

Tecorp Technology Co., Ltd.



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Manufacturing & Sales

Tecorp Technology Co., Ltd.

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 Tel: +86-573-86161340-3 Fax: +86-573-8616344

Due to ongoing product modification/improvement, data subject to change without notice

- VG5 Series AC Motor Controller of High Performance with Current and Torque Vector Control
- VG2 Series AC Motor Controller of High Performance with Current Vector Control



<http://www.tecorp-group.com.tw>



Company Profile:

Tecorp Group is a high-tech company with advanced leading vector control and torque control technology, and professionally working in and developing AC motor Controller development, Provide good pre-sales and after-service for customers, and have good achievement in leading automation field, and steady production control with CE approved.

The company owns experienced R&D teams and continuous innovation, developing product and function & quality. Supplying Standard product meets international requirements, and is suitable in various industries. With high-performance and stable quality, good service, Tecorp product can produce the best solution satisfy various customer demands.



VG Series - High Performance AC Motor Controller with Current Vector

TECORP

VG Series - AC motor controller meets the demands of extensive application

In order to meet different environmental requirement and application loading, VG series satisfies different kind of loads and environment, such as heavy loading with high start torque in poor environment or require accurate high-speed, high-torque in zero speed; or synchronous control, torque control, winding and unwinding control, VG series can provide excellent solutions for all application demands.

- Current vector control
- High start torque of lifting
- High overload capacity
- High output frequency precision
- Zero speed control
- Four-quadrant operation
- PID control
- Two sets of motor parameters
- V/F curve setting
- Dynamic auto-tuning

VG 2 Series - Vector AC Motor Controller

11KW - 630 KW (Fan, Pump, General Machinery)

VG 5 Series - Current Vector AC Motor Controller

1.5 KW - 630 KW (High Starting Torque and High overload capacity)



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TECORP TECHNOLOGY



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Easy and Prompt Operation Mode

Clear parameters make operation more easy. Users will save and adjust settings more prompt.

Multi-Frequency Given Mode

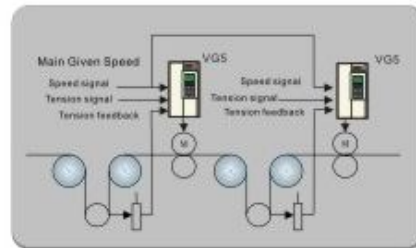
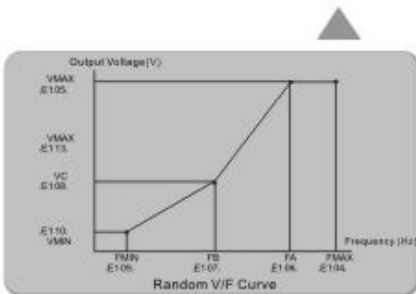
1. Multi-signal analog: 2 sets of voltage input: 0~10VDC or 0~±10VDC (machine reverse in minus signal)
1 set of current input: 0(4)~20mA (enable to change voltage input by settings)
2. Digital manipulator
3. Communication Card (option)

Dynamic Auto-tuning

Auto-tuning function is effective under the vector control mode. It can successfully solve out the problems of "limited motor operation", "difficult motor parameter setting". AC motor controller can automatically set suitable according to the motor specifications. Therefore, AC motor controller can properly be used in both the specialized and the general motor. Not only do completely accomplish the vector control functions, but also successfully achieve the best performance.

Multi-VF Curve Settings

Supply 15 fixed VF curves and 1 adjustable VF curve for selection, including high starting torque curve, constant torque curve, square torque curve and cubic torque curve, those which are applicable to various types of loading. Random VF curve is effective even without PG vector control.



PID Control Function

By built-in PID control, the motor speed can achieve the process of quality control, such as the process of temperature, flow, pressure and speed, etc. The purpose of PID control is to steady the setting value in process. The PID function with feedback speed setting is widely applied in synchronous or winding and unwinding control system. The detected target speed and present value are used to determine the output frequency of AC motor controller.

