

## ALPHA6000 Series General Purpose AC Drive



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## Feature

The ALPHA6000 series general purpose AC drive features a streamlined exterior, outstanding performance, and powerful functions. Consistent quality and exquisite workmanship make this product ideal for a wide range of applications.

## Technical Characteristics

- Wide input voltage fluctuation range of  $\pm 20\%$ .
- 32bit high speed CPU dedicated for motor control.
- Quick response to sudden load change.
- High starting torque of 150% at low frequency of 0.50Hz.
- Special hardware is adopted to realize the non-impact speed tracking.
- Built-in RS485 port for Modbus RTU protocol.
- Provides the PID multi-selection function, which allows the synchronous feed-forward control to be available.
- Save energy automatically.
- Multiple frequency mix-given function.
- High precision speed control.
- Parameters can be checked and modified online.
- Parameters copying on keyboard.
- Multiple programmable I/O terminals are available.
- 35 fault-protection and running-monitor functions.
- Unique module for integration control solution.

## Applications

The general purpose AC drive can be applied in the extruders, granulators, bottle blowing machines, film blowing machines, calendering machines, sealing and cutting machines, pulp machines, paper cutting machines, centrifuges, industrial washing machines, agitators, roving machines, carding machines, jig dyeing machines, sizing machines, industrial production lines, stereoscopic warehouses, pharmaceutical machinery, ceramic machinery, glass machinery, and more.

## Specification

### Technical Specification of ALPHA6000

Item	Specifications
Power Range	220V $\pm 20\%$ single phase : From 0.4 to 2.2kW 380V $\pm 20\%$ three phases : From 0.75 to 500kW
Rated Input Voltage and Frequency	220V single phase : 50/60Hz 380V three phases : 50/60Hz
Allowable Input Voltage Range	220V single phase : From 176 to 264V, Frequency fluctuation of less than $\pm 5\%$ 380V three phases : From 304 to 456V, Voltage unbalance rate of less than 3%, Frequency fluctuation of below $\pm 5\%$
Rated Output Voltage	From 0 to rated input voltage
Max. Overload Current	G model: 150% for one minute, 180% for 20 seconds P model: 120% for one minute, 150% for one second
Control Method	V/F control
Frequency Range	From 0.00 to 650.00Hz (from S2R4GB to 3004GB) From 0.00 to 400.00Hz (from 35R5GB/37R5PB to 3500G)
Frequency Accuracy	Digital command $\pm 0.01\%$ (from -10 °C to +40 °C ) Simulation command $\pm 0.01\%$ (25 °C $\pm 10$ °C )
Preset Frequency Resolution	Digital command 0.01Hz Simulation command 1/1000 of the maximum frequency
Output Frequency Resolution	0.01Hz
Preset Frequency Signal	From 0 to 10V, From 0 to 20mA
Acceleration-Deceleration Time	From 0.1 to 3600 seconds (The acceleration and deceleration time can be preset independently.)
Braking Torque	The additional braking resistance can reach 125%.
Voltage-Frequency Characteristics	Four kinds of fixed V/F characteristics are selectable. Any V/F characteristic can be preset. The V/F control with PG is available.

Protective Functions	Over-voltage, under-voltage, current limit, over-current, overload, electronic thermal relay, overheating, over-voltage stall, load short circuit, grounding, under-voltage protection, input phase loss, output phase loss, short circuit to ground, interphase short circuit, motor overload protection, and more
Working Environment	From -10°C to +40°C
Humidity	From 5 to 95% RH (No condensation)
Storage Temperature	From -40 °C to +70°C
Service Place	Indoor (no corrosive gas)
Installation Site	The altitude is at most 1,000m. There is no dust, corrosive gas, or sunshine.
Vibration	Less than 5.9m/s <sup>2</sup> (0.6g)
Protection Rating	IP20
Cooling Method	Natural cooling or forced air cooling

