Yolico

***Detailed Work Makes Quality***
***Our Quality Equals Perfection***


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# YD5000

## Heavy Duty Flux Vector Inverter

ISO9001 CE

Technical data subject to change without notice / Y5 2015.06.V03

# YD5000
# General Functions

## Friendly easy Operation

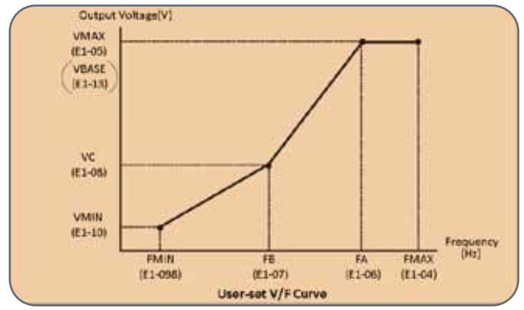
Parameters can be selected easily by logic groups

## Dynamic Self-Study Mode

Self-Study Mode works at vector control
Inverter can be set with details of motor nameplate

## Various V/f Curve Setting

There are totally 15 preset V/f curves setting and 1 adjustable V/f curve setting can be selected, such as High Starting Torque Curve, Variable Torque Curve, High Speed Operation. They can match different kind of loadings, also Uer-set V/f curve can work at PG Vector Control Mode as Well.




## Various Frequency Command Given

Multi-Channel Analog Input Given :
2 off Voltage Signal Input Channel : 0~10VDC or 0~+/- 10VDC (motor reverse with negative input)
1 off Current Signal Input Channel : 0(4)~20mA (voltage signal input available by parameter setting)

Setting Frequency Command by Digital Operator
Communication Command

## Monitor Function

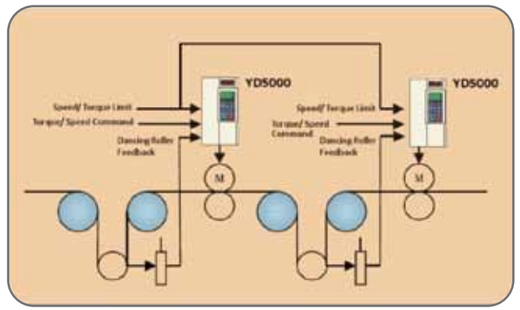
The following items can be monitored with the Digital Operator. Frequency Command, Output Frequency, Output Current, Motor Speed, Output Voltage, Main Circuit DC Voltage, Output Power, Torque Command, Input Terminal Status, Operating Status, Speed Deviation, PID feedback Value, Fault History, and so on.
With Monitor Function, both Inverter and Motor will have better performance.

## PID Control Function

PID Control Function may through controlling the Rotational Speed of motor to achieve the controlled Process Quantity as the Target, this process Quantity may be Temperature, Flow, Pressure, Speed, and so on.

The purpose of PID control is making the Process Quantiry Stabilizing as the Target (setting) value. The PID control with Feedforward Speed setting Function is comprehensive used in Synchrunization or Winder / Unwinder Control System.

The Given Command and Feedback Quantity decide the output Frequency of the Inverter.




## PID Control Function

Over Load, Over Current, Over Voltage, Over Torque, Low Voltage, Phase Loss, Ground Fault, and so on.
To make equipment operated properly.

## Energy Saving Control

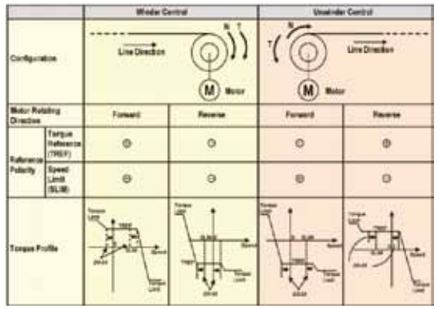
Automatically adjust output voltage according to loadiing at vector control in order to give better performance when motor operates on different load.
It improves motor efficiency then saves energy.

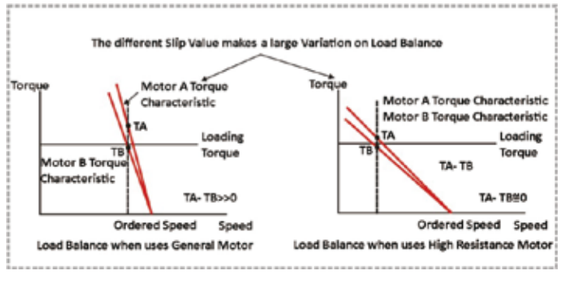
## Option Card

# YD5000
# The Unique Function with PG Flux Vector Control

## Four Quadrants Operation

The Torque Direction could be opposite with Motor Speed Direction such as the process of lift running down with Heavy Load, Unwinding Process, etc.




