



FST-610 High Performance SVC
Frequency Inverter For General Application



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ANYHERTZ DRIVE (SHENZHEN) CO., LTD.



ABOUT US



Anyhertz, whose predecessor is Shenzhen Firtech Co.,Ltd., was established in 2005. The company has always been dedicated to the R&D, manufacture and marketing of AC drive products. In the year of 2011, a team of influential experts in the industry joined the company. And the company entered into a new period of rapid development with its new name, Anyhertz Drive (Shenzhen) Co., Ltd.

Anyhertz is located in the heart of Shenzhen, occupying an area of 5000 square meters. Currently, the company has more than one hundred staff, including 50 professional technical persons and most of them came from well-known enterprises in the industry.

So far, Anyhertz products include VF control inverter (FST-600), sensor-less vector control inverter (FST-610), closed loop flux vector inverters (FST-800), and economic and compact inverter (FST-500), medium voltage inverters (FST-700, 660V-690V), and four-quadrant reversible inverter (FST-900), which are widely applied to textile, printing, plastics, pharmacy, cable, crane, extruder, refrigerator, ball mill, water supply, civil engineering, mining, petrochemical and HVAC etc. By virtue of the most advanced designing concept and technology, Anyhertz has constantly perfected the performance of the products. Meanwhile, we are strictly operating in accordance with ISO9001:2000 Quality Management System. All of products have won CCC and CE approval.

Having a fully developed marketing network at home, we have branch offices in Southern China, Eastern China, Northern China, North-East China and South-West China to provide sound sales and after-sales service. Furthermore, via trading company, our products have been shipping to overseas in over 10 countries and regions, such as Russia, Pakistan, India and south-east Asia, etc. In January of 2012, we have launched overseas sales department and started the marketing directly in overseas market.

Enterprise Culture

Company spirit

Cooperation, Diligence, Honesty, Innovation.

Management principle

To survive by high quality, to develop by high efficiency, to earn trust by sound service

R&D principle

Be oriented by the market and seek increasing perfection

Service principle

Maximum satisfaction to the customers is our incessant pursuit.

Strategic targets

To become the leading company in the line, to make contributions to saving energy for human.

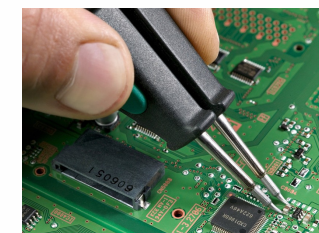


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Dimensions

FST-610 High Performance SVC Frequency Inverter For General Application
 (0.4KW-2.2KW,single phase,220V
 0.75KW-630KW,3 phases 380V)





FST-610 High Performance SVC Frequency Inverter For General Application (0.4KW-2.2KW, single phase, 220V 0.75KW-630KW, 3 phases 380V)

structural features:

- Optimized layout design makes the machine to be smaller and lighter. It is easy for transportation, installation and maintenance.
- Perfect cooling design ensures lower temperature rise and long life.
- High anti-interference ability due to the circuit separation for strong current and weak current.
- Combined module for 15KW or below with high reliability.

software features:

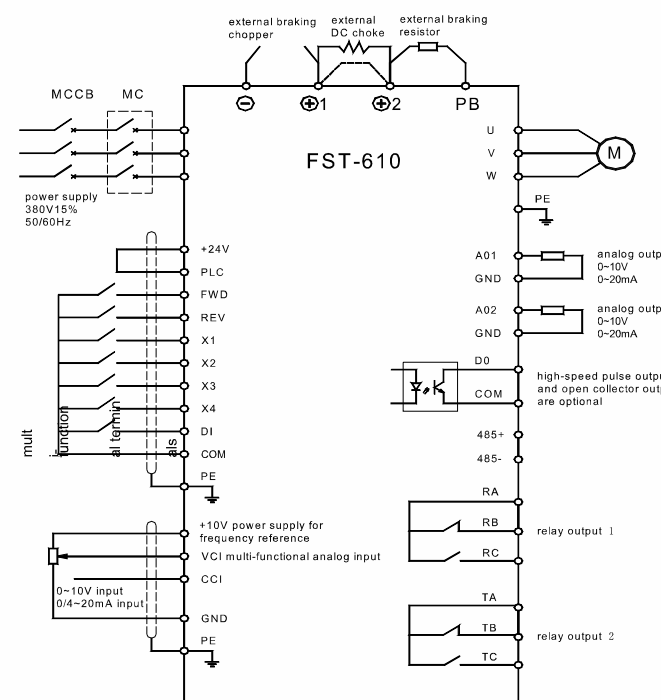
- G/P are in one for extensive application
- 3 kinds of control: V/F control, SVC control, torque control.
- High starting torque: 180%, 0.5Hz.
- Multi-step speed control, simple PLC control and PID control.
- Programmable input and output terminals.
- Non-stop operation at momentary power failure.
- Multiple sources of frequency reference.
- Automatic Voltage regulation (AVR)
- Frequency skip function.
- Oscillation suppression function.
- Perfect function of fault protection.