Monitor Function

The manipulator can monitor frequency command, output frequency, output current, motor speed, output voltage, DC voltage of main circuit, output power, torque command, input terminal status, operation status status, speed deviation, PID feedback value, PID output value, failure record, motor excitation current, motor secondary current, etc. Those data monitor the practical working status between AC motor controller and motor, and also good for adjusting process.

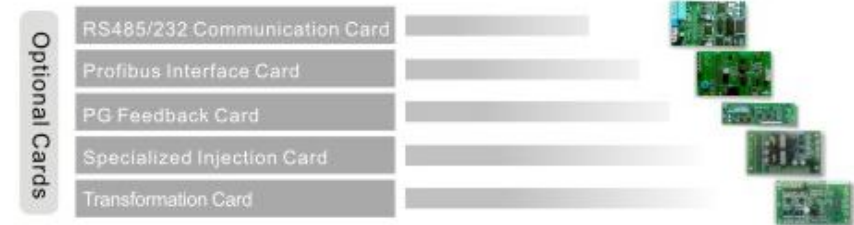
Perfect Protection

Overload, over current, over voltage, over torque, low power, grounding failure, phase failure, and other protections prevented from meeting problems, and providing safety and stable operation.

Energy Saving Control

The Output voltage will automatically be adjusted in vector control according to the load. Enable AC motor controller always to achieve the best working condition at different loads. Improve efficiency and save energy for the motor.

Support Various Communication Modes and Specialized Accessories



Support Various Communication Protocols

Support Profibus, DeviceNET protocol, internal MODBUS protocol by optional cards.

Environmental Friendly Purify Circuit and Environment

High Harmonic Measure

DC reactor is used for VG5 with the range from 18.5W to 315W, and high harmonic can easily be suppressed. AC motor controller with the range of 1.5 to 15KW can be connected with DC reactor (option). VG2 AC motor controller with the range of 185KW to 315KW has equipped with internal DC reactor. AC motor controller with the range of 1.5KW to 315KW can be connected with AC reactor (option).

Low Noise Design

Output circuit adopts mode of insulated power transistor IGBT and high carrier frequency sine wave PWM, so that metallic sound of the motor will largely be reduced. When general motor drives AC motor controller, the noise will be near to consumption power supply.

Series VG5 AC Motor Controller

Special Function in case of PG Vector Control



Torque

For all the winding equipments, in process of acceleration and deceleration that the torque requires can be changed according to different loading. For center of the winding, the torque have to be changed according to different winding size. It is necessary to have a device supply accurate controlling object in torque mode. With the torque control function of VG5 AC motor controller, it can easily be settled. For example: the point of winding operation is completely control material tension. In order to maintain the cutting tension in different linear-speed and radius rolling, AC motor controller must be able to keep the trace of the changable range, and provide torque reference value.

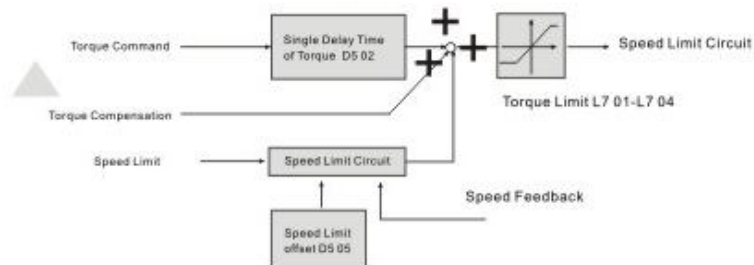
Torque Control Function

In torque control, the motor will output power according to torque command of analog input. Meanwhile, AC motor controller will not control the motor speed, in order to get output torque, AC motor controller will raise or reduce output frequency automatically. In order to prevent the load torque from disappearing to make the motor stall, speed limit function can be adopted.



