

V&T Inverter Product Catalog

690V/1140V

PRODUCT SAMPLES

Development from Accumulation, Achievement from Innovation
Following Trend of the Word, Forging Paradigm of Industry

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 Shenzhen V&T Technologies Co.,Ltd.

Company Introduction

Shenzhen V&T Technologies Co., Ltd. was certificated as a "National Hi-tech and Double-Software Enterprise", which has fully intellectual property rights and devotes to the R&D, manufacture, sales and technical service of Inverter, Servo Drive, Electric Vehicle Motor Controller, etc. V&T has won the "Technical Innovation" prize awarded by the Inverter Industry Association, "The Most Competitive Brands" prize awarded by China Electrical Association, "2012 Electric Vehicle Excellent Technology" prize respectively awarded by China Electrotechnical Society (CES), the Specialized Committee of Electric Vehicles, the Automotive Engineering Society of China, and the Branch Association of Electric Vehicles. V&T has been ranked as one of the Top 10 Chinese Inverter Enterprises. It has been successfully listed on the Growth Enterprise Market (GEM) in 2016 (stock code: 300484).

In regard to the core and mainstream motor control technologies, Shenzhen V&T Technologies Co., Ltd. has mastered both vector control and torque control technology so far. Through continuous technological innovation and international technical exchange, V&T has completely grasped the key control technique and also possesses the capacity of industrialization design and manufacturing. It has developed lots of product series. The product voltage grade mainly contains 200V, 400V, 690V, 1140V, and the power grade varies from 0.4kW to 3000kW, which could meet various application demands from high, medium and low level market.

Under the premise of meeting international standards and satisfying different industries' application requirements, we further strengthened the product reliability and environment adaptability to suit harsh and extreme environments. Customized product and industrialized design can better meet medium and high level application demands. The products have been widely used in metallurgy, crane, oil, chemicals, machine tools, electric vehicles, metal processing, building materials, stone, wood processing, ceramics, plastics, air compressor, washing machine, water supply, air conditioning, municipal engineering, textile, printing, mining and other industries.

Main Product Series

Standard Platform Series

- V6 series high performance torque control inverter. (Voltage grade: 400V, 690V. Power range: 0.7kW~500kW)
- V5 series high performance vector control inverter. (Voltage grade: 200V, 400V, 690V, 1140V. Power range: 0.4kW~3MW)
- E5 series high performance general vector control inverter. (Voltage grade: 200V, 400V, 690V, 1140V. Power range: 0.4kW~3MW)

Industry-specialized product Series

- Electric vehicle motor driver series
- Tension control inverter series
- Machine tool servo drive
- Port crane inverter series
- Servo driver series for electric-hydraulic modeling machine
- Air compressor inverter
- Mine winch inverter series
- Special inverter series for integrative injection machine
- Paper-making industry inverter series
- Constant pressure water supply inverter
- Stone processing industry inverter
- Textile spinning frame inverter
- Ceramic industry drive series
- 3200Hz high frequency inverter series
- Centrifugal machine inverter with torque control mode
- Printing industry inverter series
- High-efficient energy saving ball mill inverter
- Mining explosion-proof inverter (690/1140V)



Product Technology Specification

Control Characteristics	Control Mode	Vector Control 1
	Starting torque	0.50Hz 180%
Speed range	1:100	
Steady speed precision	±0.5%	
Product Functions	Key functions	Under-voltage regulation, three switchable methods for given operating command(operation panel, external terminal and upper computer), rotation speed tracing, multi-stage speed operation (up to 23 stages), S curve acceleration/deceleration, slip compensation, droop control, current limiting control, manual/auto torque boost-function input/output terminals.
	Frequency reference mode	Digital panel setting, UP/DN terminal setting, communication setting, AI1/AI2/AI3 analog input setting, DI terminal pulse setting
	Frequency range	0.00~300.00Hz
	Starting frequency	0.00~60.00Hz
	Acceleration and deceleration time	0.1~3600.0s
	Dynamic braking capacity	Braking unit action voltage: Input voltage AC 690V: 900~1200V Input voltage AC 1140V: 1700~2200V.
	DC braking capacity	DC braking initial frequency: 0.00-300.00Hz DC braking current: Constant torque 0.0 -120.0%; Variable torque 0.0 -90.0% DC braking time: 0.0~30.0s, there is no waiting time for DC braking to realize quick braking
agnetic flux braking function	Action or no action is optional, action during deceleration as default	
Unique Characteristics	Multi functional button M	The unique multifunction key can be set to the frequently used operations, such as JOG, emergency shutdown, running command source switching, display menu switching etc.
	Multi menu mode	Basic menu mode, fast menu mode, menu mode of non-factory setting function codes
	Parameters copy	The standard digital panel can realize the parameters uploading, downloading and display the copy progress. Users can select to forbid the overwriting of the uploaded parameters.
	Show/hide function code	Users can customize any function code to be shown or hidden
	Double 485 communication ports	Dual 485 communication ports support Modbus protocol (RTU). The standard digital panel can realize the function of a remote control box within 500m
	Operation panel	Button or shuttle type digital panel optional, protection level: IP20 as standard, IP54 as option
	Common DC bus	All series can realize common DC bus supply for several inverters.
Independent duct	All series adopts independent duct design and supports the installation of heat-sink outside the cabinet	
Power On Self Test (POST)	Realizing the POST of internal and peripheral circuits, including motor grounding, +10V power supply output, analog input, disconnection etc.	
Protection Function	Power supply undervoltage, overcurrent protection, overvoltage protection, interference protection, abnormal comparison reference input, auto-tuning failure, module(IPM) protection, heat sink overheating protection, inverter overload protection, motor overload protection, peripheral protection, abnormal current detection, output to ground short circuit, abnormal power failure during operation, abnormal input power, output power phase failure, abnormal EEPROM operation, abnormal relay contact, temperature sampling disconnection, encoder disconnection, abnormal +10V power supply output, abnormal analog input, motor overheating (PTC), abnormal communication, abnormal version compatibility, abnormal copying, abnormal expansion card connection, terminal mutual exclusion detection failure, hardware overload protection	
Environment	Operating site	The product shall be mounted vertically in the electric control cabinet with good ventilation. Horizontal or other installation modes are not allowed. The cooling medium is the air. The product shall be installed in the environment without dust, corrosive gas, combustible gas, oil mist, steam, drip and free from direct sunlight,
	Ambient temperature	-10~+40°C, derated at 40~50°C, the rated output current shall be decreased by 1% for every temperature rise of 1°C
	Humidity	5~95%, no condensing
	Altitude	0~2000m, derated above 1000m, the rated output current shall be decreased by 1% for every rise of 100m
	Vibration	3.5m/s ² , 2~9Hz; 10 m/s ² , 9~200Hz; 15 m/s ² , 200~500Hz
Storage temperature	-40~+70°C	

