

变频器产品手册

VFD Product Catalog



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*排名不分先后, 因合作客户过多, 以上只列举部分品牌
The ranking is not in any order. Because there are too many cooperative customers, only some brands are listed above



Frequency converter series

变频器系列



产品概述 Product profile

- 变频器是应用变频技术与微电子技术,通过改变电机工作电源频率方式来控制交流电动机的电力控制设备。

变频器主要由整流(交流变直流)、滤波、逆变(直流变交流)、制动单元、驱动单元、检测单元微处理单元等组成。变频器靠内部IGBT的开断来调整输出电源的电压和频率,根据电机的实际需要来提供其所需要的电源电压,进而达到节能、调速的目的,另外,变频器还有很多的保护功能,如过流、过压、过载保护等等。随着工业自动化程度的不断提高,变频器也得到了非常广泛的应用。

- The frequency converter is a power control device that controls the AC motor by changing the working frequency of the motor by applying frequency conversion technology and microelectronic technology.

The frequency converter is mainly composed of rectification (AC to DC), filtering, inverter (DC to AC), braking unit, drive unit, and detection unit micro processing unit. The inverter adjusts the voltage and frequency of the output power supply by the breaking of the internal IGBT, and supplies the required power supply voltage according to the actual needs of the motor, thereby achieving the purpose of energy saving and speed regulation. In addition, the frequency converter has many protection functions. Such as overcurrent, overvoltage, overload protection and so on. With the continuous improvement of industrial automation, inverters have also been widely used.

产品特性 Product Features

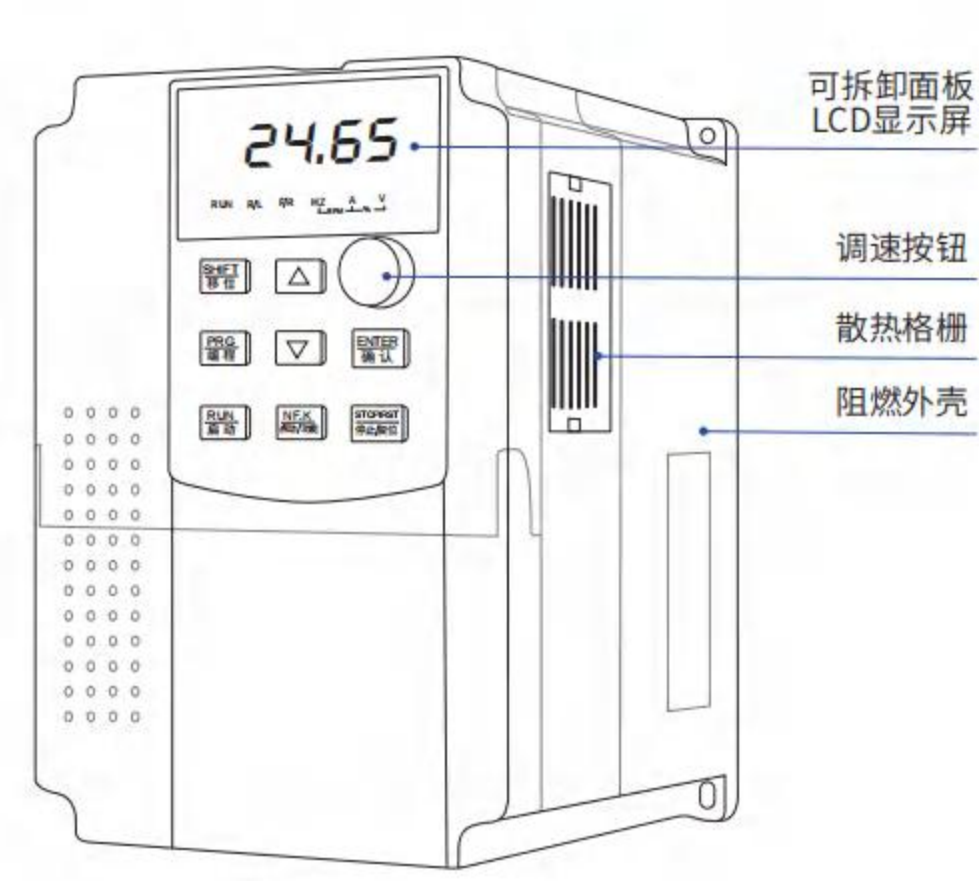
- 全新的无速度传感器矢量控制算法,带来更好的低速稳定性,更强的低频带能力
- 快速的速度响应,精准的速度控制和转矩控制,完全满足突发负载需求
- 先进的死区补偿方法,提高低频的转矩和高性能的电机控制,更好地抑制了电机的震荡
- 优化 PWM 控制技术和电磁兼容性整体设计
- 超出同类产品的防跳闸性能和适应恶劣电网、温度、湿度和粉尘能力
- 稳定可靠的硬件配置,优异的过载能力
- 硬件电路模块化设计,优异的三防漆工艺,可靠性更强,防护能力更高
- 采用先进的电机参数辨识方法,保证系统的稳定性和精确性
- 内置 PLC、内置 PID 控制器,自动睡眠 / 唤醒功能,实现多达 16 段速运行
- 灵活的输入输出端子、多达十种的主辅给定速度设定方式
- 可编程继电器输出,可输出多达 30 种信号状态
- New speed sensorless vector control algorithm for better low speed stability and stronger low band capacity
- Fast speed response, precise speed control and torque control to meet sudden load demand
- Advanced dead zone compensation method to improve low frequency torque and high performance motor control, which better suppresses motor oscillation
- Optimized PWM control technology and overall design of electromagnetic compatibility
- Beyond the tripping performance of similar products and adapt to harsh grid, temperature, humidity and dust
- Stable and reliable hardware configuration, excellent overload capability
- Modular design of hardware circuit, excellent three anti-paint process, more reliability and higher protection ability
- Adopt advanced motor parameter identification method to ensure system stability and accuracy
- Built-in PLC, built-in PID controller, automatic sleep/wake function for up to 16 speeds
- Flexible input and output terminals, up to ten kinds of main and auxiliary reference speed setting methods