Torque Rise

It can turn on compensation of start torque without PG vector control for response to torque command earlier. Machine with big friction load, like crane, is effective to the conditions with demand for start torque.



Zero Speed Control

It enables the motor to have 100% holding power at zero speed. Fully ensure positioning capability when an equipment is stopped.

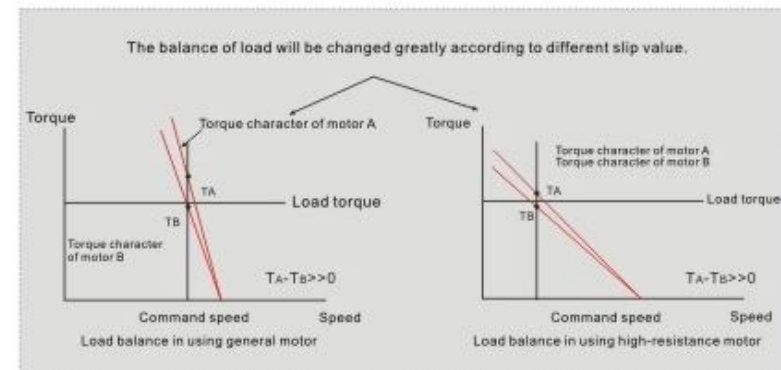
Four Quadrant Operation

The torque direction and rotation direction can be opposite. Ex: the lowering of weight and the unwinding process can conveniently be achieved.

	Winding Machine Movement		Unwinding Machine Movement	
Structure				
Rotation Direction	Forward	Reverse	Forward	Reverse
Command Limit TREF	⊕	⊖	⊖	⊕
Speed Limit SLIM	⊕	⊖	⊕	⊖
Generated torque				

DOOP (droop) Control Function

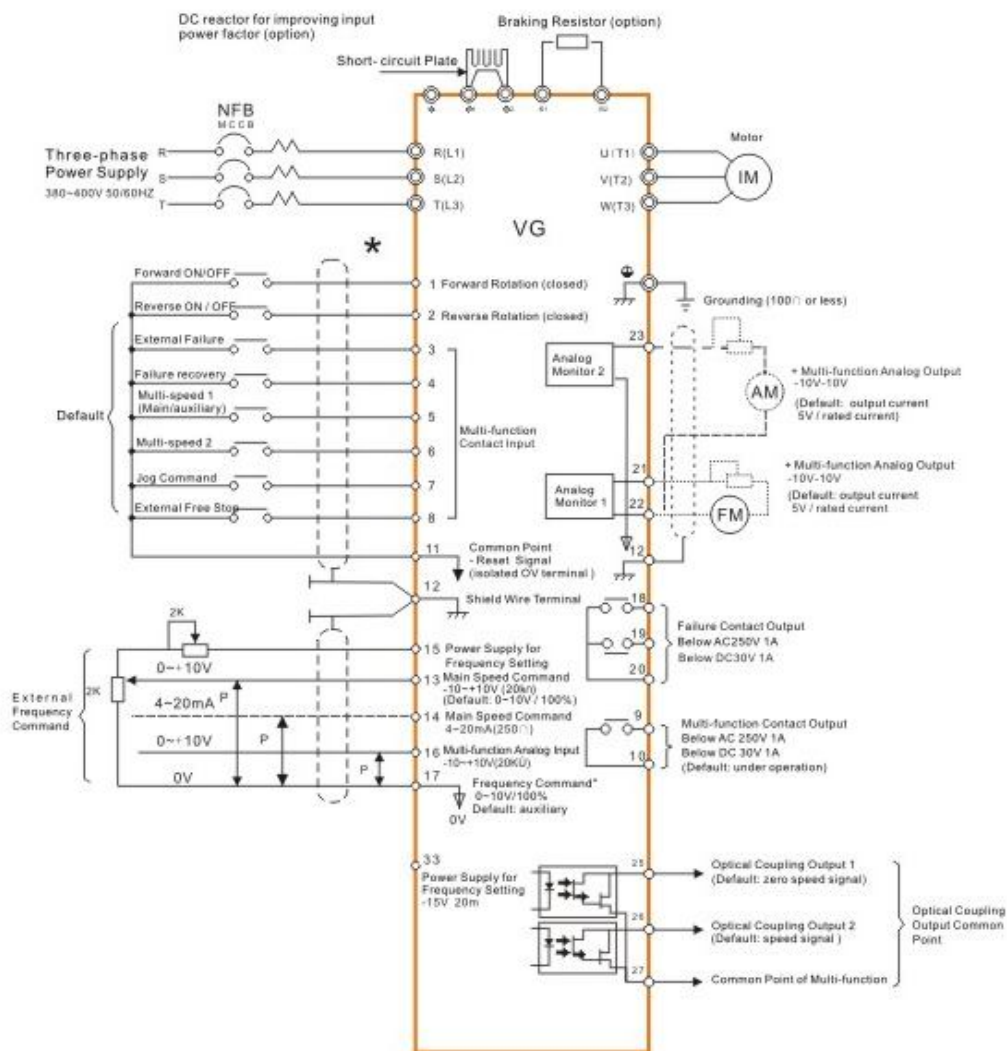
The slip value of motor can be adjusted. For the slip offset of negative regulation, the lower output frequency it is, the larger the load will be. By adjusting the slip value of motor, two sets of motor with the same rigid load can distribute the load equally.