■ Typical Industry Applications

Oil Field



- Specific inverter for pumping unit and do not need to feedback energy or energy consumption braking;
- Higher power saving effect, less harmonic and reactive current;
- Outdoor digital control cabinet can be provided; constant temperature control box can be long-term working reliably in the field of high and low temperature;
- Rich and flexible function of monitoring can record inverter data and save or wireless transmission through storage media.

Explosion-proof Products



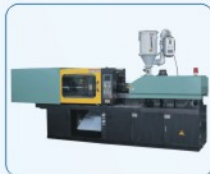
- Passed national detection and testing.
- Various voltage levels of products 200/400/690/1140V.
- Wide operating voltage, continuously operating in low voltage and interference electricity, strong environmental adaptability.
- Supporting automatic restart when power resume normal.

Mine Winch



- Abundant experience in the renovation of winch, providing different types of winch renovation solutions.
- Vector technology platform providing excellent control performance for the winch.
- A variety of protection functions to ensure more secure and reliable system.
- Intelligent fault diagnosis to reduce maintenance and repair work.

Moulding Machine



- Strong ability to adapt to the environment, with anti-corrosion treatment to ensure reliable and stable operation.
- Anti-interference and lightning protection design.
- Compatible with international brand appearance design, maximum power up to 3000 kW.
- No tripping, power module control reliability and protection.

Public Projects

- Central air conditioning/refrigeration house: for constant temperature control, high efficiency of energy-saving, and low noise.
- Centralized water supply in constant pressure: Built-in 1-for-all expansion card for water supply, multi-period water supply in constant pressure with timed polling, solving the phenomena of overflowing and water hammer in the switching process.
- Sewage treatment: Adaptive built-in torque in the main and auxiliary drive of centrifugal equipment for quick acceleration/deceleration, suitable for harsh environment.
- Various fan drives: Designed for the fan, high efficiency of energy-saving, noise optimization, built-in automatic speed tracking function, maximum power up to 800 KW.



Crane

- Excellent torque control, reliable brake control sequence.
- Professional control function of crane: speed monitoring, torque monitoring, torque verification, power optimization, position processing, intelligent deceleration and other functions.
- Widely applied in: Hoisting machinery for various industries, including port, ship, marine engineering, mining, construction, metallurgy and factory, etc.



Stone Processing

- Simple and convenient operation, and less connection line.
- Smooth running curve to reduce the board damage rate, smooth starting to reduce mechanical damage to maintenance costs.
- Providing the constant tension control for broken rope, main and auxiliary functions for frequency operation, safe stopping function, and alarm prompt function.



Coal Mine

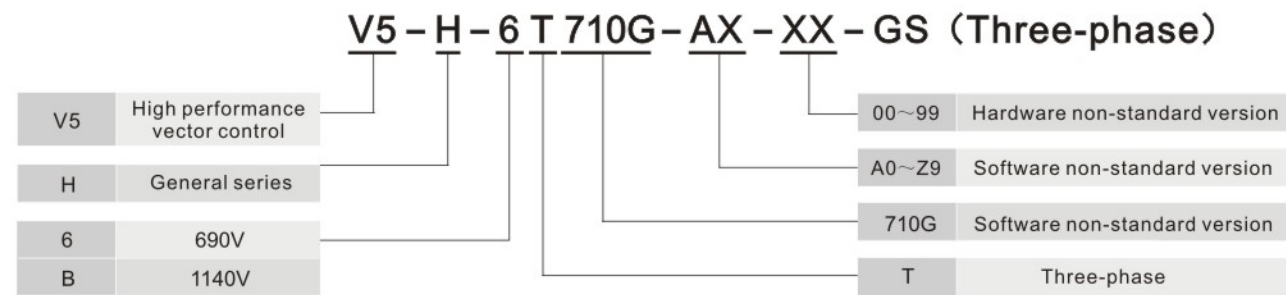
- Strong adaptability of environmental, many type of solutions;
- Strong capability of interference-proof, safe, reliable and stable operation;
- Special mechanical constructions design are applicable for requirements of different occasions;
- Many type of communication can make power be balanced to solve request of loading balanced of each requirement.



Shenzhen V&T Technologies Co.,Ltd.