## DROOP Control Function

It allows user to set the Motor Slip Value, when Arigidity Load is Operated with two motors (such as a Crane / Conveyor). Also, it is easy to make adjustment watching the Load Balance, because the value of Slip can be set arbitrarily.

## ECO-Friendly - Better Designing for Better Environment

### High Harmonic Solution

DC Reactor Built-in for YD5000 18.5~630kW, to reduce high harmonic
AC Reactor is optional for 1.5~630kW if needed

### Low Audio Noise

The Output Circuit of the Inverter is an IGBT (Insulated Gate Bipolar Transistor). Using Sine-Wave PWM with a High-Carrier Frequency, the motor not generate Metallic Audio Noise. The Motor Audio Noise is almost as the same as Grid Power Supply, when motor is drived by Inverter.

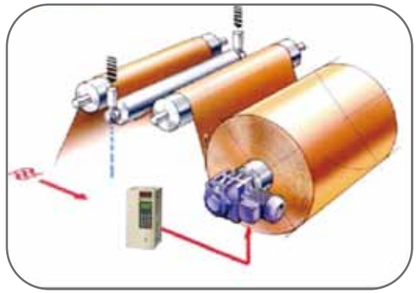


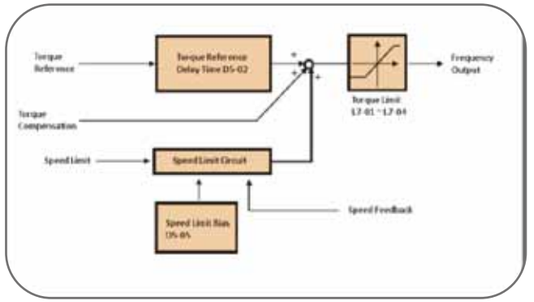
## Torque

For all Winding Device, the Accelerating and Decelerating Torque will be varied by the Load Situation. For the Central Winding System, the requiring Torque will be varied following the diameter of Spool Piece.
What do you need is a Device which can precisely Control the Output Torque in Torque Control Mode. Using the Torque Control Function of YD5000 series Inverter can solve this problem easier.
Take an example : The tip of Winding Operation is Controlling the Tension of Winding Material. For keeping the constant Tangential Tensile Strength in the different Line Speed or Rotating Diamemter Situation, the Inverter must follow the Torque Reference in a huge range.

## Torque Control Function

In the Torque Control, the Motor output the Torque accords to the Torque Command by the Analog Input. In according to reach the Output Torque, Inverter will not control the Motor Speed, the Output Frequency will be Increased / Decreased by Inverter Automatically.
To avoid the Motor Over Speeding and the Load Torque lose seddenly, we suggest to use Speed Limit Function.






