CUMARK

Low-voltage Frequency Converter Series | High-voltage Frequency Converter Series
Explosion-proof Frequency Converter Series | System Solutions

ES Series 350H/580H/850H

High Performance Vector Synchronous Reluctance AC Drive



Official website

WeChat public platform

Customer hotline: 400-619-2001

EXCELLENT & SMART

Create a better life with smart drive

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CUMARK

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ES Series Rare Earth Free Synchronous Reluctance Motor AC Drive

Excellent & Efficient
Intelligence Drives the Future

Cumark elaborately produces ES Series Rare Earth Free Synchronous Reluctance Motor AC Drives, based on many years of experience accumulation in electric drive R&D and various industrial automation applications, in combination with internationally first-class drive technologies.

ES series products can meet industrial control demands from different fields under severe environments with their high performance, rich functions and perfect structures, and provide all-round competitive advantages including excellent quality, friendly human-machine interface, and convenient services.



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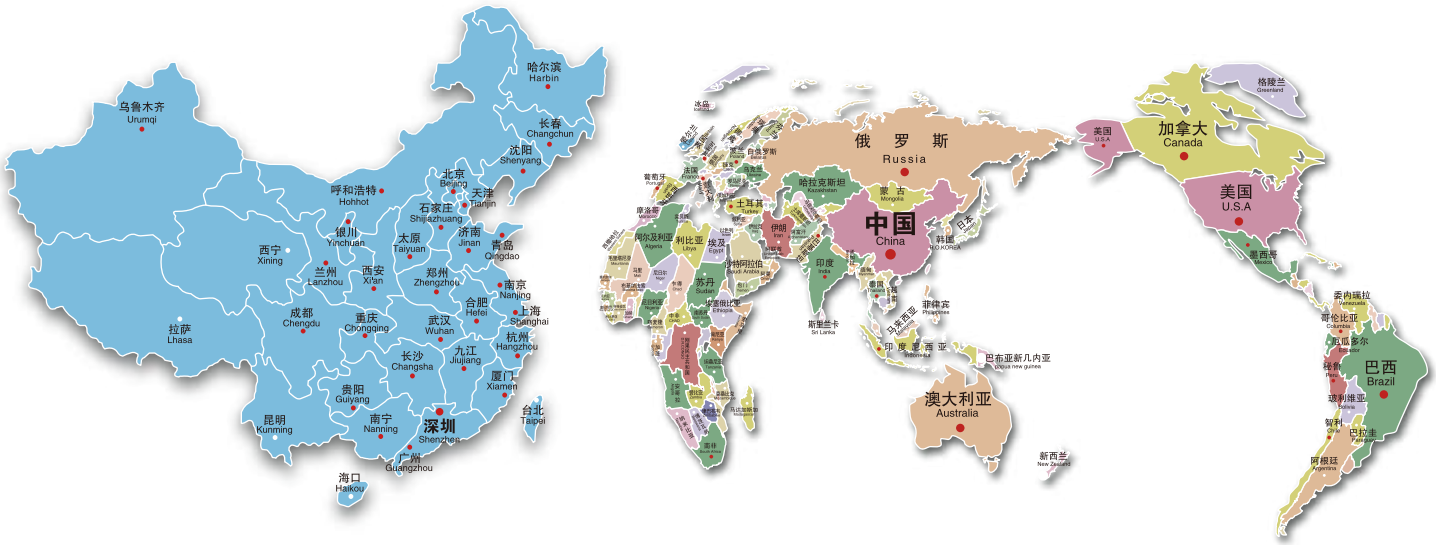
Company Profile



SHENZHEN CUMARK SCI.& TECH CO.,LTD. was founded on March 19, 2001. It has been focusing on R&D, production and sales of power electronic transmission and automation products . It is a national high-tech enterprise and awarded as “ special frequency conversion engineering technology R&D center of Guangdong Province ” . It relies on excellent technology and many years accumulated industry application experience, and provides users with efficient and reliable intelligent drive products and complete automation solutions.

CUMARK ’ s high, medium and low voltage series of intelligent frequency inverters and their relatd automation integrated products have a wide range of application prospects. They can be widely used in CNC machine tools and robots, marine engineering equipment, ships, rail transit equipment, Energy-saving and new energy vehicles, agricultural machinery and equipment, logistics and warehousing, electric power, coal, petrochemical, chemical, environmental protection, pharmaceuticals, non-ferrous metals, steel and other fields can help manufacturers improve equipment automation, energy conservation and efficiency, and reduce production costs, help the equipment manufacturing industry products green and intelligent upgrades and improve market competitiveness.

Cumark globai service network

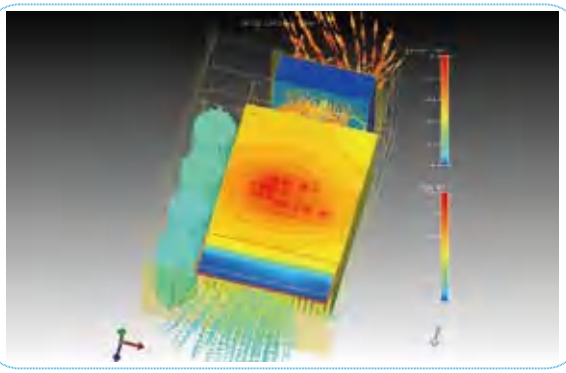


List of ES Series Rare Earth Free Synchronous Reluctance Motor Frequency Cnverter

Type	Performance	Target market	Series	Appearance
High Performance vector	1) Excellent performance; 2) Rich functions; 3) High reliability; 4) Comprehensive and systematic ptotection functions. 5) Intelligent LCD keyboard included in standard configuration. 6) Built-in various industry application standard micros. 7) Simple Servo Function; 8) Support a variety of encoders to achieve high performance and high precision control.	forging machine tool; ceramics equipment; wood-working machine; glass machinery; logistics storage; Food and Drinks industrial; extrusion equipment; Prubber and plastics machine; textile industry; drawing mill; belt conveyor; centrifugal machine; compressor; Fan; pump;	ES850H 220 V 3PH 0.4-75KW 380 V 3PH 0.75-800KW 500V 3PH 15-900KW 690 V 3PH 15-1400KW	
Economic and general purpose	1)High reliability; 2)High usability; 3)Compatible with permanent magnet 4)Assisted and pure synchronous reluctance motors 5)Standard smart LCD keyboard; Modular compact structure design.	ceramic equipment Dyeing and finishing equipment Logistics and warehousing woodworking machinery glass machinery food and drink centrifuge compressor Textile fan water pump	ES580 H 220 V 3PH 0.4-75KW 380 V 3PH 0.75-800KW 500V 3PH 15-900KW 690 V 3PH 15-1400KW	
Compact and simple	1) Compact size; 2) Easy debugging, optional smart LCD keyboard; 3) Built-in standard RS485 communication; 4) High performance PID function;	textile machinery small water pump food packaging food processing wood carving Blower, etc.	ES350 H 220 V 1PH/3PH 0.4-2.2KW 380 V 3PH 0.75-4KW	

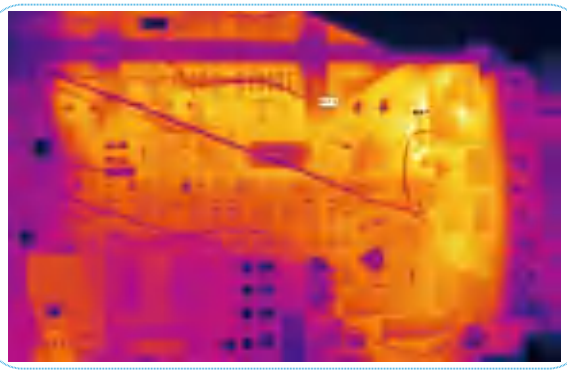
Innovative Thermal Design Philosophy and Professional Thermal Simulation Analysis

- The innovative thermal design philosophy and first-class efficient thermal simulation software bring about the innovative and unique design, which provides this product with a comprehensive and systematical heat dissipation structure and solution.
- Advanced heat test and verification technologies like thermal imaging efficiently and completely check theoretical results of the thermal design, and further guarantee thermal reliability of the product system.



Rigorous Temperature RiseTest on the Whole Converter

- Rigorous testing procedures for full load and overload verification as well as strict temperature rise acceptance standards for key componentsare adopted to enable the product to operate reliably under extreme overload conditions for a long time.
- All products shall pass the loaded high temperature aging test before delivery, which can effectively prevent scattered components from being invalid, and guarantee product quality.



Spraying Process of Conformal Coatings

- Multiple high-quality conformal coatings are sprayed to enhance the product's good applicability to the environment.
- The automatic spraying process of conformal coatings is adopted to effectively ensure uniform coating thickness of the circuit board and consistency of batched products.



Note: The automatic spraying process of conformal coatings

High Protection Grade

- Especially applied in cables, ceramics and textiles industries where the site environments are severe, humid or dusty. The innovative and tightly closed structure design can effectively reduce influence of such environments.
- The protection class can reach IP41(0.4-22KW).