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Introduction of Product Type



Optional Accessories of Product

Accessories Name	Type	Function Introduction	
Built in Braking Unit	With "-06" after product type		
Vectorque Monitoring Software	CD-RM01	V1.00	
Digital Terminal Expansion Card	EX-DT01	Expanded 4 multi-function input terminals and 3 relay output terminals.	
	EX-DT02	Expanded 7 relay output terminals.	
Programmable Clock Control Card	EX-DT03	Independent clock and 8 relay output terminals.	
Power Monitoring Card	EX-PA01	Power supply lack-phase/Instant power-fail monitoring.	
Phase Sequence Monitoring Card	EX-PA02	Phase sequence monitoring of three-phase input.	
Speed Tracking Card	EX-PA03	Achieving speed tracking	
External Power Rectification Card	EX-RF01	Control power provided from external power.	
Operation panel	Fake Plate	V6-DP03	Selected accessories by customers.
	Supporting Plate	V6-DP05	Installation attached accessories of operation panel.
Text Display	EX-MT01	Man-machine operation interface-text display.	
Touching Screen	EX-MT02	Man-machine operation interface-touching screen.	
Communication Adapter	EX-CA01	PROFIBUS communication adapter.	
	EX-CA02	PROFIBUS communication adapter.	
	EX-CA03	Communication adapter of USB to RS485.	
CANopen Communication Adaption Card	EX-CA04	Approving CAN2.0A, CANopenDS301V4.02, DS303, DS305.	
Keyboard Extension Line	CB1-150	1.5m keyboard extension line.	
	CB1-300	3.0m keyboard extension line.	
Communication Cable	CB2-RS232	Standard RS232 cable.	
	CB3-USB	1.0m USB to RS232 cable	
	RXHG/RXLG series	Attached accessories of braking unit	
Braking Resistor	RXHG/RXLG series	Attached accessories of braking unit	
AC Input Reactor	ACL series	Attached accessories of AC input reactor	
AC Output Reactor	OCL series	Attached accessories of AC output reactor	
Input Noise Filter	EBK5/40 series	Attached accessories of CE specification	
Output Noise Filter	EBL series	Attached accessories of CE specification	

Note: If you have any requirement, Please contact with manufacturer.

General Product Series

V5-H Three-phase Application of 690V Constant Torque/Heavy Load

Type (Rated Power of inverter)	15	18.5	22	30	37	45	55	75	90	110	132	160	185	200	220
Motor Power (kW)	15	18.5	22	30	37	45	55	75	90	110	132	160	185	200	220
Voltage (V):	Three-phase 0~Rated Input Voltage														
Output Rated Current (A)	20	25	28	35	45	52	65	86	98	120	150	176	204	220	245
Overload Capacity:	150% 1min, 180% 10s, 200% 0.5s, Interval of 10s. (Inverse Time-lag Characteristic)														
Rated Input Voltage/Frequency:	Three-phase 690V~790V, 50Hz/60Hz														
Input Working Voltage Range:	323V~528V; Voltage Unbalance: ≤3%; Voltage Fluctuation Available: ±5%														
Rated Current (A)	25	30	35	40	47	52	65	85	96	116	145	168	196	210	230
Protection Level	IP20														
Cooling Method	Forced-air Cooling														

Type (Rated Power of inverter)	250	280	315	355	400	450	500	560	630	710	800				
Motor Power (kW)	250	280	315	355	400	450	500	560	630	710	800				
Voltage (V):	Three-phase 0~Rated Input Voltage														
Output Rated Current (A)	275	325	350	395	435	490	545	600	680	770	860				
Overload Capacity:	150% 1min, 180% 10s, 200% 0.5s, Interval of 10s. (Inverse Time-lag Characteristic)														
Rated Input Voltage/Frequency:	Three-phase 690V~790V, 50Hz/60Hz														
Input Working Voltage Range:	323V~528V; Voltage Unbalance: ≤3%; Voltage Fluctuation Available: ±5%														
Rated Current (A)	255	290	335	378	415	466	520	580	655	750	840				
Protection Level	IP20														
Cooling Method	Forced-air Cooling														

V5-H Three-phase Application of 1140V Constant Torque/Heavy Load

Type (Rated Power of inverter)	37	45	55	75	90	110	132	160	185	200	220	250	280	315	355
Motor Power (kW)	37	45	55	75	90	110	132	160	185	200	220	250	280	315	355
Voltage (V):	Three-phase 0~Rated Input Voltage														
Output Rated Current (A)	24	31	38	52	58	73	86	104	115	132	144	162	180	208	225
Overload Capacity:	150% 1min, 180% 10s, 200% 0.5s, Interval of 10s. (Inverse Time-lag Characteristic)														
Rated Input Voltage/Frequency:	Three-phase 1140V~1200V, 50Hz/60Hz														
Input Working Voltage Range:	960V~1300V; Voltage Unbalance: ≤3%; Voltage Fluctuation Available: ±5%														
Rated Current (A)	25	32	38	51	57	72	85	102	113	126	141	158	180	200	215
Protection Level	IP20														
Cooling Method	Forced-air Cooling														

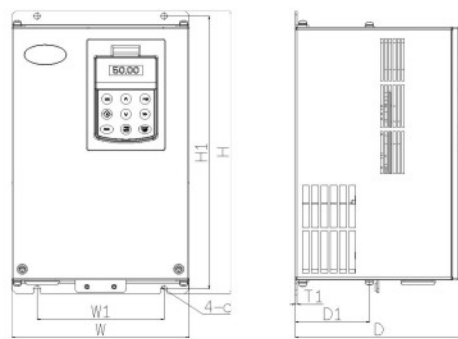
Type (Rated Power of inverter)	400	450	500	560	630	710									
Motor Power (kW)	400	450	500	560	630	710									
Voltage (V):	Three-phase 0~Rated Input Voltage														
Output Rated Current (A)	260	300	325	365	400	450									
Overload Capacity:	150% 1min, 180% 10s, 200% 0.5s, Interval of 10s. (Inverse Time-lag Characteristic)														
Rated Input Voltage/Frequency:	Three-phase 1140V~1200V, 50Hz/60Hz														
Input Working Voltage Range:	960V~1300V; Voltage Unbalance: ≤3%; Voltage Fluctuation Available: ±5%														
Rated Current (A)	260	300	325	365	400	450									
Protection Level	IP20														
Cooling Method	Forced-air Cooling														

Note: If you have any requirement, Please contact with manufacturer.

