

HYB3

Series Vector Inverter

Product description



Overview

Rated working voltage: single-phase AC220V, three-phase 380V

Power range: 0.4~350KW

Input frequency range: 47 to 63Hz

Output frequency: 0 ~ 300Hz

Overload capacity: 110% rated current long-term, 150% rated current 1 minute, 180% rated current 5 seconds (heavy duty)

105% rated current long-term, 120% rated current 1 minute, 150% rated current 1 second(light load)

Control mode: SVC control, V/F control, torque control

Starting torque: 150% rated torque at 3.0Hz (VF control)

180% rated torque at 0.5Hz (SVC)

180% rated torque at 0.05Hz(with PG current vector control)

Application scenario: Suitable for fan, water pump, air compressor, injection molding machine, winding machine and other mechanical equipment, to control the magnetic field and torque of the motor to achieve accurate control of the speed and position of the motor.

Standard: GB/T 12668.2

Technical Features

- 1、 Multi-stage swing frequency operation;
- 2、 Three control modes: no PG vector control (SVC), V/F control, torque control
- 3、 Starting torque: no PG vector control: 0.5Hz/150%(SVC);
- 4、 0.75KW ~ 15kW each specification built-in brake unit, if you need to stop quickly, you can directly connect the brake resistance;
- 5、 Support a variety of frequency setting methods: digital setting, analog setting, PID setting, communication setting, etc
- 6、 Support start, stop DC braking;
- 7、 Input and output terminals are free programming, users can combine a variety of working modes according to needs;
- 8、 With jumping frequency control function, avoid mechanical resonance, make the system more stable and reliable;
- 9、 With instantaneous power failure without stopping function;
- 10、 With sleep wake up delay setting function;
- 11、 With over torque detection function;
- 12、 Low noise, automatic voltage regulation, low frequency high torque;
- 13、 Multiple upper limit frequency setting source selection;
- 14、 Real-time parameters can be viewed through the shift key with bidirectional shift function;
- 15、 Real-time parameters can be viewed through the shift key with bidirectional shift function;
- 16、 With speed tracking and restart function: to realize the smoothstart of the rotating motor without impact;
- 17、 QulCK/JOG function: Users can freely define multi-functional shortcut keys. By setting this parameter, you can quickly browse the related function code that is different from the factory default value after modification;
- 18、 With automatic voltage adjustment function: when the power grid voltage changes, automatically keep the output voltage constant;
- 19、 With oscillation suppression function: effectively solve the problem of low-frequency oscillation of high-power motor;
- 20、 Provide a variety of fault protection functions: over current, over voltage, under voltage, over temperature, phase loss, overload and other protection functions

Application industry

HYB3 inverter is widely used in fans, pumps, air compressors, injection molding machines, winding machines, central air conditioners, textile machines, chemical, metallurgy, mining, pharmaceutical, ceramics, paper making, oil fields, plastics, printing, thermoelectricity, tobacco, food and other mechanical equipment.

HYB3

Series Vector Inverter

Operating Conditions

- 1、Atmospheric conditions: -10°C to $+40^{\circ}\text{C}$ (Ambient temperature is 40°C to 50°C , please use the reduced rate)
- 2、Altitude: For derating over 1000 meters, 10% derating for each increase of 1000 meters
- 3、Humidity: 5% ~ 95% RH, no condensation
- 4、Storage environment: Indoor (no direct sunlight, no corrosion, flammable gas, no oil mist, dust, etc)
- 5、Enclosure protection class: IP20
- 6、Installation condition: Wall-mounted, cabinet type

Product description

HYB3	4D0G/5D5P	4
Model number	adaptive power (KW)	Voltage level
HYB3	4D0G means 4.0KW heavy load 5D5P means 5.5KW light load G: Heavy load P: Light load Product serie	1 Single-phase 220V, 50/60Hz 4 Three-phase 380V, 50/60Hz

Technical data

voltage classes	Rated power (KW)	Rated output current (A)	Adaptive motor (KW)
220V single phase	0.4	2.4	0.4
	0.75	4.5	0.75
	1.5	7	1.5
	2.2	10	2.2