VG5/VG2 Wiring Diagram



Please refer to the following Wiring Diagram for series VG 5:
The manipulator can run the motor just connect to the main circuit



Series VG5 / VG2 Feature

	VG 5	VG 2
Control Mode	Current vector sine wave PWM	
Start Torque	150%/1Hz (150%/0rpm with PG)	150%/1Hz
Speed Control Range	1:100 (1:1000 in case of PG)	1:100
Speed Control Accuracy	±0.2% (25°C±10°C), (0.02%) with PG	±0.2% (25°C±10°C), (0.02%)
Speed Response	5Hz (30Hz with PG) ¹⁾	5Hz
Torque Limit	Yes (four quadrant)	Yes (two quadrant)
Torque Accuracy	±5%	Without torque control function
Frequency Control Range	0, 1~400Hz	0, 1~400Hz
Frequency Accuracy (Temperature Fluctuation)	Digital command ±0.01% (10°C~+40°C)	Analog command ±0.01% (25°C~+10°C)
Frequency Setting Resolution	Digital command 0.01Hz, analog command 0.03Hz / 60Hz (11bit + symbol)	
Output Frequency Resolution (Calculation)	0.001Hz	0.001Hz
Overload Capacity	150% of rated output current, 1 min	120% of rated output current, 1 min
Frequency Setting Signal	Analog 10~10V, 0~10V, 4-20mA	Analog 10~10V, 0~10V, 4-20mA
Acceleration and Deceleration Time	0.01~6000 sec. (individual setting of acceleration and deceleration...4 switches)	
Braking Torque	About 20%	About 20%
Motor Protection	Electronic thermal protection	Electronic thermal protection
Prompt Over Current	Protection for 200% of the rated output current	Protection for over 160% of the rated output current
Fuse Protection	Protection by fast fusing instrument	Protection by fast fusing instrument
Overload	150% of the rated output current, 1min.	120% of the rated output current, 1min.
Over Voltage Protection	Stop above 820V of the main circuit voltage	
Low Voltage Protection	Stop below 380V of the main circuit voltage (adjust by parameter setting)	
Prompt Power Failure Compensation	Stop by operation mode in more than 15ms. Continue running after recovering in 2 seconds.	
Overheat	Protected by thermistor	Protected by thermistor
Stall Prevention	Prevent from stalling in acceleration and deceleration.	
Grounding Protection	Electronic circuit protection (over-current level)	
Charge Indication	Indication falling to 50V of DC voltage of main circuit	
Ambient Temperature	Closed wall mount type 10°C~+40°C, cabinet installed type 10°C~+45°C	
Humidity	Less than 90%RH	
Storage Temperature	20°C ~ 60°C	
Application Site	Indoors (without corrosive gas and dust)	
Altitude	Less than 1000m	
Vibration	10~20Hz less than 9.8m/s ² (1G), 20~50 less than 2m/s ² (0.2G)	
Profibus Communication	Yes (option)	No
DeviceNET Communication	Yes (option)	No
RS485 Communication	Yes	Yes
PG Vector Control	Yes	No
PID Function	Yes	Yes
Zero-Serve Function	Yes	No
Speed Limit for Torque Control	Yes	No