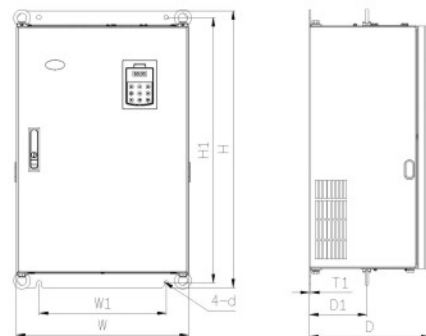
■ Appearance, Size and Approximate Weight of Product

◆ Appearance and Size of 6T Standard Inverter

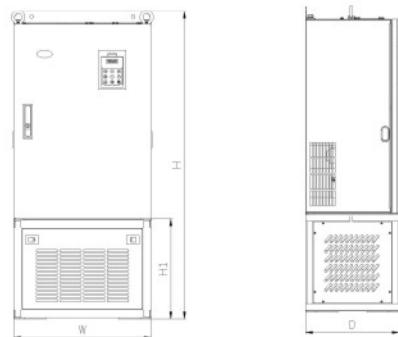
Voltage Level	Inverter Type	Power Level	Base	Appearance and Installation Size (mm)								Approximate Weight (kg)	
				W	H	D	W1	H1	D1	T1	d		
690V	V5-H-6T15G ~ V5-H-6T30G	15kW ~ 30kW	No	285	440	220	200	425	107.5	2.5	7	17	
	V5-H-6T37G ~ V5-H-6T55G	37kW ~ 55kW	No	315	575	227	220	553	123.5	2.5	10	25	
	V5-H-6T75G ~ V5-H-6T90G	75kW ~ 90kW	No	400	615	265	270	590	123.5	3.0	10	35	
	V5-H-6T110G ~ V5-H-6T132G	110kW ~ 132kW	Yes No	465	1042	325	382	339	238	-	14	-	
	V5-H-6T160G ~ V5-H-6T220G	160kW ~ 220kW	Yes No	540	1206	385	459	365	300	-	14	-	
	V5-H-6T250G ~ V5-H-6T355G	250kW ~ 355kW	Yes No	700	1380	385	614	412	294	-	15	-	
	V5-H-6T400G ~ V5-H-6T630G	400kW ~ 630kW	Yes No	810	1698	435	728	418	339	-	15	-	
				No	810	1358	425	520	1300	210	4.0	14	215



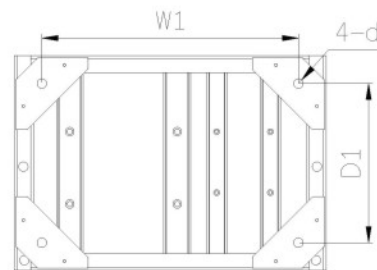
Power Level of V5-H-6T15G~V5-H-6T90G



Power Level (Without Base) of V5-H-6T110G~V5-H-6T630G

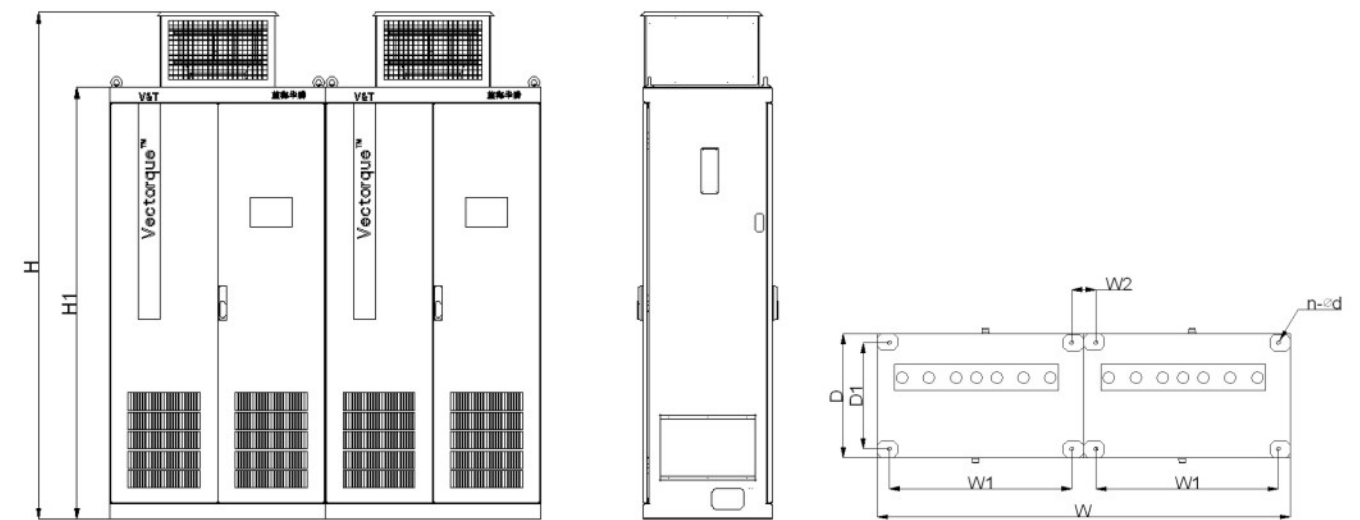


Power Level (With Base) of V5-H-6T110G~V5-H-6T630G



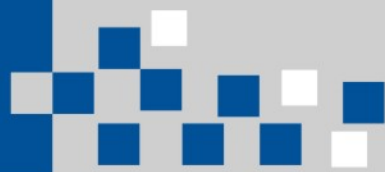
◆ Appearance and Size of 6T cabinet type Standard Inverter

