

# BROCHURE

## Variable Speed Drives & Accessories



# AX200

General Purpose, Sensorless Vector Control

- Auto Identification, Simple to use
- PID Process Control, Multi-Function I/O
- Heavy Duty Use (3s 180%, 60s 150%)
- Support MODBUS, EtherCAT is selectable
- Power Range 0.4-280 kW
- Drives AC Induction Motor; Permanent Magnet Synchronous Motor is Selectable



Item		Specifications	
Basic Function	Control Mode	V/F Control Sensorless Flux Vector Control, SFVC	
	Max. Frequency	Vector Control	0.0-320.0 Hz
		V/F Control	0.1-3200 Hz
	Carrier Frequency	1.0 kHz-16.0 kHz The Carrier Frequency is Automatically Adjusted Based on the Load Features.	
	Input Frequency Resolution	Digital Setting	0.01 Hz
		Analog Setting	Max. Frequency x 0.025%
	Start Torque	G Type	0.5 Hz / 150%, SFVC
		P Type	0.5 Hz / 100%
	Speed Range	1:100, SFVC	
	Speed Stability Accuracy	±0.5%, SFVC	
	Overload Capacity	G Type	60s for 150% of the Rated Current, 3s for 180% of the Rated Current.
		P Type	60s for 120% of the Rated Current, 3s for 150% of the Rated Current.
	Torque Boost	Fixed Boost; Customized Boost	0.1%~30.0%
	Ramp Mode	Straight-Line Ramp; S-Curve Ramp Four Groups of Acceleration/Deceleration Time with the Range of 0.00-6500.0s	
	DC Braking	DC Braking Frequency	0.00Hz~Maximum frequency
		Braking Time	0.0s~100.0s
		Braking Action Current Value	0.0%~100.0%
	JOG control	JOG Frequency Range	0.00 Hz-50.00 Hz
		JOG Acceleration/Deceleration Time:	0.0s~6500.0s
	Simple PLC, Multiple Preset Speeds	It Implements up to 16 Speeds via the Simple PLC Function or Combination of Terminal States	
Input & Output	Onboard PID	It Realizes Process Controlled Closed Loop Control System Easily	
	Auto voltage regulation (AVR)	It Can Keep Constant Output Voltage Automatically when the Mains Voltage Changes	
Others	Overvoltage / Overcurrent Stall Control	The current and voltage are limited automatically during the running process so as to avoid Frequent Tripping Due to Overvoltage/Over Current.	
	Rapid Current Limit	It Helps to Avoid Frequent Over Current Faults of the AC Drive.	
	Torque Limit and Control	It can Limit the Torque Automatically and Prevent Frequent Over Current Tripping During the Runing Process.	
	High Performance	Control of Asynchronous Motor are Implemented Through the High-Performance Current Vector Control Technology.	
	Running Command Channel	Given by the Panel, Control Terminals, Serial Communication Port, can be Switched by Many Ways.	
	Frequency Source	There are Ten Frequency Sources. Digital Setting, Analog Voltage Setting, Analog Current Setting, Pulse Setting, Serial Port Setting. You can Perform Switchover Between these Sources in Various Ways.	
	Auxiliary Frequency Source	10 kinds of Frequency Sorce, can be easily realize Micro Adjust, Frequency Synthesizer	
	Timing Control	0.0-6500.0 min.	
	Communication Methods	RS 485, EtherCAT is optional	
	Input Terminal	6 Digital Input Terminals, One of Which Supports up to 100 kHz High-Speed Pulse Input (Optional). 2 Analog Input Terminals, One of Which Only Supports 0-10V Voltage Input and the Other Supports 0-10V Voltage Input or 4-20mA Current Input.	
	Output Terminal	1 Digital Output Terminal 1 Relay Output Terminal 1 Analog Output Terminal, That Supports 0-20mA Current Output or 0-10V Voltage Output	
	Protection Function	Motor Shourt-Circuit Detection at Power-On, Output Phase Loss Protection, Over-Current Protection, Overheat Protection and Overload	
	Key Locking and Function Selection	It can Lock the Keys Parially or Completely and Define the Function Range of Some Keys so as to Prevent Mis-Function.	
	Protection Class	IP20	

