



# ALPHA 6000 Series

General Vector Control Inverter



# Company Profile

## Shenzhen ALPHA Inverter Co., Ltd.

Shenzhen ALPHA Inverter Co., Ltd. founded in 2000 is a National Hi-Tech enterprise specializing in R&D, manufacturing, sales and service of electric drive and industrial control equipment. We have more than 300 staffs which more than 70% are professional technical persons in industrial control field.

The headquarters is located in Shenzhen High-tech Industrial Park, which is a modern office of R&D and business affairs, with many R&D laboratories and customer service center. Our production base is located in Futian district, owning many automation production lines and approved of ISO9001:2008, CE certifications.

We continually import advanced technology around the world, and set up cooperation alliances with many scientific research institutions and colleges. We take tech-centric policy and continuous innovate, and obtain many patents of inventions, appearance design and utility model. Presently, our main products include frequency inverter, converter and servo drive, etc.

ALPHA self-developed ALPHA6000&6000S series inverter are with powerful functions, flexible control and excellent performance which can meet all kinds of customers' demand of machinery matching and system integration. Besides, we can make customized products according to customer's special demand in different industries. ALPHA products are widely used in CNC machine, textile, metal, crane, oil, plastic, chemical, municipal engineering, etc.

ALPHA sales and service center are around China including more than 30 branch offices and 50 maintenance centers. ALPHA products are exported to Southeast Asia, India and Pakistan, the Middle East, Africa, Europe and America etc. We have a professional technical service team to provide the omni-directional technical service and support for customers. With the high quality products to win customer's recognition, meanwhile, we offer high quality services to gain the trust of customers.

ALPHA aims at being the most valuable supplier of automation products and services in the world, focuses in electric drive and industry automation fields, achieves the sustainable return for enterprise and partners.

# ALPHA6000

## General Vector Control Inverter



### Product Overview

ALPHA6000 series frequency inverters adopt magnetic flux vector control, output low speed rated torque, stably run ultra silently; build in PID, can realize close-loop control conveniently; 36 kinds of perfect protection and alarm functions, online monitor and adjust multiple parameters; build in RS485 communication interface with flexible operation; with strong adaptability, stable running, high accuracy, perfect reliability, can meet customers' all kinds of requirement.

### Technical Feature

- 1AC 220V input: 0.4kW–2.2kW
- 3AC 220V input: 0.75kW–55kW
- 3AC 380V input: 0.75kW–630kW
- Wide input voltage range: 304 ~ 456V, voltage fluctuation:  $\pm 20\%$
- CPU 32 bit high speed CPU special for motor control
- Unique vector control algorithm
- Dynamic torque current control, rapid respond to load's change
- High speed control accuracy to realize the synchronization and positioning control convenient
- Low frequency high start torque: 0.5Hz/150%
- Modular software to allow using special module flexibly
- Special speed tracking function without impact
- Built-in RS485 communication, support MODBUS-RTU communication protocol
- Servo fixed-length control function
- Wobble frequency function given by mid-frequency random
- Automatic coil diameter calculating
- Built-in PID to realize close-loop control
- Automatic energy-saving running function
- Droop control function of balancing the load automatically
- Universal digital input terminal
- Multi-frequency mix-given function
- LCD, LED keyboards for optional
- Online modify and check parameters
- User parameters copying function on keypad
- Multiple programmable multi-function input/output terminals
- Rich fault protection and operation monitoring function
- Passed EMC testing, stable & reliable performance
- Conformal coating protection, strengthen the environment adaptability