Voltage Level	Inverter Type	Power Level	Appearance and Installation Size (mm)								Approximate Weight (kg)	
			W	H	D	W1	H1	D1	W2	n		d
690V	V5-H-6T280G-GS ~ V5-H-6T450G-GS	280kW ~ 450kW	800	2352	600	684	2000	516		4	20	530
	V5-H-6T500G-GS ~ V5-H-6T710G-GS	500kW ~ 710kW	1000	2352	600	884	2000	516		4	20	600
	V5-H-6T800G-GS	800kW	1300	2395	650	1184	2000	566		4	20	700
	V5-H-6T900G-GS ~ V5-H-6T1400G-GS	900kW ~ 1400kW	2000	2352	600	884	2000	516	116	8	20	1200
	V5-H-6T1600G-GS ~ V5-H-6T2000G-GS	1600kW ~ 2000kW	3000	2352	600	884	2000	516	116	12	20	1800
	V5-H-6T2200G-GS ~ V5-H-6T2800G-GS	2200kW ~ 2800kW	4000	2352	600	884	2000	516	116	16	20	2400
	V5-H-6T3000G-GS ~ V5-H-6T3550G-GS	3000kW ~ 3550kW	5000	2352	600	884	2000	516	116	20	20	3000



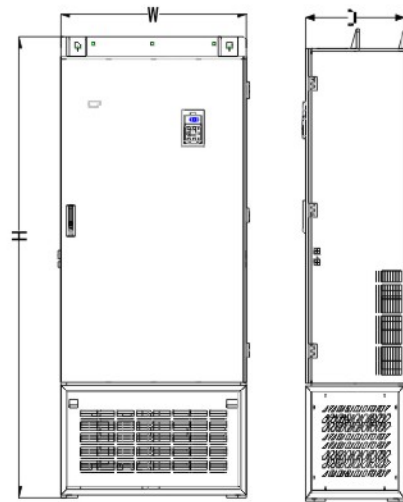
Power Level (Paralleling) of 6T280G~6T3550G

Note: This machine can be added power distribution cabinet with 500mm width. Other sizes are similar to cabinet and switch components can be specified by customers.

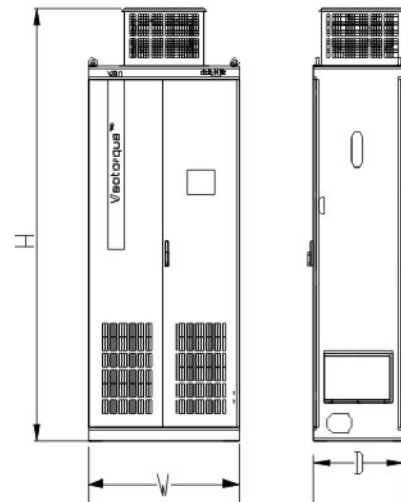


◆ Appearance and Size of V5-H-BT Inverter

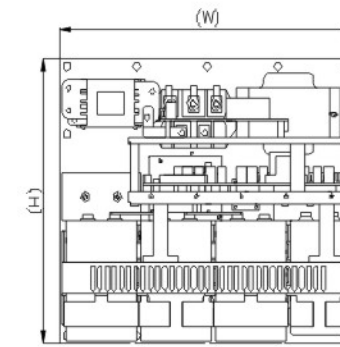
Voltage Level	Inverter Type	Inverter Type	Appearance and Installation Size (mm)							Approximate Weight (kg)
			W	H	D	W1	H1	D1	d	
1140V	V5-H-BT37G	37kW ~ 132kW	590	1380	365	506	1255	271	14	120
	V5-H-BT132G									
	V5-H-BT160G	160kW ~ 250kW	800	1700	450	702	1669	352	14	170
	V5-H-BT250G									
	V5-H-BT280G	280kW ~ 500kW	1100	2400	984	880	2200	684	20	245
	V5-H-BT500G									
	V5-H-BT560G	560kW ~ 710kW	1100	2400	800	990	2200	690	20	265
V5-H-BT710G										



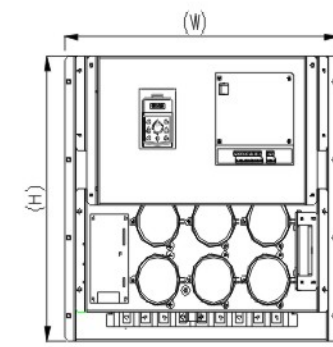
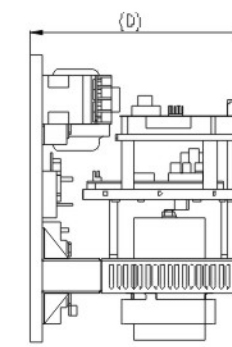
Power Level of V5-H-BT37G~V5-H-BT250G



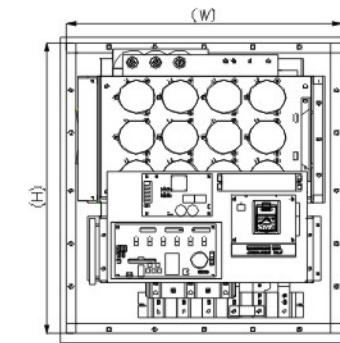
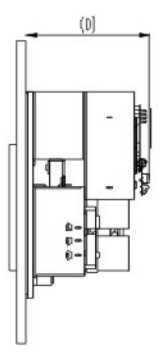
Power Level of V5-H-BT280G~V5-H-BT710G



