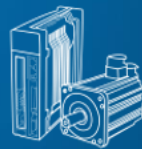


Midea

SERVOTRONIX  
always in motion™

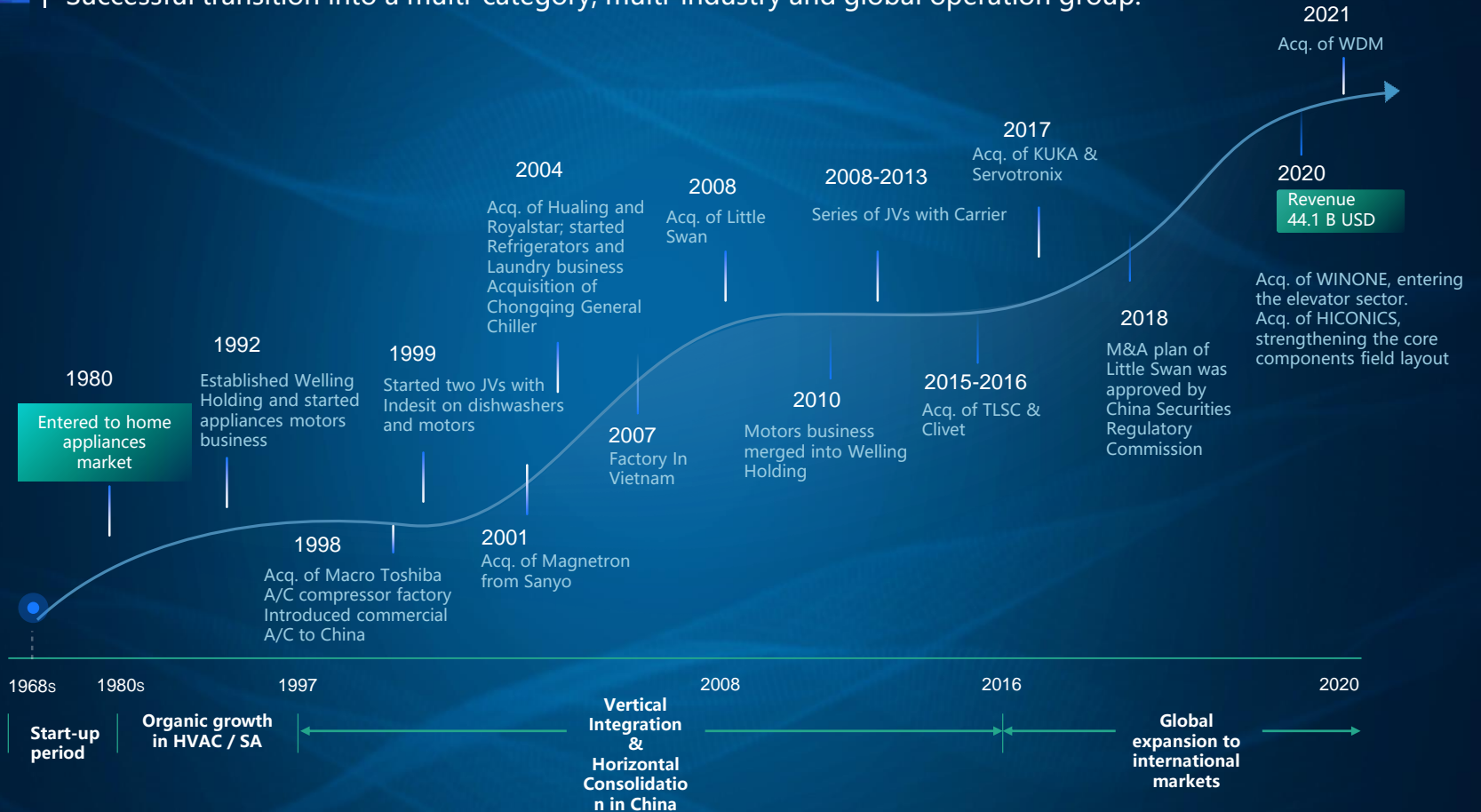
DÖRMA™





# Milestones

Successful transition into a multi-category, multi-industry and global operation group.





## Four Strategy Focus

Establish core competitiveness in the new period





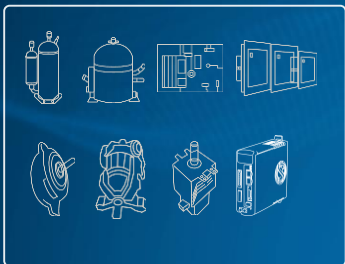
# Business Segment

Founded in 1968, with 53 years' development, Midea has become a technology group with 5 main business areas



