



## Inverter & Soft-Starter

# Green • Power • Future

Power drives Human Civilization

Green blooms Natural World

CHINT

Promotes technology innovation constantly

Advocates green concepts actively

Inspires Electric Future with collective wisdom

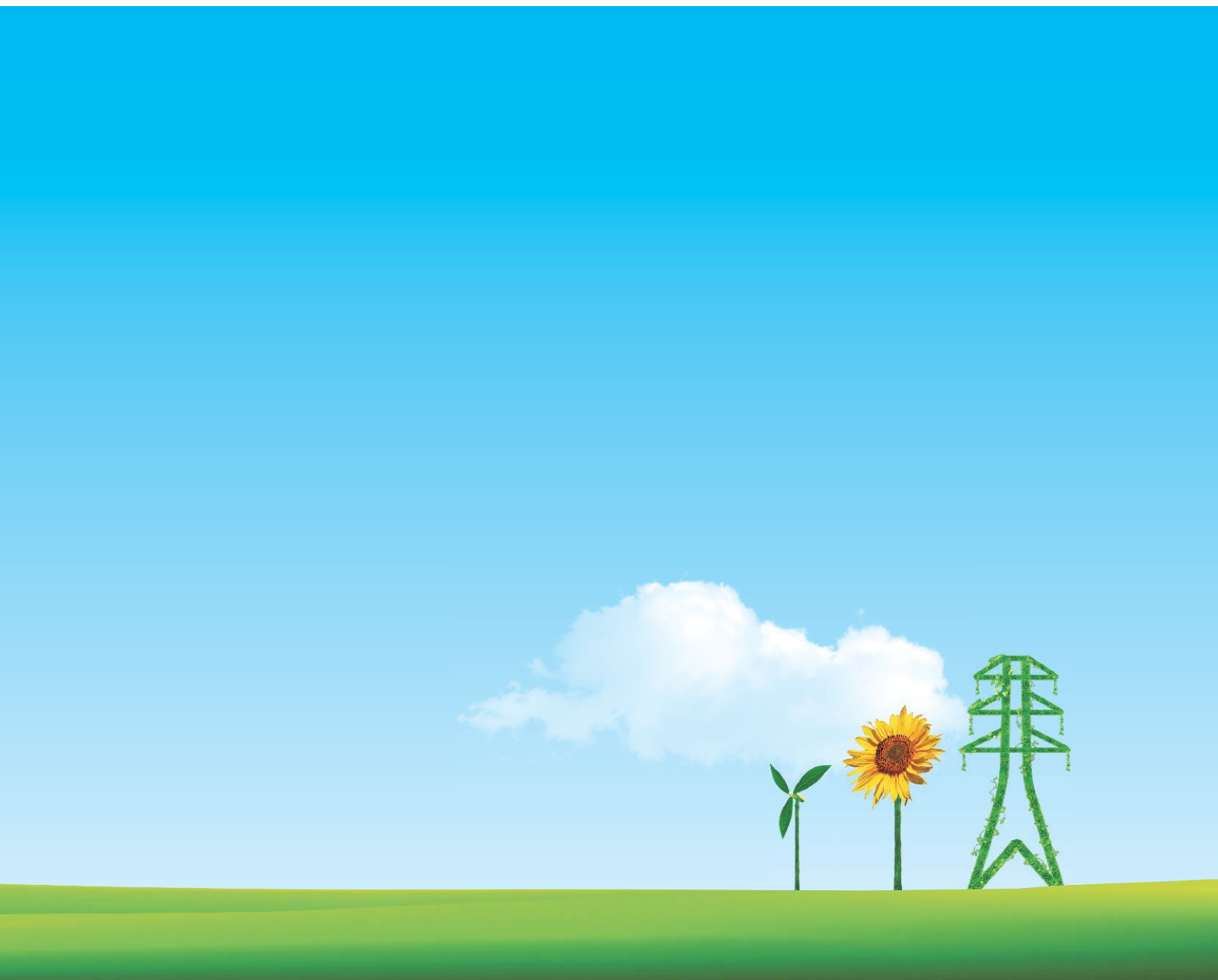
CHINT

Specializes in electric field for over decades

Brings you perfect customized electrical solutions

*More than Power, Minds for you*





CHNT





## CHINA+ TOMORROW= CHINT

“CHIN” indicates “CHINA”, and “T” represents “TOMORROW”,  
proclaiming its signification - “Tomorrow of China”.



Zhejiang CHINT Electrics Co., Ltd. (public company, SHA: 601877) is the largest-selling low-voltage electrics manufacturers in China. The company mainly engages in the research & development, manufacturing and sales of over 100 series low-voltage products with over 10,000 specification, such as modular Din-rail products, Moulded Case Circuit Breaker, Control products, Relays, Inverters, Soft Starters, Transformers, Automatic Voltage Regulators, Capacitors, Switch Disconnections, etc. and provides integrated electrical system solution for the industries of electric power, machinery, building, communication, HVAC, metallurgy, petrochemical, railway and etc.