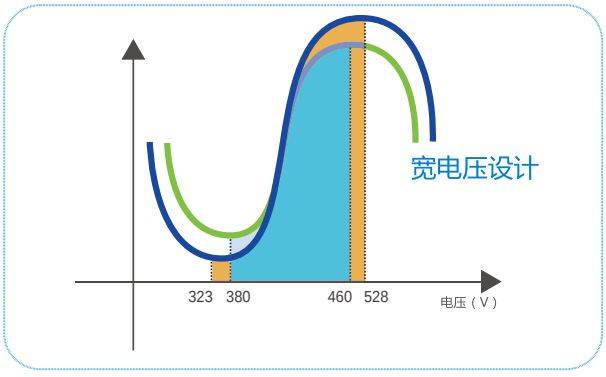
High Anti-interference Capability

- In a standard configuration, the optimally designed built-in DC reactor (F3 and above) can effectively reduce interference from higher harmonic and foreign conduction radiation and strengthen the power grid adaptability.
- In a standard configuration, the built-in input C3 filter is equipped to reduce electromagnetic interference and guarantee steady operation of the device.
- Simple and friendly EMC cut-off point structure designs convenient for grounding and weakens electromagnetic interference.



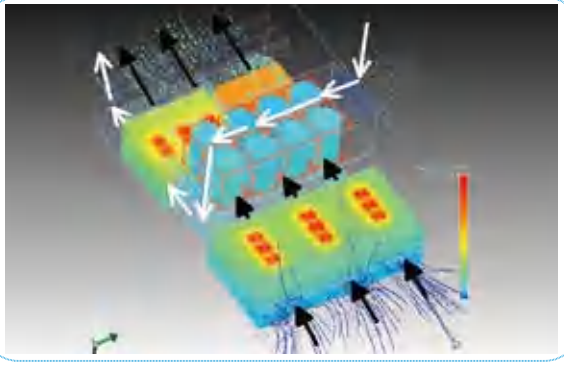
Wide Voltage Range Design

- Rated voltage: single phase220V; three-phase 220V/380V/500V/690V
- Voltage frequency:50-60Hz±5Hz
- Allowable voltage fluctuation: -15% to +15%



Innovative and Independent Air Duct Design

- The design can effectively prevent dust and other foreign matters from entering the inside of the frequency converter,thereby avoiding faults caused by electric short circuits and damaged components.
- Electronic components are separated from the main cooling system by the poor conductor or wind screen, to avoid component failuresdue to too high temperature caused by heat radiation from the main-power radiator.



Selection and Design of Key Components

- Strict component selection testing procedures are adopted.All power components such as the rectifier bridge, IGBT and electrolytic capacitor use mainstream products of the first-class manufacturers. Performance and reliability of key components are guaranteed from selection to manufacturing
- Large allowance and derating design ensures reliability of key components.

CE Certification Compliance

- The ES series products meet relevant requirements of European CE directives.

Accurate and Comprehensive Auto-turning Function

- The frequency converter can accomplish motor parameter auto-turning accurately, it will be more convenient to operate &commissioning and offers higher control precision and response speed.
- The comprehensive and rich Auto-turning functions cover various motor Auto-turning and mechanical Auto-turning functions.

Motor Comprehensive Auto-turning	
Rotary Auto-turning	Mostly suitable in applications of high starting torque, high speed and high control precision.
Static Auto-tuning	Mostly suitable in applications of commissioning when the motor and handling machines are connected.

Wide Speed Range, High Steady-speed Precision

- Speed range :
  Permanent magnet assisted reluctance motor: 1:100
  Pure synchronous reluctance motor: 1:50

- Steady-speed precision :
  Close- loop vector : ± 0. 1%



Waveforms of different key signals when the 4kW asynchronous motor is suddenly loaded or unloaded with 150% load at 1500 rpm in the open-loop state (data is collected from the frequency converter and the background tool of the computer only receives data and generates waveforms)

High Overload Capacity

- Run steadily at 120% rated load
- Run for 60s at 150% rated load

Built-in Servo Function

- The built-in servo positioning is adopted for the device. When the PG vector control is available, the device supports control over positions including zero servo, principal axisorientation (4 orientation positions), simple carry control (8 carryovers setting) and pulse train position.
- Servo functions such as spindle positioning at any angle and stop at a specified angle can be realized It can be used in most servo application fields.

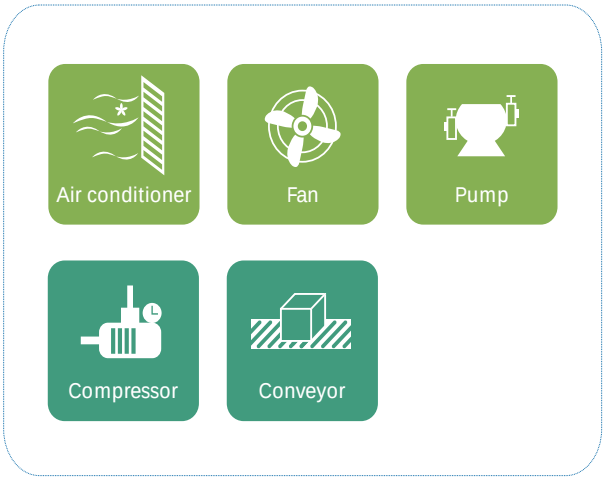
LCD Smart Keyboard Adopted in Standard Configuration/optional LED keypad



- Large-text and multi-function Chinese or English muiti-language LCD display for faster and more accurate parameter settings.
- Detailed status display for monitoring and setting.
- Detailed diagnosis information. Status information and waves of key nodes, fault records, and diagnosis information can be viewed for fault query and maintenance.
- Automatically setting of optimum parameter values. With the usage selection function, users need to only select the mechanical function. Then, the device automatically sets parameters to optimum values, thereby eliminating tedious parameter settingand shortening trial run time.
- Storage of application parameters of up to 4 user groups, which is convenient for fast process switching.
- Reliable built-in parameter upload &download function
- Built-in parameter change logging function
- LCD/LED keypad can be connected for long distance by remote cable.

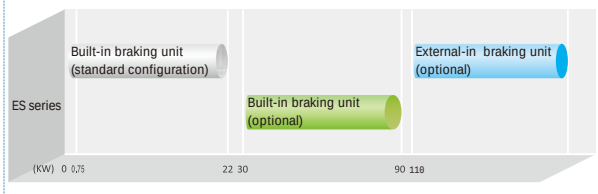
Rich Application Macros

- Various built-in typical mechanical applications such as fans, water pumps, cables and unwinding and rewinding unit.
- Automatic setting of optimum parameter values.
- With the usage selection function, users need to only select the mechanical function. Then, the device automatically sets parameters to optimum values, thereby eliminating tedious parameter setting and shortening trial run time.



Reliable Braking Function

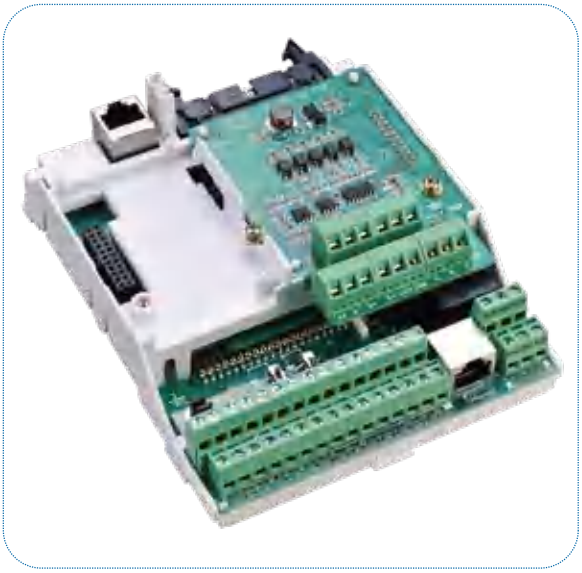
- With magnetic flux braking function, it can brake quickly even without braking resistor
- With DC braking function
- The built-in braking unit is optional for the device with power of 30-90kW. The built-in braking unit is included in the standard configuration of the device with power of 22 kW and below.
- The use of a brake resistor achieves better braking effects, saves electric installation space, and lowers electric costs for users.



Rich Extension Functions

- Built in RS-485 communication interface.
- Support several kinds of field bus communication protocols (Modbus-RTU、PROFINET、 CANopen etc.)
- Support various PG cards.
- Support collector open encoder, differential output encoder, rotary-transformer-type encoder,and sin-cos encoder.

*F0 series LCD keyboard is optional



Rich I/O Interfaces

- Type of Terminals Qty Characteristics

Digital input	7	Maximum input frequency:1kHz, compatible with NPN and PNP input types
High-speed pulse input	1	Maximum input frequency: 50kHz, compatible with NPN and PNP input types
Analog Input	3	0~10V, 0~20mA, -10V to +10V (Optional)
Digital output	2	Maximum output frequency: 1kHz
High-speed pulse output	1	Maximum output frequency: 50kHz
Analog output	2	0~10V, 0~20mA
Relay output	2	3A/250VAC,1A/30VDC, normally open+normally close

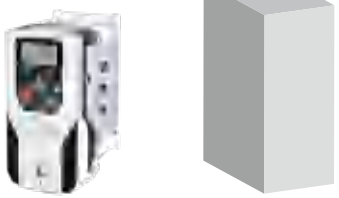
Note: the interfaces above are for F1 and later models. For F0 / B0 series, the quantity of some function interfaces is lower. See the technical datasheet or standard wiring diagram for details.