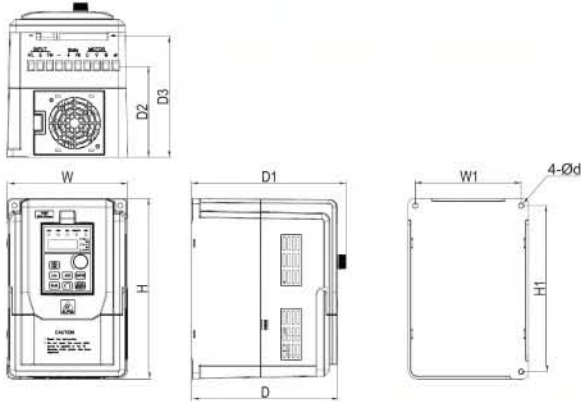


### Application

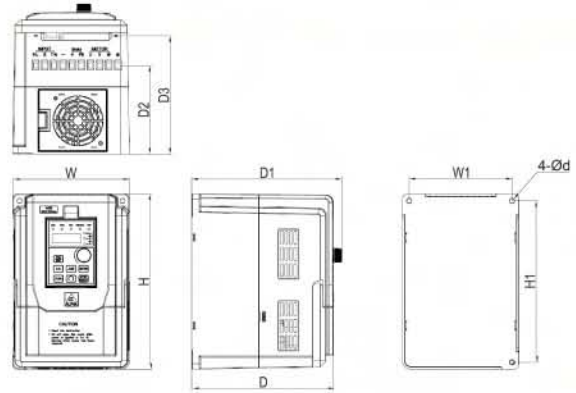
Plastic extruding machine, Bottle blowing machine, Film blowing machine, Paper machine, Paper cutter, Centrifugal machine, Industrial washer, Blender, CNC machine, Wire drawing machine, Spinning frame, Industrial production line, Ceramic machine, Glass machine, Conveyor, Steel, Metal, Cement, Chemical fiber, Sugar, Packaging, Petrochemical, Textile printing

# Dimension

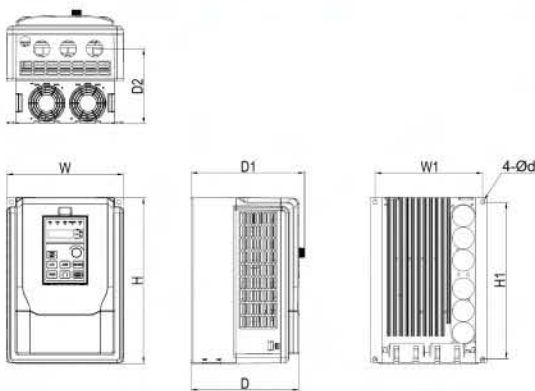
1AC 220V 0.4kW ~ 0.75kW



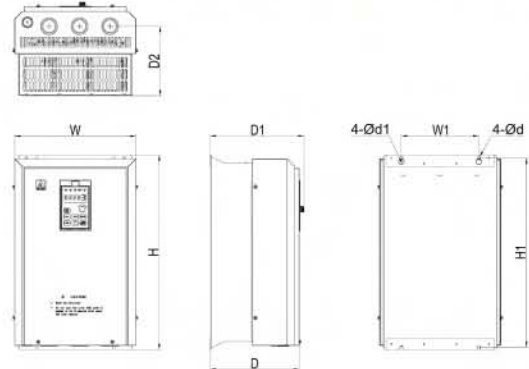
3AC 220V 0.75kW ~ 1.5kW 3AC 380V 0.75kW ~ 4kW



