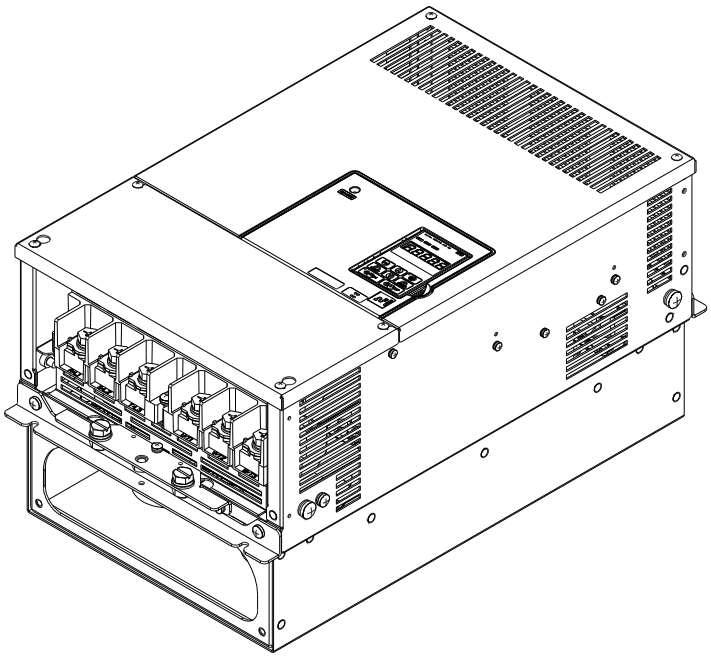

Figure 15: Method 2 - Installation completed

2.4 Panel cut dimensions

Models 200 V – 22 to 110 kW HD and 400 V – 22 to 185 kW HD

After installing the attachments, cut the panel like shown in Figure 16. The dimensions for the respective device can be taken from the table below. The cut sizes are the inner dimensions.

Model code CIMR-A□…	W	H	W1	W2	W3	H1	H2	H3	H4	H5	A	B	d
2□0110	250	400	195	19.5	8	385	8.0	7.5	8.0	7.5	234	369	M6
2□0138	275	450	220	19.5	8	435	8.0	7.5	8.0	7.5	259	419	M6
2□0169 2□0211	325	550	260	24.5	8	535	8.0	7.5	8.0	7.5	309	519	M6
2□0250 2□0312	450	705	325	54.5	8	680	12.5	12.5	12.5	12.5	434	655	M10
2□0360 2□0415	500	800	370	57.0	8	773	6.0	14.0	17.0	13.0	484	740	M12
4□0058	250	400	195	19.5	8	385	8.0	7.5	8.0	7.5	234	369	M6
4□0072	275	450	220	19.5	8	435	8.0	7.5	8.0	7.5	259	419	M6
4□0088 4□0103	325	510	260	24.5	8	495	8.0	7.5	8.0	7.5	309	479	M6
4□0139 4□0165	325	550	260	24.5	8	535	8.0	7.5	8.0	7.5	309	519	M6
4□0208	450	705	325	54.5	8	680	12.5	12.5	12.5	12.5	434	655	M10
4□0250 4□0296 4□0362	500	800	370	57.0	8	773	16.0	14.0	17.0	13.0	484	740	M12
4□0414	500	950	370	57.0	8	923	16.0	14.0	17.0	13.0	484	890	M12