# AX300

Solution for Industrial Crane and Hoist

- Sensorless Vector Control, Closed-Loop Vector Control
- Professional brake timing control; start and stop smoothly without slipping the hook to prevent the cargo from sliding down
- Intelligent anti-sway, Load holding function
- Built-in Brake Unit, Heave Duty



## Professional brake timing control

According to the frequency, output current and torque of the inverter, the brake release command will be output. When starting and stopping, keep the necessary torque to stabilize the cargo, and open the holding brake, and start / stop smoothly without slipping



## Brake failure detection

When the stop brake is valid, the encoder is used to detect whether the brake is invalid. If it fails, the inverter is automatically started to maintain torque to prevent accidents (Valid Closed Loop).

## Light load speed increase adaptive

Through the light load speed-increasing function, the best running speed matching the load can be achieved. When the load is light, it allows automatic speed increase and improves efficiency, no auxiliary hook design is required, which can shorten the operating period of the crane with a long head.

## Intelligent anti-sway

With built-in anti-sway function, so can suppress the shaking of the goods during translation. Since the load does not sway, it can be laid down faster, which is beneficial to shorten the operating cycle. AX300 drives with integrated sensorless control functionality enhance productivity and safety by avoiding sway in cranes.

## Stroke Limit Control

By the limit sensor input can prevent the hook from overtraveling and excessive hoisting.

## Open and Closed Loop Control

AX300 drives help to ensure excellent open-loop crane performance without encoders. Travel and hoist commissioning is simple. Droop control equalizes torque between the two motors operating in parallel. Closed loop control offers even better crane dynamics. We offer flexible encoder interfaces for broad component choice.



## Advantage and Features

**AX300** AC drives with built-in crane control software, brake unit and range of safety functions help various types of cranes move efficiently. Our AX300 drives are an excellent choice for standalone cranes

AX300 series inverter special for hoisting is tailor-made for various severe application conditions in the hoisting industry, and it can easily solve technical and performance problems.

AX300 adopts vector frequency conversion control technology, while maintaining excellent performance and function, from the perspective of lifting application, it is superior in terms of ease of use, maintainability, environmental protection, installation space and design standards to similar products. With high-performance current vector technology, it can easily drive asynchronous induction motors to meet the working requirements in various environments

## ► Features

- **Rope Length Detection**  
The height information of the hook can be seen in the cab just by the inverter. When the wire rope reaches the set length, the collision with the lifting drum can be avoided by reducing the ascent and descent speed.
- **Rapid Deceleration**  
By inputting a quick stop command through the terminal, it can perform rapid deceleration near the target position.
- **Load Holding Function**  
When stopped, the load can be kept at the current position through zero-speed control. Close the brake when it is stable.
- **Overload Detection**  
The torque rise value is detected when the cargo accidentally contacts other objects. At this time, the motor can be automatically stopped to prevent accidents and improve safety.
- **Self-Tuning Motor Parameter**  
It can accurately identify asynchronous induction motors and achieve high-performance vector control; It can achieve accurate setting of motor parameters of long-distance over cables under load, and can automatically discriminate encoder signal directions under encoder conditions, simplifying the debugging process.
- **Parameter macro**  
The function to select the purpose according to the crane action. Just select hoist, long travel, trolley and other uses, you can automatically set the necessary and unnecessary functions to be valid or invalid. The best parameters can be set simply for different purposes.

## Crane Types Served

- Bridge crane, Overhead crane, Process crane
- Rail-mounted gantry crane, Goliath crane
- Rubber tired gantry crane, RTG crane, Grab crane
- Marine crane, Mobile crane, Mobile harbor crane
- Ship to shore crane (STS crane), container crane
- Tower crane, Construction hoist, Port Crane





## AX450

Integrated Pumps Drives -Wall-Mounted Type  
220 / 380VAC; 1HP - 3HP

- Compact, Directly Mounted on Motors
- Robust Enclosure, High Protection Class
- Easy to Use, installation
- Advanced Pumps Control Function
- V/F Control; Max. output frequency 999.9 Hz

### APV - Integrated Pumps Control

**AX450** is a new generation of high-end intelligent integrated ultra- high protection water supply special products independently researched.