HYB3

Series Vector Inverter

voltage classes	Rated power (KW)	Rated output current (A)	Adaptive motor (KW)
380V three-phase	0.4	1.2	0.4
	0.75	2.5	0.75
	1.5	3.7	1.5
	2.2	5.0	2.2
	4	9/13	4/5.5
	5.5	13/17	5.5/7.5
	7.5	17/25	7.5/11
	11	25/32	11/15
	15	32/37	15/18.5
	18.5	37/45	18.5/22
	22	45/60	22/30
	30	60/75	30/37
	37	75/90	37/45
	45	90/110	45/55
	55	110/150	55/75
	75	150/176	75/90
	90	176/210	90/110
	110	210/250	110/132
	132	250/300	132/160
	160	300/340	160/185
	185	340/380	185/200
	200	380/415	200/220
	220	415/470	220/250
	250	470/520	250/280
	280	520/600	280/315
	315	600/640	315/350
	350	640	350

Input	Rated voltage, frequency	Three-phase (4# series) 380V; 50/60Hz
		Single-phase (1# series) 220V; 50/60Hz
	Allowable range of voltage variation	Three-phase (4# series) 320V ~ 460V
		Single-phase (1# series) 160V ~ 260V
Output	Voltage	4# series; 0 to 460V
		1# series; 0 to 260V
	Frequency	Low frequency mode: 0 to 300Hz High frequency mode: 0 to 3000Hz
	Overload capacity	Model G: 110% long-term 150% 1 minute 180% 5 seconds
		P-type machine: 105% long-term 120% 1 minute 150% 1 second

HYB3

Series Vector Inverter

Control method			V/F control, advanced V/F control, V/F separation control, current vector control
Control Feature	Frequency setting resolution	Analog input	0.1% of the maximum output frequency
		Numeric setting	0.01Hz
	Frequency accuracy	analog input	Within 0.2% of the maximum output frequency
		digital input	Set within 0.01% of the output frequency
	V/f control	V/F curve	The reference frequency is arbitrarily set at 5 ~ 600Hz, and the multi-point V/F curve is arbitrarily set. Can also choose constant torque, low torque reduction 1, low torque reduction 2, square torque and other fixed curves
		Torque compensation	Manual setting: 0.0 ~ 30.0% of rated output Automatic lifting: the lifting torque is automatically determined according to the output current and combined with the motor parameters
		Automatic current and voltage limiting	Whether during acceleration, deceleration or stable operation, the stator current and voltage of the motor are automatically detected and suppressed within the permissible range according to a unique algorithm, minimizing the possibility of system failure tripping

Voltage-frequency characteristic			The output voltage frequency ratio is automatically adjusted according to the motor parameters and unique algorithm
Control Feature	Noninductive vector control	Torque characteristics	Starting torque: 150% rated torque at 3.0Hz (VF control) 180% rated torque at 0.5Hz (no PG current vector control, flux vector control) 180% rated torque at 0.05Hz (with PG current vector control) Running speed Steady state accuracy: $\leq \pm 0.2\%$ rated synchronous speed Speed fluctuation: $\leq \pm 0.5\%$ rated synchronous speed Torque response: $\leq 50\text{ms}$ with PG vector control, no PG vector control, flux Vector control $\leq 20\text{ms}$
		Motor parameters selfdetermination	Without any restrictions, the automatic detection of parameters can be completed under the static and dynamic conditions of the motor to obtain the best control effect
		Current and voltage suppression	Full current closed-loop control, completely avoid current shock, with perfect overcurrent and overcurrent suppression function
	Undervoltage suppression in operation		Especially for users with low grid voltage and frequent fluctuations in grid voltage, even at belowWithin the allowable voltage range, the system can also maintain the longest possible operating time based on unique algorithms and residual energy allocation