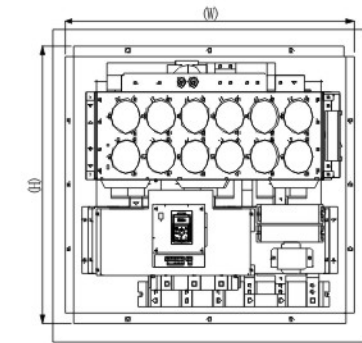
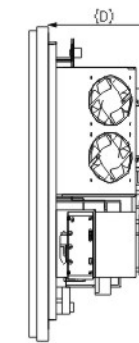
Power Level of V5-H-6T18.5G~V5-H-6T37G



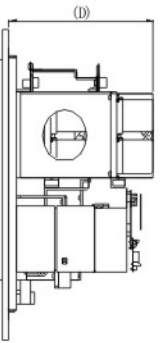
Power Level of V5-H-6T45G~V5-H-6T132G



Power Level of V5-H-6T160G~V5-H-6T250G

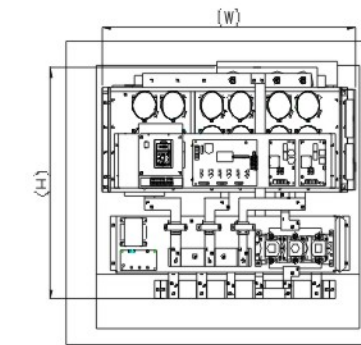


Power Level of V5-H-6T280G~V5-H-6T355G

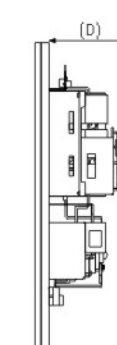


◆ Appearance and Size of V5-H-6T Explosion-proof Inverter

Voltage Level	Inverter Type	Power Level	Cooling Method	Appearance and Installation Size (mm)		
				W	H	D
690V	V5-H-6T18.5G	18.5kW ~ 37kW	Cooled by Water or Hot Pipe	280	360	245
	V5-H-6T37G					
	V5-H-6T45G	45kW ~ 132kW	Cooled by Water or Hot Pipe	450	500	320
	V5-H-6T132G					
	V5-H-6T160G	160kW ~ 250kW	Cooled by Water or Hot Pipe + Forced-air Cooling	700	620	360
	V5-H-6T250G					
	V5-H-6T280G	280kW ~ 355kW	Cooled by Water or Hot Pipe + Forced-air Cooling	660	710	420
V5-H-6T355G						
V5-H-6T400G	400kW ~ 630kW	Cooled by Water or Hot Pipe + Forced-air Cooling	780	980	350	
V5-H-6T630G						