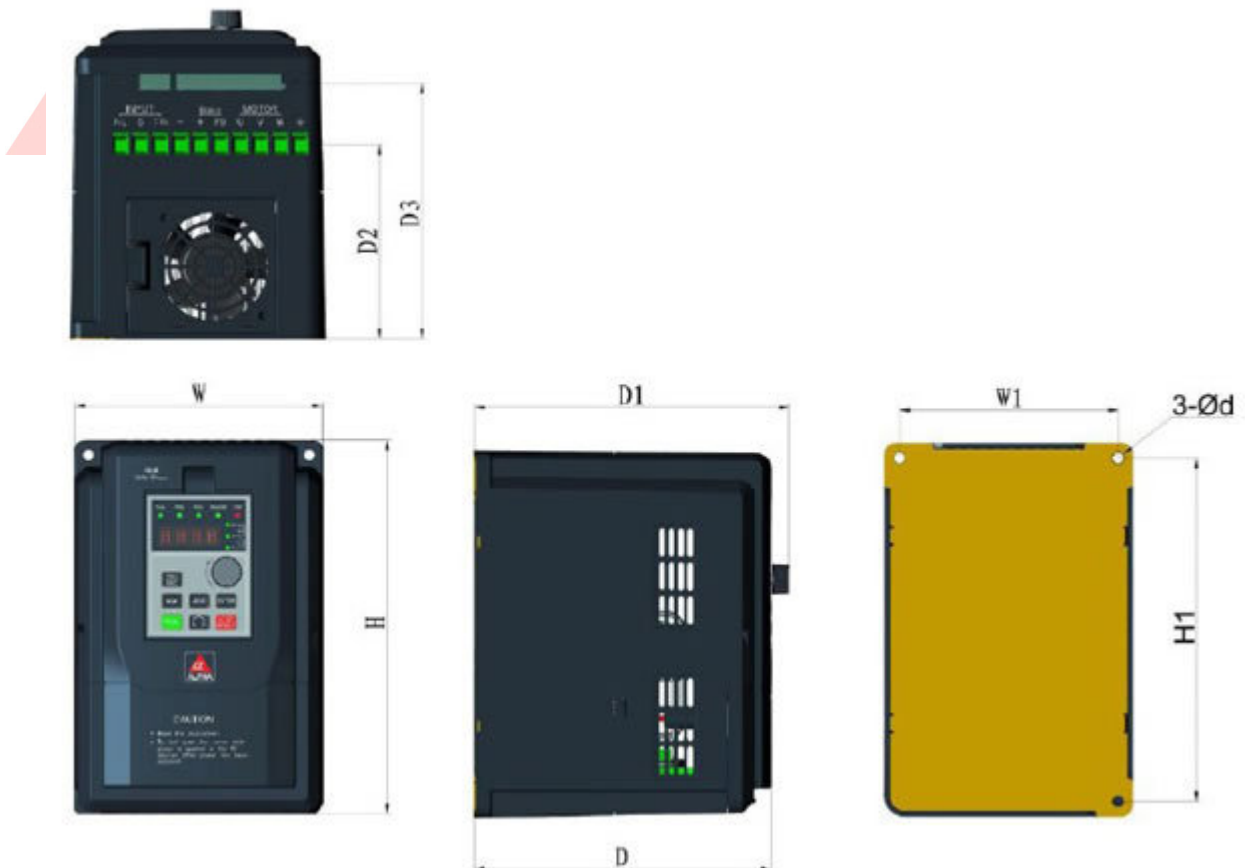
## Selection Guide

### ALPHA6000 Model Selection

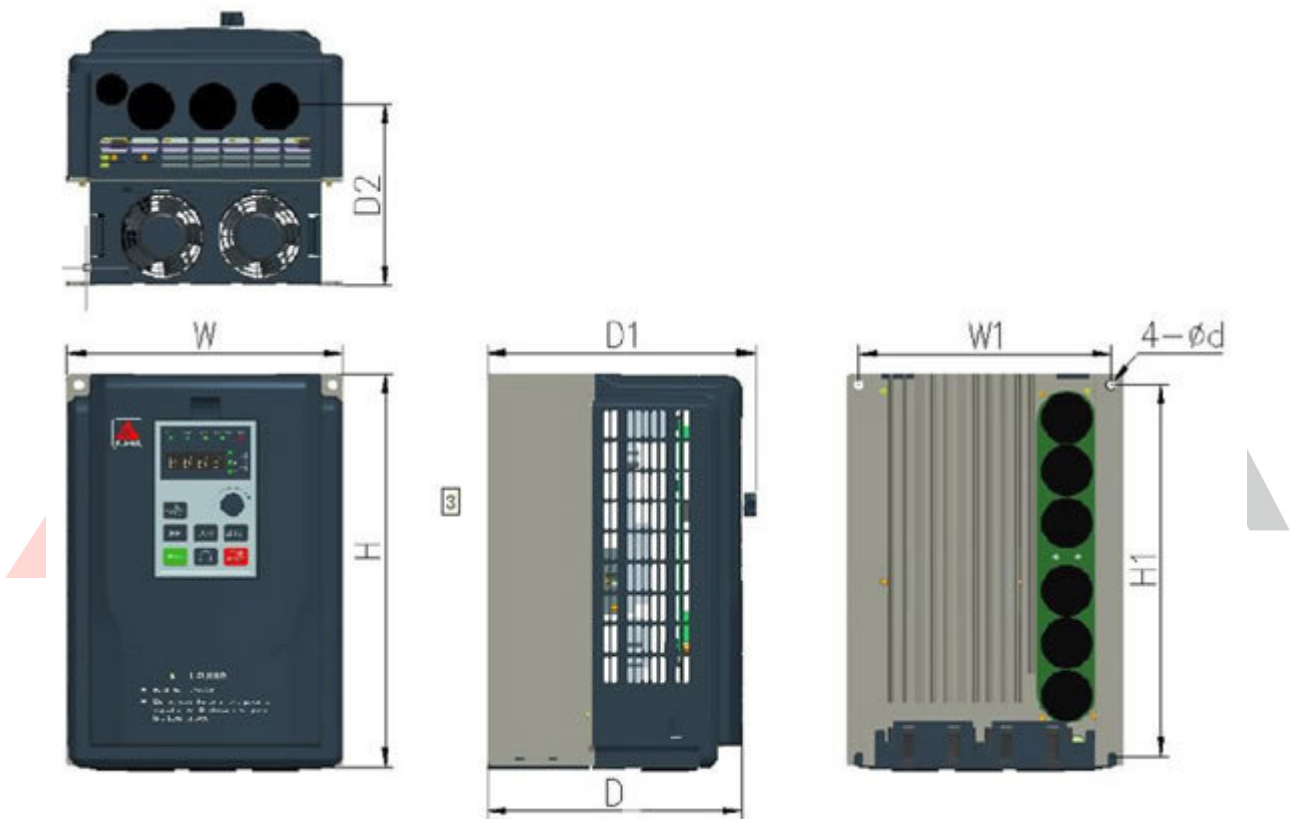
Voltage Classes	Model	Motor Power (kW)	Rated Output Current (A)
220V Single Phase	6000-S21R5GB	1.5	7
	6000-S22R2GB	2.2	11
380V Three Phase	6000-3R75GB/31R5PB	0.75/1.5	2.5/4
	6000-31R5GB/32R2PB	1.5/2.2	4/6
	6000-32R2GB/3004PB	2.2/3.7	6/9
	6000-3004GB/35R5PB	4/5.5	9/13
	6000-35R5GB/37R5PB	5.5/7.5	13/17
	6000-37R5GB/3011PB	7.5/11	17/25
	6000-3011GB/3015PB	11/15	25/32
	6000-3015GB/3018PB	15/18.5	32/37
	6000-3018G/3022P	18.5/22	37/45
	6000-3022G/3030P	22/30	45/60
	6000-3030G/3037P	30/37	60/75
	6000-3037G/3045P	37/45	75/90
	6000-3045G/3055P	45/55	90/110
	6000-3055G/3075P	55/75	110/152