HYB3

Series Vector Inverter

Typical Function	Multispeed and swing frequency operation		16 programmable multi-speed control, a variety of operating modes can be selected. Swing frequency operation: preset frequency, center frequency can be adjusted, state memory and recovery after power failure
	PID control RS485 communication		Built-in PID controller (preset frequency). RS485 communication function is standard configuration, multiple communication protocols are optional, with linkage synchronization control function
	Frequency setting	Analog input	Dc voltage 0 ~ 10V, DC current 0 ~ 20mA (upper and lower limits optional)
		Digital input	Operation panel setting, RS485 interface setting, UP/DW terminal control, can also be set with analog input in a variety of combinations
	Output signa	Digital Out	2 OC outputs and 1 fault relay output (TA,TB,TC) for up to 16 meaning choices
		Analog output	2 analog signal output, the output range is between 0 ~ 20mA or 0 ~ 10V flexible setting, can achieve the set frequency, output frequency and other physical quantity output
	Automatic voltage regulation operation		According to the need can choose dynamic voltage, static voltage, unstable voltage three ways to obtain the most stable operation effect
	Acceleration and deceleration time setting		0.1s ~ 3600min can be set continuously, S type, linear mode is optional
	Braking	Energy consumption brake	The energy consumption braking starting voltage, back difference voltage and energy consumption braking rate can be adjusted continuously
		DC braking	DC braking starting frequency: 0.00 ~ [F0.16] upper frequencyBraking time: 0.0 ~ 100.0s; Braking current: 0.0% ~ 150.0% rated current
		Magnetic braking	0~100 0: The value is invalid
	Low noise operation		Carrier frequency continuously adjustable from 1.0 kHz to 16.0 kHz, minimizing motor noise to the maximum extent.
	Speed tracking speed restart function		Can achieve the smooth restart and instantaneous stop restart functions of the motor in operation.
	Counter		An internal counter to facilitate system integration
Movement function		Upper and lower frequency setting, frequency jump operation, reverse operation limit, slip frequency compensation, RS485 communication, frequency increase and decrease control, fault self-recovery operation, etc	
Display	Operation panel display	Operation conditions	Output frequency, output current, output voltage, motor speed, set frequency, module temperature, PID setting, feedback amount, analog input/output, etc
		Alarm content	Record the last six failures. Record six operating parameters, including output frequency, set frequency, output current, output voltage, DC voltage, and module temperature, during the last failure trip
Protection function			Over current, over voltage, under voltage, module failure, electronic thermal relay, overheat, short circuit, input and output phase loss, motor parameter tuning abnormality, internal memory failure, etc

HYB3

Series Vector Inverter

Environment	Ambient temperature	-10 ° C to +40 ° C (Ambient temperature is 40 ° C to 50 ° C, please use the reduced rate)
	Ambient humidity	5% ~ 95% RH, no condensation
	Ambient enviroment	Indoor (no direct sunlight, no corrosion, flammable gas, no oil mist, dust, etc.)
	Altitude	Indoor (no direct sunlight, no corrosion, flammable gas, no oil mist, dust, etc.)
Structure	Protection class	IP20
	Cooling Type	Air cooled with fan control
Installation Method		Wall mounted, cabinet type