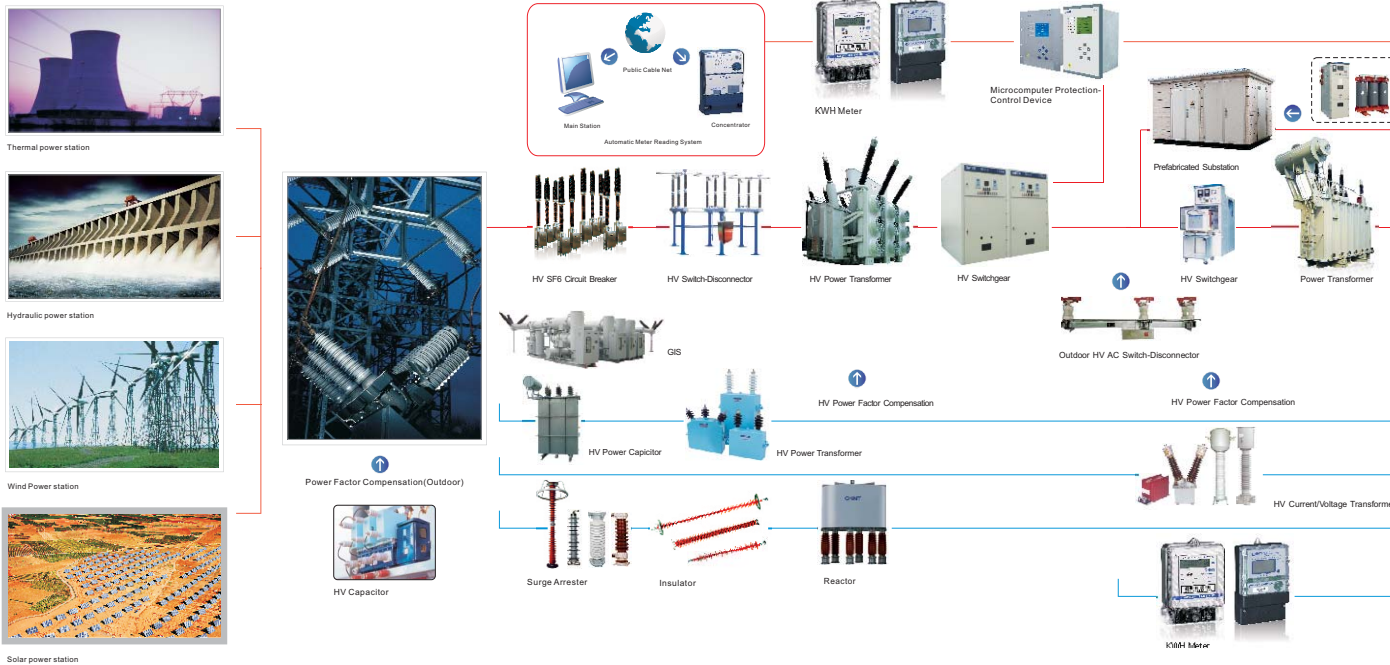
With its worldwide presence of distribution network,  
CHINT is capable of delivering high quality and professional services  
for its customers at home and abroad.



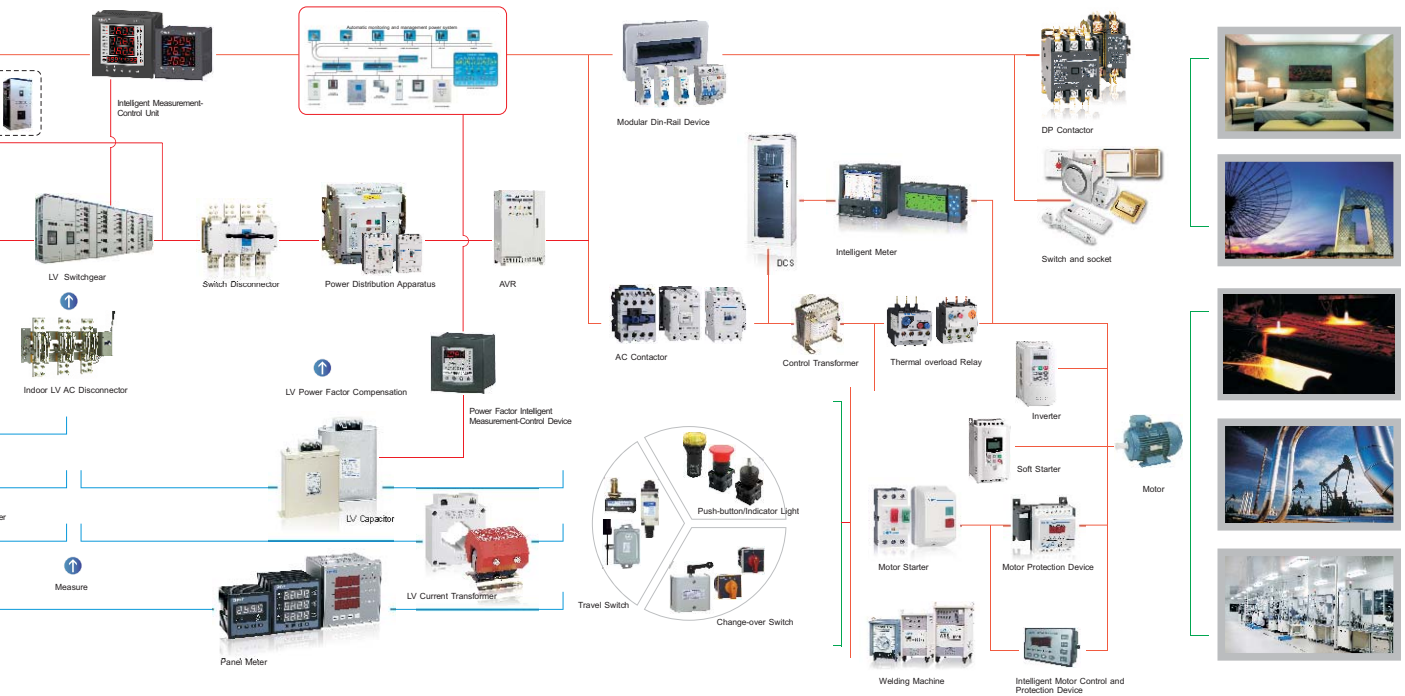
CHINT is consistently committed to developing itself into a world-class electric supplier of integrated system solutions in this era of economic globalization. By adhering to the development strategy of “Internationalization, High-Technology and Industrialization”, the company has persistently devoted itself to the innovation measures in corporate system, technology, and management with a vision of offering global customers with high-performance, intelligent and energy-saving electric products, technologies and services.