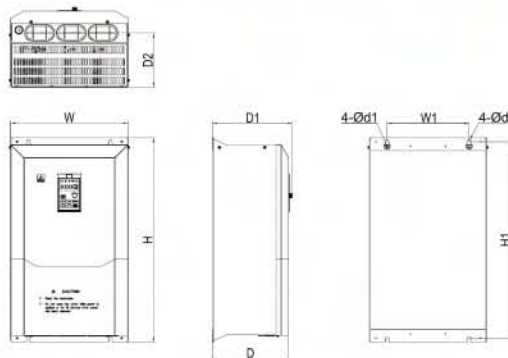
3AC 220V 2.2kW 3AC 380V 5.5kW ~ 7.5kW



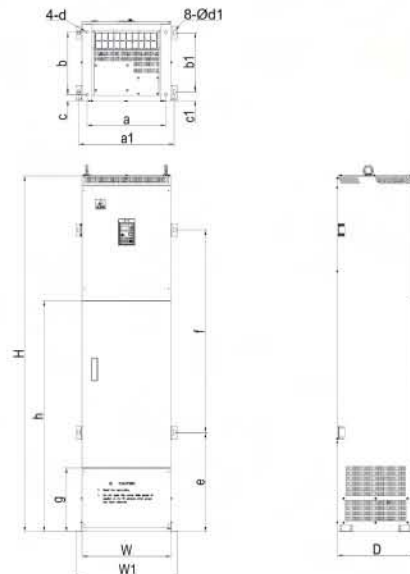
3AC 220V 4kW ~ 18.5kW 3AC 380V 11kW ~ 37kW