正常使用条件 Normal use condition

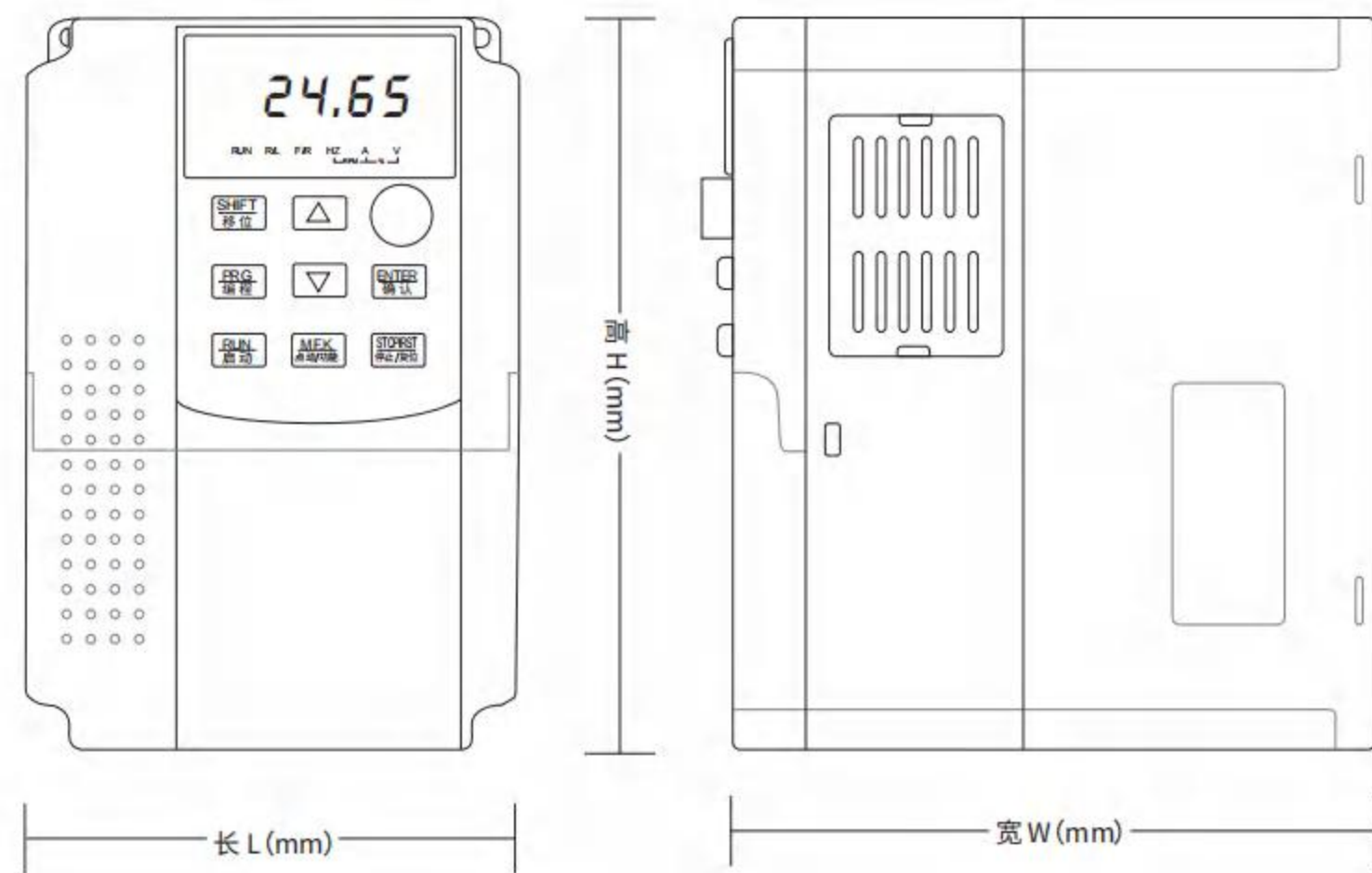
- 使用场合:室内不受阳光直射,无尘埃、腐蚀性气体、可燃性气体、油雾、水蒸汽、滴水或盐份等
- 海拔高度:低于海拔 1000 米(高于 1000M 时应降额使用)
- 环境温度:— 10℃~+ 40℃(环境温度在 40℃~ 50℃,请降额使用)
- 湿度:5% ~ 95%RH,无凝露
- 振动:小于 5.9 2 0.6g)
- 存储温度:—20℃ 60℃
- 防护等级:IP20
- 冷却方式:强制风冷
- 安装方式:壁挂式

- Use occasions: indoors are not exposed to direct sunlight, no dust, corrosive gases, flammable gases, oil mist, water vapor, dripping or salt, etc.
- Altitude: 1000 meters below sea level (derating should be used when it is higher than 1000M)
- Ambient temperature: - 10℃ ~ + 40℃(ambient temperature is 40℃ ~ 50℃ please derate)
- Humidity: 5% ~ 95% RH, no condensation
- Vibration: less than 5.9m / s² (0.6 g)
- Storage temperature: -20℃~ +60℃
- Protection level: IP20
- Cooling method: forced air cooling
- Installation method: wall-mounted

产品解析 Product analysis



外观尺寸 Appearance of size



产品规格 Product specifications

功率(KW) Power	长L (MM)	宽W (MM)	高H (MM)	宽W (MM)	长L (MM)	安装孔径(MM) Mounting aperture (mm)
	安装尺寸 Installation size	外形尺寸 Overall dimensions				
0.75~2.2	94	150	165	100	150	5
3.7~7.5	170	115	185	125	170	5
11	205	100	270	130	190	6
15~18.5	300	125	320	165	210	6
22~30	345	120	360	190	210	6
37~45	410	150	435	230	230	7
55~75	560	200	580	265	300	7
90~110	630	200	660	320	300	9
132~185	750	250	780	400	325	12
220~285	930	360	950	500	360	12
315~355	1250	500	1055	650	355	12
400~500	1160	640	1200	860	350	12
630	1310	800	1350	1000	390	12