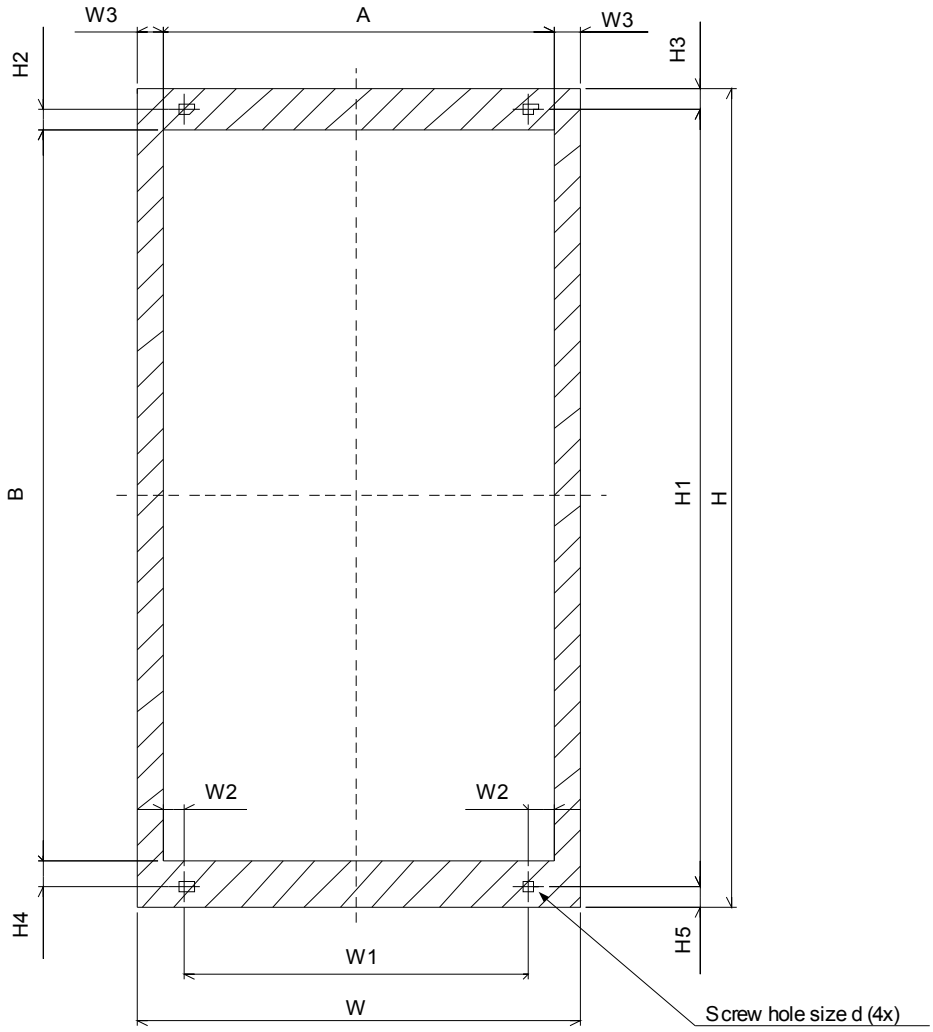

Figure 16: Panel cut dimensions – models 4□0058 to 4□0414

Models 400 V – 220 and 315 kW HD

After installing the attachments, cut the panel like shown in Figure 17. The dimensions for the respective device can be taken from the table below. The cut sizes are the inner dimensions.

Model code CIMR-A□…	W	H	W1	W2	W3	H1	H2	H3	H4	H5	A	B	d1
4□0515 4□0675	670	1140	440	107	8	1110	19	15	19	15	654	1072	M12