The Variable Speed Drives is dustproof and waterproof, and can be installed on various brands of pump motor terminal boxes, and can be accessed in various types of sensor signal. Can be use in dirty and damp environments, even with low pressure jets; saving panel space and cost.

- Compact & Robust
- Easy to use, directly mounted on motor pumps.
- Protection class IP65, can be use at outdoor, dusty, moist
- In order to mechanically install the drive controller on the motor, the adapter is used in place of the terminal box. any motor can be adapted.



#### Motor adapter plate

In order to mechanically install the drive controller on the motor, the adapter is used in place of the terminal box. any motor can be adapted.



Compact & robust  
Aluminum heat sink  
Simple mounting on motor



Power, kW	Main Circuit Wire Diameter, mm <sup>2</sup>	Air Circuit Breaker, A	Electromagnet Contactor, A	Rated Input Current, A	Rated Output Current, A
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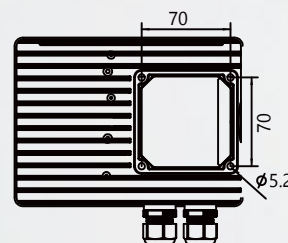
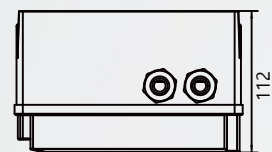
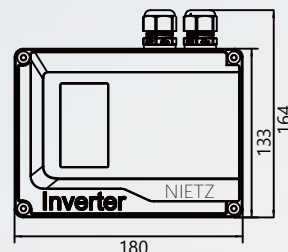
220V ±15%  
1 Phase Input,  
3 Phase output

0.75	0.75	16	12	7.2	4.5
1.5	1.5	25	18	10	7
2.2	2.5	32	25	16	10

380V ±15%  
3 Phase Input,  
3 Phase output

0.75	0.75	6	9	3.8	2.5
1.5	0.75	10	9	5	3.7
2.2	0.75	10	9	5.8	5

#### Dimension, mm





## AX800

High Performance & Powerfull, Heavy Duty

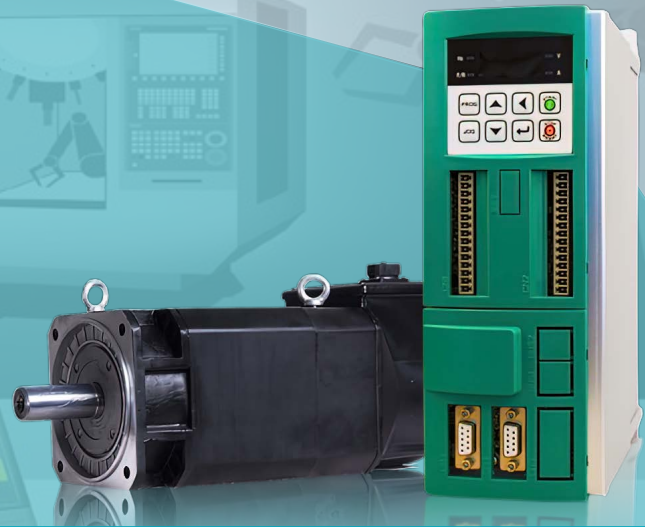
- Various Control Version, V/F, Sensorless Vector and Closed Loop Vector Control
- Modbus RS 485, Profibus-DP, CANopen Communication Mode
- Flexible Programmable I/Os
- Heavy Duty 150% 60s, 180% 3s
- Wide Operating Voltage 220 to 690 VAC

