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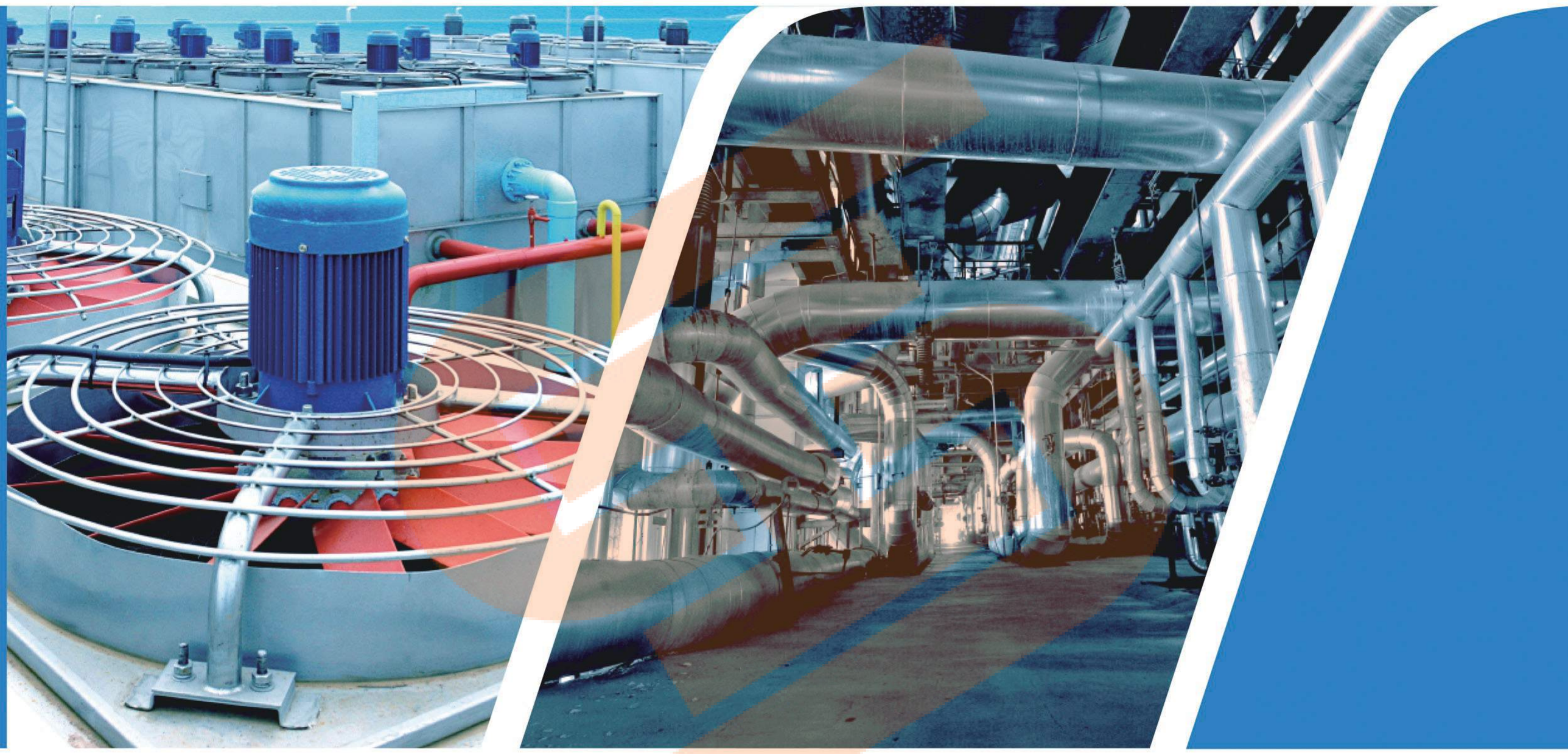
Goodrive270 series

VFD for fan and pump



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Features

Goodrive270 series VFD is an optimized VFD special for fan and pump. Simple and easy to use, the VFD can drive the fans and pumps in wastewater treatment, HVAC, chemical, metallurgical, electric power and other industries.

Power range: 1.5~500kW

Voltage class: AC 3PH 380~480V

- Optimized size: Booksize compact, easy to install.
- Motor compatibility: Able to drive both synchronous motors and asynchronous motors.
- Functions special for fans and pumps.
- Energy-saving and efficient.
- Flexible expansion: Support for IO, communication, and IoT add-ons.