3AC 220V 22kW~55kW 3AC 380V 45kW ~ 132kW

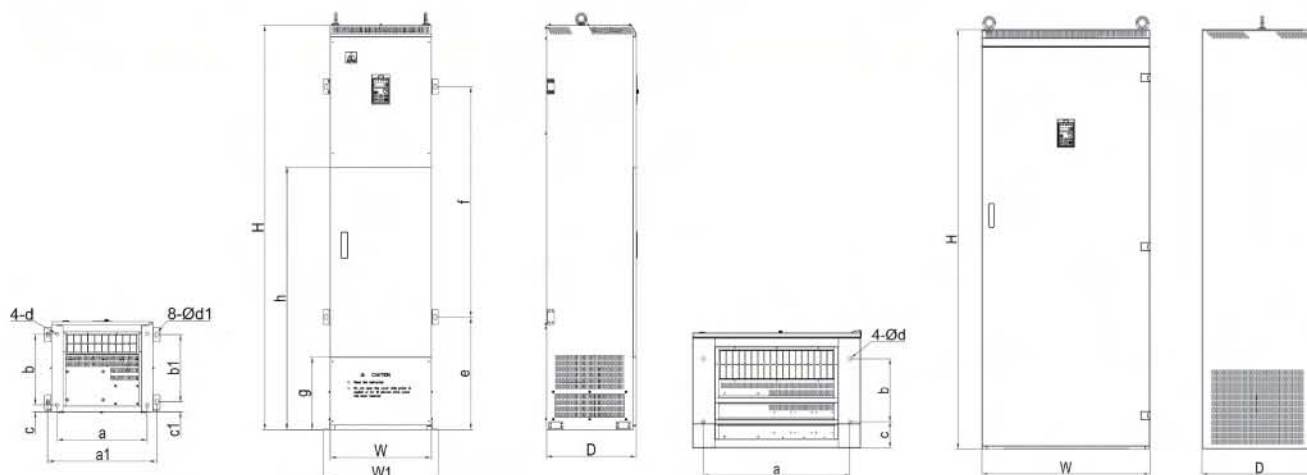


3AC 380V 160kW ~ 355kW Cabinet, Wall-mounted



## 3AC 380V 160kW ~ 355kW Wall-mounted

## 3AC 380V 400kW ~ 630kW



## Installation Dimension



Product series	Power range	H	H1	W	W1	D	D1	D2	D3	d	d1
ALPHA6000	1AC 220V 0.4kW-0.75kW	141.5	130.5	85	74	113	123	63	88	4.5	
	1AC 220V 1.5kW-2.2kW	180	169	115	105	150	158	85	120	4.5	
	3AC 220V 0.75 kW	180	169	115	105	150	158	85	120	4.5	
	3AC 220V 1.5kW	195	173	130	108	157	167	100	130	5.5	
	3AC 220V 2.2kW	270	255	190	175	176	186	122		7	
	3AC 220V 4 kW-7.5 kW	373	360	235	200	176	188	125		7	12
	3AC 220V 11 kW	420	405	270	200	218	230	175		7	14
	3AC 220V 15 kW-18.5 kW	503	488	311	200	230	242	180		7	14
	3AC 220V 22 kW	590	570	351	200	254	266	192		10	20
	3AC 220V 30-45 kW	698	672	400	280	260	272	186		12	22
	3AC 220V 55kW	850	823	505	420	280	292	212		12	22
	3AC 380V 0.75kW-2.2kW	180	169	115	105	150	158	85	120	4.5	
	3AC 380V 4kW	195	173	130	108	157	167	100	130	5.5	
	3AC 380V 5.5kW-7.5kW	270	255	190	175	176	186	122		7	
	3AC 380V 11kW-15kW	373	360	235	200	176	188	125		7	12
	3AC 380V 18kW-22kW	420	405	270	200	218	230	175		7	14
	3AC 380V 30kW-37kW	503	488	311	200	230	242	180		7	14
	3AC 380V 45kW-55kW	590	570	351	200	254	266	192		10	20
3AC 380V 75kW-93kW	698	672	400	280	260	272	186		12	22	
3AC 380V 110kW-132kW	850	823	505	420	280	292	212		12	22	

Product series	Power range	Installation method	H	h	W	W1	D	a	b	c	d	a1	e	f
ALPHA6000	3AC 380V 160kW-220kW	Cabinet, Wall-mounted	1600	1016	450	514	400	400	315	30	15	485	496	830
	3AC 380V 160kW-220kW	Wall-mounted	1361		450	485	400				13		281	830
	3AC 380V 250kW-355kW	Cabinet, Wall-mounted	1800	1166	450	514	400	400	315	30	15	485	502	1025
	3AC 380V 250kW-355kW	Wall-mounted	1526	891	450	485	400				13		204	1025
	3AC 380V 400kW-630kW	Cabinet	2000		800		550	700	300	125	18			

# Selection Guide



## Voltage: 220 ~ 240V

Model NO.	Rated input Voltage ( V )	Motor power ( KW )	Rated output current ( A )
6000-S2R4GB	1AC 220V	0.4	2.4
6000-S2R75GB	1AC 220V	0.75	4.5
6000-S21R5GB	1AC 220V	1.5	7
6000-S22R2GB	1AC 220V	2.2	11
6000-2R75GB	3AC 220V	0.75	3
6000-21R5GB	3AC 220V	1.5	7
6000-22R2GB	3AC 220V	2.2	10
6000-2004GB	3AC 220V	4	16
6000-25R5GB	3AC 220V	5.5	20
6000-27R5GB	3AC 220V	7.5	30
6000-2011G	3AC 220V	11	42
6000-2015G	3AC 220V	15	55
6000-2018G	3AC 220V	18.5	70
6000-2022G	3AC 220V	22	80
6000-2030G	3AC 220V	30	110
6000-2037G	3AC 220V	37	130
6000-2045G	3AC 220V	45	160
6000-2055G	3AC 220V	55	190

## Voltage: 380 ~ 440V

Model NO.	Motor power	Rate input current	Rated output current
	( KW )	( A )	( A )
6000-3R75GB/31R5PB	0.75/1.5	3.7/5.4	2.5/4
6000-31R5GB/32R2PB	1.5/2.2	5.4/7	4/6
6000-32R2GB/3004PB	2.2/3.7	7/10.7	6/9
6000-3004GB/35R5PB	4/5.5	10.7/15.5	9/13
6000-35R5GB/37R5PB	5.5/7.5	15.5/20.5	13/17
6000-37R5GB/3011PB	7.5/11	20.5/26.0	17/25
6000-3011GB/3015PB	11/15	26.0/35.0	25/32
6000-3015GB/3018PB	15/18.5	35.0/38.5	32/37
6000-3018G/3022P	18.5/22	38.5/46.5	37/45
6000-3022G/3030P	22/30	46.5/62.0	45/60
6000-3030G/3037P	30/37	62.0/76.0	60/75
6000-3037G/3045P	37/45	76.0/92.0	75/90
6000-3045G/3055P	45/55	92.0/113.0	90/110
6000-3055G/3075P	55/75	113.0/157.0	110/150
6000-3075G/3093P	75/90	157.0/180.0	150/176
6000-3093G/3110P	90/110	180.0/214.0	176/210
6000-3110G/3132P	110/132	214.0/256.0	210/250
6000-3132G/3160P	132/160	256.0/307.0	250/300
6000-3160G/3185P	160/185	307.0/385.0	300/340
6000-3185G/3200P	185/200	385.0/430.0	340/380
6000-3200G/3220P	200/220	385.0/430.0	380/415
6000-3220G/3250P	220/250	430.0/500.0	415/470
6000-3250G/3280P	250/280	500.0/548.0	470/520
6000-3280G/3315P	280/315	548.0/625.0	520/600
6000-3315G/3355P	315/350	625.0/710.0	600/680
6000-3355G/3400P	355/400	710.0/760.0	680/750
6000-3400G/3500P	400/500	760/910	750/900
6000-3500G/3630P	500/630	910/1100	900/1100