Application:

- Pump and Fan
- Compressor
- Central air-conditioner
- Ball mill machine
- Conveyor
- Main shaft of CNC
- Conveyor
- Fountain



Connecting diagram



Technical Specifications:

I/O Features	Input Voltage Range	380/220V±15%
	Input Frequency Range	47~63Hz
	Output Voltage Range	0~rated Input voltage
	Output Frequency Range	0~600Hz DO:2,AO1
I/O Terminals	Input Terminals	programmable DO:7, 1 high speed pulse; programmable AI:2, AI1:-10V~10V, AI2:0~10V or 0~20mA
	Output Terminals	Programmable open collector output 1 (open collector or high speed pulse output selectable), programmable relay output 2 programmable AI:2, 0/4~20mA or 0~10V selectable
	Communication Terminals	provide RS485 communication interface, adopt Modbus-RTU communication mode.
Control Function	Control Mode	V/F control, sensorless vector control (SVC)
	Speed Adjusting Range	1:100(SVC)
	Overload Capacity	150% rated current 60s, 180% rated current 10s.
	Frequency Reference Source	Keypad, analog input, DI, serial communication, multi-step speed, simple PLC and PID. The combination of multi-modes and the switch between different modes can be realized.
	Other Functions	<ul style="list-style-type: none">• Traverse Control Function• PID Control Function• Simple PLC, Multi-Steps Speed Control Function: 16 steps speed can be set.• None-Stop when instantaneous power off.• Speed Trace Function: Smoothly start the running motor.• Automatic Voltage Regulation Function (AVR):• Up to 23 fault protections over current, over voltage, under voltage, over temperature, phase failure, overload etc.
Man-machine Interface	LED Display	Can display setting frequency, output frequency, output voltage, output current etc.
	Multi-function Key-press	The QUICK/JOG key-press can be used as multi-function key-press.
	Temperature	-10℃ ~+40℃ . Inverter will be derated if ambient temperature exceeds 40℃ .
	Humidity	≤90%, without condensation
	Altitude	≤1000M, output rated power >1000M, output power with derating
	Impingement and Oscillation	The inverter is prohibited to drop on the floor or with suddenly impact, it also prohibited to be installed at the place where the oscillation may occur very probably.
	Electromagnetic Radiation	The inverter is prohibited to be installed at the place where stronger electromagnetic radiation may occur very probably.
	Store Environment	The inverter is prohibited to be stored at the place where with direct sunlight, fall of oil mist, steam and with heavy oscillation.



FST-500 Mini Size SVC Frequency Inverter (0.4KW-2.2KW 220V, 0.75KW-7.5KW 380V)