Systematic and Comprehensive Protection Functions

- Frequency converter protection function: short circuit protection, overcurrent protection, overvoltage protection, under-voltage protection, input & output phase loss protection, overload protection and overheat protection.
- Motor protection function: overload protection and motor temperature protection.
- Brake circuit protection function: brake transistor overload protection, brake transistor straight-through protection, and brake resistor protection

Compact Structure Design

- The smaller size helps save installation space, facilitate electrial layout, and is more suitable to be used in combination with the synchronous motor.
- The standard configurations uses a built-in DC reactor (F3 and above model), which helps reduce electrical installation space eliminates potential safety risks in using anexternal DC reactor.
- For low-power models, the rear metal plate design can effectively prevent the installation environment like oily environment from influencing the frequency converter, and guarantee secure installation.
- For medium-/high-power models, the window/cover of the rear radiator can be periodically cleaned, which is convenient for routine maintenance and cleaning of the frequency converter and saves maintenance time and costs.
- Some medium-/high-power models can be installed laterally as a blade, greatly facilitating suite design and manufacturing of professional systems.
- The minimum volume is only : 122mmx276mmx172mm ES580/ES850 82mmx176mmx131 ES350



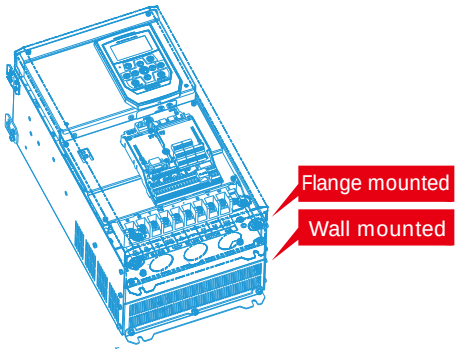
ES Series VS General model

The area is reduced by about 30 %

The volume is reduced by about 45 %

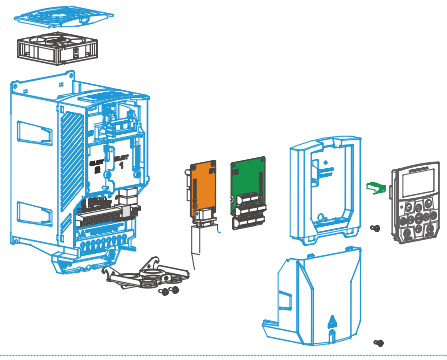
Various Mounting Modes

- F0: wall-mounted
- F1-F5:wall-mounted , flange (run-through wall) mounted optional
- F6-F9:wall-mounted , floor-mounted optional
- C10 and above floor-mounted



Modular Design

- Detachable terminal block, easy for maintenance.
- The main control unit, various PG cards and communication cards adopt the modular structure design. Thejoints of function modules are carefully designed and easy for universal application.
- Detachable fans, easy for cleaning and replacement.
- Hot pluggable LCD/LED keyboard.



Unique Smart Drive

- Intelligent LCD control keyboard: The friendly human-machine interface displays key parameters relevant to running of the frequency converter and motor in real time.
- Intelligent fault diagnosis: It records extreme operation conditions of the frequency converter, including the maximum current, voltage and maximum temperature, which are easy for fault locating and exception analysis. It also records device load conditions for customers, which are convenient for customers to optimize electric drive schemes.
- Intelligent temperature monitoring: It detects the temperature at key points inside the machine and intelligently controls the temperature of the whole machine by using adaptive algorithms.
- Intelligent parameter setting for industry applications: Users only need to select an industry application, and the device automatically matches optimum parameters, eliminating tedious parameter setting.

Naming Rules

ES XXX - XX - XXXG/XXXP - 3B - XXXXXY

Drive product series

Drive product series:
850H Synchronous Reluctance Motor Drive Controller;
580H Synchronous Reluctance Motor Drive Controller;
350H Synchronous Reluctance Motor Drive Controller;

Non-standard customized model

B : built-in brake chopper
/B : optional built-in brake chopper
None : without built-in brake chopper

Voltage class :
1 : single phase 220 V
2 : three phase 220V
3 : three phase 380V
5 : three phase 500 V
6 : three phase 690 V

Rated power in general applications

0K4	···	5K5	···	018	···
0.4kW	···	5.5kW	···	18.5kW	···

Dimensions:
01 : first dimension and structure
02 : second dimension and structure... and so on

Rated power in heavy load applications

0K4	···	5K5	···	018	···
0.4kW	···	5.5kW	···	18.5kW	···



Technical Data

Item		Specification and Technical Data
Main power connection	Input voltage U1	220V/380V/500/690V±15% ;signal/three-phase power
	Input frequency f1	50...60Hz ±5Hz
	Output voltage U2	0...U1（V）(The maximum output voltage equals the input power voltage.)
	Output frequency f2	0-599Hz
	Carrier frequency	2-8 KHz (The device can intelligently and automatically make optimal adjustment Higher carrier frequency consult the manufacturer
	Input voltage unbalance degree	Maximum: ±3% of rated inter-phase input voltage
	Efficiency	≈ 98% (when operating at rated power)
Basic functions	Speed range	0~599Hz（0 ~36000 rpm）
	Resolution of given speed	Digital setting: 1RPM Analog setting: 0.025% of maximum RPM
	Control mode	SVC control / FVC vector control
	Starting speed	150% @ 0.5Hz @ open loop SVC control 200% @ 0Hz @ close loop FVC control
	Speed ratio	Permanent magnet assisted reluctance motor: 1:100; Pure synchronous reluctance motor: 1:50 @ open loop SVC control 1 : 1000 @ close loop FVC control
	Steady-speed precision	± 0.5% @ SVC control ± 0.1% @ FVC control
	Overload capacity	Heavy load application: 60s at 150% rated current @40° C. The time depends on the drive temperature under other conditions. General application: 60s at 120% rated current @40° C. The time depends on the drivetemperature under other conditions.
	Torque boost	Automatic torque boost. Manual torque boost 0.1%–30%
	Acceleration and deceleration curves	straight–line or S–curve acceleration and deceleration mode Two acceleration time values. The acceleration and deceleration time range : 0.0s–650.00s
	Simple PLC function	Achieve operationof up–to–16–stages speed(via built–in PLC or control terminals)
	Built-in PID	Conveniently achieve the process control close–loop control system
	Automatic voltage regulation (AVR)	When the grid voltage changes, the device automatically maintains constant output voltage.
	Overvoltage and overcurrent stall control	The current and voltage are automatically limited during running to avoid jump faults due to frequent overcurrent and overvoltage
Enhancements	Torque limiting and control	The torque is automatically limited operating (to avoid frequent overcurrentjumping fault due to too large torque).
	Protection function	Output shortcircuit protection, input & output phase loss protection, overcurrent protection, overvoltage protection,undervoltage protection, overheat protection, overload protection, brake chopper overload protection, brake chopper shortcircuit protection, brake resistor overload protection
	Power-off ride-through	When the grid momentarily loses power or drops abnormally, the inverter can continue to run, and the duration depends on the load mechanical inertia at the moment
	speed tracking resart	Can achieve syncgronous reluctance motor speed tracking start（optional）
	timing contrd	Timing control function the time range and precision is 00–6500.0（min）
	Switching multiple motors	Support switching among four groups of motor parameters.
	Bus communication	The standard configuration uses the built–in Modbus/communication, which can be extended to Profinet, CANopen bus communication. Etc.
	Intelligent temperature control	Full cover system temperature testing, intelligent real–time IGBT chip temperature monitoring, and intelligent and optimized adjustment of the carrier and current based on drive temperature changes
	Communication linkage synchronization	Easily realize multi–motor synchronous transmission, and can freely choose to realize the linkage balance of multi–motor by current, torque or power.
	Debug window	Visual parameter debugging, fault display and waveform monitoring can be easily realized through the PC terminal etc

Technical Data

Item		Specification and Technical Data
I/O Input Output Interface	Command input mode	Control keyboard input, control terminal input, bus communication input, which can be switched mutually.
	Speed reference mode	Digital giving, analog voltage (current) giving, pulse giving, bus communication giving and PID giving, which are mutually switched.
	Input terminal (input)	The followings are included in standard configuration : 6 (F0) / 7 (F1 and above) digital input terminals, where, DI6 (F0) DI7 (F1 and above)supports the maximum of 50 kHz high-speed pulse input. 2 (F0) /3 (F1 and above) analog input terminals (where, at least 2 supports 0-10V voltage input or 0-20 mA or 4-20mA voltage input) The followings are extended as cards : 5 digital input terminals
	Output terminal (output)	The followings are included in standard configuration: 1 high-speed pulse output terminal (supporting 0-50 kHZ square signal output) 1 (F0) /2 (F1 and above) digital output terminals 1 (F0) /2 (F1 and above) relay output terminals 1 (F0) /2 (F1 and above) analog output terminals (supporting0-10V voltage output or 0- 20mA or 4-20 mA current output)
Display and control	Man-machine interface	F0 built in fixed LED keypad, and LCD keypad is optional. F1 and above is built in standard smart LCD keyboard,LED keypad is optionat
	Parameters duplicating	Rapidly duplicating parameters via the LCD control keyboard
Application environment	Parameters duplicating	Indoor, free of direct sunshine, dusts, corrosive gases, flammable gases, oil mist, water vapor, drip or salts
	Altitude	At 0–1000m ; When the altitude is 1000–4000m, the capacity is reduced by 1% as the altitude rises by 100m. (consult professionals for more accurate values)
	Operation ambient temperature	–10℃ to+40℃ (when the ambient temperature is 40℃–55℃, the drive is automatically derated to achieve self–protection)
	Relative humidity	Less than 95%RH. No droplets condensed (condensation)
	Sinusoidal vibration	（IEC 60068-2/-6.Test Fc） Max.0.1mm（5 to 13.2Hz）; max.7m/s²（13.2 to 100Hz）正弦振动（F0-F7） Max.0.1mm（10 to 57Hz）; max.10m/s²（57 to 150Hz）正弦振动（F8-F9）
	Impact	Not allowed (during operation); maximum 100m/S2, 11ms (during storage and transportation with packing)
	Free fall (Max.)	Not allowed (during operation); with packing : 100cm @F0–F2A, 76cm @F3–F4, 46cm @F5–F7, 15cm @F8–F9
	Storage & transportation temperature	–40℃ to+70℃ (–40 to+158° F)
Protection grade		IP20 (UL–open type), (the medium cavity with air vents on two sides for some F0** models) Electrical cavity full closed design for small– and medium–power models, Top/Left and right sides can reach IP40
Cooling mode		Forced air cooling of the interior fan. The air flows from bottom to top. Air–cooled radiator.
Application standard		IEC 61800–3 , IEC 61800–5–1 ; GB12668 (see the nameplate for details).