Item		Specifications
Basic Function	Control Mode	V/F Control Sensorless Flux Vector Control, SFVC Closed-Loop Vector Control, FVC, Above 3.7kW
	Max. Frequency	Vector Control 0.0-320.0 Hz V/F Control 0.0-3200.0 Hz
	Carrier Frequency	1.0 kHz-16.0 kHz The Carrier Frequency is Automatically Adjusted Based on the Load Features.
	Input Frequency Resolution	Digital Setting 0.01 Hz Analog Setting Max. Frequency x 0.025%
	Start Torque	G Type 0.5 Hz / 150%, SFVC; 0.0 Hz / 180%, FVC P Type 0.5 Hz / 100%
	Speed Range	1:100, SFVC / 1:1000, FVC
	Speed Stability Accuracy	±0.2%, SFVC / ±0.02%, FVC
	Torque Control Accuracy	±5%, Closed-Loop Vector Control FVC Mode
	Overload capacity	G Type 60s for 150% of the Rated Current, 3s for 180% of the Rated Current. P Type 60s for 120% of the Rated Current, 3s for 150% of the Rated Current.
	Torque boost	Fixed-Boost; Customized Boost: 0.1%~30.0%
	Ramp Mode	Straight-Line Ramp; S-Curve Ramp; Four Groups of Acceleration/Deceleration Time with the Range of 0.00-6500.0s
	DC Braking	DC Braking Frequency 0.00Hz~Maximum frequency Braking Time 0.0s~100.0s Braking Action Current Value 0.0%~100.0%
	JOG control	JOG Frequency Range 0.00 Hz-50.00 Hz JOG Acceleration/Deceleration Time 0.0s~6500.0s
	Onboard Multiple Preset Speeds	It Implements up to 16 Speeds via the Simple PLC Function or Combination of Terminal States
	Onboard PID	It Realizes Process Controlled Closed Loop Control System Easily
	Auto voltage regulation (AVR)	It Can Keep Constant Output Voltage Automatically when the Mains Voltage Changes
	Overvoltage / Overcurrent Stall Control	The current and voltage are limited automatically during the running process so as to avoid Frequent Tripping Due to Over Voltage/Over Current.
	Torque Limit and Control	It can Limit the Torque Automatically and Prevent Frequent Over Current Tripping During the Running Process. Torque Control can be Implemented in the FVC Mode.
Individualized Functions	High Performance	Control of Asynchronous Motor and Synchronous Motor are Implemented Through the High Performance Current Vector Control Technology.
	Rapid Dip Ride Through	The Load Feedback Energy Compensates the Voltage Reduction so That the AC Drive can Continue to Run for a Short Time
	Support for Multiple PG Card	Differential Input PG Card / Resolver PG Card / Rotating Transformer PG Card UVW Differential Input PG Card / OC Input PG Card
	Rapid Current Limit	It Helps to Avoid Frequent Over Current Faults of the AC Drive.
	Timing Control	0.0-6500.0 min.
	Communication Methods	Modbus (Standard), Profibus-DP, CANopen
Running	Running Command Source	Operation Panel / Control Terminals / Serial Communication Port You can Perform Switchover Between these Sources in Various Ways.
	Frequency Source	Digital Setting, Analog Voltage Setting, Analog Current Setting, Pulse Setting, Serial Port Setting. You can Perform Switchover Between these Sources in Various Ways.
	Input Terminal	8 Digital Input Terminals, One of Which Supports up to 100 kHz High-Speed Pulse Input 2 Analog Input Terminal, One of Which Only Supports 0-10V Voltage Input and the Other Supports 0-10V Voltage Input or 4-20 mA Current Input.
	Output Terminal	1 High-Speed Pulse Output Terminal (Open-Collector) that Supports 0-100kHz Square Wave Signal Output 1 Digital Output Terminal 2 Relay Output Terminal 2 Analog Output Terminal - that Supports 0-20mA Current Output or 0-10V Voltage Output.
	Protection Function	Motor short-circuit detection at power-on, output phase loss, over-current, overheat, under voltage and overload

# MDA

AC Spindle Servo Drives / 380V, 0.4-160 kW

- V/F Control, SFVC, FVC Control Mode
- Controls AC Induction, Spindle Asynchronous Motor
- Support Various Optional Encoder
- Easy and flexible control; MODBUS RS485
- Incredible Performance of Speed, torque and position control; All protection

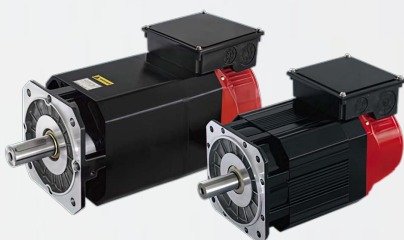


MDA series spindle servo drives is designed for numerical control machine of new type and high precision and it has new functions like positioning control, pulse synchronous control and so on. It supports FEEDBACK vector control towards the spindle motor with encoder. This drive has high responding ability towards speed as well as smooth speed. It can achieve various functions like warrant stop of spindle; Rigid tapping; indexing positioning and so on by cooperating with different numerical control system.