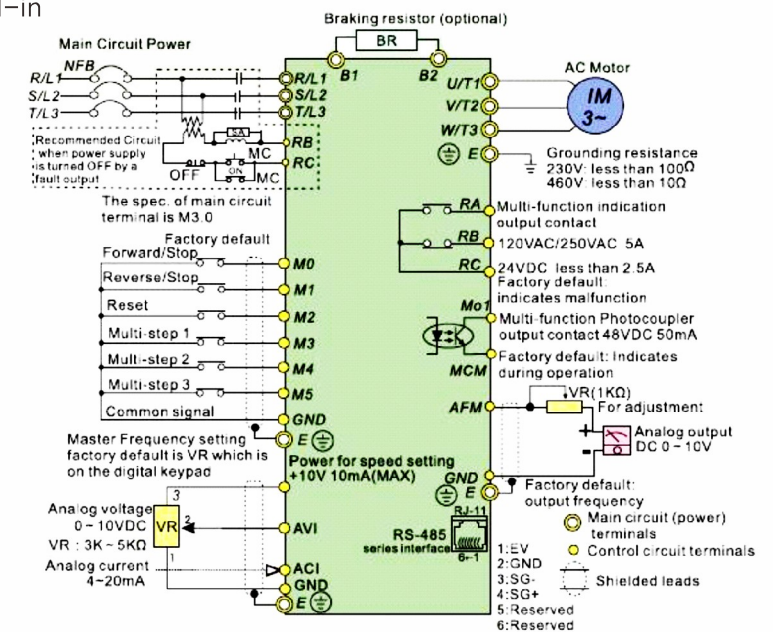
FST-500 Mini Size SVC Frequency Inverter (0.4KW-2.2KW 220V, 0.75KW-7.5KW 380V)

Main features:

- ◆ 16-bit microprocessor controlled PWM output
- ◆ Automatic torque boost & slip compensation
- ◆ Output frequency 0.1~400Hz
- ◆ 8-step speed control & 7-step process control
- ◆ Low-noise carrier frequency up to 15kHz
- ◆ 2 accel./decel. times & S-curve
- ◆ Process follower 0~10VDC, 4~20mA
- ◆ Communication interface RS-485 (Baud rate 38400)
- ◆ Energy saving & automatic voltage regulation
- ◆ Adjustable V/F curve & Simple vector control
- ◆ Automatic adjustment of accel./decel. Times
- ◆ PID feedback control
- ◆ Simple position function
- ◆ 0 Speed Holding function
- ◆ Sleep I Revival function build-in



Connecting diagram



NOTE: Do not plug a Modem or telephone line to the RS-485 communication port, permanent damage may result. Terminal 1&2 are the power sources for the optional copy keypad and should not be used while using RS-485 communication.

* If it is single phase model, please select any of the two input power terminals in main circuit power.
* Single phase model can be input 3-phase power.

© Technical specifications:

Control characteristics	Control System	SPWM (Sinusoidal Pulse Width Modulation)control (V/F or sensorless vector control)	
	Freq. Setting Resolution	0.1Hz	
	Output Frequency Resolution	0.1Hz	
	Torque Characteristics	Including the auto-torque, auto-slip compensation; starting torque can be 150% at 5.0Hz	
	Overload Endurance	150% of rated current for 1 minute	
	ISkip Frequency	Three zones, settings range 0.1-400Hz	
	IAccel/Decel Time	0.1 to 600 seconds (2 independent settings for Accel/Decel Time)	
	Stall Prevention Level	20%-200%, Setting of Rated Current	
	Frequency Setting	20%-200%, Setting of Rated Current	
	DC Injection Braking	Operation frequency 0-60Hz, output 0-100% rated current Start time 0-5 seconds, stop time 0-25 seconds	
Operating characteristics	Braking Torque	Approx. 20% (up to 125% possible with option braking resistor or braking unit externally mounted)	
	V/F Pattern	Adjustable V/F pattern	
	Frequency Setting	Keypad	Set by ▲.▼
		External Signal	Potentiometer-5KQ/0.5W, 0 to +10VDC; 4 to 20mA, RS-485 interface; Multi-Function Inputs 0 to 5 (7 steps. Jog, up/down)
	Operation Setting Signal	Keypad	Set by RUN, STOP
		External Signal	2 wires / 3 wires (Run, Stop, Forward / Rev,), JOG operation, RS-485 serialinterface (MODBUS)
	Multi-Function Input Signal	Multi-step selection 0 to 7, Jog. accel/decel inhibit, frst to forth accel/decel switches, counter, PLC operation, external Base Block (NC, NO), auxiliary motor control is invalid, ACI/AVI selections, drive reset. UP/DOWN key settings, sink/source selection	
	Multi-Function Output Indication	AC Drive Operating, Frequency Attained, Non-zero, Base Block, Fault Indication, Local/Remote indication. PLC Operation indication. Auxiliary Motor Output, Driver is Ready, Overheat, Alarm, Emergency Stop	
		Analog frequency/current signal output.	
	Alam Output Contaact	1Form C contact or open collector output.	
Protection Functions	Operation Functions	AVR. S-Curve, Over-Voltage, Over-Current Stall Prevention, Fault Records. Adjustable Carrier Frequency, DC Braking, Momentary Power Loss restart, Auto Tuning, Frequency Limits, Parameter Lock/Reset, Vector Control, Counter. PID Control, PLC, MODBUS Communication, Reverse Inhibition, abnormal reset, abnormal re-start, digital frequency output, sleep/revival function, 1 st/2nd frequency source selections	
	Protective Functions	Self-testing, Over Voltage, Over Current, Under Voltage, Overload, Overheating, External Fault, Electronic thermal, Ground Fault.	
	Display Keypads	6-key, 4-digit, 7-segment LED. 4 status LEDs, master frequency, output frequency. Output current, custom units, parameter values for setup, review and faults, RUN, STOP, RESET, FWD/REV	
Environment	Protection Level	IP20	
	Pollution Degree	2	
	Installation Location	Altitude 1,000m or less, keep from corrosive gas. liquid and dust	
	Ambient Temperature	-10°C to 40°C (-10°C to 50°C without blind plate) Non-Condensing and not frozen	
	Storage / Transportation Temperature	-20°C to 60°C	
	Ambient Humidity	Below 90% RH (non-condensing)	
Approvals	Vibration	9.80665 TM ^ (1G) less than 20Hz. 5.88m/s ² (0.6G) at 20 to 50Hz	
		C € ©	