技术参数 Main technical parameter

频率 frequency	50HZ/60HZ
额定电压 Rated voltage	单相:200 ~ 240V;三相:380V ~ 480V; Single phase: 200 ~ 240V; three phase: 380V ~ 480V;
变动容许值 Allowable change	电压: ±20%;电压失平衡率 3%;频率 ±5% Voltage: ±20%; voltage imbalance rate 3%; frequency ±5%
输出电压 Output voltage	单相:0 ~ 240V;三相:0 ~ 380V Single phase: 0 ~ 240V; three phase: 0 ~ 380V
输出频率 Output frequency	0~600Hz
过载能力 Overload capability	G 型机:180%额定电流 60s;210%额定电流 1s;P 型机:150%额定电流 60s; 180%额定电流 1s Model G: 180% rated current 60s; 210% rated current 1s; P model: 150% rated current 60s; 180% rated current 1s
调制方式 Modulation	优化空间电压矢量 PWM 模式 Optimized space voltage vector PWM mode
控制方式 control method	V/F 控制 / 开环矢量控制 / 转矩控制 V/F control / open loop vector control / torque control
运行命令给定方式 Run command given mode	键盘控制;端子控制;通讯控制 Keyboard control; terminal control; communication control
频率源 Frequency source	共有 11 种频率源:电位器给定、数字给定、模拟电压给定、模拟电流给定、脉冲给定、485 通讯给定 There are 11 kinds of frequency sources: potentiometer reference, digital reference, analog voltage reference, analog current reference, pulse reference, 485 communication reference
辅助频率源 Auxiliary frequency source	7 种辅助频率源。可灵活实现辅助频率微调、频率合成 7 auxiliary frequency sources. Flexible implementation of auxiliary frequency trimmin and frequency synthesis
速度设定分辨率 Speed setting resolution	数字设定:0.01Hz; 模拟给定:1/2000 最大频率 Digital setting: 0.01Hz; analog given: 1/2000 maximum frequency
速度控制精度 Speed control accuracy	开环矢量控制: ±0.5% Open loop vector control: ±0.5%
速度控制范围 Speed control range	开环矢量控制 1:200 Open loop vector control 1:200
转矩控制响应 Torque control response	开环矢量控制 <200ms Open loop vector control <200ms
起动转矩 Starting torque	开环矢量控制 180%/0.25Hz Open loop vector control 180% / 0.25Hz
转矩控制精度 Torque control accuracy	±5%
五位数码显示 (LED) Five digit display (LED)	设定频率、输出频率、输出电压、输出电流、电机转速、输出转矩、开关量端子等 31 种状态参数, 编程菜单参数及 25 种故障代码等 Set 31 state parameters such as frequency, output frequency, output voltage, output current, motor speed, output torque, and switch terminal, programming menu parameters and 25 fault codes, etc.
指示灯 (LED) Indicator light (LED)	参数单位、设定方向、RUN/STOP 状态、控制方式 Parameter unit, setting direction, RUN/STOP status, control method

Frequency conversion cabinet series

变频柜系列



产品概述 Product profile

变频柜，普通的动力柜或控制柜由传统拖动方式改为变频拖动方式。简而言之：应用变频器拖动动力装置的控制柜。因其良好的启动性能、调速性能和节能效果而成为当前推广的动力拖动方式。

The frequency conversion cabinet, the ordinary power cabinet or the control cabinet is changed from the traditional drag mode to the variable frequency drag mode. In short: use the frequency converter to drive the control cabinet of the power unit. Due to its good starting performance, speed regulation performance and energy saving effect, it has become the current power driving method.

产品特点 Product Features

高效节能由电机学公式可知，系统电机功耗与电机转速成立方关系，在压力不变时，水泵出水量与电机转速成正比。本设备采用恒压量工作方式，当用水量减小时，系统保持管网恒压，通过降低水泵转数来减少供水量，耗电量按立方特性降低。例如，供水量为额定值的80%，电机能耗为额定值的51.2%节电量为48.8%，考虑到实际系统节电率较理论值要低一些，但仍很可观。大功率变频柜可以最大限度减少大功率水泵\风机对电网的冲击和大副的压降，节电效果显著。

High efficiency and energy saving According to the motor equation, the system motor power consumption is related to the motor speed. When the pressure is constant, the pump water output is proportional to the motor speed. The device adopts constant pressure operation mode. When the water consumption decreases, the system maintains the constant pressure of the pipe network, reduces the water supply by reducing the number of water pumps, and reduces the power consumption according to the cubic characteristics. For example, the water supply is 80% of the rated value, and the motor energy consumption is 51.2% of the rated value. The power saving is 48.8%. Considering that the actual system power saving rate is lower than the theoretical value, it is still considerable. High-power frequency conversion cabinet can minimize the impact of high-power water pump\fan on the grid and the pressure drop of the first pair, and the power saving effect is remarkable.

应用范围 Application range

广泛应用于城乡各种类型自来水供水系统

高层建筑供水、生活用水及消防用水、工业生产工况闭环用水的恒压控制

锅炉补水泵、热力供暖循环泵自动控制

农田灌溉、喷泉控制

空调系统及冷却循环水控制

水厂、泵站及石油化工待业的流量系统二次加压控制

变频柜可用于各种需要节能改造或需要0速启动生产线电机控制柜。

Widely used in various types of urban and rural water supply systems

Constant pressure control of closed-loop water for high-rise building water supply, domestic water and fire-fighting water, industrial production conditions