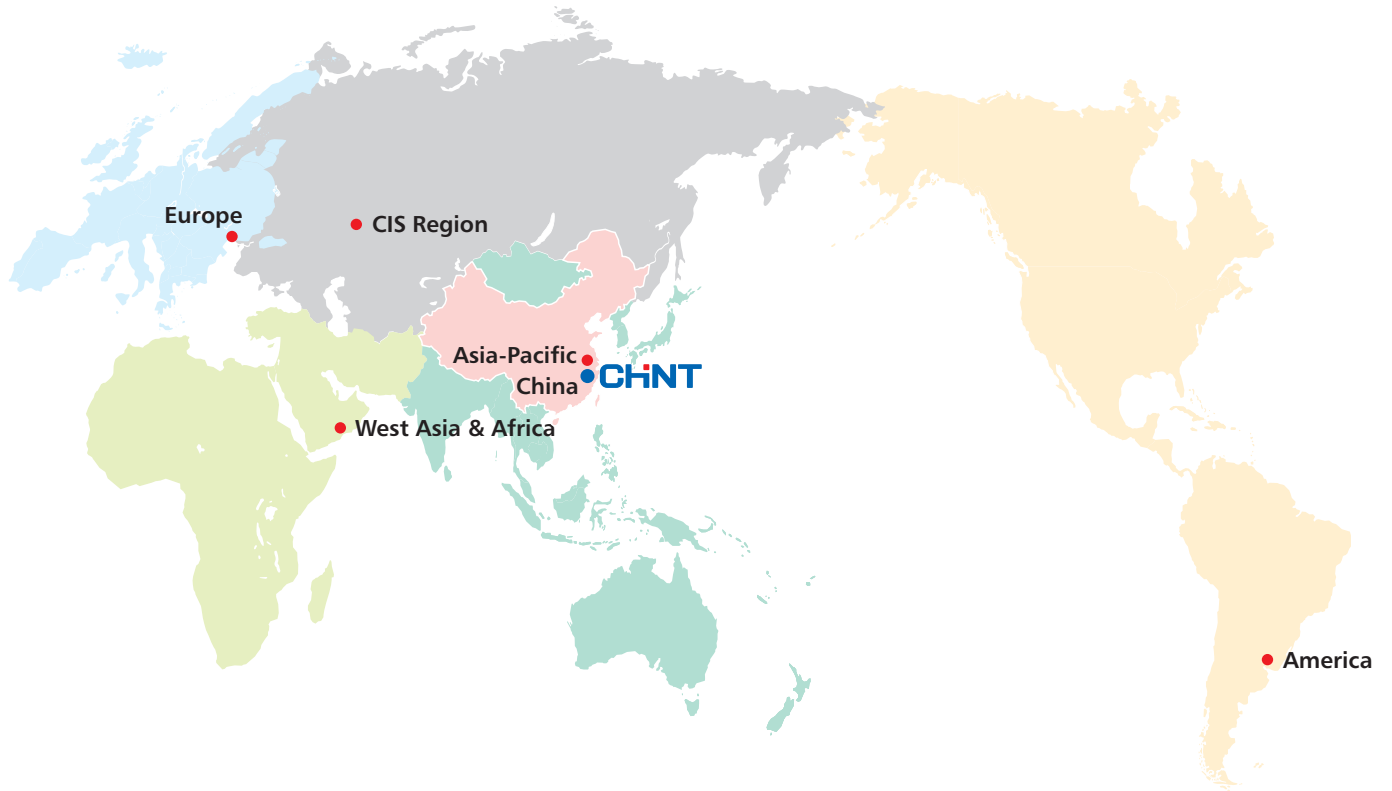


# CHINT Electric Systems



Power of Dedication has transformed CHINT from a simple electric component manufacturer into a leading electric system solution provider, enabling all users from power transmission, distribution and usage sectors to access more reliable, secure, energy-saving, precise, eco-friendly, and intelligent electric products and services. CHINT highly values all personalized demands of electric power, machinery, construction, communications, HVAC, metallurgy, petrochemical, railway, and other industries all the time, and devote itself to facilitating technical innovations and building a green future by providing users with world-class tailor-made electric system solutions.





Europe



America



CIS Region



West Asia & Africa



Asia-Pacific





## Inverter & Soft-Starter

### Inverter



**NVF1 Series  
Inverter**

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### Soft-Starter



**NJR2 Series  
Soft-Starter**

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## NVF1 Series Inverter

### 1. General

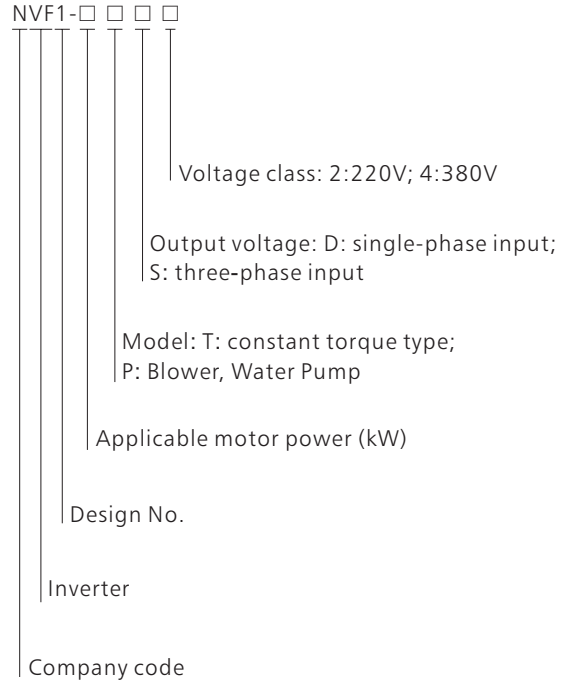
The inverter series is a new generation of self-developed, ease-to-use, and middle/high-end vector frequency inverters, which can start at a low frequency with their torques up to 150% of performance. This series features high load capacity, automatic lifting torques and custom V/F curves. The cycle time of deceleration/acceleration may automatically vary with different powers. In addition, this series boasts its in-built user-friendly CW/CCW PID controller; diversified control methods; flexible operation with multiple parameters of online supervision and adjustment function, and large ergonomics keyboard as well.