FST-800 High performance closed loop vector control frequency inverter (1.5KW-630KW,3 phases,380V)





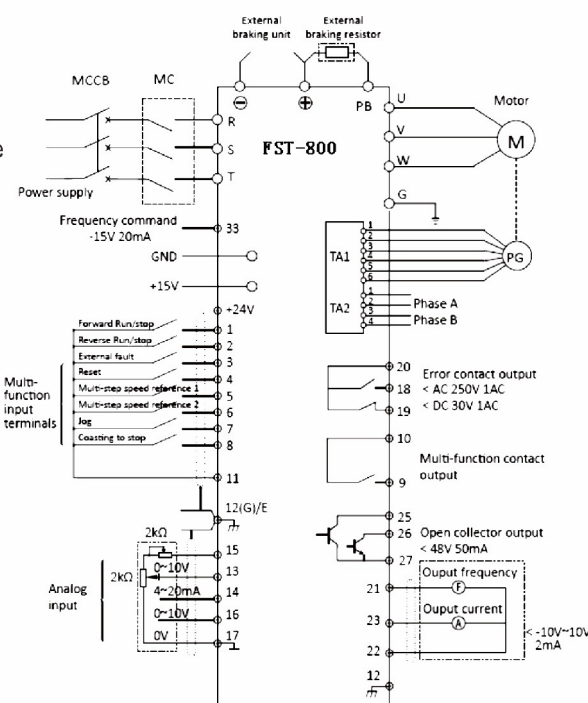
FST-800 High performance closed loop vector control frequency inverter (1.5KW-630KW,3 phases,380V)

◎ Main features:

- ◆ LCD keypad, English, Russian, French, German, Spanish and Chinese language available;
- ◆ Four control mode for option: V/F control, V/F control with PG, vector control, vector control with PG;
- ◆ Massive advanced functionalities available: energy saving control, speed control, slip compensation, torque compensation, moment control, zero-servo control, motor parameter autotuning, parameter copy;
- ◆ High starting torque at low speed: in the mode of closed-loop control, the series inverter can realize 150% rated torque at the zero speed;
- ◆ Speed control range: 1: 1000;
- ◆ Speed control accuracy is within $\pm 0.02\%$;
- ◆ Output frequency accuracy is within $\pm 0.01\%$;
- ◆ Multi-function input/output terminals, multi-function analog input/output function and serial communication function make operation more convenient;
- ◆ Perfect parameter online monitoring function, fault analysis function, protection and alarm function guarantee reliability of the inverter;
- ◆ Inbuilt PID function;
- ◆ Inbuilt RS-485 Communication interface (MODBUS Protocol);
- ◆ 15KW or below model is equipped with inbuilt braking unit as standard;
- ◆ Sound fault protection function, guaranteeing the inverter's high performance and high reliability;

◎ Application:

- ◆ Suitable for high-end application area with high precision
- ◆ fast response ◆ high torque
- ◆ big inertia ◆ potential load etc ◆ For example
- ◆ CNC machine ◆ crane ◆ lift ◆ winding machine
- ◆ cement machine ◆ mine conveyor etc.