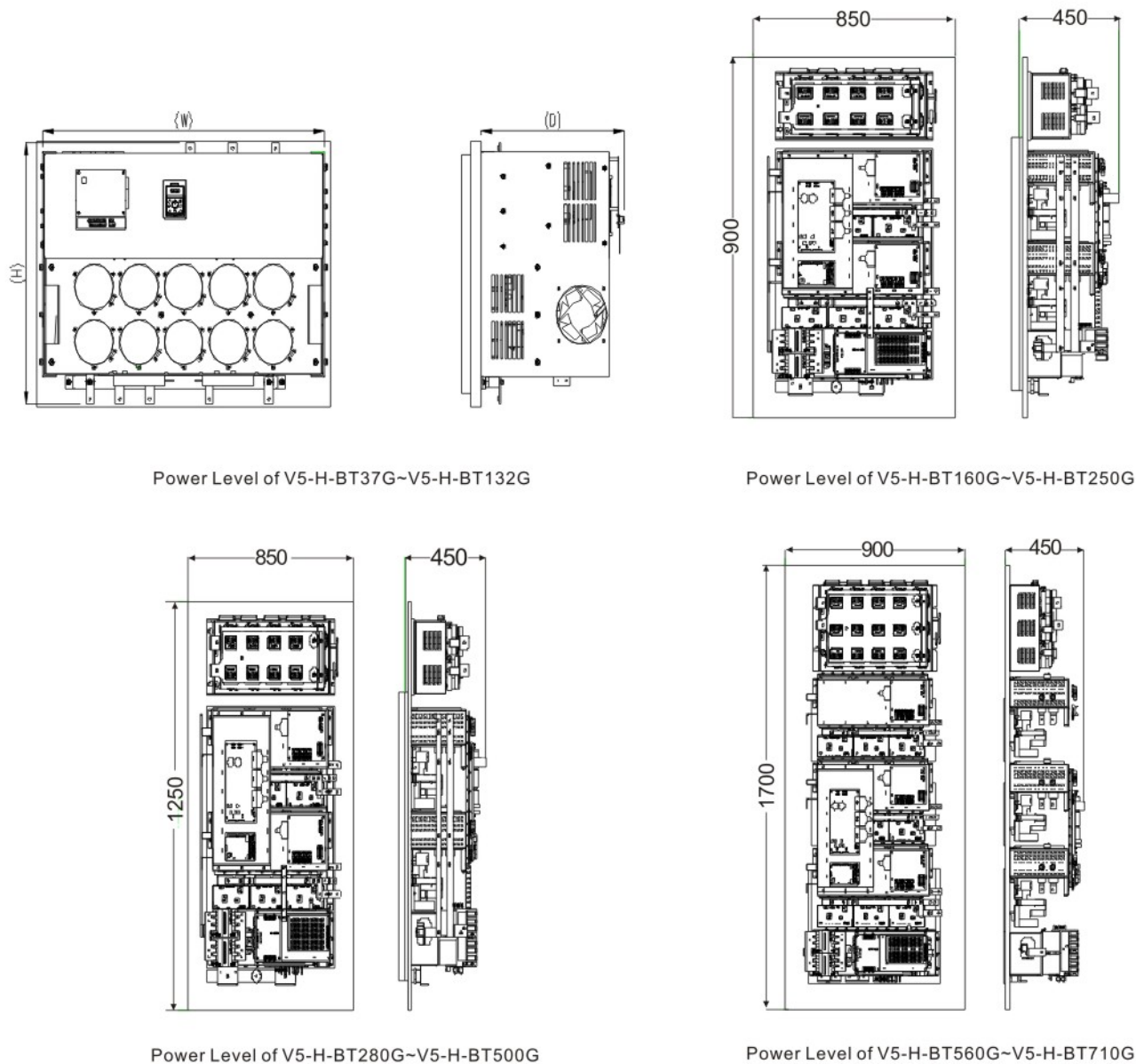


Power Level of V5-H-6T400G~V5-H-6T630G



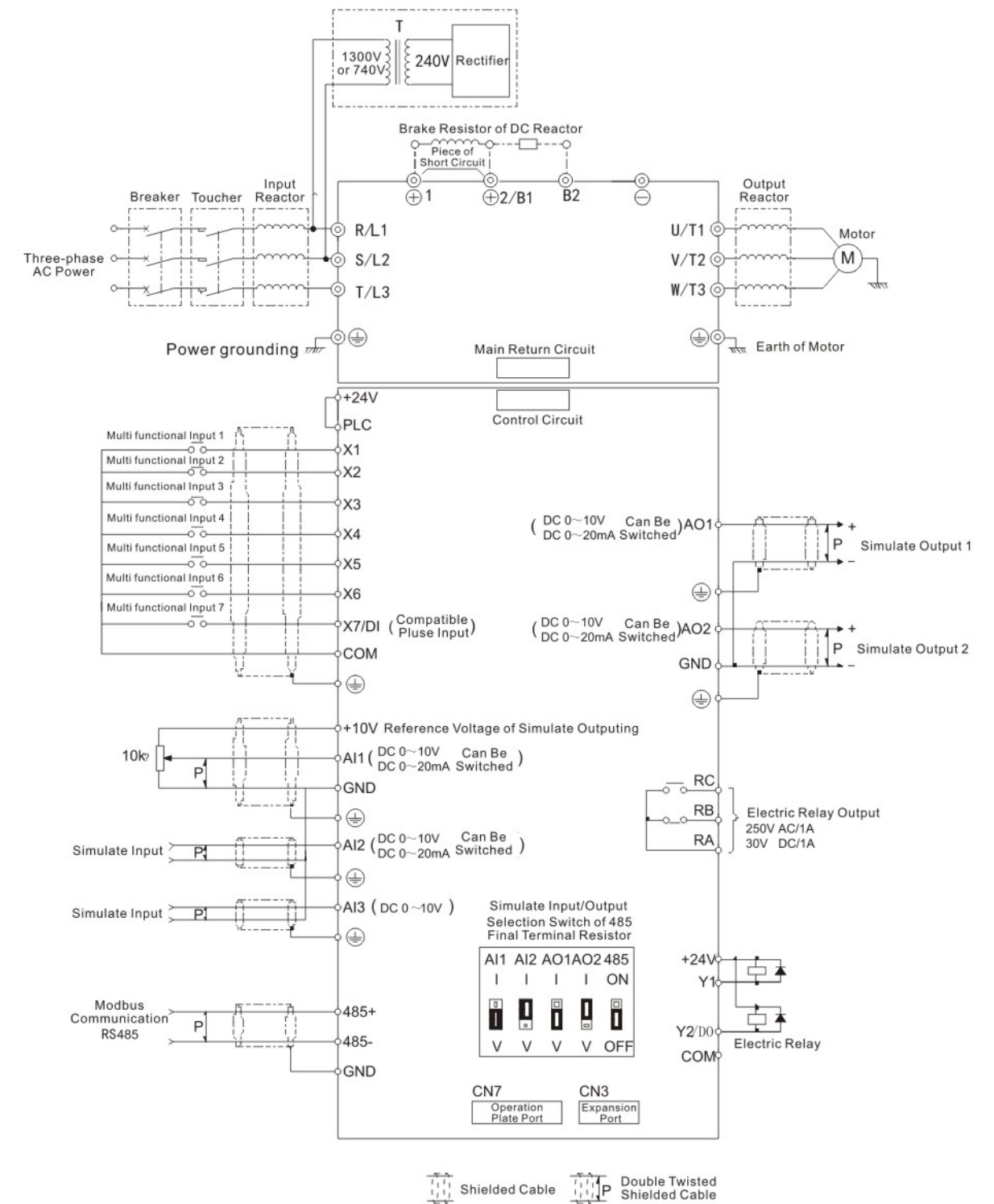
◆ Appearance and Size of V5-H-BT Explosion-proof Inverter

Voltage Level	Inverter Type	Power Level	Cooling Method	Appearance and Installation Size (mm)		
				W	H	D
1140V	V5-H-BT37G	37kW~132kW	Cooled by Water or Hot Pipe	680	533	350
	V5-H-BT132G					
	V5-H-BT160G	160kW~250kW	Cooled by Water or Hot Pipe	800	450	800
	V5-H-BT250G					
	V5-H-BT280G	280kW~500kW	Cooled by Water or Hot Pipe + Forced-air Cooling	1250	450	800
	V5-H-BT500G					
V5-H-BT560G	560kW~710kW	Cooled by Water or Hot Pipe + Forced-air Cooling	1680	450	800	
V5-H-BT710G						



Note: The size above is that reference of standard explosion-proof inverter of company. Please consult technology department if there is special size and requirement.