Selection of ES580H Products

220V 3ph rated voltage(adapt to the working voltage range 208~240V ±15%)

Model Code	Rated Value		General Load Application		Heavy Load Application		Noise Level	Heat Radiation	Air Volume	Dimension
	I_N(A)	I_{max}(A)	I_{Ld}(A)	P_{Ld}(kW)	I_{Hd}(A)	P_{Hd}(kW)	dBA	W	m³/h	
ES580H-01-0K4G/0K7P-2	5.2	7	5	0.75	2.5	0.37	45	40	89	F1
ES580H-01-0K7G/1K5P-2	6.3	9	6	1.5	4.2	0.75	45	76	89	
ES580H-01-1K5G/2K2P-2	10.5	15	9.8	2.2	5.6	1.5	45	97	89	
ES580H-01- 2K2G/4K0P-2	18.2	25	17.5	4	14.5	2.2	45	172	130	
ES580H-02-4K0G/5K5P-2	26	36	25	5.5	17.6	4	45	325	130	F2
ES580H-02-5K5G-2B	28	35	\	\	25	5.5	45	420	130	
ES580H-02A-5K5G/7K5P-2B	37	50	35	7.5	25	5.5	52	470	175	F2A
ES580H-02A-7K5G/011P-2B	41	57	38.6	11	35	7.5	52	550	175	
ES580H-03-7K5G/011P-2B	41	57	38.6	11	35	7.5	57	550	306	F3
ES580H-03-011G/015P-2B	63.5	89	61	15	48	11	57	890	306	
ES580H-04-015G/018P-2	78	109	75	18.5	66	15	60	1114	610	F4
ES580H-04-018G/022P-2	95	133	91	22	79	18.5	60	1140	610	
ES580H-04-022G/030P-2	120	168	115	30	94	22	60	1200	610	
ES580H-05-030G/037P-2	162	227	155	37	116	30	60	1440	610	F5
ES580H-05-037G/045P-2	185	222	178	45	160	37	60	1940	610	
ES580H-06-055G/075P-2	225	270	215	55	179	45	67	2200	850	
	272	326	261	75	215	55	68	3300	1275	F6

Note: Rated power is measured under rated voltage 220V

380V 3ph rated voltage (adapt to the working voltage range 380~460V ±15%)

Model Code	Rated Value		General Load Application		Heavy Load Application		Noise Level	Heat Radiation	Air Volume	Dimension
	I_N(A)	I_{max}(A)	I_{Ld}(A)	P_{Ld}(kW)	I_{Hd}(A)	P_{Hd}(kW)	dBA	W	m³/h	
ES580H-01-0K7G/1K5P-3B	5.2	7	5	1.5	2.5	0.75	45	40	89	F1
ES580H-01-1K5G/2K2P-3B	6.3	9	6	2.2	4.2	1.5	45	76	89	
ES580H-01-2K2G/4K0P-3B	10.5	15	9.8	4	5.6	2.2	45	97	89	
ES580H-01-4K0G/5K5P-3B	14	20	13.5	5.5	10.5	4	45	172	89	
ES580H-01-5K5G/7K5P-3B	18.2	25	17.5	7.5	14.5	5.5	45	210	130	
ES580H-02-7K5GV011P-3B	26	36	25	11	17.6	7.5	45	325	130	F2
ES580H-02-011G-3B	28	35	26	15	25	11	45	420	130	
ES580H-02A-011G/015P-3B	37	50	35	15	25	11	52	470	175	F2A
ES580H-02A-015G/018P-3B	41	57	38.6	18.5	35	15	52	550	175	
ES580H-03-015G/018P-3B	41	57	38.6	18.5	35	15	57	550	306	F3
ES580H-03-018G/022P-3B	48	67	46	22	41	18.5	57	660	306	
ES580H-03-022/030P-3B	63.5	89	61	30	48	22	57	890	306	
ES580H-04-030G/037P-3/B	78	109	75	37	66	30	60	1114	610	F4
ES580H-04-037G/045P-3/B	95	133	91	45	79	37	60	1140	610	
ES580H-04-045G/055P-3/B	120	168	115	55	94	45	60	1200	610	
ES580H-05-055G/075P-3/B	162	227	155	75	116	55	60	1440	610	F5
ES580H-05-075G/090P-3/B	185	222	178	90	160	75	60	1940	610	
ES580H-05-090G/110P-3/B	225	270	215	110	179	90	67	2200	850	
ES580H-06-110G/132P-3	272	326	261	132	215	110	68	3300	1275	F6
ES580H-06-132G/160P-3	320	384	310	160	259	132	68	3850	1275	
ES580H-07-160G/200P-3	375	450	387	200	314	160	75	4100	1800	F7
ES580H-07-200G/220P-3	450	540	427	220	387	200	75	4600	1800	
ES580H-07- 220G/250P-3	487	584	450	250	427	220	75	5100	1800	
ES580H-08-250G/280P-3	546	628	525	280	481	250	68	5782	2190	F8
ES580H-08-280G/315P-3	624	718	600	315	550	280	68	6252	2190	
ES580H-08-315G/355P-3	686	789	660	355	616	315	68	7866	2190	
ES580H-09-355G/400P-3	760	874	720	400	650	355	75	9100	2700	F9
ES580H-09-400G/450P-3	865	995	810	450	720	400	75	9900	2700	
ES580H-09-450G/500P-3	950	1093	870	500	810	450	75	10500	2700	
ES580H-09- 500G/560P-3	1100	1265	980	560	870	500	75	11500	2700	
ES580H-09- 560G/630P-3	1200	1380	1060	630	980	560	75	12600	2700	
ES580H-10-630G/710P-3	1350	1450	1320	710	1200	630	75	14500	3600	C10
ES580H-10-710G/800P-3	1500	1600	1450	800	1320	710	75	16800	3600	

Note: Rated power is measured under rated voltage 380V

500V 3ph rated voltage(adapt to the working voltage range 480~525V ±15%)

Model Code	Rated Value		General Load Application		Heavy Load Application		Noise Level	Heat Radiation	Air Volume	Dimension
	I_N(A)	I_{max}(A)	I_{Ld}(A)	P_{Ld}(kW)	I_{Hd}(A)	P_{Hd}(kW)	dBA	W	m^3/h	
ES580H-04-015G/018P-5	35	64	33	18.5	27	15	60	890	610	F4
ES580H-04-018G/022P-5	44	70	41	22	35	18.5	60	1114	610	
ES580H-04-022G/030P-5	49	71	48	30	45	22	60	1140	610	
ES580H-04-030G/037P-5	61	104	58	37	52	30	60	1200	610	
ES580H-05-037G/045P-5	80	124	80	45	65	37	67	1440	610	F5
ES580H-05-045G/055P-5	98	168	93	55	86	45	68	1940	610	
ES580H-05-055G/075P-5	119	198	113	75	100	55	68	2200	850	
ES580H-06-075G/090P-5	142	200	142	90	121	75	68	3300	1275	F6
ES580H-06-090G/110P-5	175	220	165	110	150	90	68	3850	1275	
ES580H-07-110G/132P-5	220	240	215	132	175	110	75	4100	1800	F7
ES580H-07-132G/160P-5	271	320	245	160	220	132	75	4600	1800	
ES580H-07-160G/200P-5	290	350	265	200	250	160	75	5100	1800	
ES580H-08-200G/220P-5	300	360	295	220	270	200	68	5782	2190	F8
ES580H-08-220G/250P-5	330	360	325	250	300	220	68	6252	2190	
ES580H-08-250G/280P-5	370	480	360	280	330	250	68	7866	2190	
ES580H-09-280G/315P-5	430	520	420	315	385	280	75	9100	2700	F9
ES580H-09-315G/355P-5	470	655	455	355	430	315	75	9900	2700	
ES580H-09-355G/400P-5	522	700	505	400	470	355	75	10500	2700	
ES580H-09-400G/450P-5	590	800	571	450	535	400	75	11500	2700	
ES580H-09-450G/500P-5	721	820	710	500	600	450	75	12600	2700	
ES580H-10-500G/560P-5	900	1000	790	560	680	500	75	13820	3600	C10
ES580H-10-560G/630P-5	1080	1200	880	630	770	560	75	14850	3600	
ES580H-11-630G/710P-5	1160	1750	1100	710	900	630	75	20000	7200	C11 [4]
ES580H-11-710G/800P-5	1450	2000	1200	800	1100	710	75	26000	7200	
ES580H-11-800G/900P-5	1650	2200	1350	900	1200	800	75	32000	7200	