Connecting diagram

◎ Technical features:

Item	Specification
Rated voltage /frequency	Three phase 380~440V 50Hz/60Hz
Allowed fluctuation	Voltage: +10% ~ -15%; Frequency: $\pm 5\%$
Output voltage	Three phase 0~380V
Output frequency	0~400.00Hz
Overload capacity	150% of rated current – 1Min
Control mode	V/F control, V/F control with PG, Vector control, Vector control with PG
LCD display	Six languages for option: Chinese, English, Russian, German, French, Spanish
Starting torque	150% 1Hz (0Hz in the mode of vector control with PG)
Speed control range	1:100 (1:1000 in the mode of vector control with PG)
Speed control accuracy	$\pm 0.2\%$ ($\pm 0.02\%$ in the mode of vector control with PG)
Speed response	5Hz (30Hz in the mode of vector control with PG)
Torque control accuracy	$\pm 5\%$
Torque response	20Hz (40Hz in the mode of vector control with PG)
Frequency control range	0.1~400Hz
Frequency accuracy	Digital command: $\pm 0.01\%$ ($-10^{\circ}\text{C} \sim +40^{\circ}\text{C}$); Analog command: $\pm 0.1\%$ ($10^{\circ}\text{C} \sim 25^{\circ}\text{C}$);
Frequency reference resolution	Digital command: 0.01Hz; Analog command: 0.03Hz / 60Hz
Frequency reference signal	-10V~+10V; 0~+10V (20K Ω); 4~20mA
Output freq. resolution	0.01Hz
Communication	RS485 interface: 485+, 485- (MODBUS Protocol)
Acc/Dec time	0.01 ~ 6000s
Braking torque	20% (up to 150% for models with inbuilt braking function and external braking resistor)
Voltage/Frequency characteristics	15 kinds of Voltage/Frequency characteristics for option; And user can set V/F characteristics all by themselves.
Protection function	Overvoltage, undervoltage, overload, overheat, stall, grounding fault, charging protection. etc
Ambient temperature	$-10^{\circ}\text{C} \sim +40^{\circ}\text{C}$. Deration above 40°C
Humidity	20~90%RH, non-condensing
Protection rating	IP20
Cooling mode	Forced air cooling





FST-700 series medium voltage frequency inverter

◎ Products introduction:

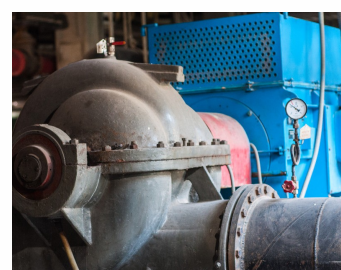
FST-700 medium voltage vector frequency inverter adopt the latest electric power tech, low inductance design of main circuit, high reliability, optimized layout of components, low temperature and long life-span. It is applicable to large-inertial and high-precision drive control. For explosion-proof product manufacturers, we can also provide for OEM spare parts and inner designs.

◎ Technique features:

- ◆ Input power: 3 phases AC 660V or 3 phases AC 1140V.
- ◆ Control mode: no PG vector control, PG vector control, V/F control without PG, V/F control with PG.
- ◆ Starting torque: 0Hz 200% with PG vector control(VC); 0.5Hz 150% without PG vector control(SVC).
- ◆ Soft start and soft parking to heavy load, low start current, stable start speed, small impact to grid.
- ◆ Flexible adjustment to S-curve according to present working conditions, so as to reduce dynamic tension when start.
- ◆ More than 30 types of running control and protection functions, such as over current, over voltage, overload, under voltage protection, open phase protection, short circuit protection, etc.
- ◆ The expansion board can be selected by customer's request.

◎ Application area:

- ◆ Conveyer belt of mine ◆ scraper conveyer
- ◆ coal feeder ◆ fan ◆ water pump
- ◆ oil pump and electrical submersible pump of oilfields



FST-900 four quadrant energy feedback frequency inverter

◎ Products introduction:

FST-900 four quadrant frequency inverter adopt the latest and most sophisticated control technology, and use the energy regeneration of IGBT DC supply device, so as to finish the bi-directional control of rectifier energy feedback and realize the real four quadrant run.