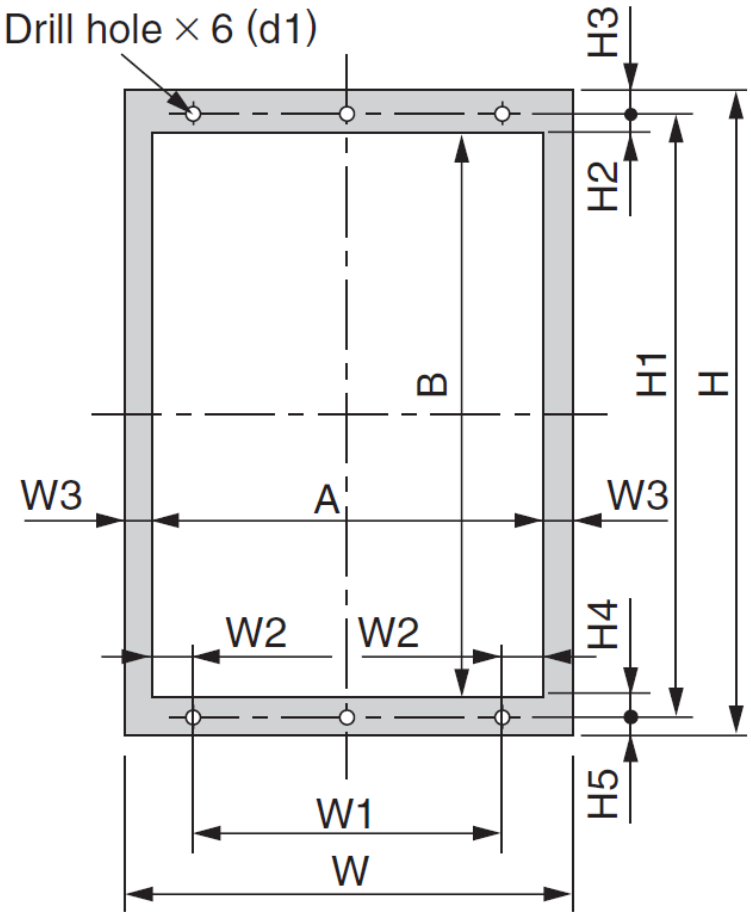

Figure 17: Panel cut dimensions – models 4□0515 and 4□0675

Models 400 V – 450 and 560 kW HD

After installing the attachments, cut the panel like shown in Figure 18. The dimensions for the respective device can be taken from the table below. The cut sizes are the inner dimensions.

Model code CIMR-A□…	W	H	W1	W2	W3	H1	H2	H3	H4	H5	A	B	d1
4□0930 4□1200	1250	1380	1100	67	8	1345	19	20	19	15	1234	1307	M12

