

Description

1/8 - 25HP

V1000 NEMA 4X Drive

V1000-4X



The V1000-4X is a version of the standard V1000 in an integral enclosure that meets NEMA type 4X/12 indoor use requirements, UL type 4X/12 standards, and the IP66 rating of IEC 529. This enclosure provides the protection required in tough washdown or dust-tight environments, common in Food and Beverage Processing, Packaging, Metal Machining, Woodworking, Pumping, Refrigeration, and Printing. The enclosure is coated to protect against the harmful effects of sanitizing chemicals commonly used in food industries.

Performance Features

- Ratings:
 - 1/8 to 3 HP at 200-240 VAC 1-Phase
 - 1/8 to 25 HP (ND) at 200-240 VAC 3-Phase
 - 1/2 to 25 HP (ND) at 380-480 VAC 3-Phase
- Overload Capacity:
 - 150% for 60 sec. (Heavy Duty)
 - 120% for 60 sec. (Normal Duty)
- Control Methods: V/f Control, Open Loop Current Vector Control, PM Open Loop Current Vector Control, Simple closed loop speed control
- DC injection braking, ramp to stop
- Electronic reversing
- Adjustable accel/decel: 0.01 to 6000 seconds
- Controlled speed range:
 - 40:1⁽¹⁾ 100:1⁽²⁾
- Speed Regulation:
 - ± 0.5 to 1% with slip compensation⁽¹⁾
 - ± 0.2%⁽²⁾
- Displacement power factor: 0.98
- Output frequency: 0 to 400 Hz
- Frequency resolution:
 - 0.01 Hz with digital reference
 - 0.06 / 60 Hz with analog reference
- Frequency accuracy:
 - 0.01% with digital command
 - 0.5% with analog command
- Volts / hertz ratio: infinitely adjustable pattern
- DC Injection braking: adjustable amplitude, duration, current limited
- Torque boost: full range, auto
- Power loss ride-thru: 0.5 sec.
- Speed search
- Auto restart
- 3 Critical frequency rejection settings
- Slip Compensation
- Energy Savings Function
- Enhanced PID with loss of feedback function

Design Features

- Dual microprocessor logic
- Digital keypad operator, 5 digits
- LED status display, door-mount
- Remote Mount Keypad Capability
- RJ-45 Style Digital Operator Connector
- 7 multifunction digital inputs
- 3 multifunction digital outputs
- Hardwire baseblock (EN954-1 Cat. 3)
- Programmable form C output contact for customer use: 1A at 250 VAC or 30 VDC
- 24 VDC control logic compatible with sourcing or sinking outputs (PNP or NPN)
- Carrier frequency: 15 kHz max; swing PWM
- 16 multi-speed settings plus jog speed
- 2 Remote speed references:
 - 0-10 VDC (20 kohms) or isolated 4-20 mA (250 ohms)
- Signal follower: bias and gain
- 2 programmable open collector outputs
- Analog monitor output:
 - 0-10 VDC proportional to output frequency or output current
- Approximately 400 parameters
- Digital pulse train input (33 kHz max.)
- Cooling fan controlled by drive run/stop
- RS-422/485 Modbus 115 kbps
- UL recognized electronic overload
- MTBF: 28 years
- Built-in Dynamic Braking Transistor
- NEMA 4X/IP66 enclosure
- Application presets
- Maintenance monitors

⁽¹⁾ V/f Mode

⁽²⁾ Open Loop Current Vector Mode

Protective Features

- Current limit, stall prevention during accel, decel, and run
- Motor and drive overload
- Over voltage prevention function
- Instantaneous over current
- Short circuit
- Under voltage
- Heatsink overheat
- Ground fault protection
- Over/under torque
- Short circuit withstand rating: 30K RMS

Service Conditions

- Ambient service temperature:
 - 10° to 40°C (+14° to 104°F) NEMA 1
 - 10° to 50°C (+14° to 122°F) Open Chassis
- Ambient storage temperature:
 - 20° to 60°C (-4° to 140°F)
- Humidity: to 95% non-condensing
- Altitude: to 3300 ft; higher by derating
- Service factor: 1.0
- Input voltage: -15% to +10%
 - 200 to 240 VAC, 380 to 480 VAC
- Input frequency: +/-5%; 50/60 Hz
- Input phase sequence insensitive