◎ Technique features:

- ◆ Renewable control, can help to save much energy on the use of inertial-load crane application system.
- ◆ Controllable unit power factor "1" can help to reduce the harmonic to less than 2%.
- ◆ Applicable to monitor operation condition and fault through the keyboard, keep various control variables a second before the fault, such as the input voltage, current, frequency, input power and temperature, so as to follow and refresh the data records.

◎ Technique features:

- ◆ Rectifier/feedback unit adopt sine wave to provide renewable electric energy feedback to grid automatically, this is more energy-saving and environmental than the traditional braking unit and braking resistor.
- ◆ Excellent closed loop vector control performance to realize 200% torque output at zero speed.
- ◆ Four speed control modes: no PG vector control, PG vector control, V/F control without PG, V/F control with PG.

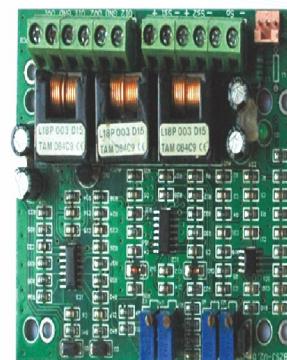
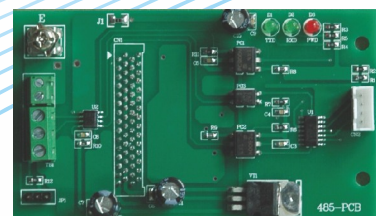
◎ Application area:

- ◆ Harbor machinery ◆ mine hoist ◆ conveyer belt
- ◆ centrifuge ◆ pour-into washing machine
- ◆ pharmaceutical machinery
- ◆ centrifugal casting machine
- ◆ and metal processing machinery such as large punching machine.





Expansion board

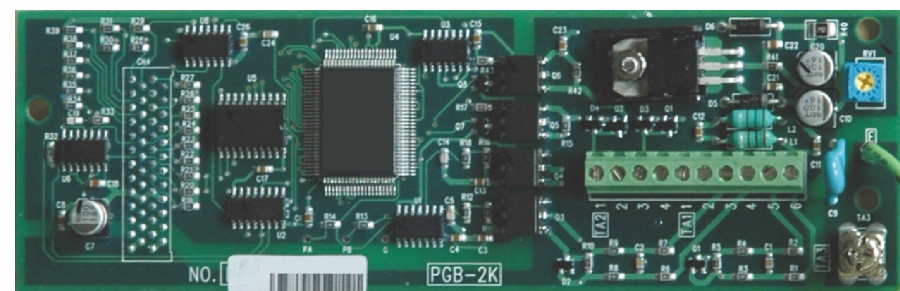


Communication interface:

- ◆ Provide RS485 physical communication interface
- ◆ Rs232 adopts standard terminals to give convenience for users to connect.
- ◆ The open RS485 interface, and the two communication mode can be switched arbitrary.

Injection molding machine control card:

- ◆ Collecting and dealing with the pressure and flow signal, to realize the function of injection molding machine inverter.



PG card

- ◆ Receiving the speed feedback of high speed pulse from encoder, to realize high precision closed loop vector control.
- ◆ Compatible push-pull input, open collector input and differential method input.
- ◆ Applicable to provide DIP switch with the maximum of 256 frequency output.
- ◆ Providing 12V power with the maximum current of 300 mA.



Dimensions

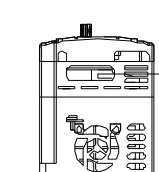


Fig 1

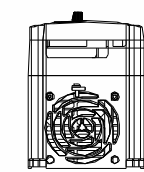


Fig2

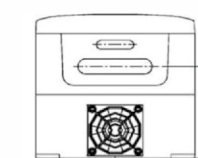


Fig 3

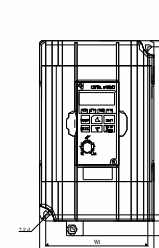


Fig 4

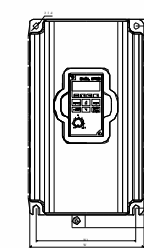


Fig 5

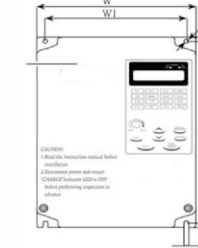


Fig 6



Dimensions(mm)