Note: Rated power is measured under rated voltage 500V

690V 3ph rated voltage (adapt to the working voltage range 660~690V ±15%)

Model Code	Rated Value		General Load Application		Heavy Load Application		Noise Level	Heat Radiation	Air Volume	Dimension
	I_N(A)	I_{max}(A)	I_{Ld}(A)	P_{Ld}(kW)	I_{Hd}(A)	P_{Hd}(kW)	dBA	W	m^3/h	
ES580H-04-015G/018P-6	22	44	21	18.5	18	15	60	550	610	F4
ES580H-04-018G/022P-6	26	54	25	22	22	18.5	60	660	610	
ES580H-04-022G/030P-6	35	64	33	30	27	22	60	890	610	
ES580H-04-030G/037P-6	44	70	41	37	35	30	60	1114	610	
ES580H-04-037G/045P-6	49	71	48	45	45	37	60	1140	610	
ES580H-04-045G/055P-6	61	104	58	55	52	45	60	1200	610	
ES580H-05-055G/075P-6	80	124	80	75	65	55	67	1440	610	F5
ES580H-05-075G/090P-6	98	168	93	90	86	75	68	1940	610	
ES580H-05-090G/110P-6	119	198	113	110	100	90	68	2200	850	
ES580H-06-110G/132P-6	142	200	142	132	121	110	68	3300	1275	F6
ES580H-06-090G/110P-5	175	220	165	160	150	132	68	3850	1275	
ES580H-07-160G/200P-6	220	240	215	200	175	160	75	4100	1800	F7
ES580H-07-200G/220P-6	271	320	245	220	220	200	75	4600	1800	
ES580H-07-220G/250P-6	290	350	265	250	250	220	75	5100	1800	
ES580H-08-250G/280P-6	300	360	295	280	270	250	68	5782	2190	F8
ES580H-08-280G/315P-6	330	360	325	315	300	280	68	6252	2190	
ES580H-08-315G/355P-6	370	480	360	355	330	315	68	7866	2190	
ES580H-09-355G/400P-6	430	520	420	400	385	355	75	9100	2700	F9
ES580H-09-400G/450P-6	470	655	455	450	430	400	75	9900	2700	
ES580H-09-450G/500P-6	522	700	505	500	470	450	75	10500	2700	
ES580H-09- 500G/560P-6	590	800	571	560	535	500	75	11500	2700	
ES580H-09-560G/630P-6	721	820	710	630	600	560	75	12600	2700	
ES580H-10-630G/710P-6	900	1000	790	710	680	630	75	13820	3600	C10
ES580H-10-710G/800P-6	1080	1200	880	800	770	710	75	14850	3600	
ES580H-11-800G/1100P-6	1160	1750	1115	1100	900	800	75	20000	7200	C11 [4]
ES580H-11-1100G/1250P-6	1450	2000	1250	1250	1114	1100	75	26000	7200	
ES580H-11-1250G/1400P-6	1650	2200	1400	1400	1250	1250	75	32000	7200	

Note: Rated power is measured under rated voltage 690V

Selection of ES850H Products

220V 3ph rated voltage(adapt to the working voltage range 208~240V ±15%)

Model Code	Rated Value		General Load Application		Heavy Load Application		Noise Level	Heat Radiation	Air Volume	Dimension
	I_N(A)	I_{max}(A)	I_{Ld}(A)	P_{Ld}(kW)	I_{Hd}(A)	P_{Hd}(kW)	dBA	W	m³/h	
ES850H-01-0K4G/0K7P-2B	5.2	7	5	0.75	2.5	0.37	45	40	89	F1
ES850H-01-0K7G/1K5P-2B	6.3	9	6	1.5	4.2	0.75	45	76	89	
ES850H-01-1K5G/2K2P-2B	10.5	15	9.8	2.2	5.6	1.5	45	97	89	
ES850H-01-2K2G/4K0P-2B	18.2	25	17.5	4	14.5	2.2	45	172	130	
ES850H-02-4K0G/5K5P-2B	26	36	25	5.5	17.6	4	45	325	130	F2
ES850H-02-5K5G-2B	28	35	\	\	25	5.5	45	420	130	
ES850-02A-5K5G/7K5P-2B	37	50	35	7.5	25	5.5	52	450	175	F2A
ES850-02A-7K5G/011P-2B	41	57	38.6	11	35	7.5	52	450	175	
ES850H-03-7K5G/011P-2B	41	57	38.6	11	35	7.5	57	550	306	F3
ES850H-03-011G/015P-2B	63.5	89	61	15	48	11	57	890	306	
ES850H-04-015G/018P-2	78	109	75	18.5	66	15	60	1114	610	F4
ES850H-04-018G/022P-2	95	133	91	22	79	18.5	60	1140	610	
ES850H-04-022G/030P-2	120	168	115	30	94	22	60	1200	610	
ES850H-05-030G/037P-2	162	227	155	37	116	30	60	1440	610	F5
ES850H-05-037G/045P-2	185	222	178	45	160	37	60	1940	610	
ES850H-05-045G/055P-2	225	270	215	55	179	45	67	2200	850	
ES850H-06-055G/075P-2	272	326	261	75	215	55	68	3300	1275	F6

Note: Rated power is measured under rated voltage 220V

380V 3ph rated voltage (adapt to the working voltage range 380~460V ±15%)

Model Code	Rated Value		General Load Application		Heavy Load Application		Noise Level	Heat Radiation	Air Volume	Dimension
	I_N(A)	I_{max}(A)	I_{Ld}(A)	P_{Ld}(kW)	I_{Hd}(A)	P_{Hd}(kW)	dBA	W	m³/h	
ES850H-01-0K7G/1K5P-3B	5.2	7	5	1.5	2.5	0.75	45	40	89	F1
ES850H-01-1K5G/2K2P-3B	6.3	9	6	2.2	4.2	1.5	45	76	89	
ES850H-01-2K2G/4K0P-3B	10.5	15	9.8	4	5.6	2.2	45	97	89	
ES850H-01-4K0G/5K5P-3B	14	20	13.5	5.5	10.5	4	45	172	89	
ES850H-01-5K5G/7K5P-3B	18.2	25	17.5	7.5	14.5	5.5	45	210	130	
ES850H-02-7K5G/011P-3B	26	36	25	11	17.6	7.5	45	325	130	F2
ES850H-02-011G-3B	28	35	26	15	25	11	45	420	130	
ES850H-02A-011G/015P-3B	37	50	35	15	25	11	52	470	175	F2A
ES850H-02A-015G/018P-3B	41	57	38.6	18.5	35	15	52	550	175	
ES850H-03-015G/018P-3B	41	57	38.6	18.5	35	15	57	550	306	F3
ES850H-03-018G/022P-3B	48	67	46	22	41	18.5	57	660	306	
ES 850H-03-022G/030P-3B	63.5	89	61	30	48	22	57	890	306	
ES 850H-04-030G/037P-3/B	78	109	75	37	66	30	60	1114	610	F4
ES850H-04-037G/045P-3/B	95	133	91	45	79	37	60	1140	610	
ES850H-04-045G/055P-3/B	120	168	115	55	94	45	60	1200	610	
ES850H-05-055G/075P-3/B	162	227	155	75	116	55	60	1440	610	F5
ES850H-05-075G/090P-3/B	185	222	178	90	160	75	60	1940	610	
ES850H-05-090G/110P-3/B	225	270	215	110	179	90	67	2200	850	
ES850H-06-110G/132P-3	272	326	261	132	215	110	68	3300	1275	F6
ES850H-06-132G/160P-3	320	384	310	160	259	132	68	3850	1275	
ES850H-07-160G/200P-3	375	450	387	200	314	160	68	4100	1800	F7
ES850H-07-220G/250P-3	450	540	427	220	387	200	68	4600	1800	
ES850H-07-220G/250P-3	487	584	450	250	427	220	68	5100	1800	
ES850H-08- 250G/280P-3	546	628	525	280	481	250	68	5782	2190	F8
ES850H-08-280G/315P-3	624	718	600	315	550	280	68	6252	2190	
ES850H-08-315G/355P-3	686	789	660	355	616	315	68	7866	2190	
ES850H-09-355G/400P-3	760	874	720	400	650	355	68	9100	2700	F9
ES850H-09-400G/450P-3	865	995	810	450	720	400	68	9900	2700	
ES850H-09-450G/500P-3	950	1093	870	500	810	450	68	10500	2700	
ES850H-09-500G/560P-3	1100	1265	980	560	870	500	68	11500	2700	
ES850H-09-560G/630P-3	1200	1380	1060	630	980	560	68	12600	2700	
ES850H-10-630G/710P-3	1350	1450	1320	710	1200	630	75	14500	3600	C10
ES850H-10-710G/800P-3	1500	1600	1450	800	1320	710	75	16800	3600	

Note: Rated power is measured under rated voltage 380V

500V 3ph rated voltage(adapt to the working voltage range 480~525V ±15%)