This series can be available in tow models of light-load and heavy-load, which can be used as a speed control device featured by strong load adaptability, stable operation and reliable performance.

The Auto ECO Mode can maximize the power factors and electric efficiency. The products are widely applied to the electric driving and automatic control sectors like papermaking, textile, water supply, municipal engineering, food, cement, printing and dyeing, rubber and plastics making machines etc.

The products are especially designed and tested in accordance with the international standards, as well as qualified for various virtual demanding user environments. Their performance indicators fully comply with the standard specifications of GB/T12668.2, IEC61800-2.

### 2. Type Designation



### 3. Operating conditions

- 3.1 Operating Temperature
 

The inverter may operate at ambient temperature between 0°C and 40°C. It will degrade above 40°C.
- 3.2 Humidity
 

The inverter may operate at relative air humidity of 90% or less without dew condensation.
- 3.3 Altitude
 

The inverter may output the rating power mounted at the operating altitude of 1000m or below. However the output power degradation may occur when the operating altitude exceeds 1000m. The rating power may degrade by 20% per rising altitude of 1000m.
- 3.4 Shock and Vibration
 

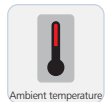
Any inverter's unexpected falling on the ground or sudden shock is not allowed. Do not install the frequency converter at areas where vibration often occurs.
- 3.5 Electromagnetic Radiation
 

Do not install the inverter near electromagnetic radiation sources.
- 3.6 Waterproof and Moisture Protection
 

Do not install the inverter at areas where water-dropping or dew condensation may occur.
- 3.7 Air Pollution
 

Do not install the inverter at areas with polluted air like dust and corrosive gas.
- 3.8 Storage Conditions
 

Do not install the inverter at areas where direct sunlight, oil moist, steam or vibration may occur.



Ambient temperature



Altitude



No Radiation



No Water spraying



No Pollution



No Direct Sunshine

#### 4. Technical data

##### 4.1 NVF1 Series Inverter - Specifications

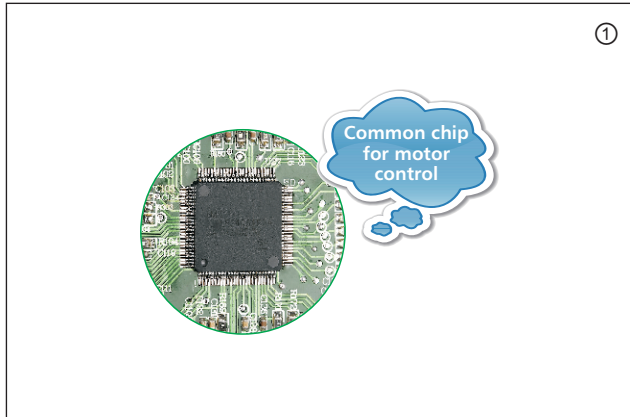
Input voltage class three-phase 380V																			
Model NVF1-/T(P)S4	0.75	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90	110	132	160
Applicable Motor Power (kW)	0.75	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90	110	132	160
Rated Output Current (A)	2.5	3.7	5	9	13	17	25	32	37	45	60	75	90	110	150	176	210	253	300
Max. Output Voltage (V)	three-phase Input Voltage																		
Output Frequency Range (Hz)	(0~400)Hz																		
Carrier Frequency kHz (1~15)	8							4							2				
Cooling	Forced Air Cooling																		

##### 4.2 NVF1 Series Inverter - Standard Technical Characteristics

Input and Output Characteristics	Input Voltage Range: 380/220V±15%
	Input Frequency Range: (47~63)Hz
	Output Voltage Range: 0~Rated input voltage
	Output Frequency Range: (0~400)Hz
Peripheral Interface Characteristics	Programmable Digital Input: 4 inputs
	Programmable Analog Input: AI1: (0~10)V input, AI2: (0~10)V or (0~20)mA input
	Open Collector Output: 1 output
	Relay Output: 2 outputs
	Analog Output: 1output, (0/4~20)mA or (0~10)V optional
Functional Characteristics	Frequency Setting: digital setting, analog setting, serial communication setting, multi-speed, PID setting, etc.
	Forward & Reverse PID Control Function
	Multi-speed Control Function: 8-speed control
	Wobble frequency control function for textile machine
	Auto Voltage Regulation Function: automatically maintain the constant output voltage when the grid voltage varies
	Over 20 Failure Protection Functions: over-current, over-voltage, under-voltage, over-temperature, phase loss, overload, PID wire breakage, etc.
Technical Characteristics	Control Method: Non-PG vector control, V/F control
	Overload Capacity: 60s at 150% rated current; 5s at 180% rated current;
	Starting Torque: Non-PG vector control: 0.5Hz/150% (starting torque)
	Speed Ratio: Non-PG vector control: 1:100: V/F 1:50
	Speed Control Precision: Non-PG vector control: ±0.5% max. speed
	Carrier Frequency: (1.0~15.0)KHz

5. Features

5.1 The complete series adopts TI's control DSP chip for digital motor, which has the mathematical operation system for high-speed control motor, thus fully enabling optimized vector control, with higher and more stable loading capacity.