Options

- 120VAC Interface
- Profibus-DP, DeviceNet Communications
- Modbus TCP/IP, EtherNet/IP Communications
- DriveWizard™ Plus
- Y-Stick Copy Unit
- Reactors, 3% and 5%
- Dynamic Braking Resistor (external)
- Multi-lingual, full text remote LCD with copy
- EMC filter Type C1

Standards

- UL 508C (Power Conversion)
- CSA 22.2 No. 14-95 (Industrial Control Equipment)
- UL, cUL listed; CE marked
- RoHS compliant
- EN 50178 (LVD)
- EN 50081-2, EN 50082-2 (EMC)
- EN 954-1, Category 3 Safety Standard
- EN 61800-3
- IEC 529, 146
- FCC CFR 47 Part 15 Subpart B (w/ External Filter)
- TUV
- NEMA type 4X/12
- IP66 rating of IEC60529

Standard Drives

V1000-4X

Rated Input Voltage	Drive Model Number CIMR-VU	Normal Duty ⁽¹⁾		Heavy Duty ⁽¹⁾	
		Rated Output Current (Amps)	Nominal HP ⁽²⁾	Rated Output Current (Amps)	Nominal HP ⁽²⁾
200-240V 1-Phase	BA0001GAA	1.2	1/8 & 1/4	0.8	1/8
	BA0002GAA	1.9	1/4	1.6	1/4
	BA0003GAA	3.3	1/2 & 3/4	3.0	1/2
	BA0006GAA	6.0	1	5.0	3/4 & 1
	BA0010GAA	9.6	2 & 3	8.0	2
	BA0012GAA	12.0	3	11.0	3
200-240V 3-Phase	2A0001GAA	1.2	1/8 & 1/4	0.8	1/8
	2A0002GAA	1.9	1/4	1.6	1/4
	2A0004GAA	3.5	1/2 & 3/4	3.0	1/2
	2A0006GAA	6.0	1	5.0	3/4 & 1
	2A0010GAA	9.6	2 & 3	8.0	2
	2A0012GAA	12.0	3	11.0	3
	2A0020GAA	19.6	5	17.5	5
	2A0030GAA	30.0	7.5 & 10	25.0	7.5
	2A0040GAA	40.0	10	33.0	10
	2A0056GAA	56.0	20	47.0	15
	2A0069GAA	69.0	25	60.0	20
380-480V 3-Phase	4A0001GAA	1.2	1/2	1.2	1/2
	4A0002GAA	2.1	3/4 & 1	1.8	3/4
	4A0004GAA	4.1	2	3.4	1 & 2
	4A0005GAA	5.4	3	4.8	3
	4A0007GAA	6.9	4	5.5	3
	4A0009GAA	8.8	5	7.2	4
	4A0011GAA	11.1	7.5	9.2	5
	4A0018GAA	17.5	10	14.8	7.5 & 10
	4A0023GAA	24.0	15	18.0	10
	4A0031GAA	31.0	20	24.0	15
	4A0038GAA	38.0	25	31.0	20

(1) Normal Duty overload current rating is 120% of rated output current for 60 seconds; Heavy Duty overload current rating is 150% of rated output current for 60 seconds

(2) Horsepower rating is based on standard NEMA B 4-pole motor design and NEC table 430.150 Full-Load Current, Three-Phase Alternating Current Motors