## Torque Improvement

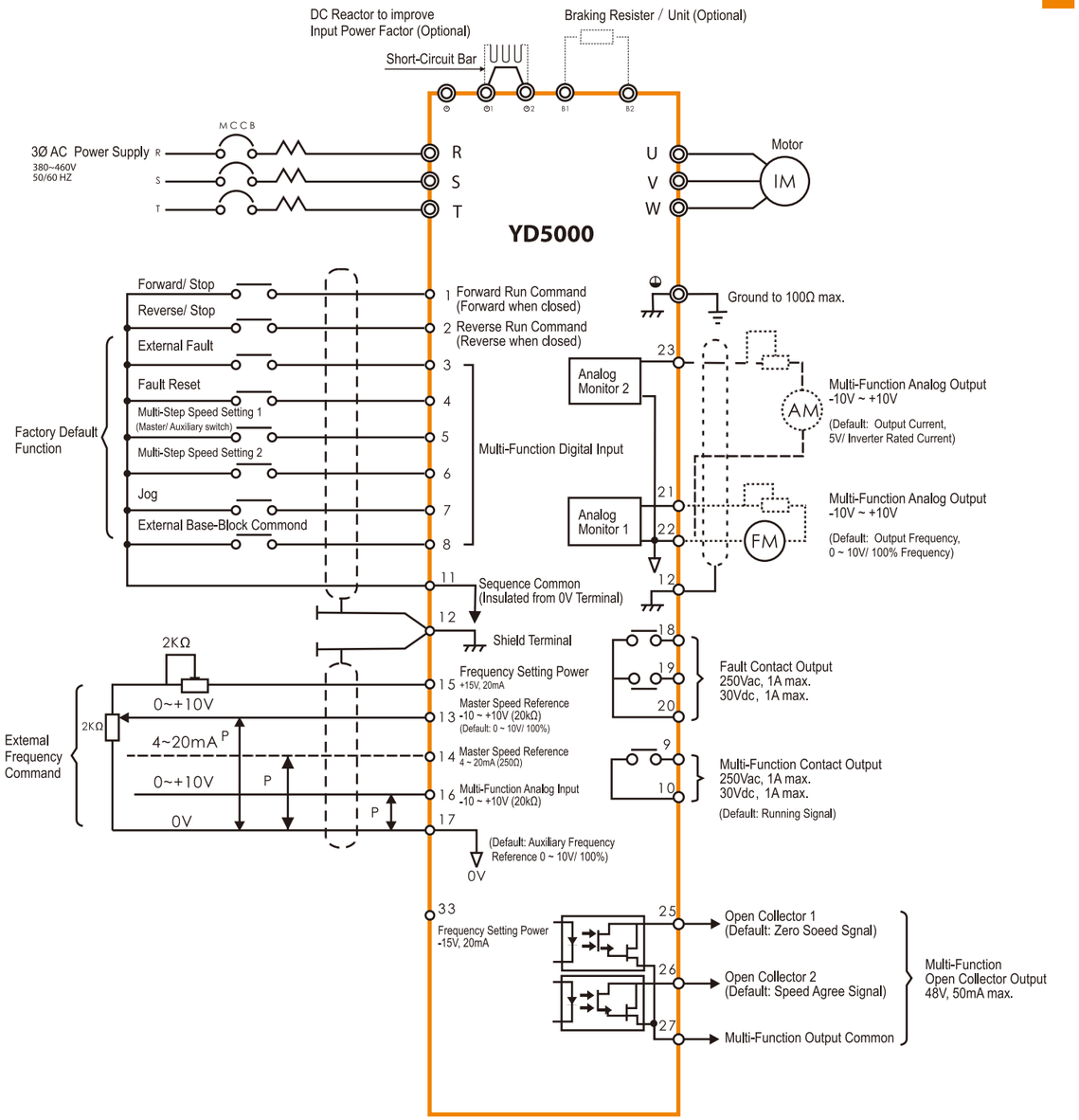
In PG Sensorless Control, using the Torque Compensation in order to make early response to Torque Command when Start the motor. It helps the Heavy Frictional Load Application which requires the Starting Torque, such as Traveling / Hoisting / Lifting, and so on.

## Zero Servo Control Function

It helps motor can output 100% holding Torque at 0 speed. It sufficient guarantee the positioning ability of Device when in Stopping Situation.

# YD5000 Connection Example (Diagram)

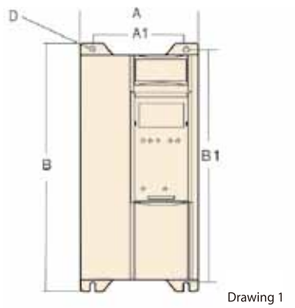
**Please follow the Diagram making a Wire Connection**
**When using the Digital Operator, the Motor can be operated by wiring only the Main Circuit**