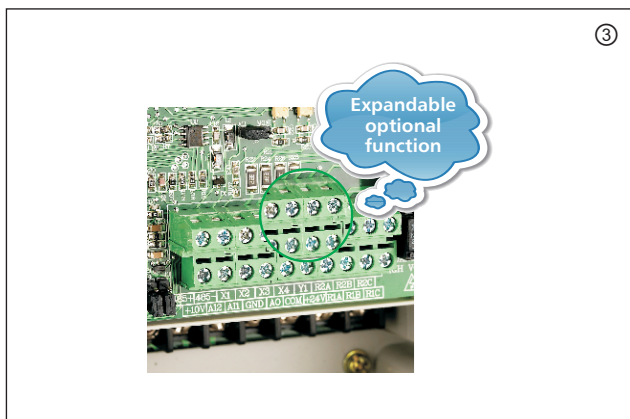
5.2 Large torque at low frequency, strong control function, compatible with simple vector and V/F mode.

5.3 All models adopt separate air duct design to achieve desirable anti-dust effect and stronger environmental adaptability.



5.4 Low-inductance structure design and most components are imported to guarantee top quality.

5.5 Flexible interface expansion is available to enable wider application scope of automation transformation.



5.6 Built-in simple PID and flying shear control, etc., flexible machine adaptation.

5.7 Runtime accumulation, switchable display of related operating parameters, operating condition and power consumption clear at a glance.

5.8 Auto power-saving operation, significantly saving power at particular light-load scenarios.

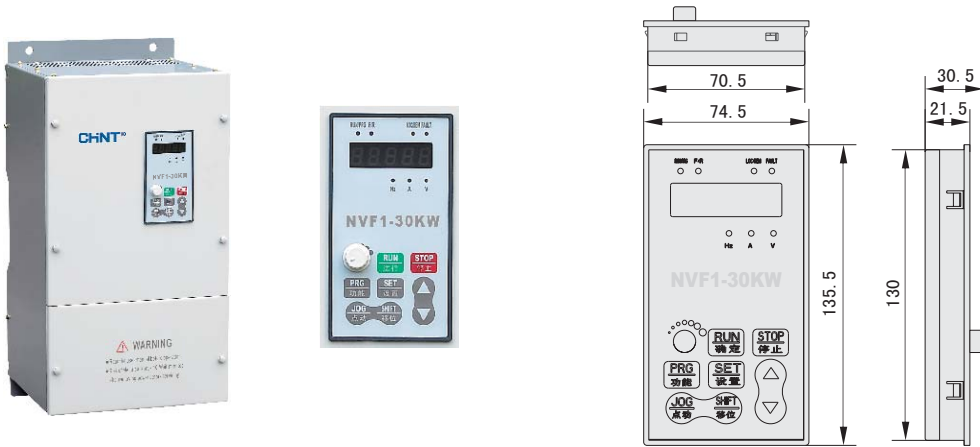


6. Overall and mounting dimensions

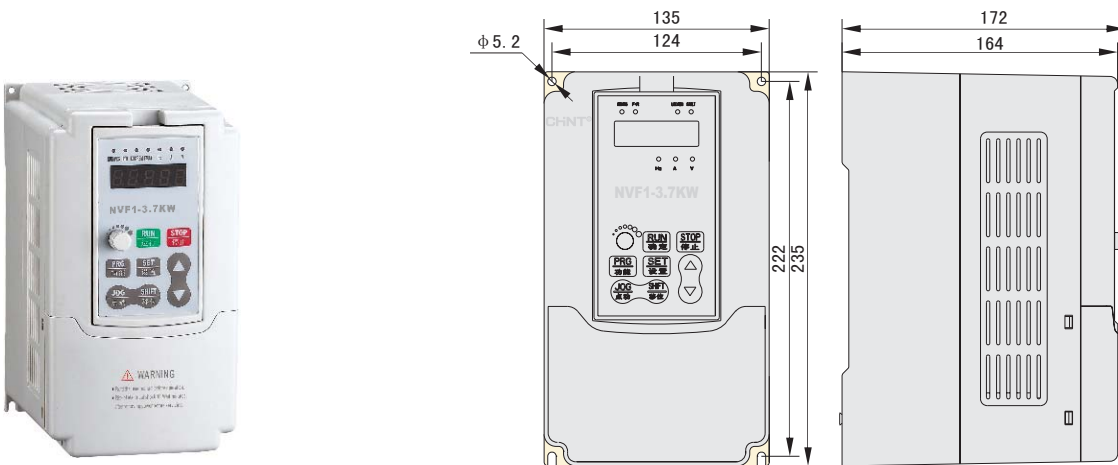
Middle display panel For 7.5kW or below



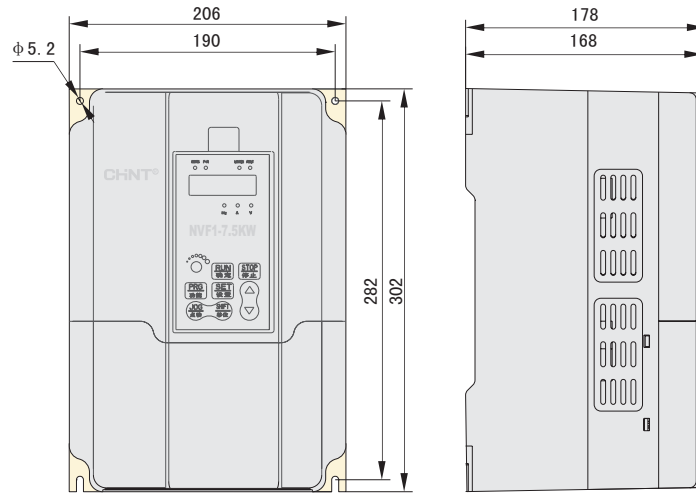
Large display panel For 11kW or above, for outreach and extension