Overall and mounting dimentions

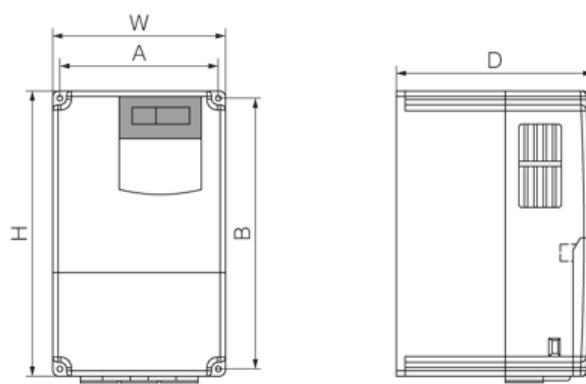


Figure A-1 Dimensions of A 7.5kW or smaller model

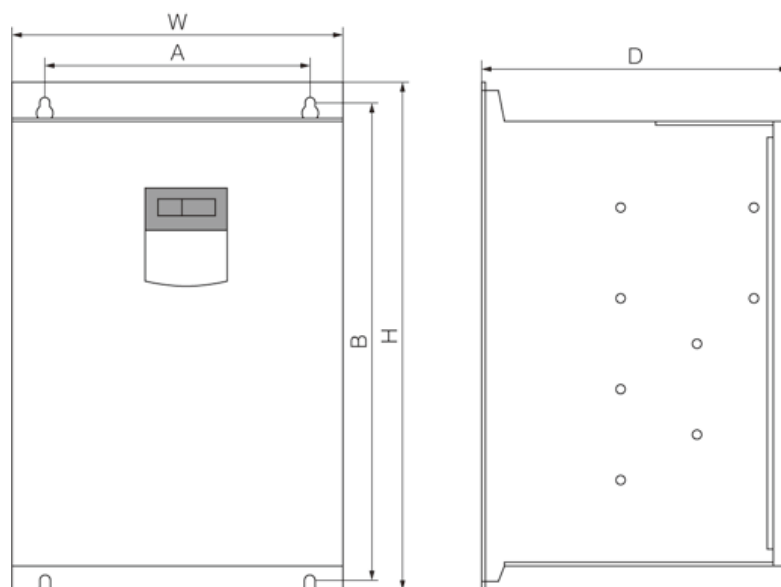


Figure A-2 Dimensions of the 22 to 132kW model (380V)

HYB3

Series Vector Inverter

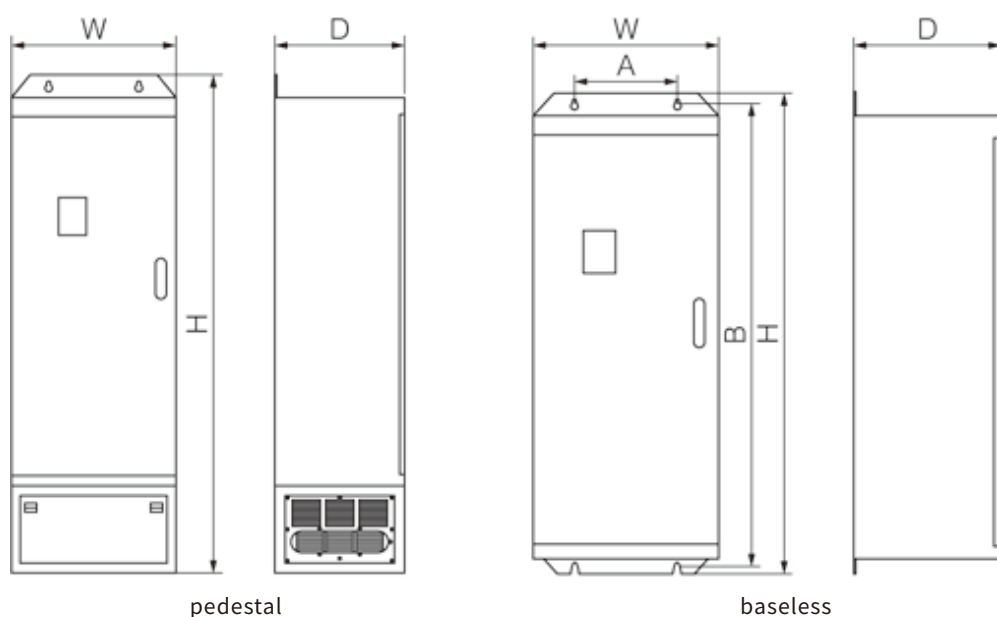


Figure A-3 Dimensions of the 160 to 350kW model (380V)

Power (kw)	Installation size		Overall dimensions			Diameter Of Mounting Recess (mm)	Notes
	A(mm)	B(mm)	H(mm)	W(mm)	D(mm)		
0.75 ~ 2.2	115	175	185	125	160	4	—
4.0 ~ 7.5	136	230	246	150	179	5	—
11 ~ 18.5	201	306	320	218	218	5	—
22	150	404	420	235	210	6.5	—
30 ~ 37	195	433	460	270	220	8	—
45 ~ 55	240	537	565	320	275	8	—
75 ~ 110	274	642	670	380	272	8	—
132	320	738	756	460	345	8	—
160~220	270	1233	1275	490	405	12	baseless
			1448	490	405		pedestal
250~350	500	1325	1362	750	415	12	baseless
			1670	750	415		pedestal