Series VG5 / VG2 Product Specifications

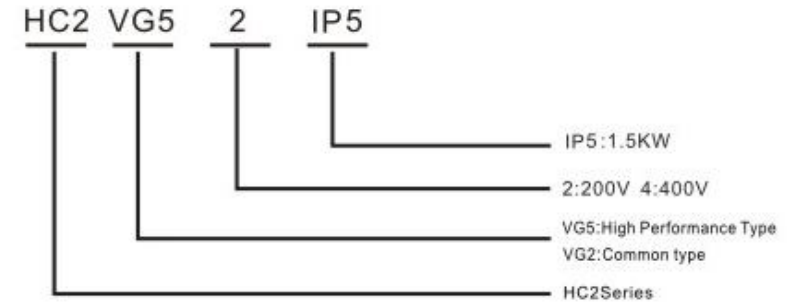


Three-phase 400V

Model		Rated Output						Power Supply			
VG 5	VG 2	Capacity (KW)	Output Power (KVA)		Output Current (A)		Max. Output Voltage (V)	Rated Output Power	Voltage, Frequency	Allowable Voltage Fluctuation	Allowable Frequency Fluctuation
			VG 5	VG 2	VG 5	VG 2					
41P5		1.5	3.7		4.8						
42P2		2.2	4.7		6.2						
43P7		3.7	6.1		8						
45P5		5.5	11		14						
47P5		7.5	14		18						
4011	4011	11	21	21	27	27					
4015	4015	15	26	26	34	34					
4018	4018	18	31	31	41	41					
4022	4022	22	37	37	48	48					
4030	4030	30	50	50	65	65					
4037	4037	37	61	61	80	80					
4045	4045	45	73	73	96	96					
4055	4055	56	98	98	128	128					
4075	4075	75	130	130	165	165					
4090	4090	90	140	140	180	180					
4110	4110	110	170	170	224	224					
4132	4132	132	200	200	260	260					
4160	4160	160	230	230	302	302					
4185	4185	185	260	260	340	340					
4200	4200	200	300	300	380	380					
4220	4220	220	340	340	450	450					
4250	4250	250	380	380	470	470					
4280	4280	280	430	430	530	530					
4315	4315	315	460	460	605	605					
4355	4355	355	490	490	695	695					
4400	4400	400	519	519	788	788					
4450	4450	450	585	585	890	890					
4500	4500	500	650	650	986	986					
4630	4630	630	780	780	1185	1185					

Three-phase 380 / 415 / 460V
 Corresponding to input voltage
 Set by parameters (Max. 400Hz)
 Three-phase 380 / 415 / 460 * 50 / 60Hz
 +10%, -15%
 5%