V1000-4X

Dimensions and Data

Rated Input Voltage	Drive Model Number CIMR-VU	Normal Duty		Heavy Duty		Physical Dimensions (in.)			Mounting Dimensions (in.)		Weight (lbs.) ⁽¹⁾
		Rated Output Current (Amps)	Nominal HP	Rated Output Current (Amps)	Nominal HP	H	W	D	H1	W1	
200-240V 1-Phase	BA0001GAA	1.2	1/8 & 1/4	0.8	1/8	8.74	6.38	7.28	8.27	5.32	10.4
	BA0002GAA	1.9	1/4	1.6	1/4	8.74	6.38	7.28	8.27	5.32	10.4
	BA0003GAA	3.3	1/2 & 3/4	3.0	1/2	8.74	6.38	7.28	8.27	5.32	10.8
	BA0006GAA	6.0	1	5.0	3/4 & 1	10.04	7.36	9.25	9.49	6.22	17.2
	BA0010GAA	9.6	2 & 3	8.0	2	10.04	7.36	9.25	9.49	6.22	17.2
	BA0012GAA	12.0	3	11.0	3	10.04	7.36	9.25	9.49	6.22	18.1
200-240V 3-Phase	2A0001GAA	1.2	1/8 & 1/4	0.8	1/8	8.74	6.38	7.28	8.27	5.32	10.4
	2A0002GAA	1.9	1/4	1.6	1/4	8.74	6.38	7.28	8.27	5.32	10.4
	2A0004GAA	3.5	1/2 & 3/4	3.0	1/2	8.74	6.38	7.28	8.27	5.32	10.6
	2A0006GAA	6.0	1	5.0	3/4 & 1	8.74	6.38	7.28	8.27	5.32	10.6
	2A0010GAA	9.6	2 & 3	8.0	2	10.04	7.36	9.25	9.49	6.22	17.0
	2A0012GAA	12.0	3	11.0	3	10.04	7.36	9.25	9.49	6.22	17.0
	2A0020GAA	19.6	5	17.5	5	10.04	7.36	9.25	9.49	6.22	17.9
	2A0030GAA	30.0	7.5 & 10	25.0	7.5	16.54	11.42	12.01	15.75	10.43	48.1
	2A0040GAA	40.0	10	33.0	10	16.54	11.42	12.01	15.75	10.43	48.1
	2A0056GAA	56.0	20	47.0	15	16.54	11.42	12.01	15.75	10.43	51.2
2A0069GAA	69.0	25	60.0	20	18.31	11.42	12.01	17.52	10.43	61.1	
380-480V 3-Phase	4A0001GAA	1.2	1/2	1.2	1/2	8.74	6.38	7.28	8.27	5.32	11.1
	4A0002GAA	2.1	3/4 & 1	1.8	3/4	8.74	6.38	7.28	8.27	5.32	11.1
	4A0004GAA	4.1	2	3.4	1 & 2	8.74	6.38	7.28	8.27	5.32	11.3
	4A0005GAA	5.4	3	4.8	3	10.04	7.36	9.25	9.49	6.22	17.0
	4A0007GAA	6.9	4	5.5	3	10.04	7.36	9.25	9.49	6.22	17.5
	4A0009GAA	8.8	5	7.2	4	10.04	7.36	9.25	9.49	6.22	17.5
	4A0011GAA	11.1	7.5	9.2	5	10.04	7.36	9.25	9.49	6.22	17.9
	4A0018GAA	17.5	10	14.8	7.5 & 10	16.54	11.42	12.01	15.75	10.43	47.9
	4A0023GAA	24.0	15	18.0	10	16.54	11.42	12.01	15.75	10.43	48.1
	4A0031GAA	31.0	20	24.0	15	16.54	11.42	12.01	15.75	10.43	50.5
4A0038GAA	38.0	25	31.0	20	16.54	11.42	12.01	15.75	10.43	51.2	