Automatic control of boiler make-up water pump and heat heating circulation pump

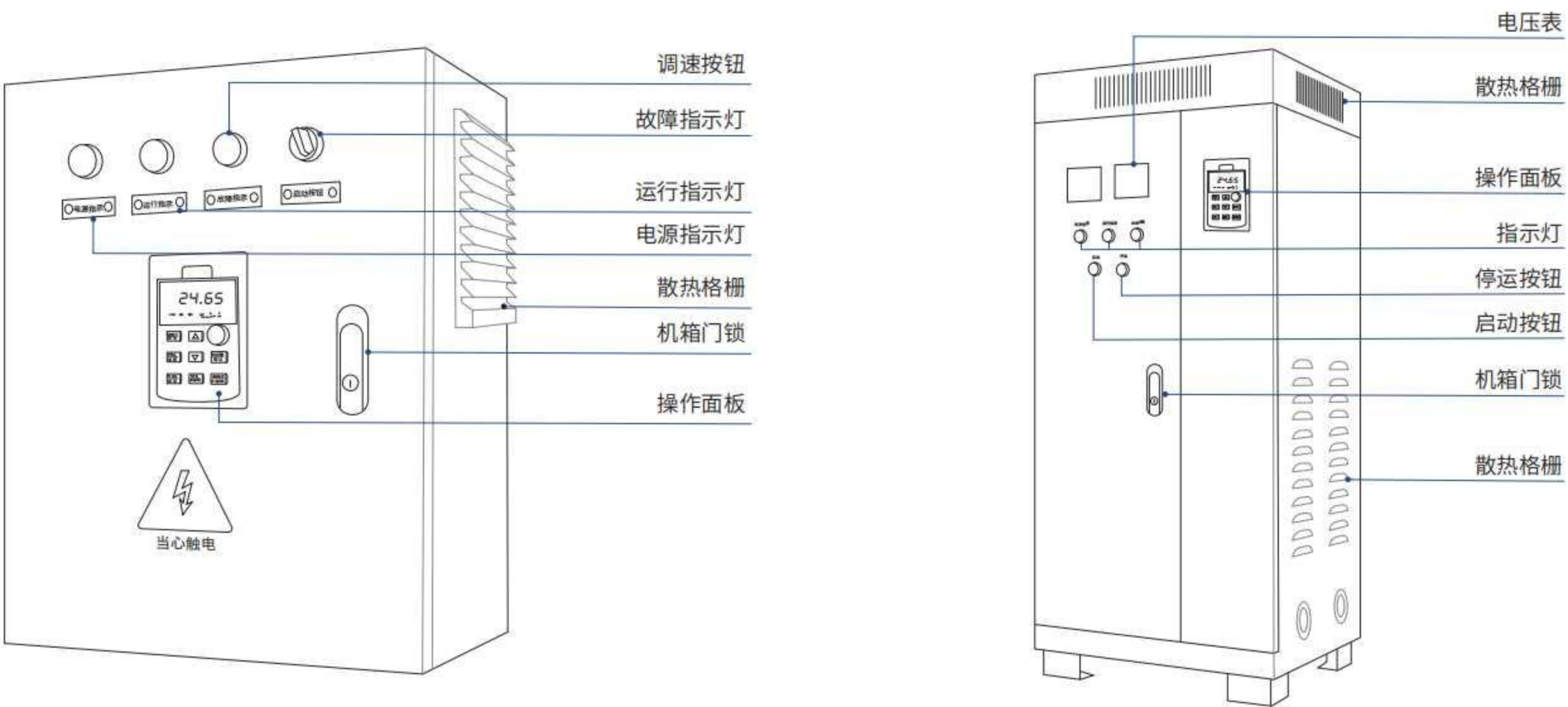
Farmland irrigation, fountain control

Air conditioning system and cooling circulating water control

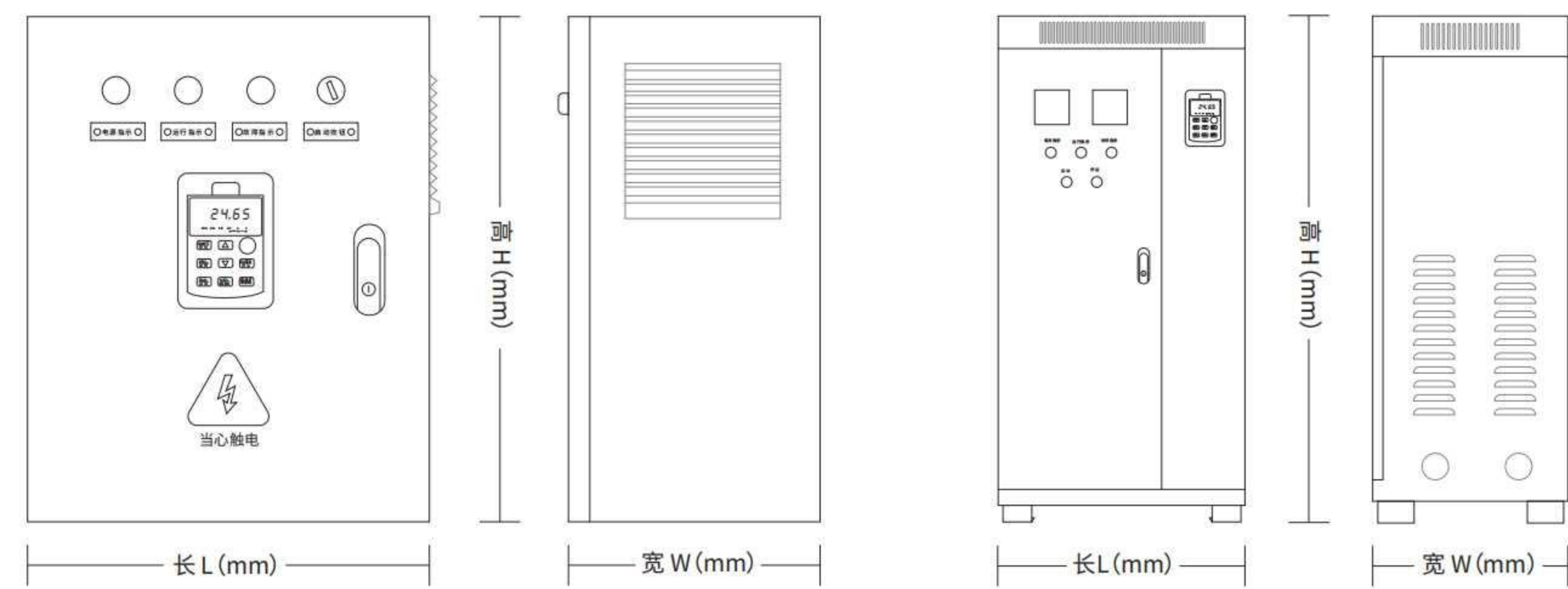
Secondary pressure control of flow system in water plants, pumping stations and petrochemical industry

The frequency conversion cabinet can be used in various motor control cabinets that require energy-saving retrofit or require a zero-speed start-up production line.

产品解析 Product analysis



外观尺寸 Appearance of size



功率(KW) Power	输出电流(A) Output current (A)	外形尺寸 (mm) 长x宽x高 LxWxH		
		一控一 One control one	一用一备 One for use and one for standby	一控二 One control two
0.75KW	2.5A	400*300*200	400*500*250	600*500*250
1.5KW	3.8A			
2.2KW	5A			
3KW	7A			
4KW	9A	500*400*250	500*400*250	
5.5KW	13A			
7.5KW	17A			
11KW	25A	600*500*250	600*500*250	
15KW	32A			
18.5KW	37A			
22KW	45A	1200*600*420		
30KW	60A			
37KW	75A			
45KW	90A	1500*700*450		
55KW	112A			
75KW	150A			
90KW	176A	1700*700*450		
110KW	210A			
132KW	250A			

技术参数 Main technical parameter

型 号	model	ZXBPG
频 率	frequency	0~500HZ
电压范围	Voltage range	AC: 323V~528V
功率规格	Power specification	0.75KW~450KW
工作温度	working temperature	-10℃~40℃
冷却方式	Cooling mode	风冷、带风扇控制 Air cooling, with fan control
调速范围	Speed range	1:200 (SVC)
过载能力	Overload capacity	150%额定电流60S 150% rated current 60S
安装方式	Installation method	柜体垂直 Cabinet vertical
稳速精度	Steady speed accuracy	±0.5% (SVC)
防护等级	Degree of protection	IP20
控制方式	control mode	V/F控制、高级V/F控制、V/F分离控制、电流矢量控制 V/F control, advanced V/F control, V/F separation control, current vector control

Intelligent soft starter

智能型软启动器



产品概述 Product profile

智能型电机软启动器是采用电力电子技术、微处理器技术及现代控制理论技术生产的具有当今国际先进水平的新型启动设备。该产品能有效限制异步电动机启动时的启动电压，可广泛应用于风机、水泵、输送类及压缩机等重载设备，是星／三角转换、自耦降压、磁控降压等降压启动设备的理想换代产品。

Intelligent motor soft starter is produced by power electronics technology, microprocessor technology and modern control theory technology. New starter equipment. The product can effectively limit the starting voltage of the asynchronous motor when it is started. It can be widely used in heavy-duty equipment such as fans, pumps, conveyors and compressors. It is a star/delta conversion, auto-coupled step-down, magnetically controlled step-down, etc. The ideal replacement for start-up equipment.