Applications



HVAC



Municipal water supply



Delivery pump



Sewage treatment



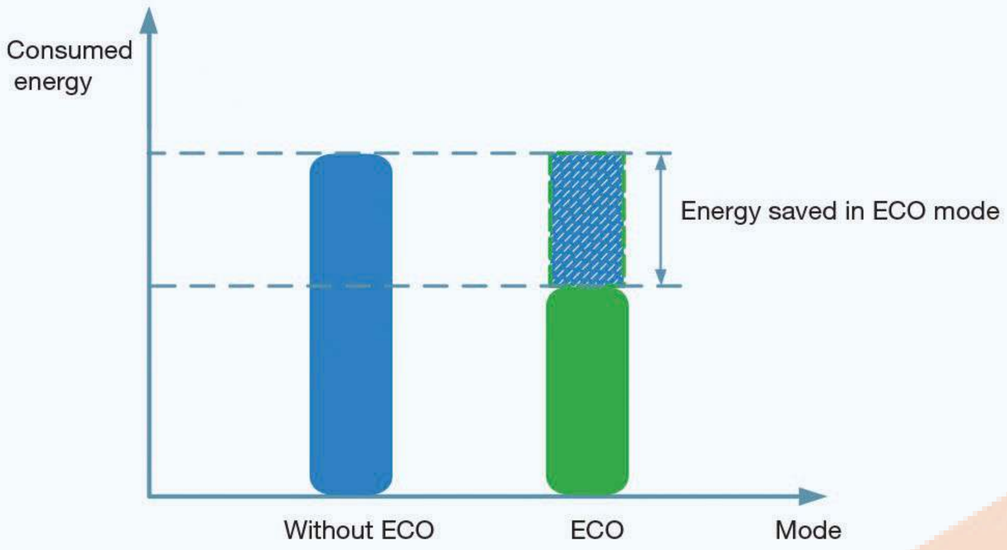
Municipal heating system



Irrigation pump

Advantages

- ECO mode: ensures the implementation of best performance and minimum loss at low dynamic load to optimize the output power.



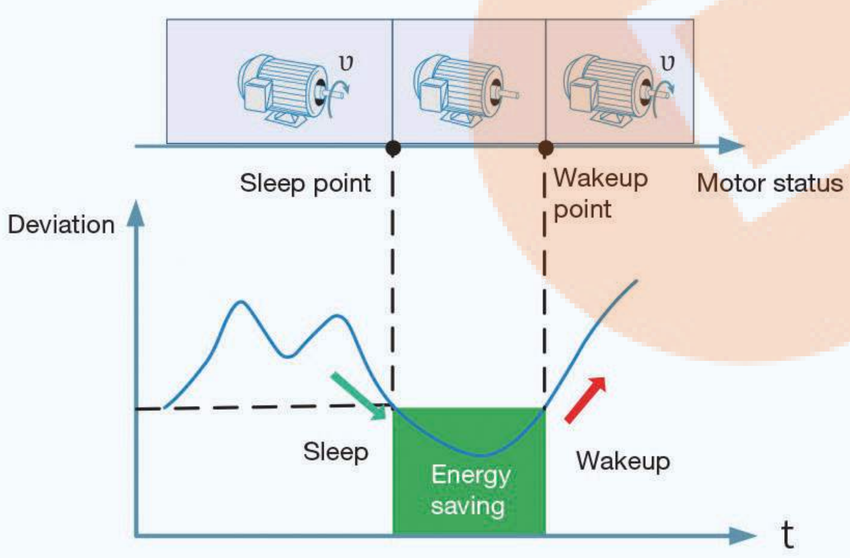
- Anti-waterhammer

  Prevents water pump damage or water valve damage.