6000-3075G/3093P	75/90	152/176
6000-3093G/3110P	90/110	176/210
6000-3110G/3132P	110/132	210/253
6000-3132G/3160P	132/160	253/304
6000-3160G/3185P	160/185	304/342
6000-3185G/3200P	185/200	342/380
6000-3200G/3220P	200/220	380/426
6000-3220G/3250P	220/250	426/480
6000-3250G/3280P	250/280	480/520
6000-3280G/3315P	280/315	520/600
6000-3315G/3355P	315/350	600/680
6000-3355G/3400P	355/400	680/750
6000-3400G	400	750
6000-3500G	500	900

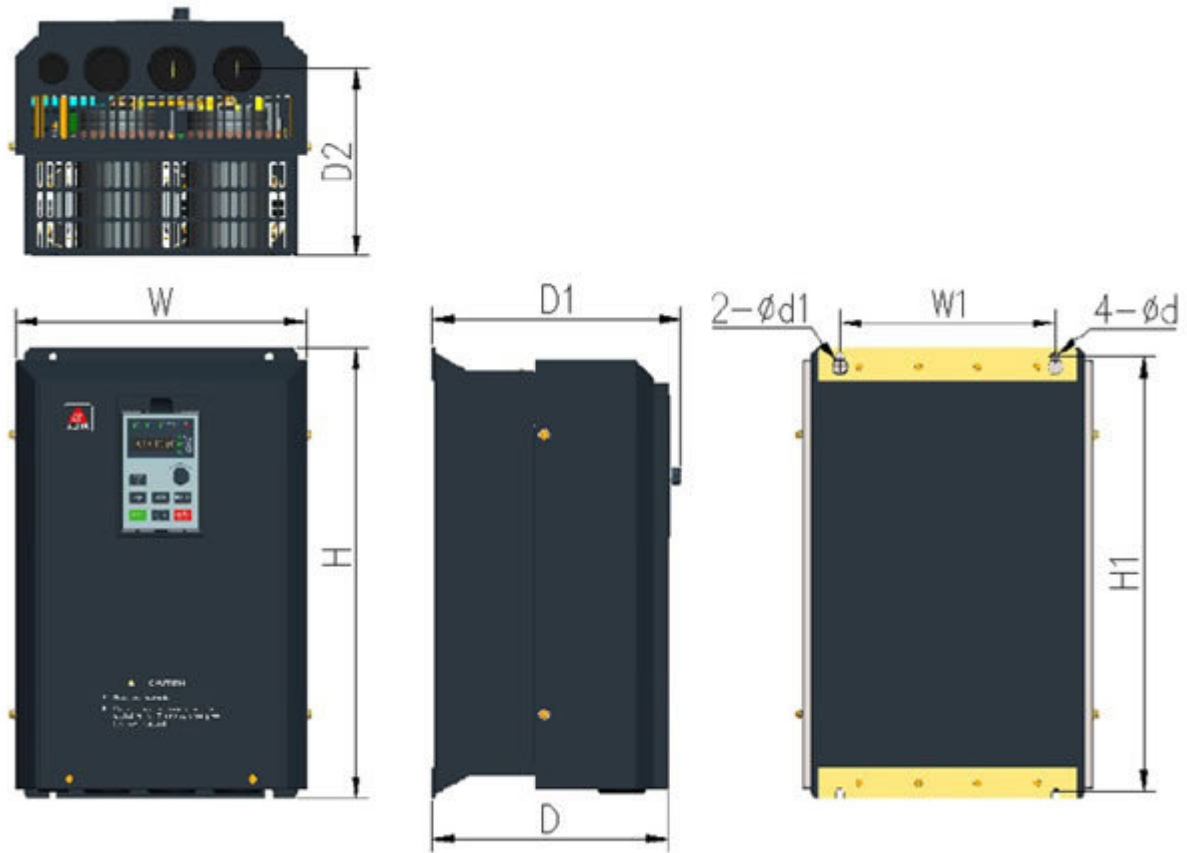
## Overall Dimension of ALPHA6000 Series General Purpose AC Drive