型号代码	额定值		一般负载应用		重载应用		噪音等级	散热	风量	外形尺寸
	I_N(A)	I_{max}(A)	I_{Ld}(A)	P_{Ld}(kW)	I_{Hd}(A)	P_{Hd}(kW)	dBA	W	m^3/h	
ES850H-04-015G/018P-5	35	64	33	18.5	27	15	60	890	610	F4
ES850H-04-018G/022P-5	44	70	41	22	35	18.5	60	1114	610	
ES850H-04-022G/030P-5	49	71	48	30	45	22	60	1140	610	
ES850H-04-030G/037P-5	61	104	58	37	52	30	60	1200	610	
ES850H-05-037G/045P-5	80	124	80	45	65	37	67	1440	610	F5
ES850H-05-045G/055P-5	98	168	93	55	86	45	68	1940	610	
ES850H-05-055G/075P-5	119	198	113	75	100	55	68	2200	850	
ES850H-06-075G/090P-5	142	200	142	90	121	75	68	3300	1275	F6
ES850H-06-090G/110P-5	175	220	165	110	150	90	68	3850	1275	
ES850H-07-110G/132P-5	220	240	215	132	175	110	75	4100	1800	F7
ES850H-07-132G/160P-5	271	320	245	160	220	132	75	4600	1800	
ES850H-07-160G/200P-5	290	350	265	200	250	160	75	5100	1800	
ES850-08-200G/220P-5	300	360	295	220	270	200	68	5782	2190	F8
ES850H-08-220G/250P-5	330	360	325	250	300	220	68	6252	2190	
ES850H-08-250G/280P-5	370	480	360	280	330	250	68	7866	2190	
ES850H-09-280G/315P-5	430	520	420	315	385	280	75	9100	2700	F9
ES850H-09-315G/355P-5	470	655	455	355	430	315	75	9900	2700	
ES850H-09-355G/400P-5	522	700	505	400	470	355	75	10500	2700	
ES850H-09-400G/450P-5	590	800	571	450	535	400	75	11500	2700	
ES850H-09-450G/500P-5	721	820	710	500	600	450	75	12600	2700	
ES850H-10-500G/560P-5	900	1000	790	560	680	500	75	13820	3600	C10
ES850H-10-560G/630P-5	1080	1200	880	630	770	560	75	14850	3600	
ES850H-11-630G/710P-5	1160	1750	1100	710	900	630	75	20000	7200	C11[4]
ES850H-11-710G/800P-5	1450	2000	1200	800	1100	710	75	26000	7200	
ES850H-11-800G/900P-5	1650	2200	1350	900	1200	800	75	32000	7200	

Note: Rated power is measured under rated voltage 500

690V 3ph rated voltage (adapt to the working voltage range 660~690V ±15%)

型号代码	额定值		一般负载应用		重载应用		噪音等级	散热	风量	外形尺寸
	I_N(A)	I_{max}(A)	I_{Ld}(A)	P_{Ld}(kW)	I_{Hd}(A)	P_{Hd}(kW)	dBA	W	m^3/h	
ES850H-04-015G/018P-6	22	44	21	18.5	18	15	60	550	610	F4
ES850H-04-018G/022P-6	26	54	25	22	22	18.5	60	660	610	
ES850H-04-022G/030P-6	35	64	33	30	27	22	60	890	610	
ES850H-04-030G/037P-6	44	70	41	37	35	30	60	1114	610	
ES850H-04-037G/045P-6	49	71	48	45	45	37	60	1140	610	
ES850H-04-045G/055P-6	61	104	58	55	52	45	60	1200	610	
ES850H-05-055G/075P-6	80	124	80	75	65	55	67	1440	610	F5
ES850H-05-075G/090P-6	98	168	93	90	86	75	68	1940	610	
ES850H-05-090G/110P-6	119	198	113	110	100	90	68	2200	850	
ES850H-06- 110G/132P-6.	142	200	142	132	121	110	68	3300	1275	F6
ES850H-06- 132G/160P-6	175	220	165	160	150	132	68	3850	1275	
ES850H-07-160G/200P-6	220	240	215	200	175	160	75	4100	1800	F7
ES850H-07- 200G/220P-6	271	320	245	220	220	200	75	4600	1800	
ES850H-07-220G/250P-6	290	350	265	250	250	220	75	5100	1800	
ES850H-08-250G/280P-6	300	360	295	280	270	250	68	5782	2190	F8
ES850H-08- 280G/315P-6	330	360	325	315	300	280	68	6252	2190	
ES850H-08-315G/355P-6	370	480	360	355	330	315	68	7866	2190	
ES850H-09-355G/400P-6	430	520	420	400	385	355	75	9100	2700	F9
ES850H-09-400G/450P-6	470	655	455	450	430	400	75	9900	2700	
ES850H-09-450G/500P-6	522	700	505	500	470	450	75	10500	2700	
ES850H-09-500G/560P-6	590	800	571	560	535	500	75	11500	2700	
ES850H-09-560G/630P-6	721	820	710	630	600	560	75	12600	2700	
ES850H-10-630G/710P-6	900	1000	790	710	680	630	75	13820	3600	C10
ES850H-10-710G/800P-6	1080	1200	880	800	770	710	75	14850	3600	
ES850H-11-800G/1100P-6	1160	1750	1115	1100	900	800	75	20000	7200	C11[4]
ES850H-11-1100G/1250P-6	1450	2000	1250	1250	1114	1100	75	26000	7200	
ES850H-11-1250G/1400P-6	1650	2200	1400	1400	1250	1250	75	32000	7200	

Note: Rated power is measured under rated voltage 690V

Selection of ES350H Products

220V 3ph rated voltage(adapt to the working voltage range 208~240V ±15%)

Model Code	Rated Value		General Load Application		Heavy Load Application		Noise Level	Heat Radiation	Air Volume	Dimension
	I_N(A)	I_{max}(A)	I_{Ld}(A)	P_{Ld}(kW)	I_{Hd}(A)	P_{Hd}(kW)	dBA	W	m^3/h	
ES350H-F0-0K4G/0K7P-2B	5. 2	6	4.5	0.75	2.5	0.37	40	40	25	FO *3)
ES350H-F0-0K7G/1K5P-2B	6. 3	7. 5	7	1.5	4.5	0.75	40	65	25	
ES350H-F0-1K5G/2K2P-2B	9. 5	11	8.5	2.2	7	1.5	40	80	25	
ES350H-F0-2K2G-2B	10	12	\	\	9	2.2	40	92	25	FO **3)

Note: Rated power is measured under rated voltage 220V

220V 1ph rated voltage(adapt to the working voltage range 208~240V ±15%)

Model Code	Rated Value		General Load Application		Heavy Load Application		Noise Level	Heat Radiation	Air Volume	Dimension
	I_N(A)	I_{max}(A)	I_{Ld}(A)	P_{Ld}(kW)	I_{Hd}(A)	P_{Hd}(kW)	dBA	W	m^3/h	
ES350H-F0-0K4G/0K7P-1B	4. 8	6	4.5	0.75	2.5	0.37	40	40	25	FO *3)
ES350H-F0-0K7G/1K5P-1B	7. 5	10	7	1.5	4.5	0.75	40	65	25	
ES350H-FO-1K5G/2K2P-1B	9	11.5	8.5	2.2	7	1.5	40	80	25	
ES350H-F0-2K2G-1B	10	12	\	\	9	2.2	40	92	25	

Note: Rated power is measured under rated voltage 220V

380V 3ph rated voltage(adapt to the working voltage range 380~460V ±15%)

Model Code	Rated Value		General Load Application		Heavy Load Application		Noise Level	Heat Radiation	Air Volume	Dimension
	I_N(A)	I_{max}(A)	I_{Ld}(A)	P_{Ld}(kW)	I_{Hd}(A)	P_{Hd}(kW)	dBA	W	m^3/h	
ES350H-F0-0K7G/1K5P-3B	5.2	6	5	1.5	2.5	0.75	40	40	25	FO *3)
ES350H-F0-1K5G/2K2P-3B	6.3	7.5	6	2.2	4	1.5	40	76	25	
ES350H-F0-2K2G/4K0P-3B	9.5	11	9	4	5	2.2	40	97	25	
ES350H- F0-4K0G-3B	10	12	\	\	8	4	40	125	25	FO **3)

Note: Rated power is measured under rated voltage 380V

G– constant torque load application, P–square torque load application, – indicate that the item is not supported.Rated value

IN Continuous and available rated current without load at 40C

Imax Maximum output current..Ten seconds are allowable at startup. Under other circumstances, the time depends on temperature

General load application:

ILD Continuous rated output current of P converter s at ≤ 40C. The overload current value is allowed to reach 120%of

ILD in 1 minute out of every ☒ve minutes. The time depends on the drive temperature under other circumstances.

PLD Typical motor power in the light load application.

Heavy load application:

IHD Continuous rated output current of G converters at ≤ 40C. The overload current value is allowed to reach 150%of

IHD in 1 minute out of every ☒ve minutes. The time depends on the drive temperature under other circumstances.

PHD Typical motor power in the heavy load application.

1)=110V , 115v series models need to be consulted to con☒rm inventory and supply cycle

2)=12 pulse recti☒er power circuit, the speci☒c order please consult our company representative.

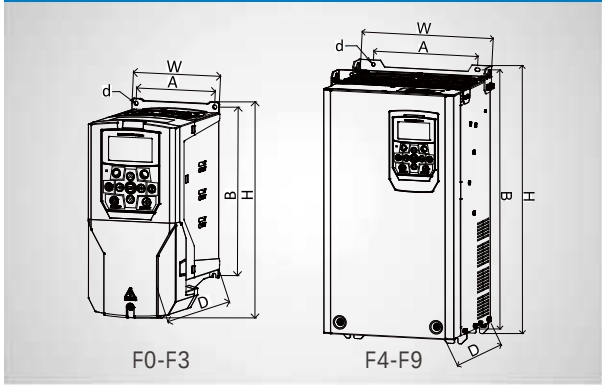
3)=* represent independent closed air duct structure, * * represent independent closed air duct with cooling hole structure,

– represent this item not supported.