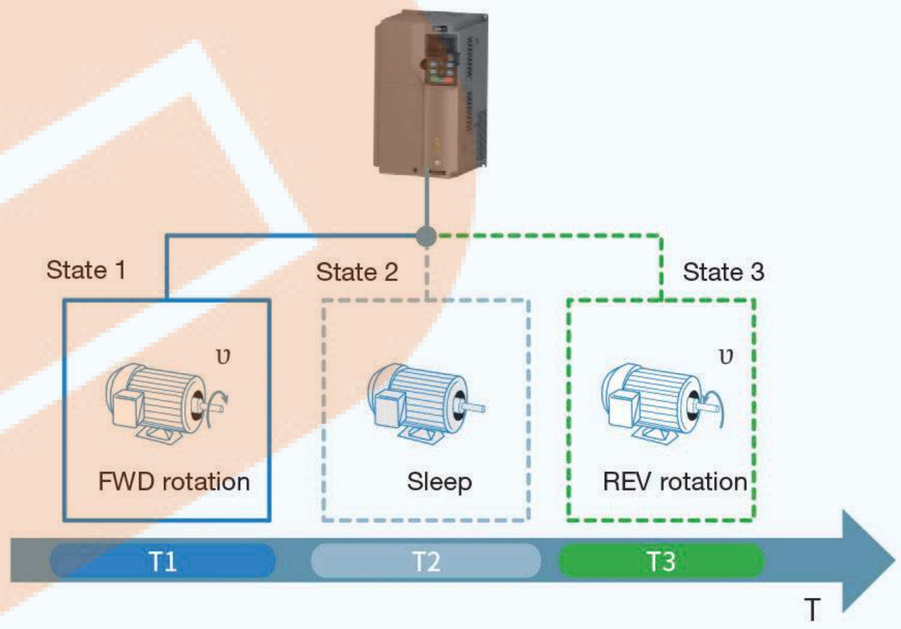
- Water level control

  When the present water level is lower than the water level lower limit but higher than the water shortage level, the system runs at the backup pressure for exceptional situations. When the present water level is lower than the water shortage level, the system stops running.

- Energy-saving control: implements sleep at night or energy-saving run at extremely light load to avoid frequent startup or stop.



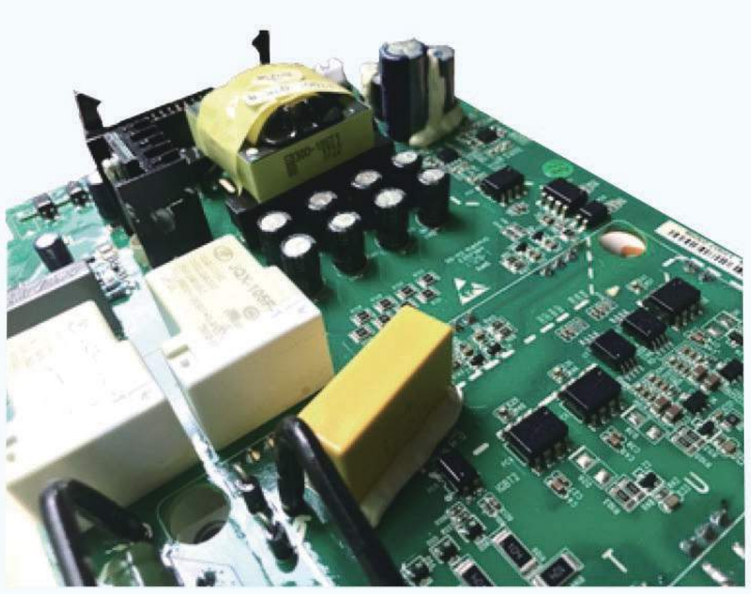
- Cleaning: implements automatic cleaning for water pumps by means of periodic forward/reverse rotation and sleep to reduce the manual maintenance workload.



- Fire ride-through (special for water pumps): In fire mode for tunnel or building fans in emergency, the fault alarm is screened out to ensure longer running.