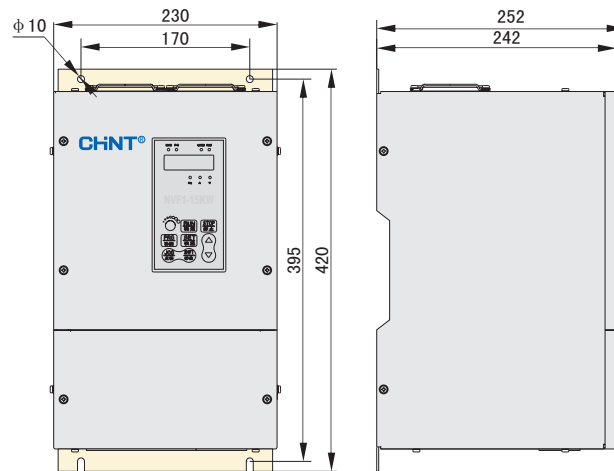
For 1.5~ 3.7 models



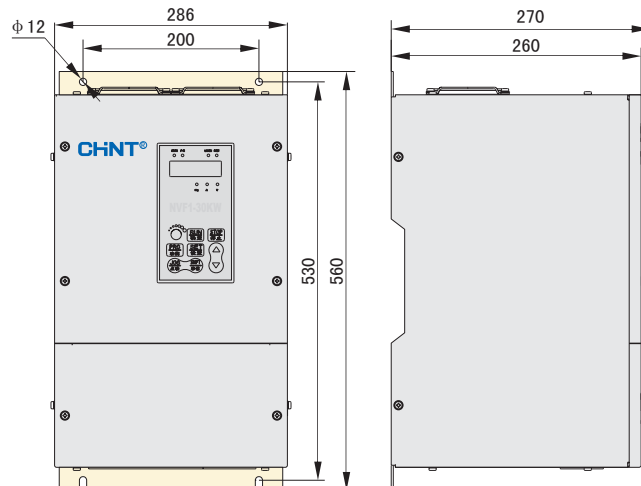
For 5.5~7.5 models



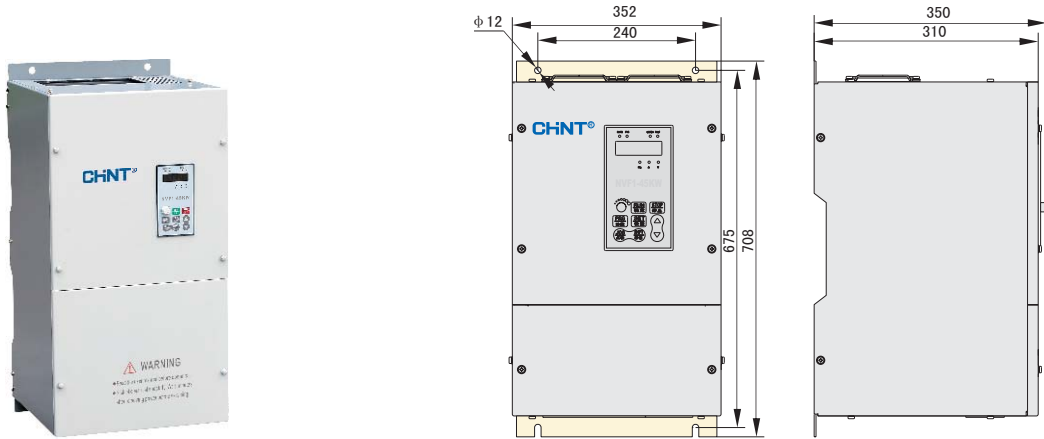
For 11~15 models



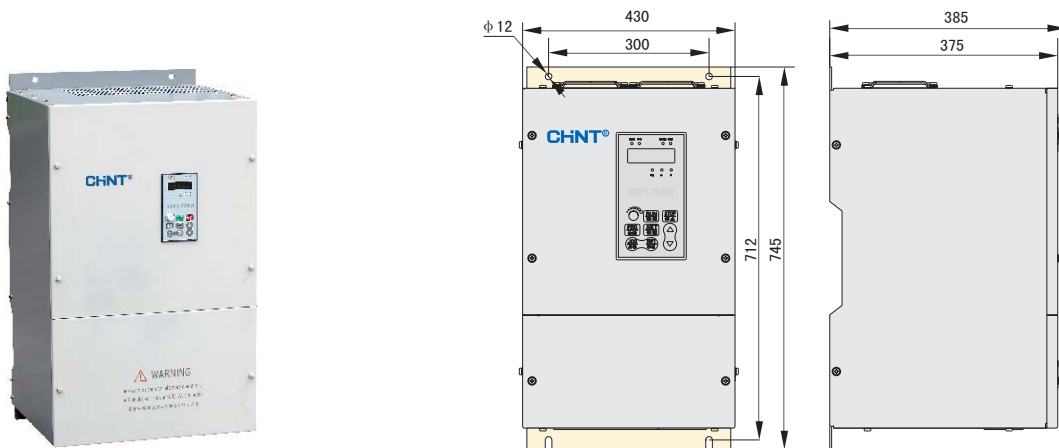
For 18~30 models



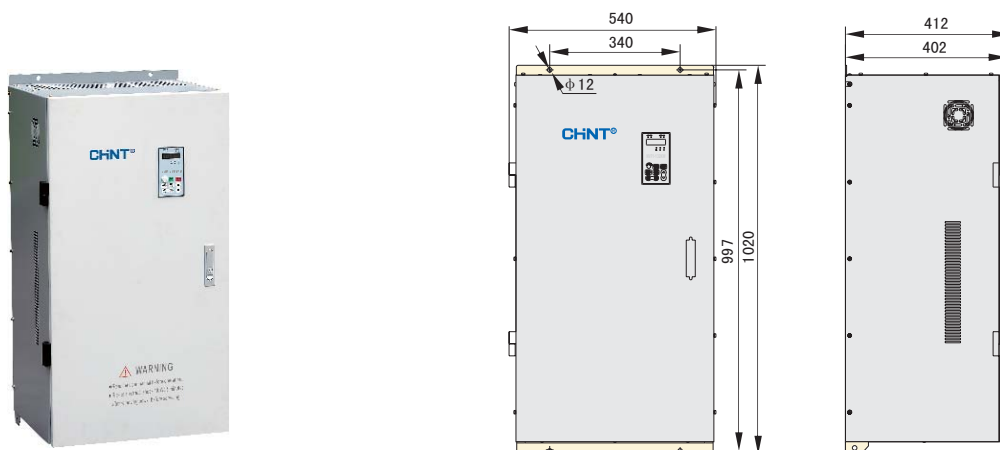
For 37~45 models



For 55~75 models



For 90~132 models





## NJR2 Series Soft-Starter

### 1. General

With advanced CPU control as its core technology, NJR2 series soft-starter is especially designed to control high-power thyristor modules and enable soft starting & stopping of (squirrel cage) three-phase AC asynchronous motors.

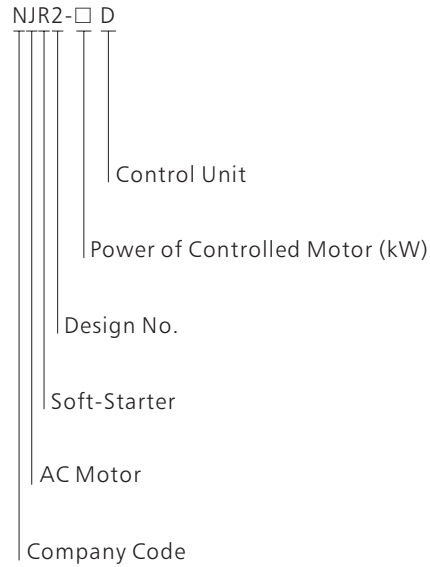
It has optional protection functions such as overload, input phase loss, output phase loss, process over-current, process under-current, over-voltage and under-voltage.

This product is mainly used with package control cabinet, where an AC contactor of corresponding specifications must be connected during the operation.

With specifications covering 7.5kW 500kW (squirrel cage) three-phase AC asynchronous motors, and being extensively applied in motor transmission equipment in metallurgy, petroleum, fire control, mining, petrochemical fields, this product is an ideal substitute for those with traditional star-delta starting mode and self-coupled reduced-voltage starting mode.

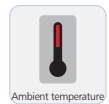
The performance indicators of this product fully comply with the standard specifications of GB14048.6-2008.