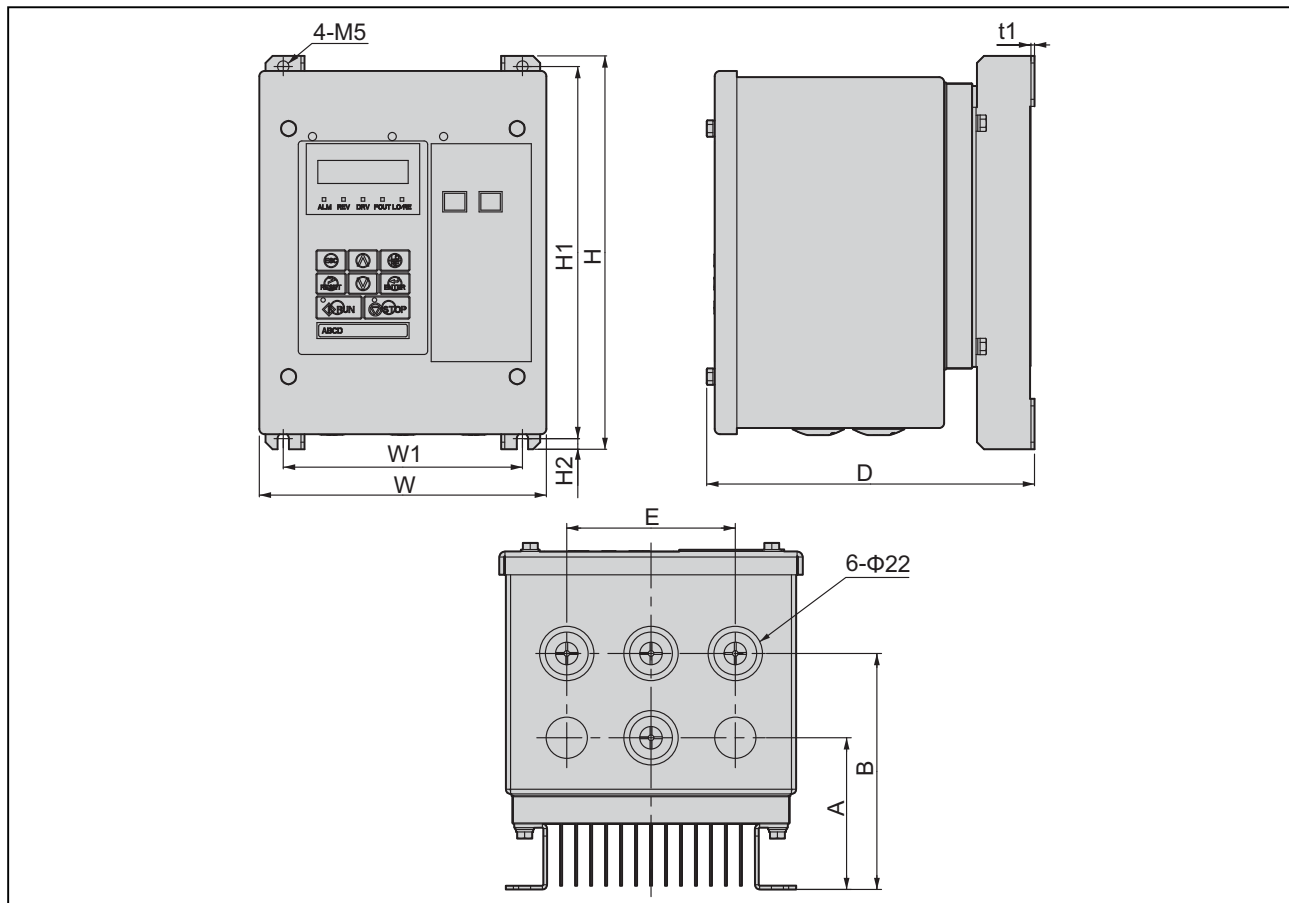
(1) This data represents the drive weight only, not shipping weight