Model Description



Three-phase 200V

Model		Rated Output						Power Supply			
VG 5	VG 2	Capacity (KW)	Output Power (KVA)		Output Current (A)		Max. Output Voltage (V)	Rated Output Power	Voltage, Frequency	Allowable Voltage Fluctuation	Allowable Frequency Fluctuation
			VG 5	VG 2	VG 5	VG 2					
21P5		1.5	6.1		8						
22P2		2.2	11		14						
23P7		3.7	14		18						
25P5		5.5	21		27						
27P5		7.5	26		34						
2011	2011	11	37	37	48	48					
2015	2015	15	50	50	65	65					
2018	2018	18	61	61	80	80					
2022	2022	22	73	73	96	96					
2030	2030	30	98	98	128	128					
2037	2037	37	130	130	165	165					
2045	2045	45	140	140	180	180					
2055	2055	56	170	170	224	224					
2075	2075	75	230	230	302	302					
2090	2090	90	260	260	340	340					
2110	2110	110	340	340	450	450					
2132	2132	132	430	430	530	530					
2160	2160	160	460	460	605	605					
2185	2185	185	490	490	695	695					
2200	2200	200	519	519	788	788					

Three-phase 200 / 208 / 230V
 Corresponding to input voltage
 Set by parameters (Max. 400Hz)
 Three-phase 200 / 208V * 50Hz
 200 / 208 220 / 230 * 60Hz
 +10%, -15%
 5%

VG5/VG2 Overall Dimension External Hole Size of Keyboard

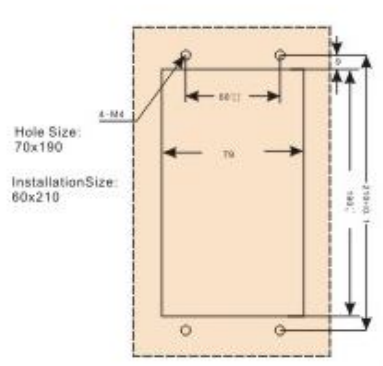


Fig.3

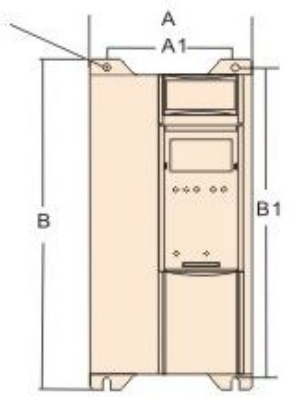
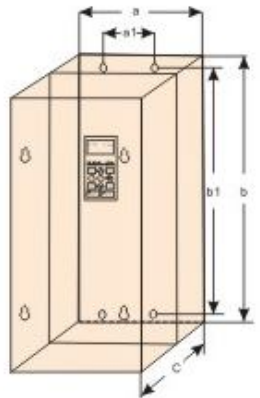


Fig.1

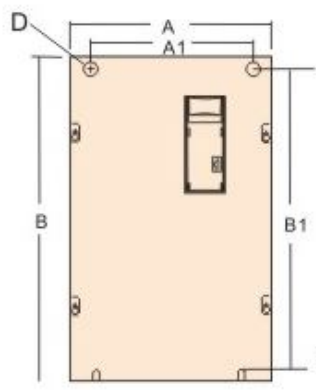
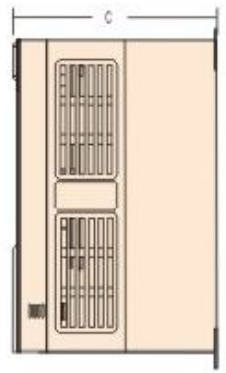


Fig.2



Three-phase 400V

Model	Power (KW)	Dimension (mm)						Fig.
		A	A1	B1	B1	C	D	
VG5	1.5-3.7	146	116	316	300	200	7	Fig. 1
	5.5-7.5	200	170	340	324	210	7	
VG5 VG2	11-55	240	150	445	418	230	9	Fig. 2
VG5	18.5-22	246	160	600	578	258	9	
	30-45	282	180	665	638	288	11	
	55-93	465	325	774	740	368	15	
VG2	18.5-30	300	212	464	437	288	9	
	37-45	331	275	556	530	288	9	
	55-93	408	275	616	620	342	11	
VG5 VG2	110-185	585	445	924	895	400	15	
	200-250	765	625	1046	1015	404	15	
	280-315							
	315-400	1050		1600		500		

*Installation dimension is subject to changes without prior notice. Please consult the local agent.