产品特点 Product Features

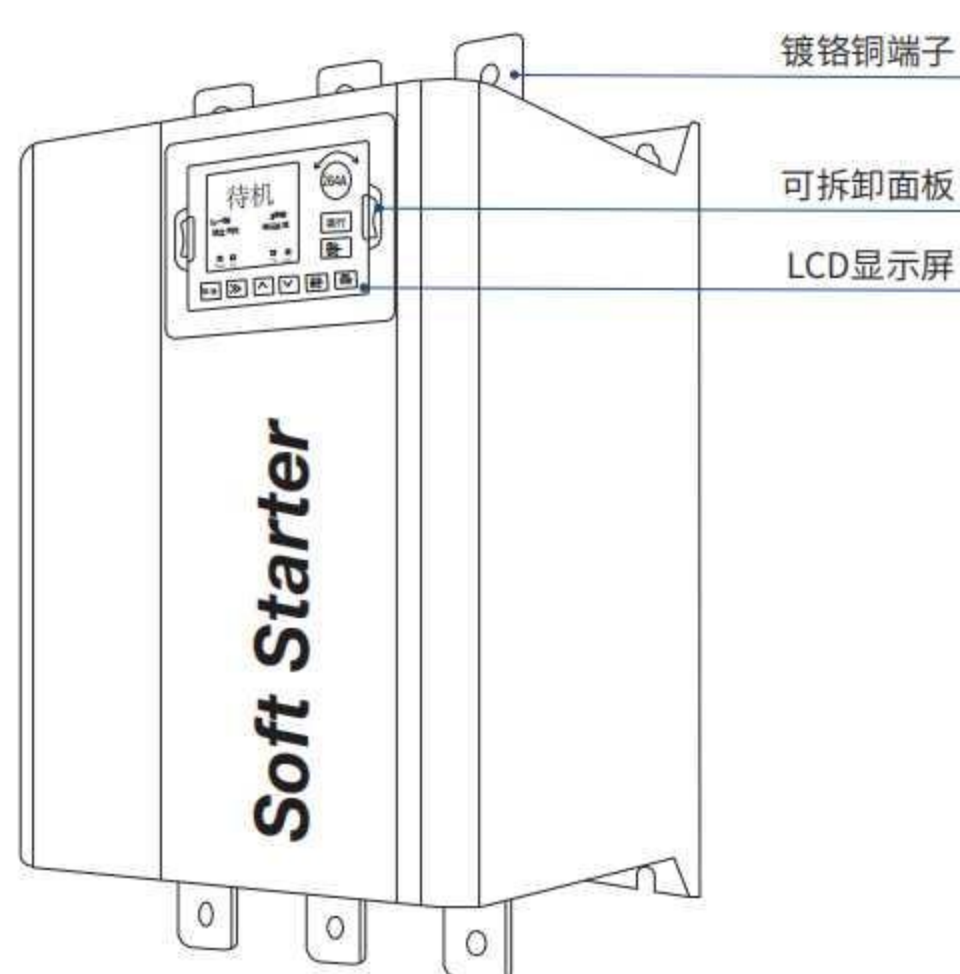
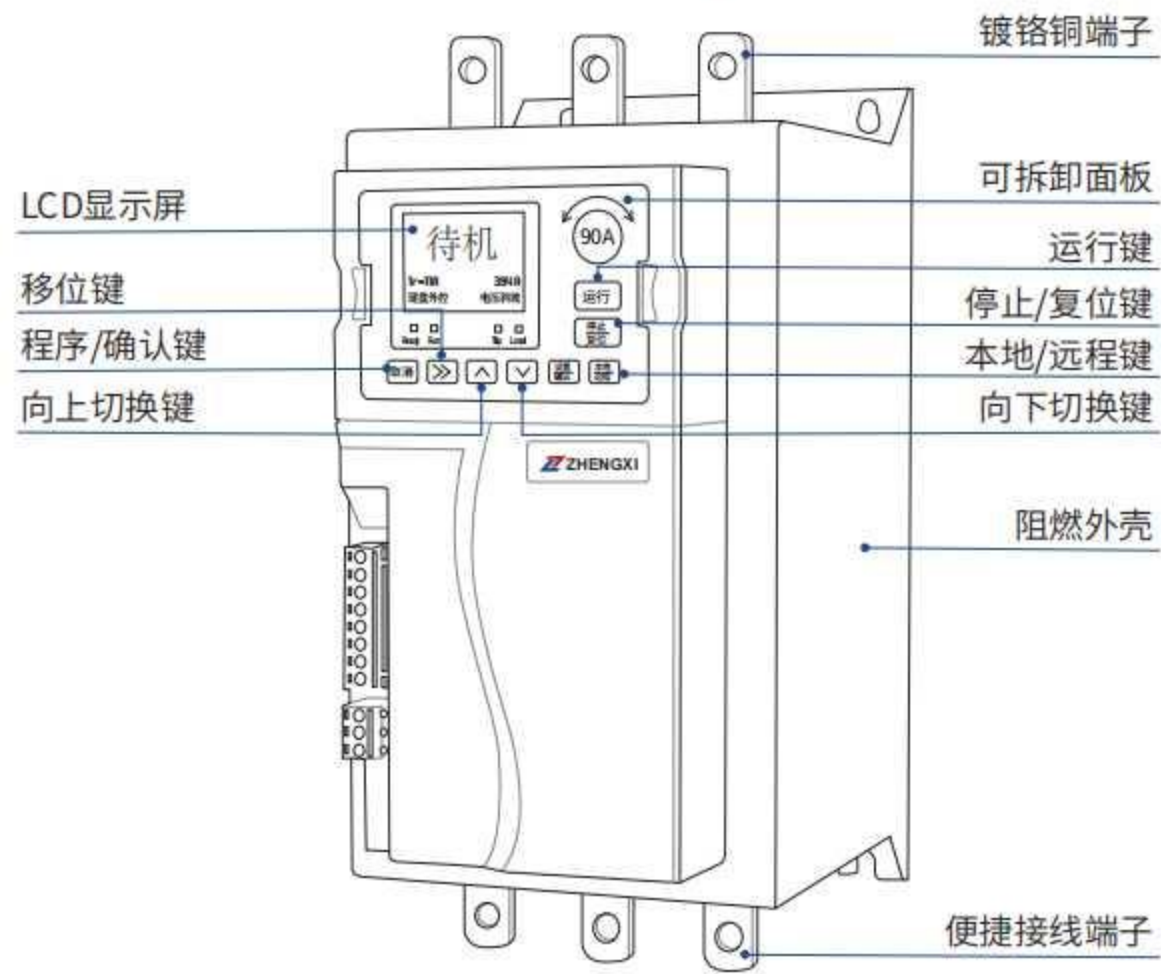
- 可通过简单的编程应用负载类型直接选择定制的数。
- 三组启动参数可选，方便于一台电机软启动器启动不同功率的电机负载。
- 启动检测电机反馈电压实现闭环控制，保证电机在各种工况和不同的负载启动成功。
- 三种启动方式：电压斜坡启动方式可得到最大的输出转矩；恒流软启动方式最佳的限制启动电流；重戴软启动方式可以启动负载较重的设备。
- 可编程延时启动方式，可编程连锁控制。
- 对输入电源无相序要求。
- 启动时间、停车时间均可数字修改。
- 具有多种保护功能：过流，三相电流不平衡，过热、缺相，电机过载等进行保护。
- 动态故障记忆功能，便于查找故障起因。
- 现场总线的全动态控制监测启动器，易于组网。