Model	H	H1	W	W1	D	D1	D2	D3	d
6000-S21R5GB	180	169	115	105	150	158	85	120	4.5
6000-S22R2GB									
6000-3R75GB/31R5PB	180	169	115	105	150	158	85	120	4.5
6000-31R5GB/32R2PB									
6000-32R2GB/3004PB									
6000-3004GB/35R5PB	195	173	130	108	157	167	100	130	4.5

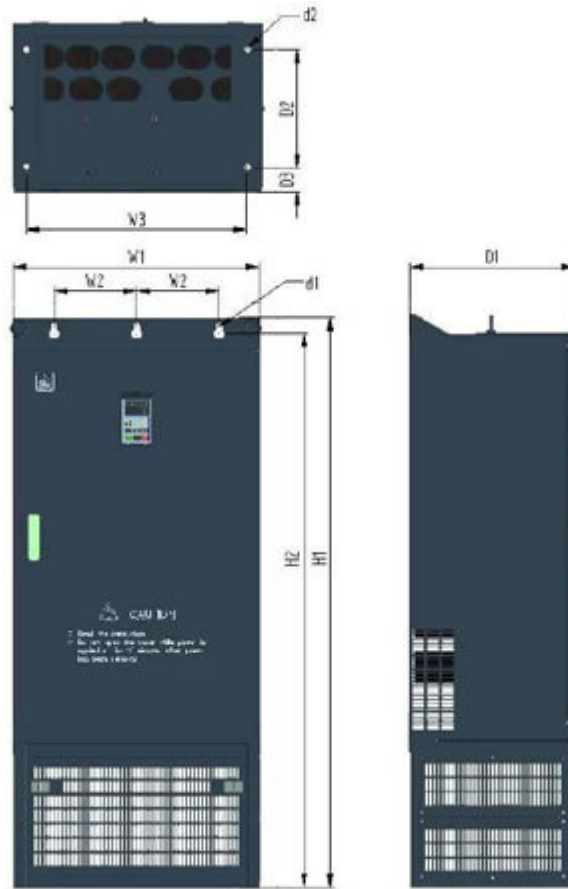


Model	H	H1	W	W1	D	D1	D2	d
6000-35R5GB/37R5PB	270	255	190	175	176	186	122	7
6000-37R5GB/3011PB								



Model	H	H1	W	W1	D	D1	D2	d	d 1
6000-3011GB/3015PB	373	360	235	200	176	188	125	7	12
6000-3015GB/3018PB									
6000-3018G/3022P	420	405	270	200	218	230	175	7	14
6000-3022G/3030P									
6000-3030G/3037P	503	488	311	200	230	242	180	7	14
6000-3037G/3045P									
6000-3045G/3055P	590	570	351	200	254	266	192	10	20
6000-3055G/3075P									
6000-3075G/3093P	698	672	400	280	260	272	186	12	22
6000-3093G/3110P									
6000-3110G/3132P	850	823	505	420	280	292	212	12	22
6000-3132G/3160P									