Model	VG5																					
Power (KW)	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55	75	93	110	132	160	185	220	250	315
Weight(kg)	5.1	5.1	5.1	7.4	7.3	14.8	14.8	29.1	29.8	40	46	49	98	120	108	155	156	174	174	232	233	350

Model	VG2																				
Power (KW)	11	15	18.5	22	30	37	45	55	75	93	110	132	160	185	200	220	250	280	315 - 400		
Weight(kg)	14.6	14.6	24.2	24.6	25.3	32	33.2	61	65	64.2	135	132	143	174	223	233	222	350	360		

Three-phase 200V

Model	Power (KW)	Dimension (mm)						Fig.
		A	A1	B	B1	C	D	
VG5	1.5	146	116	316	300	200	7	Fig. 1
	2.2-3.5	200	170	340	324	210	7	
VG5 VG2	5.5-7.5	240	150	445	418	230	9	Fig. 2
VG5	11	246	160	600	578	258	9	
	15-22	282	180	665	638	288	11	
	30-45	465	325	774	740	368	15	
VG5 VG2	55/75/90	585	445	924	895	400	15	
	110	765	625	1046	1015	404	15	
	132/160/200	1050		1600		500		

*Installation dimension is subject to changes without prior notice. Please consult the local agent.

Model	VG5 / VG2																		
Power (KW)	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90	110	132	160	200
Weight(kg)	5.1	7.4	7.3	14.8	14.8	29.8	40	46	49	120	120	108	155	174	174	232	233	350	360



Lift and Hoist

Gantry crane, bridge crane, tower crane, port crane, etc.

Iron and Steel Industry

Perfect low frequency output torque makes steel rolling production line runs freely and smoothly.

Textile Industry

VG AC motor controller can always satisfy the demands of spinning frame, roving frame, and synchronous control.

Elevator Application

Low torque fluctuation have the passengers feel comfortable. By the accurate load estimation function, the elevator is able to position properly under various load conditions.

Printing and Packaging

The printing machinery requires the AC motor controller for prompt response. VG high-speed response performance can completely meet the demands.

Paper Industry

The winding of paper has a very high demand for tension fluctuation. Precise torque calculation enables the torque have a smooth output and prompt response.

Food Machinery

Baking ovens, Food making machine.

Plastic Machinery

Specialized injection molding machine card can easily control the injection molding process and obvious effect of energy conservation

Metal Industry

Closed loop tuning function with prefixed speed setting can achieve prompt response, stable operation, simple and reliable control in the synchronous tension control system such as direct-running wire drawing machine.

Fan / Pump

Constant pressure water supply and air supply, specialized fan of coking furnace, air compressor, etc.

Application Industry



Complete and Prompt Service

Technical Support

TECORP owns a well-trained team who provides professional support for product selections, good consultation and R&D service. Meanwhile, with experienced skill in automation field, TECORP provides good service and great solutions supporting customers. Continually developing new technology will establish excellent achievement in automation field.



Professional Training

In order to satisfy customer needs, TECORP has established complete devices for product quality control in the factory. That not only can users master skill for using TECORP products, but also enrich and upgrade their own professional skill.



International Network Service

TECORP has established widespread sales and service network over the world to provide complete treatment and service with prompt responses, so that users will get satisfaction wherever they are.



Internationalized Commercial and Logistics Support

In guarantee of sufficient supply, TECORP is supported by a professional commercial and logistics team with high efficiency. Rigorous management, smooth channel and wide system support to ensure users obtaining products timely and reliably, and reduced much more cost of users.



Technical Information and Website

TECORP provides Chinese and English data for all series products to help users have a comprehensive understanding of TECORP products, and realize model selection, commissioning and product operation. Users can also visit our website at www.tecorp-group.com.tw for more information about TECORP.