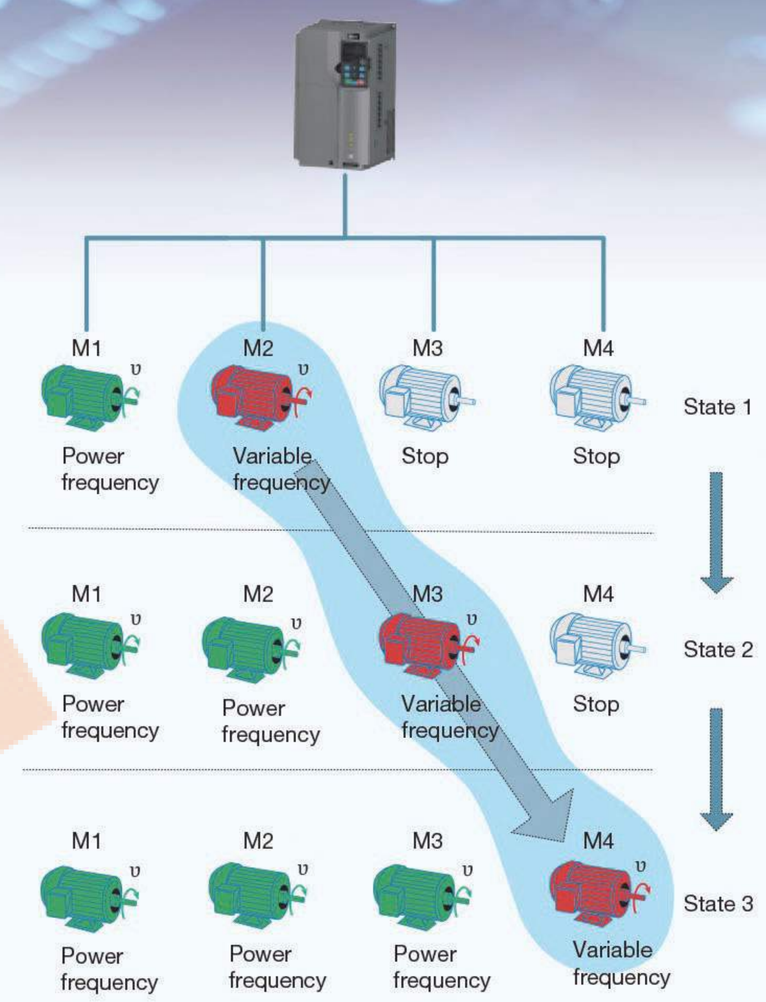


- Thickened circuit board coating: helps to enhance the PCB protection and adapt to hostile environments to ensure long and reliable run.



- Multi-pump polling and auxiliary pump startup/stop: Support for cyclic and fixed variable-frequency pump water supply, and sleep control.

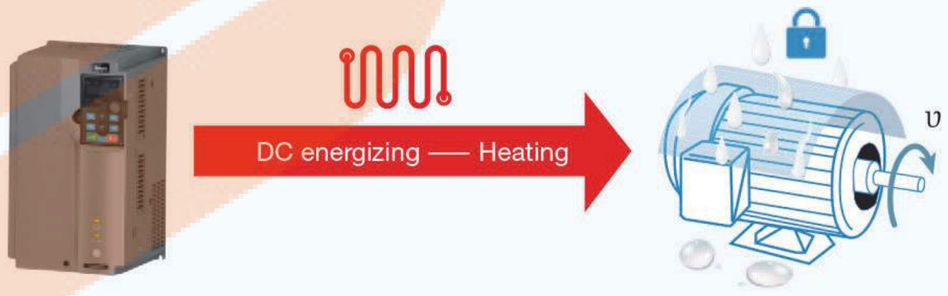
The VFD does not specify a certain pump as the variable-frequency pump. If the water supply pressure is insufficient, the variable-frequency pump that is running is switched to the power grid, and a next pump is selected as the variable-frequency pump (a maximum of eight variable-frequency pumps can be controlled and only one variable-frequency pump can be used at a time).



- Freezing protection: When the ambient temperature is lower than the specified threshold, the motor automatically rotates to avoid freezing to achieve the protection purpose.



- Motor heating: uses DC energizing to increase the motor surface temperature at intermittent working and avoid motor faults caused by condensation.

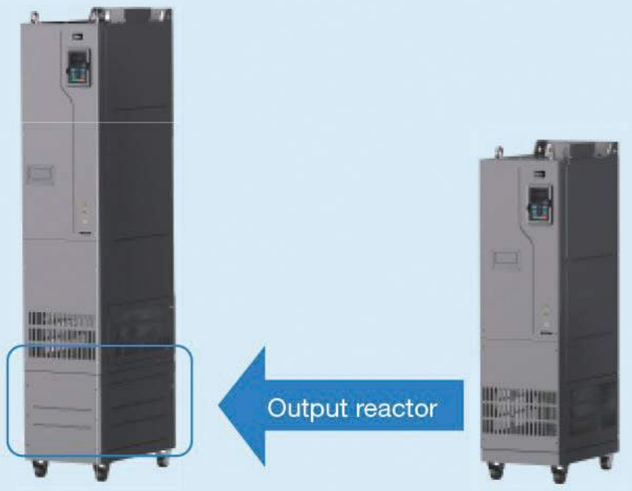


Abundant configuration

- **A.** 30~355kW VFD models support optional built-in DC reactors.
  400~500kW VFD models have been configured with DC reactors.