- The customized number can be directly selected through a simple programming application load type.
- Three groups of starting parameters are optional, which is convenient for one motor soft starter to start motor loads with different powers.
- The start detection motor feedback voltage realizes closed-loop control to ensure the successful start of the motor under various working conditions and different loads.
- Three starting modes: voltage ramp starting mode can obtain the maximum output torque; The best starting current limitation of constant current soft starting mode; Wearing the soft start mode again can start the equipment with heavy load.
- Programmable delayed start mode, programmable interlock control.
- There is no phase sequence requirement for the input power supply.
- The starting time and stopping time can be digitally modified.
- It has multiple protection functions: over-current, three-phase current imbalance, overheating, phase loss, motor overload, etc.
- The dynamic fault memory function is convenient for finding the cause of the fault.
- Field bus full dynamic control monitoring starter, easy to network.

技术特征 Technical features

主回路工作电压：AC220V/690V(+10%-25%)	Main circuit working voltage: AC220V/690V (+10%-25%);
主回路工作电流：13A-1200A;	Main circuit working current: 13A-1200A;
主回路频率：50Hz/60Hz(±2%);	Main circuit frequency: 50Hz/60Hz (±2%);
控制回路供电：AC220V+15%(0.5A);	Control loop power supply: AC220V + 15% (0.5A);
软启动上升时间：1-120S;	Soft start rise time: 1-120S;
软停车时间：0-100S;	Soft parking time: 0-100S;
冲击时间：0.1-0.3S;	Impact time: 0.1-0.3S;
冲击电压：50%-80%;	Shock voltage: 50%-80%;
限流倍数：1.5-5.0le;	Current limiting multiple: 1.5-5.0le;
初始电压：30%-70%Ue;	Initial voltage: 30% - 70% Ue;
冷却方式：自然冷却;	Cooling method: natural cooling;
通讯方式：RS485串行通讯.	Communication method: RS485 serial communication.

产品解析 Product analysis



在线软启 无需交流

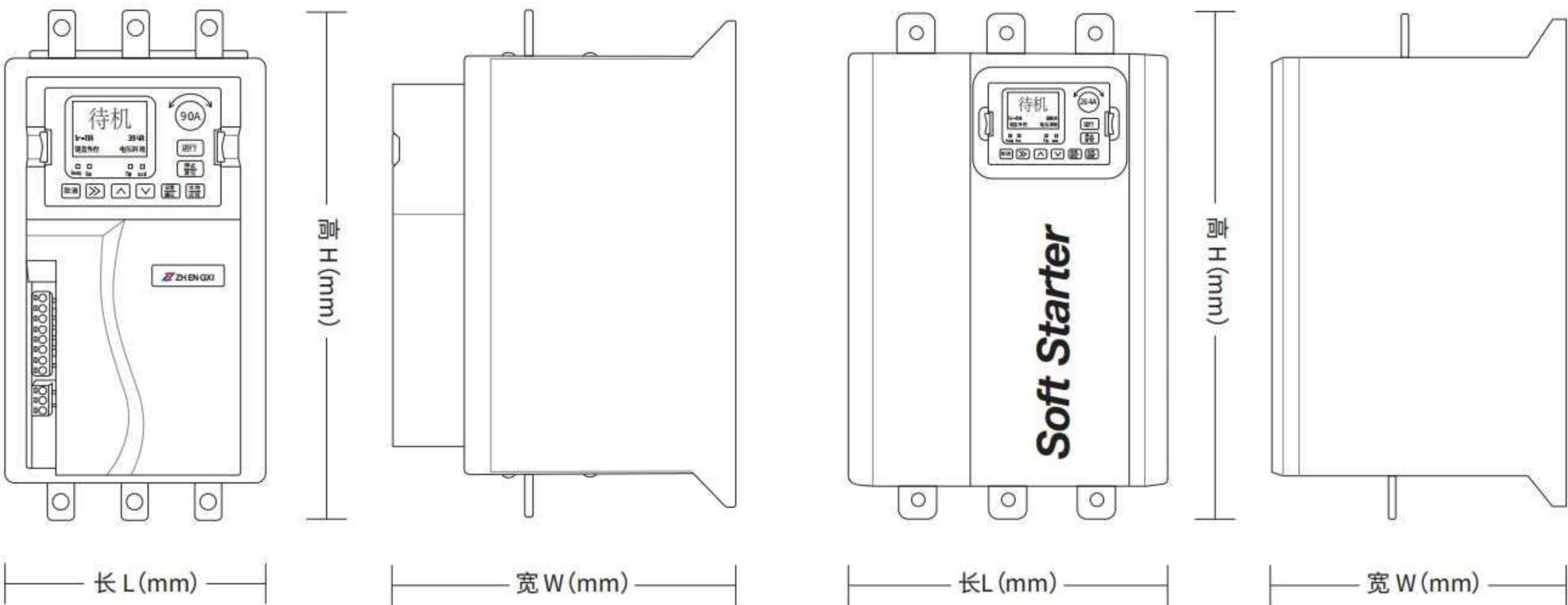
多种启动模式 | 多重保护功能 | LED高清数显

变频软启系列



变频软启系列

外观尺寸 Appearance of size



功率(KW) Power	外形尺寸 (mm) 长x宽x高 LxWxH
15KW~37KW	105*168.5*240
45KW~75KW	135*184.5*282.5
90KW~110KW	190*224.5*370.5
132KW~200KW	225*226*393
220KW~400KW	483*296*586