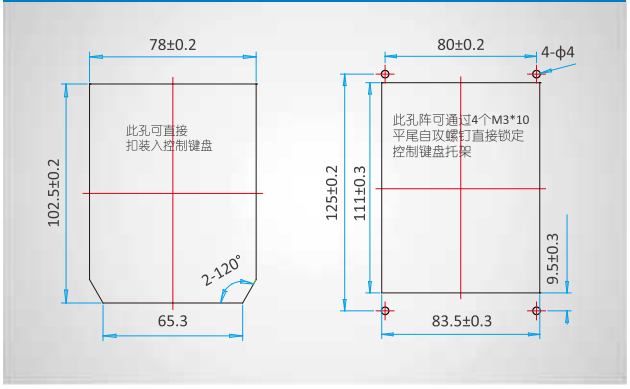
4)=Manufacturers need to consult before ordering

Installation Dimension

Dimensions and installation schematic diagram of ES580/850 series plastics/sheet metal structure



Shape and dimensions of the opening for directly mounting the control keyboard/bracket to the door



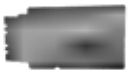
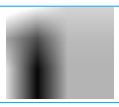
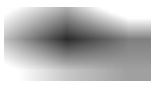
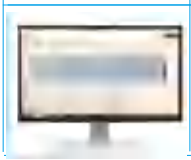
Structural dimensions and installation diagram for C10 cabinet



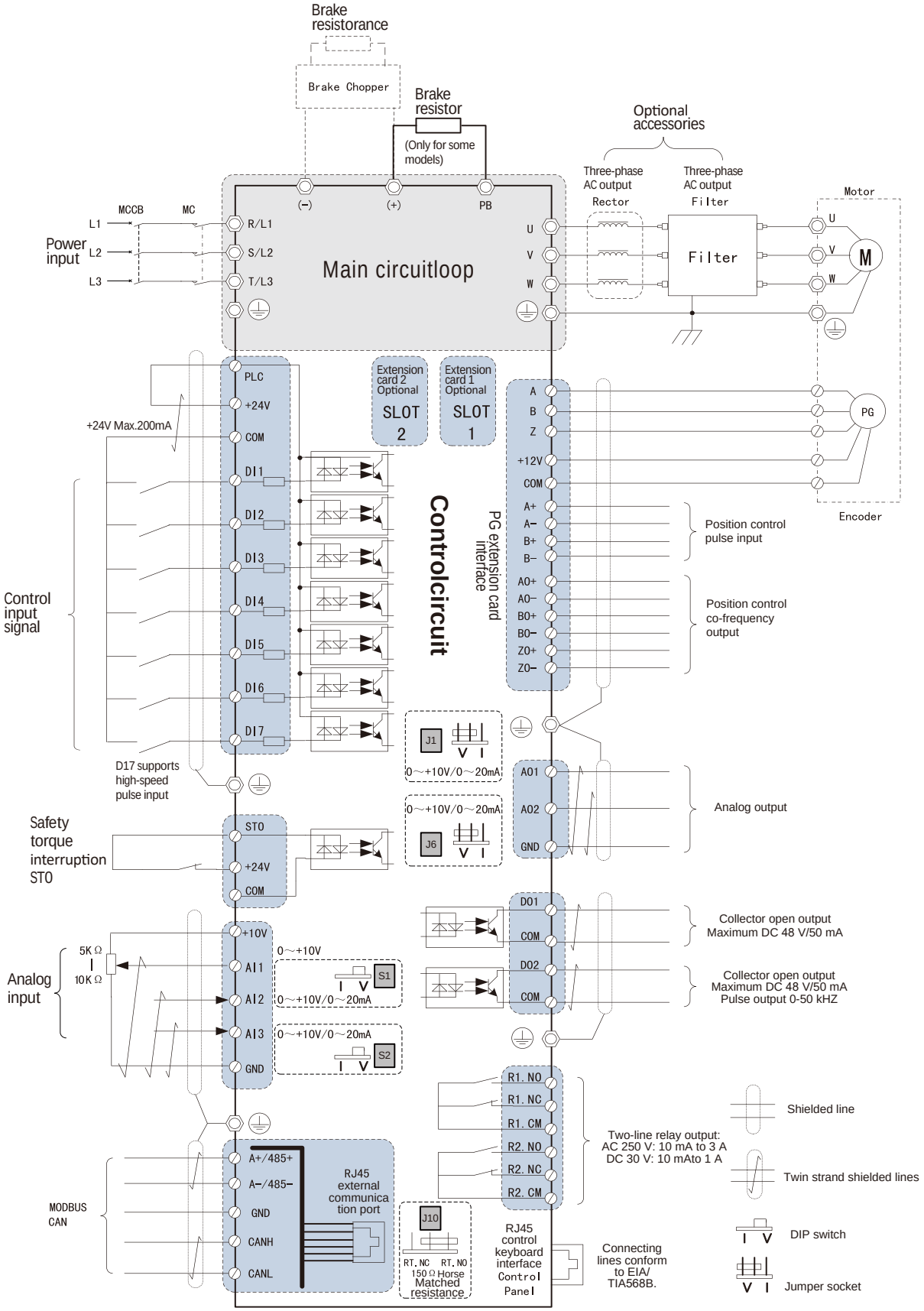
Dimension	Installation Hole Width Spacing A (mm)	Installation Hole Height Spacing B (mm)	Installation Hole Sized (mm)	Appearance Width W (mm)	Appearance Height H (mm)	Appearance Thickness D (mm)	Weight (Kg)
F0	65	168	5.0	82	176	131	1.8
F1	110	222	5.5	122	276	172	3.7
F2	140	238	6.0	155	292	172	4.8
F2A	160	296	6.0	175	336	192	5.1
F3	150	368	7.0	180	420	216	12.6
F4	200	479	6.5	255	495	221	22
F5	250	650	12.0	355	670	260	65
F6	357/75 [1)]	761	11.0	390	790	278	95
F7	357/115 [1)]	973	11.0	390	1001	295	140
F8	490/200 [1)]	1280	13.0	537	1305	340	200
F9	490/240 [1)]	1420	13.0	537	1455	380	240
C10	700	900	18.0	840	2330	1050	500

Note: 1) indicates hole spacing for forwarding installation /hole spacing for blade-type lateral installation hole (preferred design scheme);