- **B.** 220kW and higher VFD models support output reactors (Optional -L2/L3 model).





Type Selection

Naming conventions

GD270-160-4-L1
① ② ③ ④

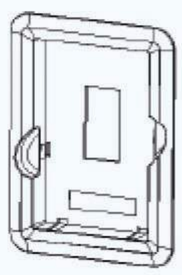
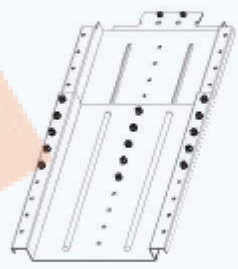
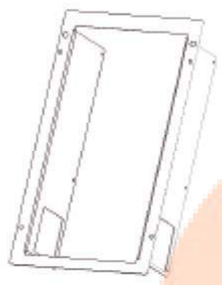
Field	Sign	Description	Content
Product series abbreviation	①	Product series abbreviation	GD270: Goodrive270 series VFD for fan and pump.
Rated power	②	power level	160：160kW
Voltage class	③	Voltage class	◆ 4：AC 3PH 380~480V ◆ Rated voltage: 380V
Management number	④	Optional	◆ Default: Empty. ◆ L1: with built-in DC reactor, applicable to 30~355kW models. ◆ L3: with built-in DC reactor and output AC reactor, applicable to 220kW and higher models. Note: DC reactors are standard parts for 400~500kW models.

Product model selection

VFD model	Output power (kW)	Input current (A)	Output current (A)	Boundary dimension W*H*D (mm)	Package dimensions L*W*H (mm)	Standard weight (kg)	Gross weight (kg)
GD270-030-4	30	75	60	266*371*208	490x315x315	8	10
GD270-037-4	37	90	75	266*371*208	490x315x315	8	10
GD270-045-4	45	108	92	316*430*223	580x395x360	14	16
GD270-055-4	55	142	115	352*580*258	695x440x410	18	21
GD270-075-4	75	177	150	352*580*258	695x440x410	18	21
GD270-090-4	90	200	180	352*580*258	695x440x410	18	21
GD270-110-4	110	240	215	338*554*338.3	725x495x500	34	40
GD270-132-4	132	278	250	338*554*338.3	725x495x500	34	40
GD270-160-4	160	310	305	338*825*398.3	955x480x600	53	64
GD270-185-4	185	335	330	338*825*398.3	955x480x600	53	64
GD270-200-4	200	385	380	338*825*398.3	955x480x600	53	64
GD270-220-4	220	430	425	303*1108*480	1310x630x560	78	99
GD270-250-4	250	465	460	303*1108*480	1310x630x560	78	99
GD270-280-4	280	485	530	330*1288*544	1438*668*531	89	119
GD270-315-4	315	550	600	330*1288*544	1438*668*531	89	119
GD270-355-4	355	600	650	330*1288*544	1438*668*531	90	120
GD270-400-4-L1	400	660	720	330*1398*544	1558*678*530	173	205
GD270-450-4-L1	450	745	820	330*1398*544	1558*678*530	175	207
GD270-500-4-L1	500	800	860	330*1398*544	1558*678*530	175	207

Note：The dimensions and weight of models with L suffix are provided separately by INVT .

Optional parts

Name	Image	Model/Function/Apply to	Name	Image	Model/Function/Apply to
LCD keypad		**Model:** SOP-270 **Function:** External LCD display and operation panel **Apply to:** Full series	LED keypad		**Model:** BOP-270 **Function:** External LCD display and operation panel **Apply to:** Any models in the power range 1.5~22kW (Standard configuration for models in the power range 30~500kW)
Keypad bracket		**Model:** GD350-JPZJ **Function:** For fixing LED/LCD keypad outside the electrical cabinet **Apply to:** Full series	Cabinet rail component		**Model:** GD270-DGZJ **Function:** To assist cabinet installation to improve installation efficiency and safety **Apply to:** Any models in the power range 220~500kW
Flange mounting bracket		**Model:** Conatct us **Functions:** For flange mounting **Apply to:** Any models in the power range 1.5~200kW			