技术参数 Main technical parameter

型 号	model	ZXRQ
频 率	frequency	50Hz/60Hz
额定电压	Rated voltage	380V±15%
防护等级	Degree of protection	IP00
功率规格	Power specification	15KW~400KW
冷却方式	Cooling mode	自然风冷 Natural air cooling
启动次数	Number of starts	12次/分钟 12 times/minute
安装方式	Installation method	壁挂式或柜体垂直 Wall mounted or vertical cabinet
耐 振 性	Vibration resistance	符合IEC68-2-6:2至13Hz为1.5mm峰值/13至200Hz为Ign Conform to IEC68-2-6: 1.5mm peak from 2 to 13Hz/Ign from 13 to 200Hz
抗冲击性	Impact resistance	符合IEC 68-2-27: 15g, 11ms Complies with IEC 68-2-27: 15g, 11ms
最大环境污染等级	Maximum environmental pollution leve	3级, 符合IEC 947-4-2 Class 3 according to IEC 947-4-2
最大相对湿度	Maximum relative humidity	93%无冷凝或滴水, 符合IEC 68-2-3 93% non-condensing or dripping, according to IEC 68-2-3
最大运行高度	Maximum operating altitude	2000米不降容(2000米以上, 每增加100米, 电流降低0.5%) 2000 meters without derating (2000 meters or more, each additional 100meters, 0.5% lower current)
运行位置	Run position	垂直位置, ±10°以内 Vertical position, with in ±10°

Intelligent soft start cabinet

智能型软启动柜



产品概述 Product profile

- ▶ 软启动柜，主要用于各类大功率电动机启动，利用软启动取代传统的启动方式，实现平滑启动，降低启动电流，减少电机启动时较大电流对电机的机械冲击及对电网的冲击，改善用电质量，节约能源。利用堵转保护和快速保护避免机械故障或堵转阻塞造成电动机过热而烧毁，减少因较大电流造成的压降，影响其它用电器，减少磨损，延长电机的使用寿命，节约机械的维修费用。

Soft start cabinet is mainly used to start various high-power motors. Soft start is used to replace the traditional starting method to achieve smooth start, reduce the starting current, reduce the mechanical impact of the larger current on the motor and the impact on the power grid, and improve Power quality and energy saving. Use stall protection and fast protection to avoid mechanical failure or motor blocking caused by overheating and burnout, reduce the voltage drop caused by large current, affect other electrical appliances, reduce wear, extend the service life of the motor, and save machinery maintenance costs.