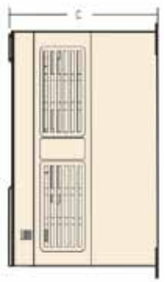



# YD5000 Standard Specification

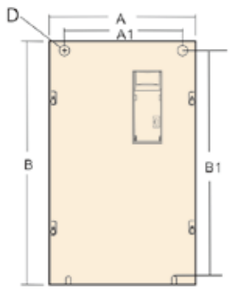
| | YD5000 | 1P5 | 2P2 | 3P7 | 5P5 | 7P5 | 011 | 015 | 018 | 022 | 030 | 037 | 045 | 055 | 075 | 093 | 110 | 132 | 160 | 185 | 200 | 250 | 250 | 280 | 315 | 355 | 400 | 450 | 500 | 630 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Applicable Motor Capacity (kW) | 1.5 | 2.2 | 3.7 | 5.5 | 7.5 | 11 | 15 | 18 | 22 | 30 | 37 | 45 | 55 | 75 | 93 | 110 | 132 | 160 | 185 | 200 | 220 | 250 | 280 | 315 | 355 | 400 | 450 | 500 | 630 |
| Rated Output | Capacity (kVA) | 3.7 | 4.7 | 6.1 | 11 | 14 | 21 | 26 | 31 | 37 | 50 | 61 | 73 | 98 | 130 | 140 | 170 | 200 | 230 | 260 | 300 | 340 | 380 | 430 | 460 | 490 | 519 | 585 | 650 | 780 |
| | Rated Ouput Current (A) | 4.8 | 6.2 | 8 | 14 | 18 | 27 | 34 | 41 | 48 | 65 | 80 | 96 | 128 | 165 | 180 | 224 | 260 | 302 | 340 | 380 | 450 | 470 | 530 | 605 | 695 | 788 | 890 | 986 | 1185 |
| Rated Output | Max. Output Voltage(V) | 3Ø 380/ 400/ 415/ 460V(Proportional to Input Voltage) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Rated Output Frequency | Up to 400Hz (Avaliable by Programming) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Power Supply | Voltage, Frequency | 3Ø 380/ 400/ 415/ 460V, 50/ 60Hz | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Allowable Voltage Fluctuation | +10%, -15% | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Allowable Frequency Fluctuation | ±5% | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Control Characteristic | Control Method | Current Flux Vector, Sine Wave PWM | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Torque Characteristic | 150% at 1Hz (150% at 0 Rpm with PG) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Speed Control Range | 1:100 (1:1000 with PG) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Speed Control Accuracy | ±0.2% (25°C ± 10°C) (±0.02% with PG) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Speed Control Response | 5Hz (30Hz with PG) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Torque Limits | Provided (4 Quadrant Steps can be changed by Parameter Setting) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Torque Control Accuracy | ±5% | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Frequency Control Range | 0.1 ~ 400Hz | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Frequency Accuracy (Temperature Characteristic) | Digital Reference: ±0.01% (-10°C ~ +40°C), Analog Reference: ±0.1% (25°C ± 10°C) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Frequency Setting Resolution | Digital Reference: 0.01Hz, Analog Reference: 0.03Hz/ 60Hz (11 bits + Sign) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Output Frequency Resolution (Caculation) | 0.01Hz | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Overload Capacity | 150% Rated Current for 1 minute | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Frequency Setting Signal | Analog -10 ~ +10V, 0 ~ 10V, 4-20mA | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Acceleration/ Deceleration Time | 0.01 ~ 6000Seconds(4 Selectable Combinations of Independent Acceleration and Deceleration Settings) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Braking Torque | Approximately 20% | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Protective Functions | Motor Protection | Protection by Electric Thermal Overload Relay | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Instaneous Overcurrent Protection | Stops at approx. 200% of Rated Output Current | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Fuse Blown Protection | Stops as Fuse Blown | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Overload Protection | 150% Rated Current for 1 minute | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Overvoltage Protection | Stops when Main Circuit DC Bus Voltage is approx. 820V | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Undervoltage Protection | Stops when Main Circuit DC Bus Voltage is approx. 380V | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Momentary Power Loss Ridethru | Stops for 15mS or more. By selecting the Momentary Power Loss Mode, operation can be continued if Power is restored within 2 Seconds | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Cooling Fin Overheating | Portection by Thermistor | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Stall Prevention | Stall Prevention during Acceleration, Running, Deceleration | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Grounding Protection | Protection by Electric Circuit ( Overcurrent Level) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Charge Indicator (Internal LED) | Lit when the Main Circuit DC Bus Voltage is approx. 50V or more | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Environment | Ambient Operating Humidity | 90% RH max. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Ambient Operating Temperature | -10°C ~ +40°C (Enclosed Wall-Mounted Type)<br>-10°C ~ +45°C (Open Chassis Type) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Storage Temperature | -20°C ~ +60°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Application Site | Indoor (No Corrosive Gas, Dust, etc.) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Altitude | 1000 m max. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Vibration | 10 ~ 20Hz, 9.8m/S$^2$ (1G) max.; 20 ~ 50Hz, 2m/S$^2$ (0.2G) max. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Options | Profibus Communication | Yes (by option Card) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | PG Flux Vector Control | Yes (by option Card) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Zero Sever | Yes (by option Card) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | RS-485 Communication | Yes (Built-In) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | PID Function | Yes (Built-In) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Speed Limit Function of Torque Control Mode | Yes (by option Card) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