### 2. Type Designation



### 3. Technical data

- 3.1 Power Voltage: 3-phase AC380V±15%, 50Hz/60Hz±2%
- 3.2 Starting Current: 1~ 5 times starting current limited.
- 3.3 Ramp Falling Time: (1~240)s
- 3.4 Soft starting Reference Voltage: 25%Ue~75%Ue
- 3.5 Kick Start Time: 0~10(×0.1) (0 for kickless start)
- 3.6 Starting Frequency: up to 10 times at even interval per hour
- 3.7 Environmental Requirements  
At an altitude above 1000m, the capacity should be reduced, and the current will decrease 0.5% for every increase of 100m; Ambient temperature is -20℃~40℃; relative humidity is ≤ 95% (20℃~65℃); Well-ventilated indoor environment, without dewing, flammable and explosive gas, conductive dust.



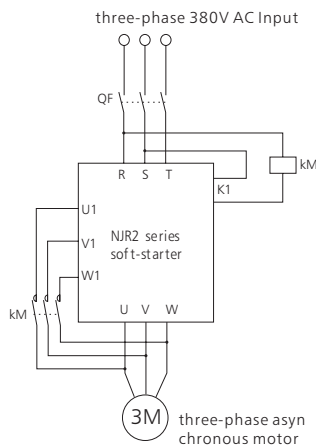


## 4. Elementary wiring diagram

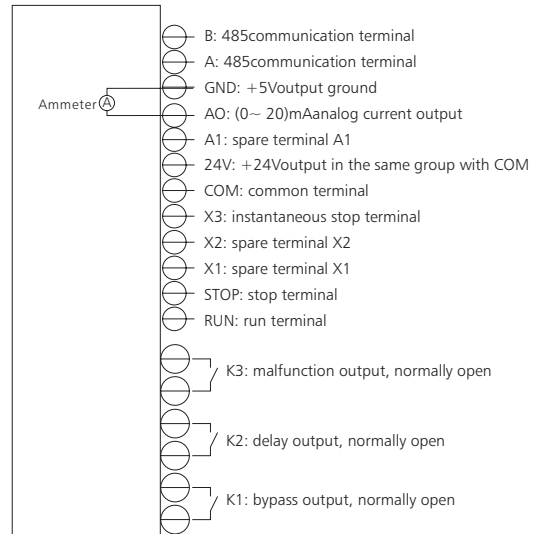
### 4.1 Elementary wiring diagram



Bottom of NJR2 series soft-starter



### 4.2 Schematic diagram of external terminals



## 5. Product characteristics

5.1 Intelligent optimized control by digital dual single-chip computer

5.2 Advanced varied soft starting modes

5.2.1 Voltage starting mode

5.2.2 Starting mode limiting current multiples

5.2.3 Kick voltage + current-limiting starting mode

5.2.4 Kick voltage + voltage starting mode

5.2.5 Current ramp starting mode

5.2.6 Dual-closed-loop starting mode

5.3 Built-in protection functions such as overload, input phase loss, output phase loss, process over-current, process under-current, over-voltage, under-voltage and radiator overheating.