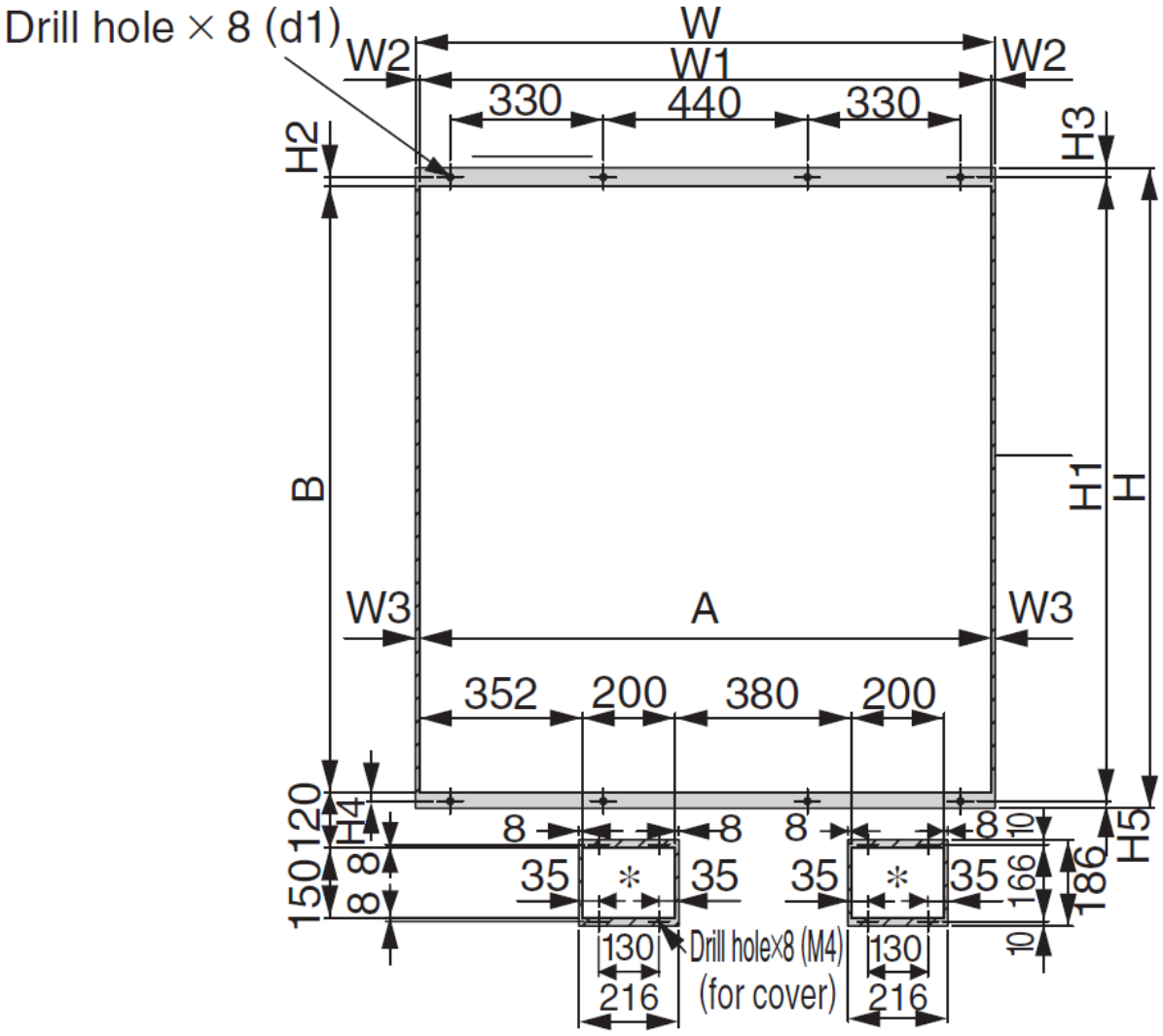

Figure 18: Panel cut dimensions – models 4□0930 and 4□1200

Note: The panel openings below the bottom of the main panel cut (marked with ✻) are needed for replacing an air filter installed to the bottom of the drive. These openings should be kept as small as possible

2.5 Capacitor covers for UL conformity

In case that the installation must be conform to the UL norms, additional covers for the capacitors are needed for units rated with 22 kW motor power or more. Please note that in most cases UL norms are mandatory only in North America. Figure 19 shows an example of the attachments.

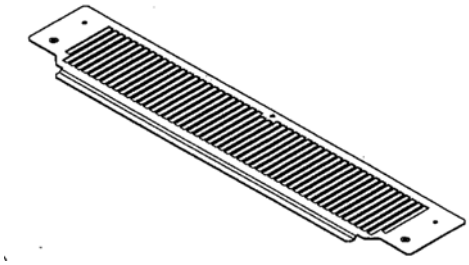

Figure 19: Example: Capacitor Cover

For ordering and for dimensional drawings please contact Yaskawa.

The table below shows the order codes for each drive. Not listed drives do not require capacitor covers.

Drive Model CIMR-A□ …	Capacitor Cover – Order Code	Weight 〔kg〕
2□0110	ECAT31685-11	0.1
2□0138	ECAT31686-11	0.2
2□0169	ECAT31687-11	0.2
2□0211		
2□0250	ECAT31726-11	0.4
2□0312		
2□0360	ECAT31698-11	0.4
2□0415		
4□0058	ECAT31685-11	0.1
4□0072	ECAT31686-11	0.2
4□0088	ECAT31688-11	0.2
4□0103		
4□0139	ECAT31687-11	0.2
4□0165		
4□0208	ECAT31726-11	0.4
4□0250	ECAT31698-11	0.4
4□0296		
4□0362		
4□0414	ECAT31740-11	0.4
4□0515	ECAT31746-11	0.5
4□0675		
4□0930	ECAT31741-11	0.4
4□1200		

3 Information for ordering

Model code	Code for ordering	Enclosure
CIMR-A□2□0004 **2□0006** **2□0008** **2□0010** **2□0012**	EZZ020800A	IP20 / NEMA Type 1
CIMR-A□2□0018 **2□0021** **2□0030** **2□0040**	EZZ020800B	
CIMR-A□2□0056	EZZ020800C	
CIMR-A□2□0069 **2□0081**	EZZ020800D	
CIMR-A□2□0110 to 2□0415	No additional equipment needed	IP00
CIMR-A□4□0002 **4□0004** **4□0005**	EZZ020800A	IP20 / NEMA Type 1
CIMR-A□4□0007 **4□0009** **4□0011** **4□0018** **4□0023**	EZZ020800B	
CIMR-A□4□0031 **4□0038**	EZZ020800C	
CIMR-A□4□0044	EZZ020800D	
CIMR-A□4□0058 to 4□1200	No additional equipment needed	IP00