Dimension Drawing

DD.V1000-4X.01

NEMA 4X/IP66

V1000-4X

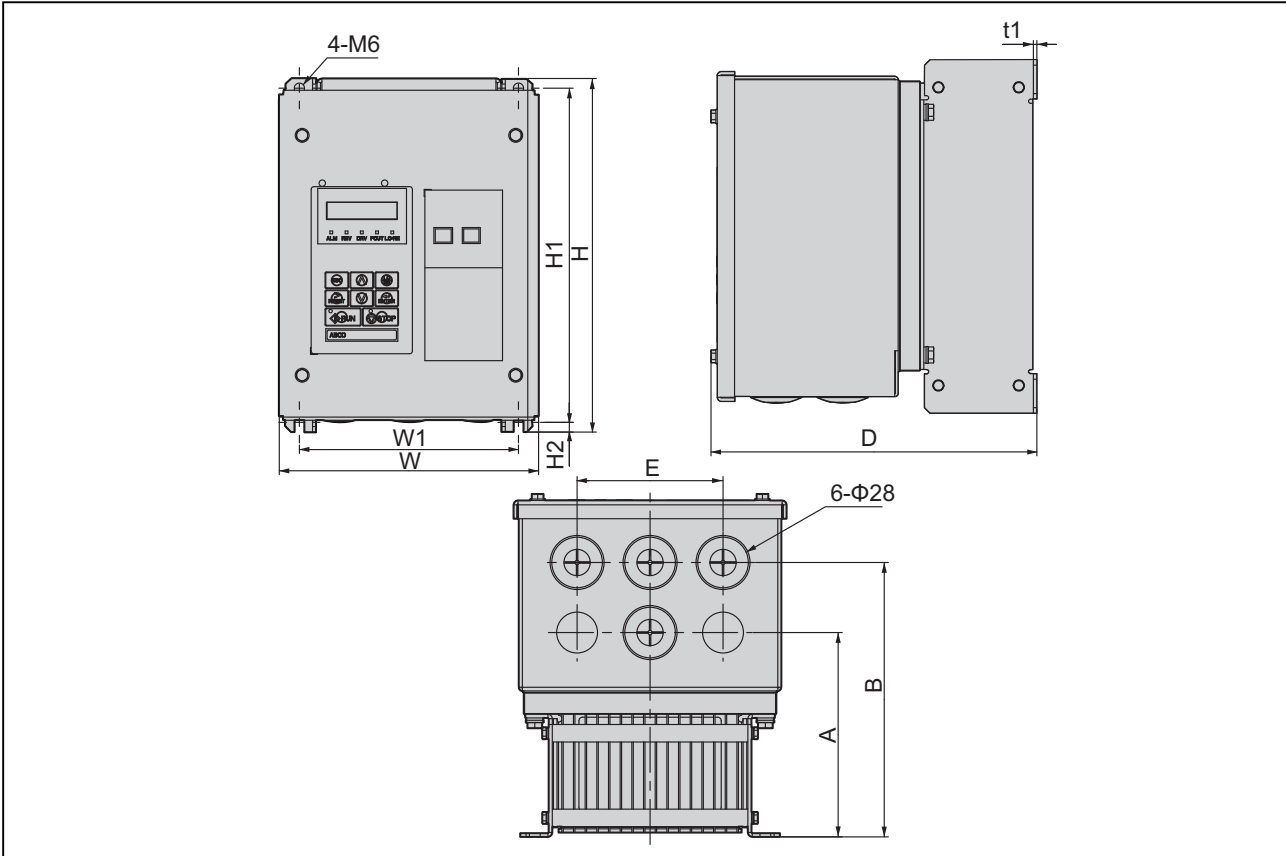


Voltage Class	Drive Model CIMR-V□	Dimensions mm (in)										Weight kg (lb.)	
		W	H	D	W1	H1	H2	t1	A	B	E		
Single-Phase 200 V Class	BA0001G												4.7 (10.36)
	BA0002G												4.7 (10.36)
	BA0003G												4.9 (10.80)
Three-Phase 200 V Class	2A0001G												4.7 (10.36)
	2A0002G	162	222	185	135	210	6	2	81	126	90		4.7 (10.36)
	2A0004G	(6.38)	(8.74)	(7.28)	(5.32)	(8.27)	(0.24)	(0.08)	(3.19)	(4.96)	(3.54)		4.8 (10.58)
	2A0006G												4.8 (10.58)
Three-Phase 400 V Class	4A0001G												5.0 (11.02)
	4A0002G												5.0 (11.02)
	4A0004G												5.1 (11.24)