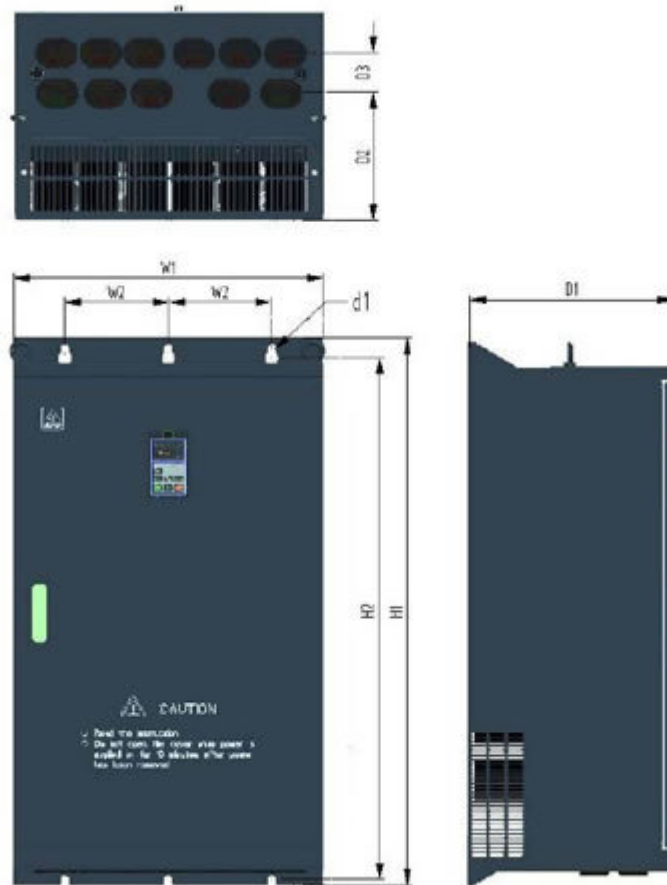
## Installation Size of 380V 160~355kW Three-Phase Standard Model with Base



Model	W1	W2	W3	H1	H2	D1	D2	D3	d 1	d 2
6000-3160G/3185P	600	200	530	1380	1360	400	280	60	3-φ 14	4-φ 14
6000-3185G/3200P										
6000-3200G/3220P										
6000-3220G/3250P										
6000-3250G/3280P	800	300	730	1535	1515	410	288	60	3-φ 14	4-φ 14
6000-3280G/3315P										
6000-3315G/3355P										
6000-3355G/3400P										