Expansion card model selection

Category	Model	Name	Specifications
IO card	EC-IO501-00	IO expansion card	◆ 4 digital inputs ◆ 1 digital output ◆ 1 analog input ◆ 1 analog output ◆ 2 relay outputs: 1 double-contact output, and 1 single-contact output
	EC-IO503-00	Relay card	◆ 2 digital inputs ◆ 6 relay outputs
Communication card	EC-TX503	PROFIBUS-DP communication card	Supporting the PROFIBUS-DP protocol.
	EC-TX505	CANopen communication card	◆ Based on the CAN2.0A physical layer. ◆ Supporting the CANopen protocol.
	EC-TX511	CAN master/slave control communication card	◆ Based on the CAN2.0B physical layer. ◆ Adopting INVT's master-slave control proprietary protocol.
	EC-TX509	PROFINET communication card	Supporting the PROFINET protocol.

Note: The table describes expansion card are optional and need to be purchased separately. The SIM card is used with the Internet of Things card, which needs to be purchased extra.

Technical parameters

Function		Specifications
Technical control performance	Input voltage（V）	◆ AC 3PH 380~480V Rated voltage: 380V
	Allowed voltage transient fluctuation	◆ -15%~+10%
	Input frequency (Hz)	◆ 50Hz or 60Hz; Allowed range: 47~63Hz
	Output frequency (Hz)	◆ 0~400Hz
	Control mode	◆ Space voltage vector control, and sensorless vector control (SVC)
	Motor type	◆ Asynchronous motor (AM) and synchronous motor (SM)
	Speed ratio	◆ For AMs: 1:200 (SVC), for SMs: 1:20 (SVC)
	Speed control accuracy	◆ ±0.2%（(SVC)
	Speed fluctuation	◆ ± 0.3%（(SVC)
	Torque response	◆ <20ms（(SVC)
	Torque control accuracy	◆ ±10%（(SVC)
	Overload capacity	◆ Able to run at 110% of rated current for 1min, and an overload allowed for every 5min
Running control performance	Frequency setting method	◆ Settings can be implemented through digital, analog, pulse frequency, multi-step speed run, simple PLC, PID, and communication. ◆ Settings can be combined and the setting channels can be switched.
	Automatic voltage regulation	◆ The output voltage can be kept constant although the grid voltage changes.
	Fault protection	◆ Many protection functions available, such as protection against overcurrent, overvoltage, undervoltage, overtemperature, and phase loss
	Speed tracking restart	◆ Used to implement impact-free smooth startup for rotating motors
Peripheral interface	Analog input	◆ Two inputs. AI1: 0(2)~10V / 0(4)~20mA; AI2: -10 ~ +10V
	Analog output	◆ Two outputs. AO0/AO1: 0(2)~10V/0(4)~20mA
	Digital input	◆ Five regular inputs. Max. frequency: 1kHz; internal impedance: 3.3kΩ ◆ One high-speed input. Max. frequency: 50kHz
	Digital output	◆ One Y terminal open collector output, sharing the terminal with S4. The function can be selected through a jumper.
	Relay output	◆ One programmable relay output. ◆ RO1A: NO; RO1B: NC; RO1C: common ◆ Contact capacity: 3A/AC250V, 1A/DC30V
	Extended interfaces	◆ Two extended interfaces: SLOT1 and SLOT2 ◆ Supporting communication expansion cards, I/O cards and so on
Other	Installation method	◆ Supports wall-mounting (1.5kW~250kW) ◆ Supports floor-mounting (1.5kW~132kW) ◆ Supports flange-mounting (220kW~500kW)
	Keypad	◆ 1.5~22kW: with laminated LED keyboard as a standard configuration ◆ 30~500kW: with a LED keypad that can be used externally
	EMC filter	◆ A built-in C3 filter is optional for1.5~132kW ◆ A built-in C3 filter is a standard configuration for 160kW and higher
	Temperature of running environment	◆ -10°C ~+50°C; Derating is required when the ambient temperature exceeds 40°C.
	IP rating	◆ IP20 for 200kW and lower ◆ IP00 for 200kW and higher, supporting the optional part IP20 assembly
	Pollution degree	◆ Degree 2
	Cooling method	◆ 1.5kW: Natural cooling ◆ 2.2kW and higher: Forced air cooling