Model no.	W	W1	H	H1	H2	D	D1	D2	d	Fig
FST-500-0R4T2/S2	85	74	153	130.5	142	113	124	84	5	1
FST-500-0R7T2/S2										
FST-500-1R5T2/S2										
FST-500-2R2T2	100	89	164	140	151	116.5	127	86	5.5	1
FST-500-0R7T4										
FST-500-1R5T4										
FST-500-2R2T4										
FST-500-4R0T4	125	110	235	206	220	165	176	135	6	2
FST-500-2R2S2										
FST-500-5R5T4										
FST-500-4R0S2										
FST-500-7R5T4										
FST-500-5R5S2	92	74	174	162	160	122	132	85	4.5	4
FST-610-0R7G/1R5PT4										
FST-610-0R4T2/S2										
FST-610-1R5G/2R2PT4										
FST-610-0R7T2/S2										
FST-610-2R2G/4R0PT4										
FST-610-1R5T2/S2	135	110	265	255	240	155	165	123	7	5
FST-610-4R0G/5R5PT4										
FST-610-2R2T2/S2										
FST-610-5R5G/7R5PT4										
FST-610-4R0T2/S2	200	140	345	330	300	190	205	110	7	5
FST-610-7R5G/011PT4										
FST-610-011G/015PT4										
FST-610-015G/018PT4	280	200	375	360	330	210	225	150	7	5
FST-610-018G/022PT4										
FST-610-022G/030PT4										
FST-610-030G/037PT4	340	200	530	510	480	240	255	190	10	5
FST-610-037G/045PT4										
FST-610-045G/055PT4										
FST-610-055G/075PT4	400	240	610	590	550	280	295	230	12	5
FST-610-075G/090PT4										
FST-610-090G/110PT4										
FST-610-110G/132PT4	500	400	770	740	700	345	360	210	12	5
FST-610-132G/160PT4										
FST-610-160G/185PT4										
FST-610-185G/200PT4										
FST-610-200G/220PT4	Free standing type:1000*500*360									6
FST-610-132G/160PT4										
FST-610-160G/185PT4										
FST-610-185G/200PT4										
FST-610-200G/220PT4										



FST-610-220G/245PT4	Free standing type : 1300*750*465									6
FST-610-245G/280PT4										
FST-610-280/315PT4										
FST-610-315G/355PT4										
FST-610-355G/400PT4	Free standing type: 1500*950*515									6
FST-610-400G/455PT4										
FST-610-455G/500PT4										
FST-610-500G/560PT4										
FST-610-560G/630PT4										
FST-610-630GT4	Free standing type: 1600*1050*515									6
FST-800-1R5T4	139	114	278	262	—	181	125	—	6	3
FST-800-2R2T4										
FST-800-4R0T4										
FST-800-5R5T4										
FST-800-7R5T4	229	204	298	284	—	227	143	—	6	3
FST-800-011T4										
FST-800-015T4	200	140	345	330	300	190	205	110	7	5
FST-800-018T4	280	200	375	360	330	210	225	150	7	5
FST-800-022T4										
FST-800-030T4										
FST-800-037T4										
FST-800-045T4	340	200	530	510	480	240	255	190	10	5
FST-800-055T4										
FST-800-075T4	400	240	610	590	550	280	295	230	12	5
FST-800-090T4										
FST-800-110T4										
FST-800-132T4	500	400	770	740	700	345	360	210	12	5
FST-800-160T4										
FST-800-185T4										
FST-800-200T4										
FST-800-132T4	Free standing type:1000*500*360									6
FST-800-160T4										
FST-800-185T4										
FST-800-200T4										
FST-800-220T4	Free standing type : 1300*750*465									6
FST-800-245T4										
FST-800-280T4										
FST-800-315T4										
FST-800-355T4	Free standing type: 1500*950*515									6
FST-800-455T4										
FST-800-500T4										
FST-800-560T4										
FST-800-630T4	Free standing type: 1600*1050*515									6