## ► Features

- Multi encoder support; it can support differential encoder; ABZ encoder and so on.
- Power dip ride-through, load feedback energy compensates for any voltage reduction, allowing the drive to continue to operate for a short time during power dips.
- Overvoltage and overcurrent stall control; the system limits the output current and voltage automatically during operation to prevent frequent or excessive trips.
- Torque limit and control: the system limits the torque automatically to prevent frequent over-current tripping during operation. Torque control is applied in vector control.
- Onboard multiple preset position: the system implements up to 16 position by using simple PLC function or by using digital input signals.

## AC ASYNCHRONOUS SERVO MOTOR



Item		Specifications
Control Mode	V/F Control, Sensorless Vector Control, Closed-Loop Vector Control	
Motor Types	3 Phase Induction Motor	Spindle Asynchronous Motor
Max. Frequency	V/F control mode	0-1500 Hz
	Vector control mode	0-1000 Hz
Carrier Frequency	0.8-16.0 kHz Adjust the frequency automatically according to loading characteristics.	
Input Frequency Resolution	Digital Setting	0.01 Hz
	Analog Setting	Max. Frequency x 0.025%
Start Torque	G Type - 0.5 Hz / 150% (SFVC) / 0.0 Hz / 180% ( FVC)	
Speed setting Range	1:100 SFVC	1:1000 FVC
Speed Stability Accuracy	±0.5%, SFVC	±0.2%, FVC
Overload Capacity	G Type	60s for 150%; 3s for 180% of rated current
	P Type	60s for 120%; 3s for 150% of rated current
Torque Boost	Auto-boost; Manuals adjust range	0.1%~30.0%
V/F Curve	Linear/ Multi-Point and N-th Power V/F Curve	
Ramp Mode	Straight Line Ramp; 4 Groups of Acceleration/Deceleration time 0.0-6500.0s	
Basic Function	DC Braking	DC Braking Frequency 0.0Hz to Max. frequency
		Braking Time 0.0s~36.0s
		Braking Action Current Value 0.0%~100.0%
	Simple PLC, Multiple Preset Speed	It Implements up to 16 Speeds via the Simple PLC Function or Combination of Terminal States
	Auto voltage regulation (AVR)	It Can Keep Constant Output Voltage Automatically when the Mains Voltage Changes
	Overvoltage/ Overcurrent Stall Control	The current and voltage are limited automatically during the running process so as to avoid Frequent Tripping Due to Overvoltage/Over Current.
	Rapid Current Limit	It can decrease the over-current fault on a maximum extent, thus protecting the normal operation of the spindle servo driver.
	Torque Limit and Control	It can Limit the Torque Automatically and Prevent Frequent Over Current Tripping During the Running Process. Can be adjust the torque through FVC control mode.
	Optional support PG cards	Differential input PG card Open collector
		Rotating transformer PG card
Input & Output	Running Command Channel	Given by the Panel, Control Terminals, Serial Communication Port, can be Switched by Many Ways.
	Auxiliary Frequency Source	Multiple Auxiliary frequency source. Flexible realization of auxiliary frequency fine-tuning and frequency synthesis
	Timing set	0.0-6500.0 min.
	Communication	ModBus RS485
	Input Terminal	6 Digital Input terminal
		2 Analog Input Terminals, 1 of Which Only Supports 0-10V and the Other Supports 0-10V or 4-20mA
Output Terminal	1 Digital Output Terminal	MO1
	2 Relay Output Terminal	RA, RB, RC, YA, YB, YC
Protection Function	1 Analog Output Terminal, That Supports 0-20mA	
	Current Output or 0-10V Voltage Output	

- Small rotor inertia and rapid response
- High Efficiency, Low energy consumption & noise.
- Equipped with high-precision encoders proves higher positioning & speed accuracy.
- Compact design, small electromagnetic vibration, high rotation precision, constant torque
- Wide power range 2.2-132kW; Rated speed, 750-3000 rpm, Max. 4000-12 000 rpm