Note: The mode with "B" means the braking unit is built-in

# Technical Specification



	Item	Description
I/O Feature	Input voltage range	1AC 220~240V, 3AC 380~440V +15%
	Input frequency range	50/60Hz
	Output voltage range	0~rate input voltage
	Output frequency range	Below 4kW: 0.00~650.00Hz, Above 5.5kW: 0.00~400.00Hz
Control Feature	Control mode	Magnetic flux vector control
	Frequency reference source	Keyboard, Analog input, Pulse, Communication, Up/Down terminal, and so on
	Overload capacity	G: 60s for 150% rated current, 20s for 180% rated current P: 30s for 120% rated current, 1s for 150% rated current
	Start torque	0.5Hz 150%
	Speed adjusting range	1:100
	Speed control accuracy	≤ 1% the synchronous rotated speed at rated frequency
	Carrier frequency	1.0~16.0kHz. It can be adjusted according to temperature and load characteristic.
	Frequency resolution	Analog setting:1/1000 max. frequency; Pulse setting:0.5Hz; Digital setting:0.01Hz
	Acceleration –deceleration mode	Linearity, S curve
	Acc–dec time	0.1~3600s
	DC braking	Start frequency: 0.00~50.00Hz
		Braking time: 0.1~30s
		Braking current: G: 0~100%, P: 0~80% Brake waiting time: 0.00~10.00s
	Jog running	0.00~max. output frequency; support keyboard, terminal control
	Simple PLC and multi–step operation	7 steps; the operation time, acc–dec time and direction can be set.
PID Control	Analog PID, digital PID; support analog PID dormancy	
Automatic voltage regulation	Disable, enable, disable during deceleration (factory setting)	
Wobble frequency control	Special for spinning	
I/O Terminal	Analog input	2 programmable terminals: 0~10V or 0/4~20mA
	Digital input	8 programmable terminals: X1~X6 for low speed signal input, X7~X8 for high speed pulse input (compatible with low speed signal input)
	Analog output	2 programmable terminals: 0~10V or 0/4~20mA
	Digital output	Programmable open collector output: 2 terminals (24V, max. 50mA); programmable relay output: 2 terminals
	Communication terminal	RS–485, support standard MODBUS–RTU protocol
Human –Machine Interface	LED display	2 keyboards for option
	LCD display	Support 5.5kW and above
EMC	EMC Criterion	IEC61800–3
Environmental Constraint	Temperature	- 10°C ~ +40°C ; inverter will be derated if ambient temperature exceeds 40°C ; each rise 1°C , the derate will be 5%
	Humidity	5%–95%, without condensation
	Altitude	≤ 1000m; inverter will be derated if above 1000m
	Impingement and oscillation	Normal running: < 5.9m/s <sup>2</sup> (0.6g); Transportation: < 15m/s <sup>2</sup> (1.5g)
	Store environment	- 40°C ~ +70°C ; no dust, no corrosive gas, no direct sunlight



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