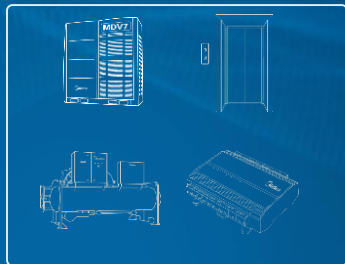
## Smart Home Business

Provide customers with the best experience of full home automation service



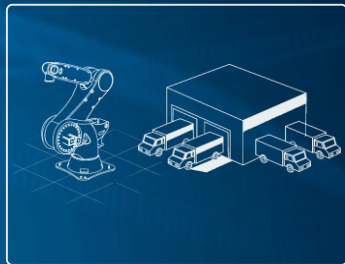
## Industrial Technologies

Provide core component solutions and services for household appliances, automobile industrial control and 3C industry



## Building Technologies

Provide overall solutions and services for building construction



## Robotics & Automation

The cornerstone of intelligent manufacturing, automation solutions based on robots



## Digital Innovation Business

New business service incubated in the course of digital transformation and evolution





# Corporate Snapshot

Worldwide outstanding business summary

2021 9M

**262.9** B RMB

Total Revenue

2021 9M

**23.5** B RMB

Net Profit

CY 2020

**160**k

Number of Employees

Credit Ratings

**A-/A3/A**

S&P/Moody's/Fitch



**# 288**

2021 Fortune  
Global 500

Forbes  
GLOBAL  
2000

**# 183**

2021 Forbes  
Global 2000

Global 500  
Brand Finance  
2020

**# 149**

Brand Finance 2020  
Top 500  
Most Valuable Brands

Brand Finance  
Tech100  
2021

**# 33**

Brand Finance 2020  
Top 100  
Most Valuable Tech Brands

# Midea | 美的机电

Committed to becoming an innovation-driven core component  
global leading manufacturer

- Company profile
- Development history
- Scope of business
- Market share ranking





# Midea Electromechanical Business Unit

Committed to becoming an innovation-driven core component global leading manufacturer



Midea Electromechanical Business Unit is a precision parts manufacturing company highly proficient in R&D, production and sales of compressors, motors, chips, auto parts, drives.



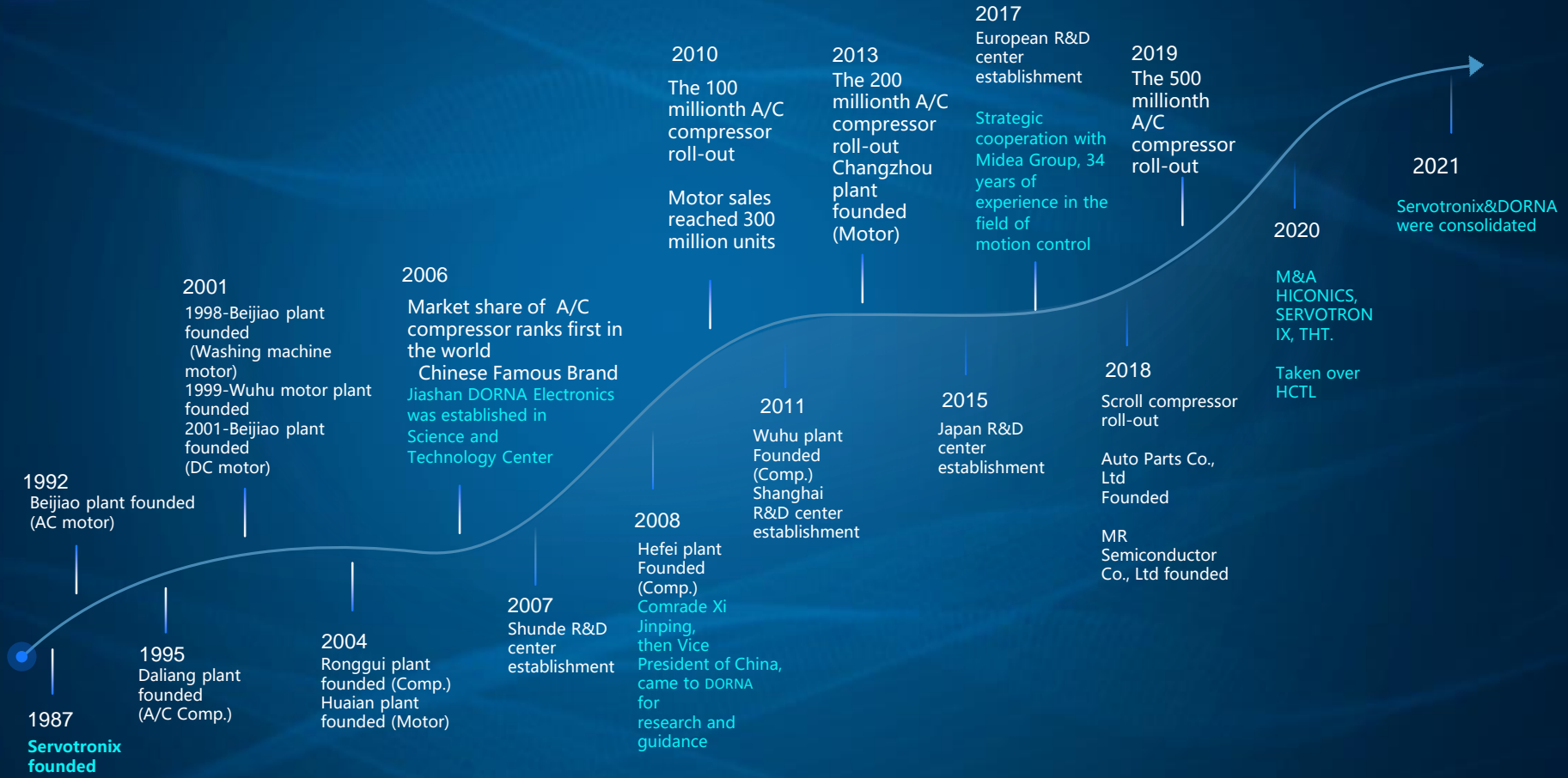
## Midea Electromechanical Business Unit