■ Terminal Wiring Picture of Product



Note:

- ◆ Input and output are optional accessories when voltage level is 690V and advised to assort input reactor when power is over 110kW;
- ◆ Insulation transformer T is built out, which is in dashed box of wiring picture when voltage level is 690V and power is under 90kW;
- ◆ Advised to add output reactor when voltage level is 690V and output cable is longer than 50m;
- ◆ Input and Output reactors are standard assorted and installed inside of case when voltage level is 1140V;
- ◆ Advised to add sinusoidal filter when voltage level is 1140V and output cable is longer than 150m.

Terminal Function of Main Return Circuit

690V/1140V Standard Machine

V5-H-6T15G~V5-H-6T90G

R/L1	S/L2	T/L3	⊕1	⊕2	⊖	U/T1	V/T2	W/T3
POWER			OPTION			MOTOR		



V5-H-6T15G-06~V5-H-6T90G-06 (When built in components of braking unit.)

R/L1	S/L2	T/L3	B1	B2	⊖	U/T1	V/T2	W/T3
POWER			OPTION			MOTOR		



Wiring methods of Inverters for power level of V5-H-6T110G and above are coming from above and going out from below.

POWER		
R/L1	S/L2	T/L3



⊕1	⊕2	⊖
OPTION		



U/T1	V/T2	W/T3
MOTOR		

When V5-H-BT is without components of braking unit,

R/L1	S/L2	T/L3	⊕1	⊕2	⊖	U/T1	V/T2	W/T3
POWER			OPTION			MOTOR		



When V5-H-BT is without components of braking unit,

R/L1	S/L2	T/L3	⊕1/B1	B2	⊖	U/T1	V/T2	W/T3
POWER			OPTION			MOTOR		



690/1140V cabinet type Machine

V5-H-6T280G V5-H-6T3550G (cabinet type machine)

R/L1	S/L2	T/L3
POWER		



U/T1	V/T2	W/T3
MOTOR		

Terminal Mark	Name and Function Introduction of Terminal
R/L1, S/L2, T/L3	Input terminal of three-phase AC
⊙1, ⊙2/B1 or ⊙1, ⊙2	Connecting terminal of DC reactor
⊙2/B1, B2 or B1, B2	Connecting terminal of braking unit
⊙2/B1, ⊙ or ⊙2, ⊙	Connecting terminal of DC: DC input terminal for external braking unit.
U/T1, V/T2, W/T3	Output terminal of three-phase AC
⊕	PE earth terminal

Arrangement of Control Circuit Terminal

+10V	A11	A12	A13	GND	AO1	AO2	GND	485+	485-	RA	RB	RC
+24V	PLC	COM	X1	X2	X3	X4	X5	X6	X7/DI	Y1	Y2/DO	COM

Function of Control Circuit Terminal

Classification	Terminal Signal	Terminal Function Introduction	Technology Specification
Terminal 485	485+	485 differential signal positive terminal	Communication baud rate: 4800/9600/19200/38400/57600 bps Most paralleling 32 sets and it needs to use repeater when over 32 sets. The longest distance is 500m (using standard double shielded cable.).
	485-	485 differential signal negative terminal	
	GND	485 shield earth of communication	
Operation panel 485	CN7	Operation panel 485 port	Be same as terminal 485 for communication connection host computer. The longest distance of communication connection for operation panel is 15m (using standard double shielded cable.).
Digital Input	+24V	+24V	24V±10%, maximum load is 200mA and has overload protection and short circuit protection. Short circuit with +24V when leaving factory. Input specification: 24VDC, 5mA; Frequency range: 0~200Hz; Voltage range: 24V±20%. Multi function input: Be same as X1~X6; Pulse input: 0.1Hz~50KHz; voltage range: 24V±20%.
	PLC	Common terminal of multi function input terminal	
	X1~X6	Multi function input terminal 1~6	
	X7/DI	Multi function input or pulse input	
Digital Input	COM	+24V ground	Internal is isolation with COM.
	Y1	Open collector output	Voltage range: 24V±20%, maximum input current is 50mA.
	Y2/DO	Open collector output or pulse output	Open collector: Be same as Y1; Pulse output: 0~50kHz; Voltage range: 24V±20%.
Simulation Input	COM	Common terminal of open collector output	Internal is isolation with COM.
	+10V	Common terminal of open collector output	10V ±3%, internal is isolation with COM; maximum output current is 10mA and has short circuit protection and overload protection.
	A11	Analog input 1	10V ±3%, internal is isolation with COM; maximum output current is 10mA and has short circuit protection and overload protection.
	A12	Analog input 1	
	A13	Analog input 3	-10V~10V: output impedance 20kΩ; resolution is 12 place (0.025%), maximum input voltage ±15V.
Analog Output	GND	Analog input ground	Internal is isolation with COM
	AO1	Analog output 1	0~20mA: permitted output impedance 200~500Ω
	AO2	Analog output 2	0~10V: permitted output impedance ≥10kΩ
	GND	Analog output ground	Accuracy output 2%, resolution ratio is 10 place (0.1%) and has short circuit protection function.
Relay Output	RA/RB/RC	Relay output	Internal is isolation with COM. RA-RB: general closed; RA-RC: general opened; Contactor capacity: 250VAC/1A, 30VDC/1A.