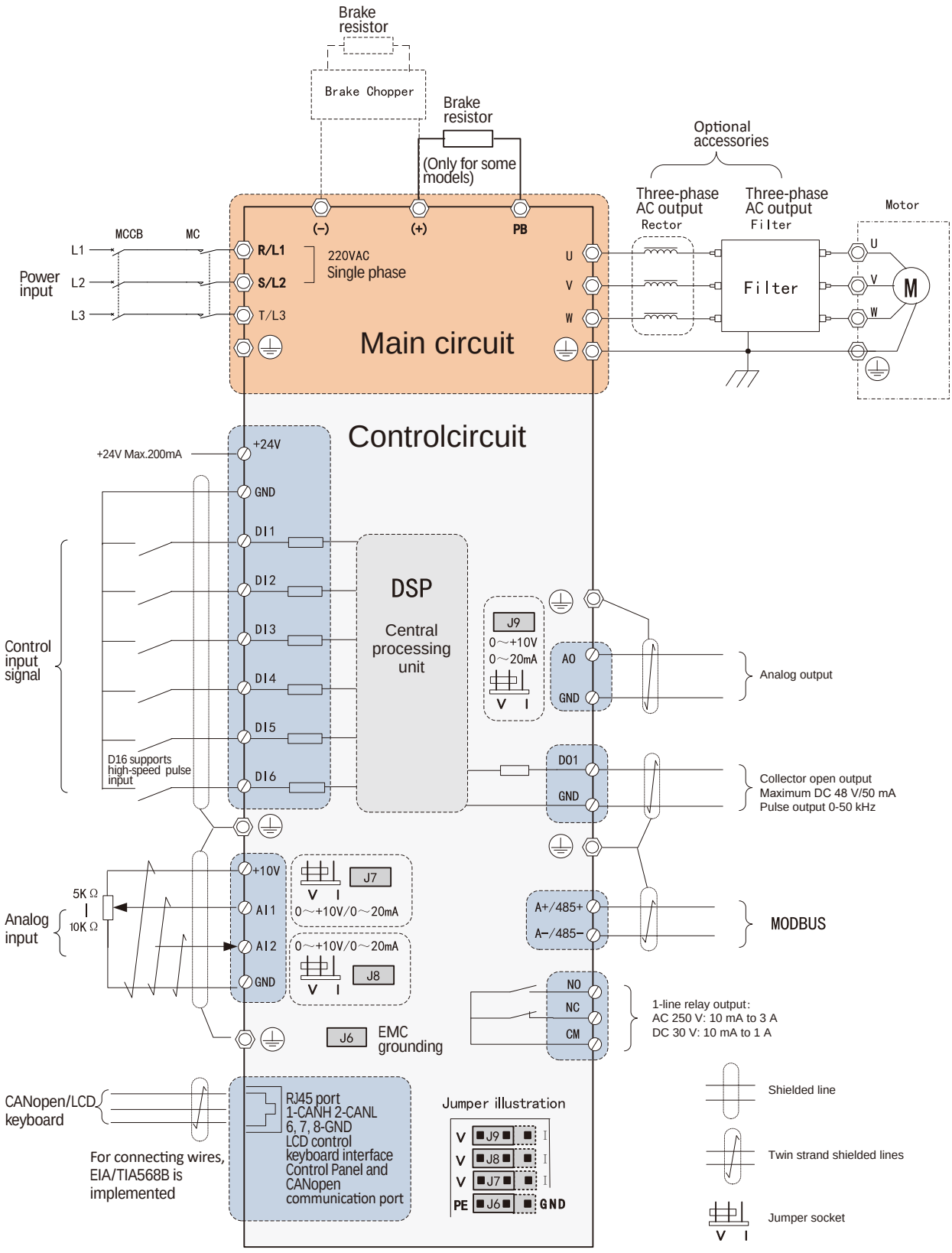
Optional Accessories

Legend	Model	Accessory and Main Function
	ESX-04-X/X-3B	The built–in braking unit function is optional forF4 series products and is represented with [B] at the end of model.
	ESX-05-X/X-3B	The built–in braking unit function is optional forF5 series products and is represented with [B] at the end of model.
	ES-CM-PD	Profibus–DP card, adapt to DB–9 pin serial port.
	ES-CM-PN	Profinet communication card
	ES-CM-ET	EtherCAT communication card
	ES-CM-CAN	Canopen communication card.
	ES-RU-DTC	The voltage capture card of the power grid is connected to the power grid and is used to detect real–time phase voltage and phase of the power grid, so as to achieve VF and WF switching or energy feedback .
	ES-RU-PL	Power off synchronization function card .
	ES-PG-OC	Collector open encoder interface card, adapting to 12V power, with position control pulse input/output.
	ES-PG-DF	Diffdi fferential encoder interface card, adapting to 5V power, with position control pulse input/output.
	ES-PG-RT	Rotary transformer encoder interface card, with position control pulse input/output.
	ES-PG-SN	Sin–Cos encoder interface card, adapting to 5V power, with position control pulse input/output .
	ES-CP-MU	LCD control keyboard, which is included in the standard configuration. It may be omitted in the case of remote control.
	ES-CP-MUE	LED keyboard is optional .
	ES-CP-SU	Extended bracket of the control keyboard, which is applicable to installation of the LCD keyboard cabinet door .
	ES-SU-F6	Applicable to the floor- mounted installation base for F6 and F7 models .
	ES-SU-F8	Applicable to the floor- mounted installation base for F8 and F9 models .
	ES-RP-01	Universal high- performance rotary single-turn 5K potentiometer with the rotary knob (universal model: RV24YN 20SB502) .
	ES-CB-F0	Incoming box, which is applicable to F0 models, in order to raise the closed protective capability to IP40 .
	ES850-STO	Safe torque stop function .
	ES850-TER2	Constant pressure water supply interface board .
	ES850-TER4	Inverter automatic cleaning kit, including interface board and fan .
	PC Debug software	After installing this software, visual parameter debugging, fault display, waveform detection, etc . can be easily realized through the PC terminal .

Standard Wiring Diagram 1 (Applicable to F1)



Standard Wiring Diagram 2 (Applicable to F0)



Advantageous Industry Applications

Metal and Stone Processing

- Low frequency and strong torque, steady speed and high precision.
- The device can decelerate quickly to stop during a power failure to prevent long-time mechanical inertia rotation, which is safer.
- High overload capacity (1 S seconds at 200% rated load), good overvoltage suppression (especially in punching).
- High protection grade (IP40), closed circuit structure design, thickening process of multiple conformal coatings, good physical environmental adaptability
- Smartdrive function, which can be used in most servo applications.
- Smart drive function, which facilitates operations (easy for commissioning and maintenance), and save labor costs and time.
- Intelligent LCD keyboard, real-time monitoring of key information, convenient man-machine interactions
- The fluctuation of speed is small when the converter is loaded suddenly.
- Capable of receiving various signal sources

Typical Applications



Machine tools



Rotary cutter for the wood processing equipment



Punch of the metal processing equipment

Cables, Winding

- Low frequency and strong torque, supporting low-speed startup with empty reel or full reels
- Fast response speed, steady and fast during startup/stop and acceleration and deceleration
- High stead-speed precision, constant tension control, steadier pendulum during the whole process
- High protection grade (IP40), closed circuit structure design, and thickening process of multiple conformal coatings, effectively preventing metal dusts
- F3 models and above, which can effectively reduce power higher harmonic and conduction radiation.Other optional accessories are not required to save space and reduce wiring
- Smartdrive function, avoiding complex commissioning, facilitating maintenance; saving labor costs and time
- Intelligent LCD keyboard, real-time monitoring of key information, convenient man-machine interactions

Typical Applications



Coating machine



Straight wiredrawing machine

Fluid Machinery

- ◇ Intelligent commissioning: Intelligent setting of industry application parameters, intelligent V/F curve setting. Complex commissioning by professionals is not required to save labor and time.
- ◇ Compatible with synchronous motors

  energy greatly Used with synchronous motor, down sizing and light weight, saving

  Used with synchronous motor, down sizing and light weight, saving equipment room
- ◇ equipment room Built-in reactor for F3 and above models

  Other optional accessories are not required to save space and reduce wiring; The power higher harmonic and conduction and radiation can be effectively reduced.
- ◇ Good human-machine interface

  Real-time monitoring of key parameters; real-time and multi-line LCD display
- ◇ Speed search function: Rotations in the free running mode can be searched after power failure and startup, implementing easy start up.
- ◇ Greater energy saving effects, minimum unit power consumption in the case of equivalent torques

Typical Applications



Air compressor



Fans & pumps

Rubber and plastic equipment

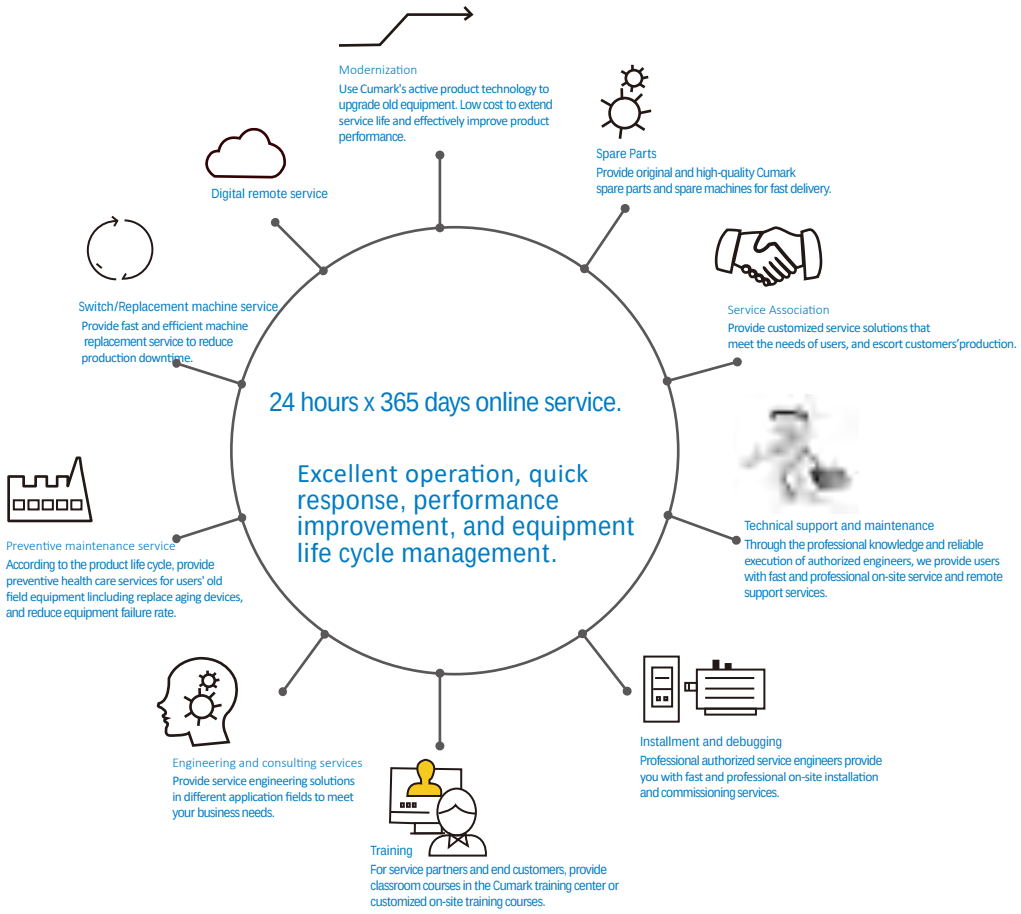
- ◇ Excellent synchronous reluctance motor control scheme, smaller control current, larger torque output;
- ◇ High energy–saving efficiency, higher economic value;
- ◇ Low–speed and high–torque output effectively guarantees the process of the equipment control system;
- ◇ Realize the soft start of the system, eliminate the severe impact of the equipment on the power grid and peripheral equipment, and prolong the service life of mechanical components;
- ◇ High reliability, improve equipment quality;
- ◇ Chinese and English large–size LCD keyboard, friendly man–machine interface, easy visualization and operation;



Rubber and plastic equipment

Summary of various services

The Cumark technical service teams across China, together with Cumak authorized service partners, provide you with a full range of pre-sales and after-sales technical services. Your success is our goal. Cumark will tailor a full lifecycle management solution for you to escort your business growth.



Cumark product life cycle management mode