V1000-4X

Dimension Drawing

DD.V1000-4X.02
NEMA 4X/IP66



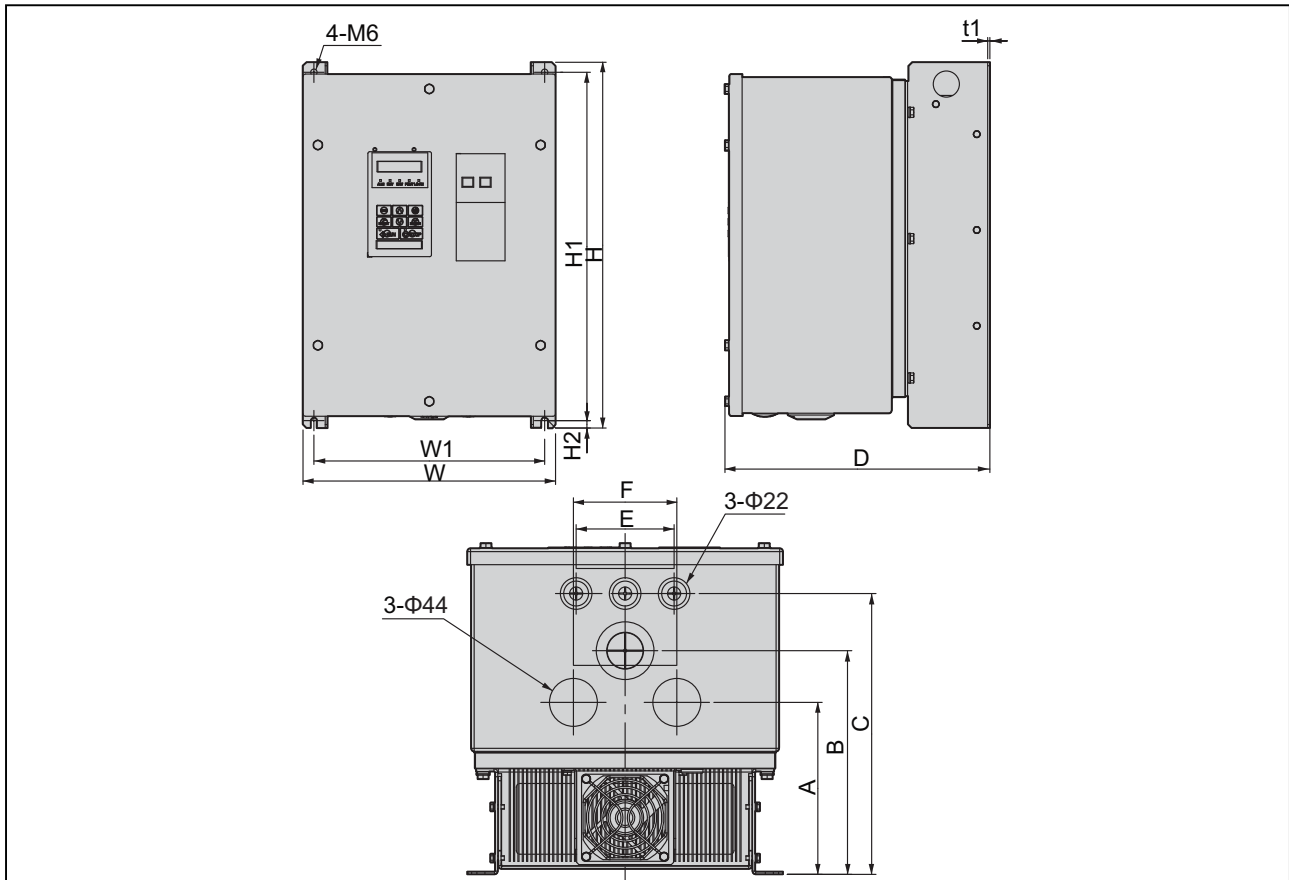
Voltage Class	Drive Model CIMR-V□	Dimensions mm (in)										Weight kg (lb.)
		W	H	D	W1	H1	H2	t1	A	B	E	
Single-Phase 200 V Class	BA0006G											7.8 (17.2)
	BA0010G											7.8 (17.2)
	BA0012G											8.2 (18.08)
Three-Phase 200 V Class	2A0010G											7.7 (16.98)
	2A0012G	187	255	235	158	241	7	2.5	140	188	100	7.7 (16.98)
	2A0020G	(7.36)	(10.04)	(9.25)	(6.22)	(9.49)	(0.28)	(0.10)	(5.51)	(7.40)	(3.94)	8.1 (17.86)
Three-Phase 400 V Class	4A0005G											7.7 (16.98)
	4A0007G											7.9 (17.42)
	4A0009G											7.9 (17.42)
	4A0011G											8.1 (17.86)