5.4 More human-oriented large wide LCD display and operation, easier and clearer operation and parameter setting, man-machine dialogue (see ①, ②)



5.5 Display of operating voltage and current; display and memory of malfunction name and code (see ③)

5.6 Patented design of full aluminum case (below 75kW), better radiation effect, natural air cooling, space saving (see ④)



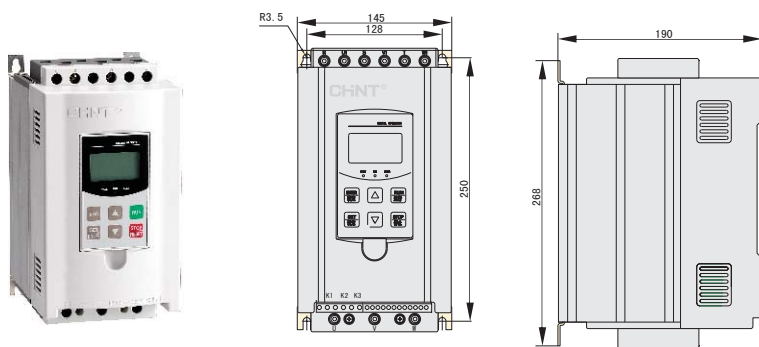
5.7 RS485 communication function, facilitating networked control and automation engineering transformation; providing three relay outputs, i.e. run, ramp to top and malfunction, for external interlocking control (see ⑤, ⑥)

5.8 Unique soft starting main/sub linkage function, facilitating the equipment manufacturing process control.

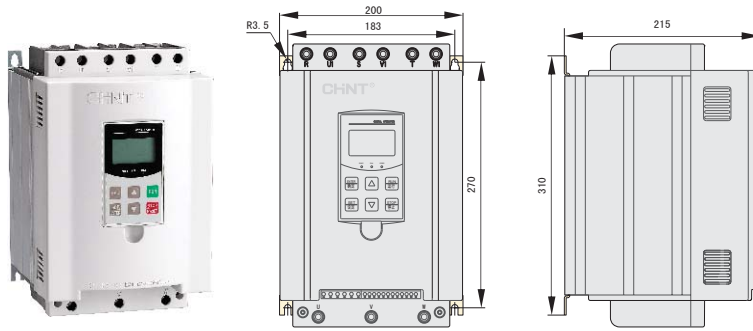


**6. Overall and Installation Dimensions**

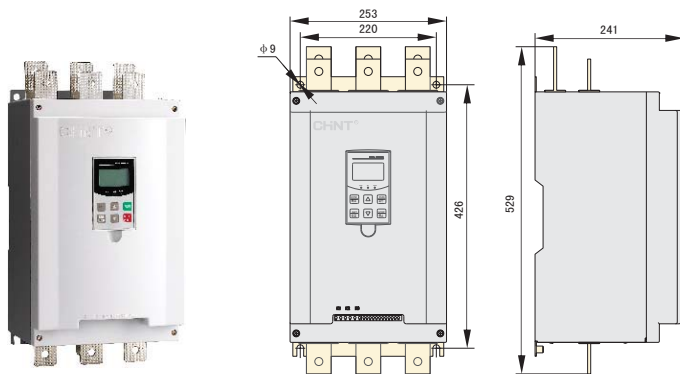
NJR2-7.5D~45D



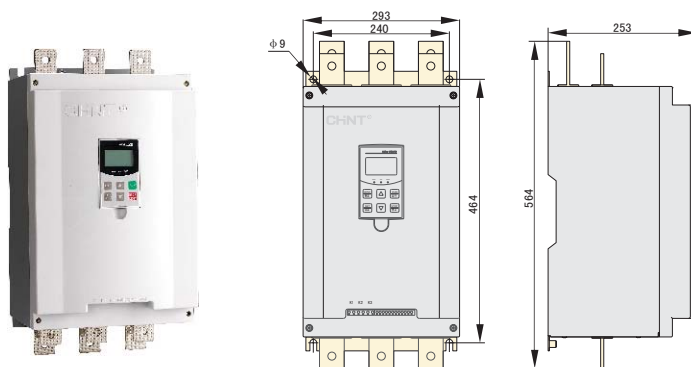
Model	Rated Current (A)	Power of Controlled Motor (kW)	Weight (kg)
NJR2-7.5D	15	7.5	8
NJR2-11D	22	11	
NJR2-15D	29	15	
NJR2-18.5D	36	18.5	9
NJR2-22D	42	22	
NJR2-30D	57	30	10
NJR2-37D	70	37	
NJR2-45D	84	45	



Model	Rated Current (A)	Power of Controlled Motor (kW)	Weight (kg)
NJR2-55D	103	55	12
NJR2-75D	140	75	



Model	Rated Current (A)	Power of Controlled Motor (kW)	Weight (kg)
NJR2-90D	167	90	20
NJR2-110D	207	110	
NJR2-132D	248	132	
NJR2-150D	280	150	
NJR2-160D	300	160	
NJR2-185D	349	185	



Model	Rated Current (A)	Power of Controlled Motor (kW)	Weight (kg)
NJR2-200D	375	200	25
NJR2-220D	404	220	
NJR2-250D	459	250	
NJR2-280D	514	280	
NJR2-315D	579	315	

## 7. order information

Example 1:  
the controlled motor has power of 45kW, used with soft start cabinet or power distribution cabinet.  
Order Model: NJR2-45D

Example 2:  
the controlled motor has power of 90kW, used with soft start cabinet or power distribution cabinet.  
Order Model: NJR2-90D

## Model Selection Instructions

This soft starter is especially designed for four-pole (squirrel-cage) 3-phase AC asynchronous motor.

a. For motors of other than 4 poles, it is recommended to select a soft starter of one size larger.  
Example: the controlled motor has power of 90kW, used with soft start cabinet or power distribution cabinet.

Order Model: NJR2-110D

b. When used for two-pole motors, since the starting current is large, please set up the parameters correctly according to Operating Instructions before use.



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