功能特点 Functional features

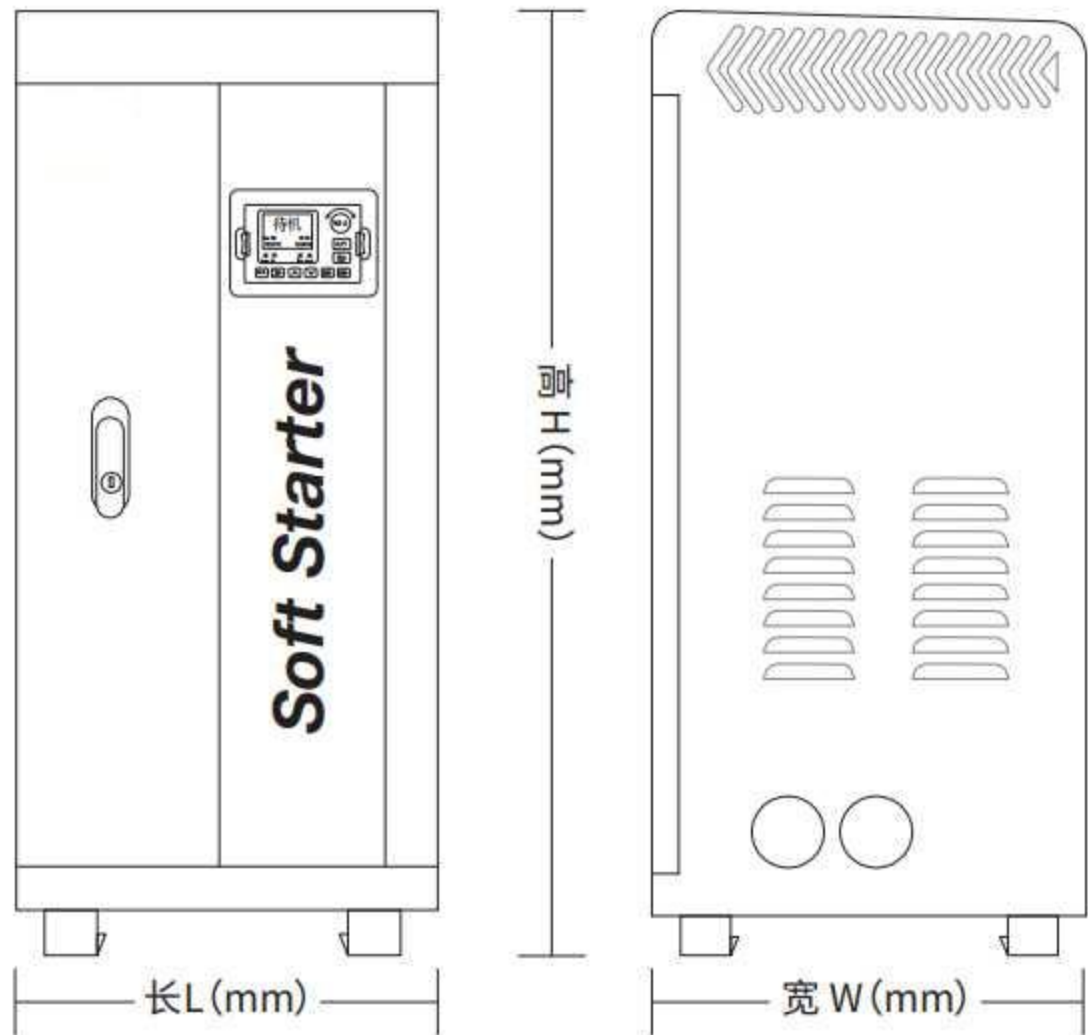
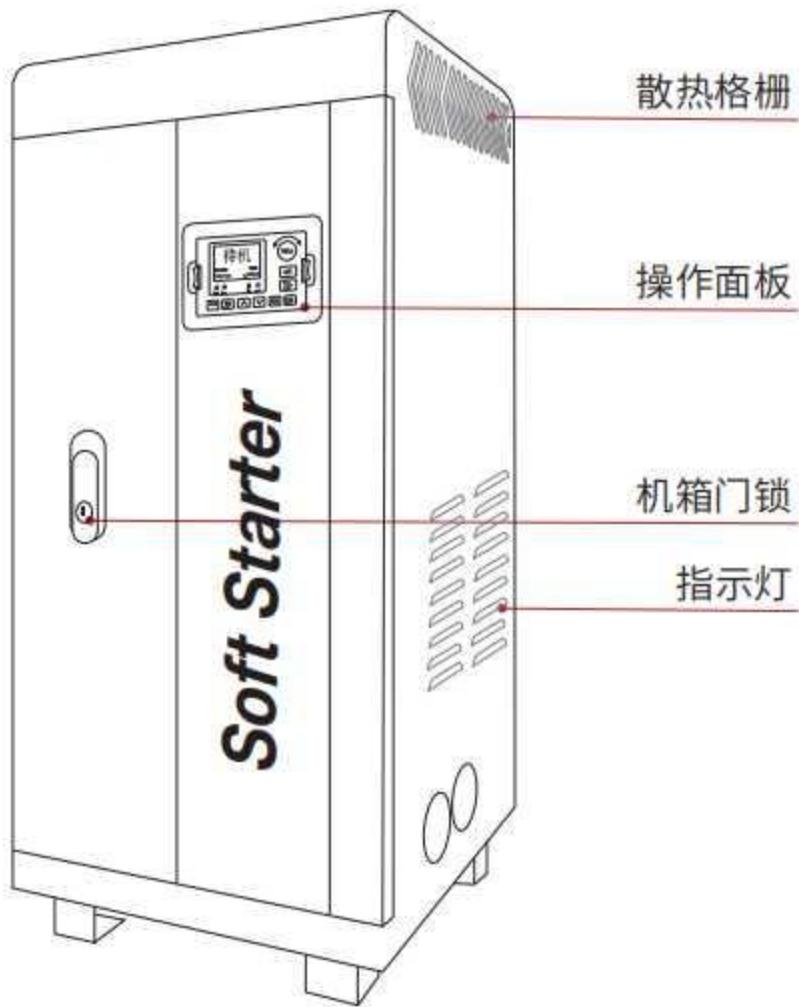
- 特点1：**全数字化控制系统，多种启动方式；
采用微处理器、模糊控制及大电流过零分断技术；
具有强的负载适应与电磁兼容能力，性能稳定可靠；
6种启动方式，两种停车方式；
每小时可启动12次，自藕一般只能启动1-2次。
- 特点2：**性价比高
1:1选型，相对自藕降压启动箱要加大两档选型而言，性价比高；
免调试、直接安装使用；
故障率低，简单故障可以自行排除。根据故障代码可直接电话沟通解决。
柜子可控硅长期在线工作，不使用交流接触器，维护成本在降低。
- 特点3：**环境适应能力强：
对变压器容量要求低，一般按照总额定电流的1.5倍配置，自藕要大于2倍；
电压范围宽，可正负偏差15%(超低电压可订制)；
柜体密封式结构，防尘。
- 特点4：**操作简单、方便，运行成本低：
直接安装使用，两个按钮，“启动”、“停止”，操作简单；
面板中文显示，可以查看电压、电流等参数；
体积小，重量轻，便于运输和安装；柜体高度采取1000mm-1600mm，重量大致为30kg-60kg。
- 特点5：**多重保护功能：
断路器短路保护
启动过程中电机保护
运行过程中电机保护

- Feature 1：** Full digital control system, multiple starting methods:
Microprocessor, fuzzy control and high current zero-crossing technology;
With strong load adaptation and electromagnetic compatibility, the performance is stable and reliable;
6 starting modes, two parking modes;
It can be started 12 times per hour, and it can only be started 1-2 times.
- Feature 2：** Cost-effective:
1:1 selection, compared with the self-tapping step-down starter box to increase the two-speed selection, costeffective;
Free of commissioning and direct installation;
The failure rate is low, and simple faults can be eliminated by themselves. According to the fault code, you can directly solve the problem by telephone.
Cabinet thyristors work online for a long time, without the use of AC contactors, maintenance costs are decreasing.
- Feature 3：** Strong environmental adaptability:
Low requirements for transformer capacity, generally 1.5 times the total rated current, self-twisting is greater than 2 times;
Wide voltage range, positive and negative deviation of 15% (ultra-low voltage can be customized);
The cabinet is sealed and dustproof.
- Feature 4：** Simple and convenient operation, low operating cost:
Direct installation and use, two buttons, "start", "stop", easy to operate;
Panel Chinese display, you can view voltage, current and other parameters;
Small size, light weight, easy to transport and install; the height of the cabinet is 1000mm-1600mm, and the weight is about 30kg-60kg.
- Feature 5：** Multiple protection features:
Circuit breaker short circuit protection
Motor protection during starting
Motor protection during operation

产品解析 Product analysis

外观尺寸 Appearance of size

变频软启系列



功率(KW) Power	外形尺寸(mm) 长x宽x高 LxWxH
15KW~75KW	350*320*681
90KW~115KW	350*400*950
132KW~200KW	400*400*1130
220KW~400KW	600*470*1350

技术参数 Main technical parameter

型 号 model	ZXRQG
频 率 frequency	50Hz/60Hz
额定电压 Rated voltage	380V±15%
功率规格 Power specification	15KW~400KW
工作温度 working temperature	-25°C~60°C
冷却方式 Cooling mode	风机冷却 Fan cooling
启动频率 Start frequency	≤20次/时 ≤ 20 times/hour
安装方式 Installation method	柜体垂直 Cabinet vertical

在线式软启动柜

无需旁路交流接触器 三相三出接线更方便

变频软启系列