Dimension Drawing

DD.V1000-4X.03

NEMA 4X/IP66

V1000-4X

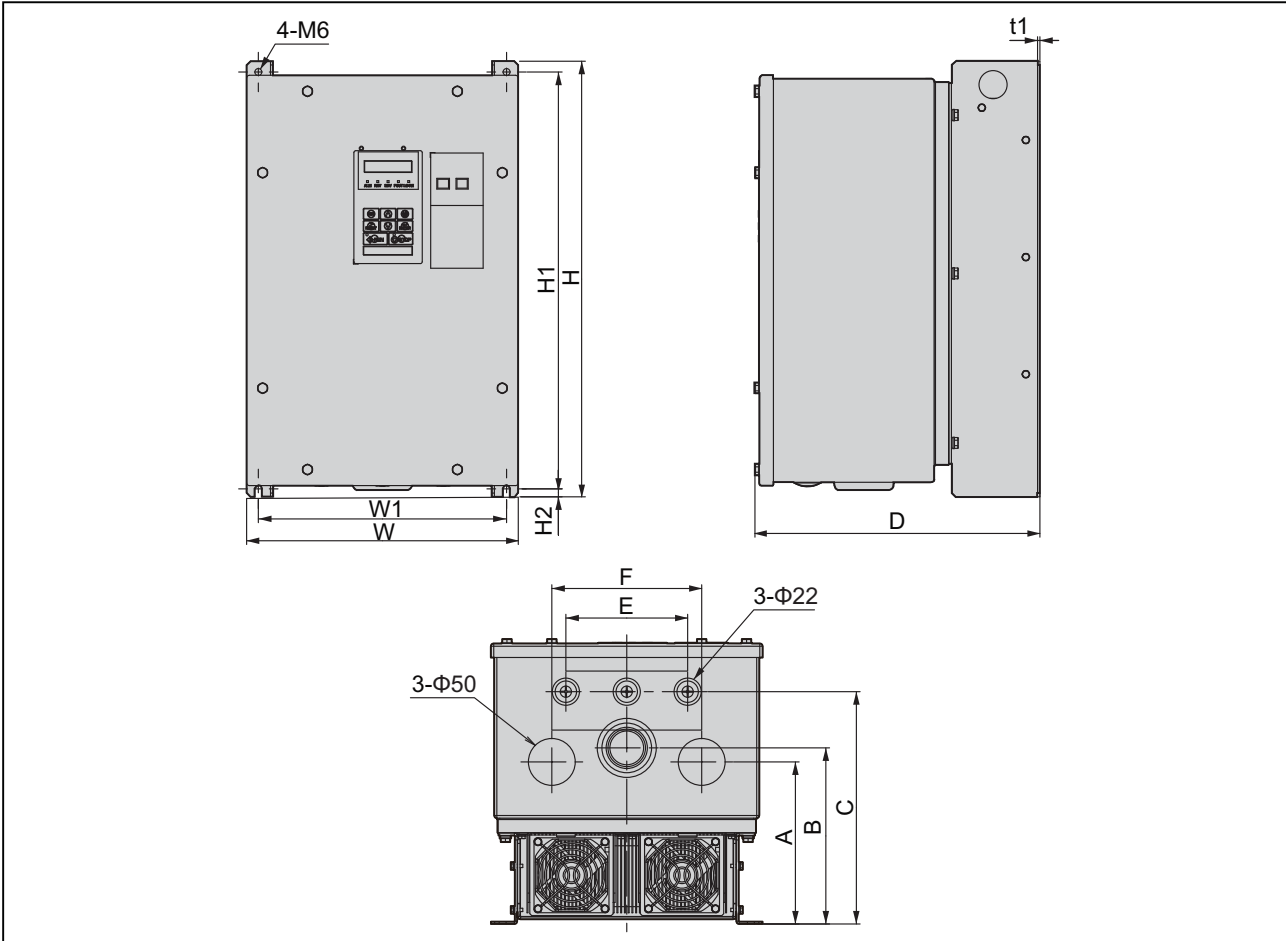


Voltage Class	Drive Model CIMR-V□	Dimensions mm (in)												Weight kg (lb.)	
		W	H	D	W1	H1	H2	t1	A	B	C	E	F		
Three-Phase 200 V Class	2A0030G														21.8 (48.06)
	2A0040G														21.8 (48.06)
	2A0056G														23.2 (51.15)
Three-Phase 400 V Class	4A0018G	290 (11.42)	420 (16.54)	305 (12.01)	265 (10.43)	400 (15.75)	8.5 (0.33)	2.5 (0.10)	158 (6.22)	205.5 (8.09)	258 (10.16)	90 (3.54)	95 (3.74)	21.7 (47.84)	
	4A0023G													21.8 (48.06)	
	4A0031G													22.9 (50.49)	
	4A0038G													23.2 (51.15)	

V1000-4X

Dimension Drawing

**DD.V1000-4X.04
NEMA 4X/IP66**



Voltage Class	Drive Model CIMR-V□	Dimensions mm (in)											Weight kg (lb.)	
		W	H	D	W1	H1	H2	t1	A	B	C	E		F
Three-Phase 200 V Class	2A0069G	290 (11.42)	465 (18.31)	305 (12.01)	265 (10.43)	445 (17.52)	8.5 (0.33)	2.5 (0.10)	173 (6.81)	188 (7.40)	248 (9.76)	130 (5.12)	160 (6.30)	27.7 (61.07)