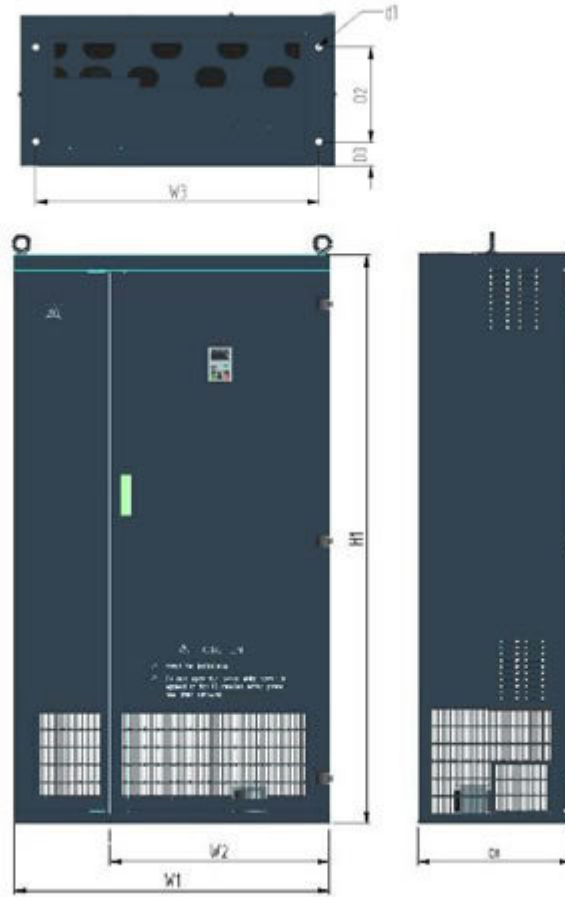


## Installation Size of 380V 160~355kW Three-Phase Standard Model with Wall Mount



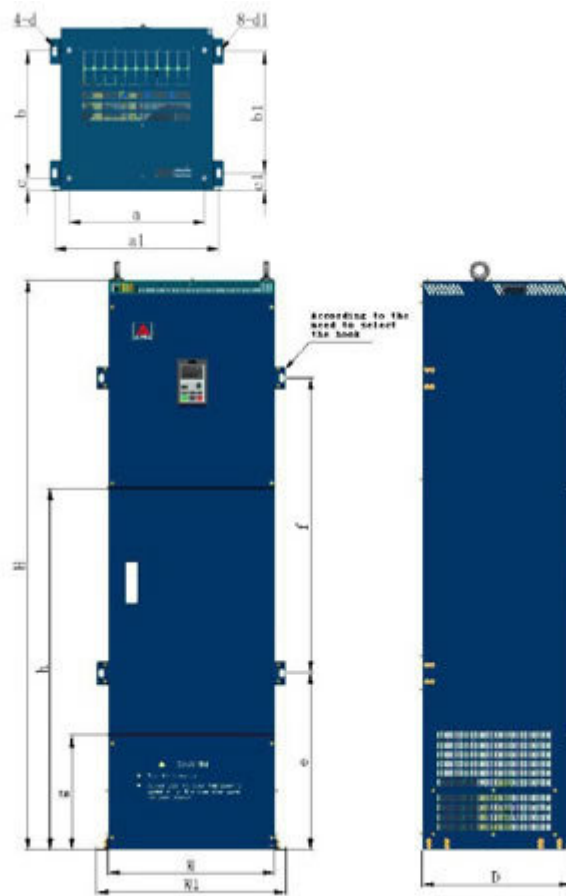
Model	W1	W2	H1	H2	D1	D2	D3	d 1
6000-3160G/3185P	600	200	1026	1360	400	245	77	6-φ 14
6000-3185G/3200P								
6000-3200G/3220P								
6000-3220G/3250P								
6000-3250G/3280P	800	300	1180	1515	410	250	88	6-φ 14
6000-3280G/3315P								
6000-3315G/3355P								
6000-3355G/3400P								

## Installation Size of 380V 400-500kW Three-Phase Standard Model

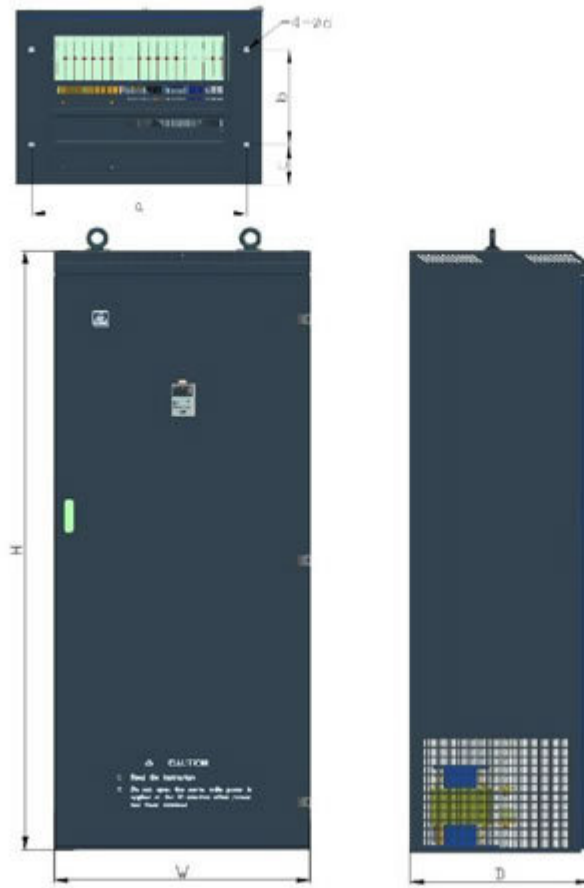


Model	W1	W2	W3	H1	D1	D2	D3	d 1
6000-3400G	1000	700	900	1800	480	300	80	4-φ 22
6000-3500G								

## Installation Size of 380V 160-500kW Three-Phase Narrow-body Model



Model	W	W1	D	H	a	b	c	d
6000-3160G/3185P	450	514	400	1600	400	315	30	15
6000-3185G/3200P								
6000-3200G/3220P								
6000-3220G/3250P	450	514	400	1800	400	315	30	15
6000-3250G/3280P								
6000-3280G/3315P								
6000-3315G/3355P								
6000-3355G/3400P								



Model	W	D	H	a	b	c	d
6000-3400G	800	550	2000	700	300	125	18
6000-3500G							