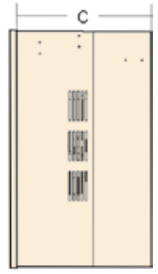
# YD5000 Dimension



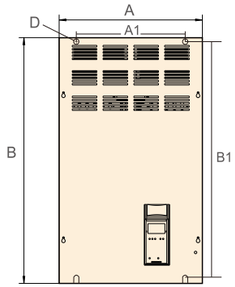



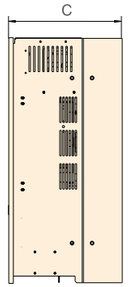

Drawing 1



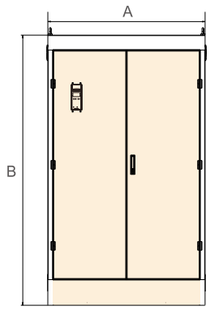



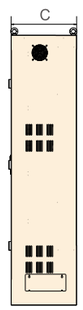

Drawing 2




Drawing 3

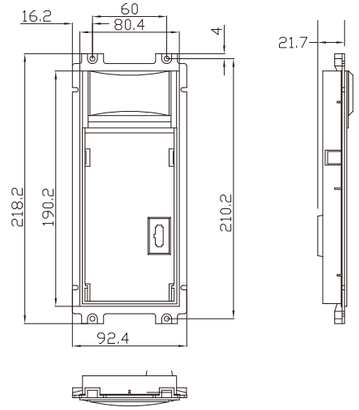



Drawing 4

| Applicable Motor Capacity (kW) | Dimension | | | | | | Drawing |
|---|---|---|---|---|---|---|---|
| | A | A1 | B | B1 | C | D | |
| 1.5~3.7 | 146 | 116 | 316 | 300 | 200 | 7 | Drawing 1 |
| 5.5~7.5 | 200 | 170 | 340 | 324 | 210 | 7 | |
| 11~15 | 239 | 150 | 390 | 364 | 230 | 9 | Drawing 2 |
| 18.5~22 | 337 | 230 | 463 | 430 | 280 | 11 | Drawing 3 |
| 30~45 | 338 | 230 | 623 | 595 | 280 | 11 | |
| 55~93 | 465 | 325 | 774 | 740 | 369 | 15 | |
| 110~185 | 585 | 445 | 924 | 895 | 401 | 15 | |
| 200~250 | 765 | 625 | 1044 | 1015 | 404 | 15 | |
| 280~400 | 1050 | 800 | 1645 | 1600 | 500 | 18 | |
| 450~630 | 1200 | | 2000 | | 500 | | Drawing 4 |

# Operator Description




Remote Operator Mounting Kit Installing Dimension


YD5000 Operator

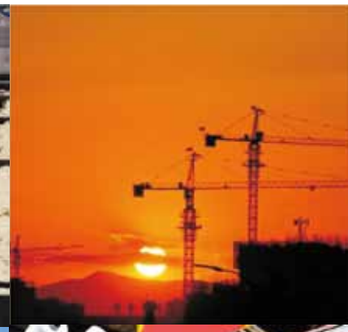
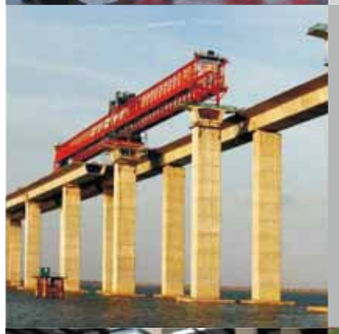
YD5000 LCD Operator equips Graphic DOT MATRIX Module. It displays English / Chinese letters. The user will read and set the parameters easier and faster.
* Using Remote Operator would need its exclusive Mounting Kit and Cable.

# Model Number

| YD | 5 | 315 | T4 |
|---|---|---|---|
| YD : Yolico Inverter | Model | Motor Rating | Supply Voltage |
| | 5 : 5000<br>3 : 3000 | 01P5 = 1.5kW<br>02P2 = 2.2kW<br>~<br>0011 = 11kW<br>0015 = 15kW<br>~<br>0315 = 315kW<br>~<br>0630 = 630kW | T4 : 400VAC class<br>*T6 : 660VAC class<br>*T11 : 1140VAC class<br><br>* : by request |

## Notes:



Crane & Hoist
Wood Machinery
Textile Machinery
Fan & Blower




Packaging Machinery
Food Machinery
Chemical Industry
Treadmill


Steel & Metal
Conveyor
CNC Machinery
Pump