# Our History

Through nearly 30 years' rapid development, the company has become the core component global leading manufacturer







# Our Product

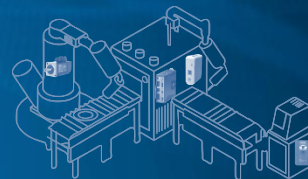
Providing global customers with excellent products and technical solutions



Home Appliance Parts



Auto Parts



Industrial Control Parts



3C Parts

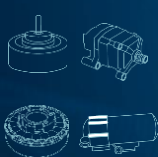
**GMCC**

Compressors



**Welling**

Motors

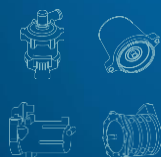


IC



**Welling**

Auto Parts



**HICONICS**

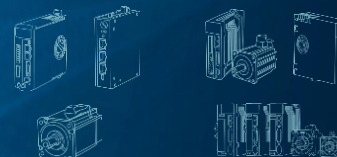
MV Drive



Automated Industry



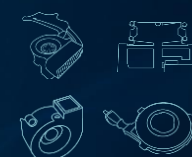
Servo System



**DÖRMA**

**TOSHIBA**

Cooling Module





# Market Share Ranking

The company has won the trust of customers, and has become an industry leader in global market share



Devoting to being a core comprehensive solution provider in the field of industrial automation equipment

- Company profile
- Development vision and plan
- Development advantages
- Product layout and industry advantages
- Representative products
- Solutions





## Company profile

The leading motion control specialist, started in Israel

Founded in Israel in 1987, **Servotronic Motion Control Ltd.**, as a comprehensive solution provider for the research, production, and sales of servomechanism, control systems, and other products, is committed to making continuous breakthroughs in the field of automation and facilitating the rapid development of China's high-end manufacturing industry. **It owns two brands, namely Servotronic and Dorna.**

Servotronic and Dorna are dedicated to designing and providing standardized and customized motion control solutions for equipment manufacturers and automation system suppliers, providing professional services to **more than 500+ customers in over 30 countries around the globe.** In particular, Servotronic has been **leading the direct-drive industry in the Chinese market.** As an international company, Servotronic has set up R&D teams in Israel, Shanghai, Nanjing, Jiashan, and Shunde.





## Our Development Vision

Continuously design and provide standardized and customized motion control solutions for equipment manufacturers and automation system suppliers



Technical Excellence



Customized Solutions



Extensive experience

**Devoting to being a core comprehensive solution provider in the field of industrial automation equipment.**



# Strategic positioning and five-year development plan

Be a reliable partner for industry-leading equipment manufacturers and system integrators



Introduce master and doctoral talents, conduct in-depth research on cutting-edge technologies, introduce global expert talents, improve the technical level, and improve scientific and technological investment



Fully integrate Israel's advanced technology, form the advantages of dual R&D engines developed by Israel and China, make full use of the technical reserves of Midea Corporate Research Center and Mechanical and Electrical Research Institute, quickly improve the product line, and make a breakthrough in the domestic and foreign markets



Continuously deepen the understanding of the industry, solve the pain points of industry customers based on leading technology, follow the trend of the country, and pay attention to the rapid development of the industry and rapid layout

Deepen the industry application by continuously improving the product line, and realize the substantial growth of sales scale through vertical integration and resource integration



# R&D team advantages

Introduce high-end talents in the industry and gather together international cutting-edge wisdom and strength



Israel R&D plant

China  
Shenzhen,  
Shunde,  
Shanghai,  
Jiaxing, Nanjing



## Talent structure

Over 40% of domestic research staff hold master's or doctor's degrees

## R&D team

\* R&D teams in five places provide more choices for talents  
Israeli technical development team has more than 60 members  
Chinese technical development team has more than 80 members  
A team of 140+ people forms a dual R&D engine

## Number of Patents

By September 2021, there had been 164 authorized patents



## Patent Advantages

A number of technologies, patent certification, to meet industry standards

## 164 patents authorized

The uniqueness and perspectiveness of products are key to maintaining core competitiveness



### Group support

The R&D team consists of about 140 Personnel

### Patented control algorithm

We have mastered the advanced core algorithm for HD nonlinear control

### Over 30 years of experience

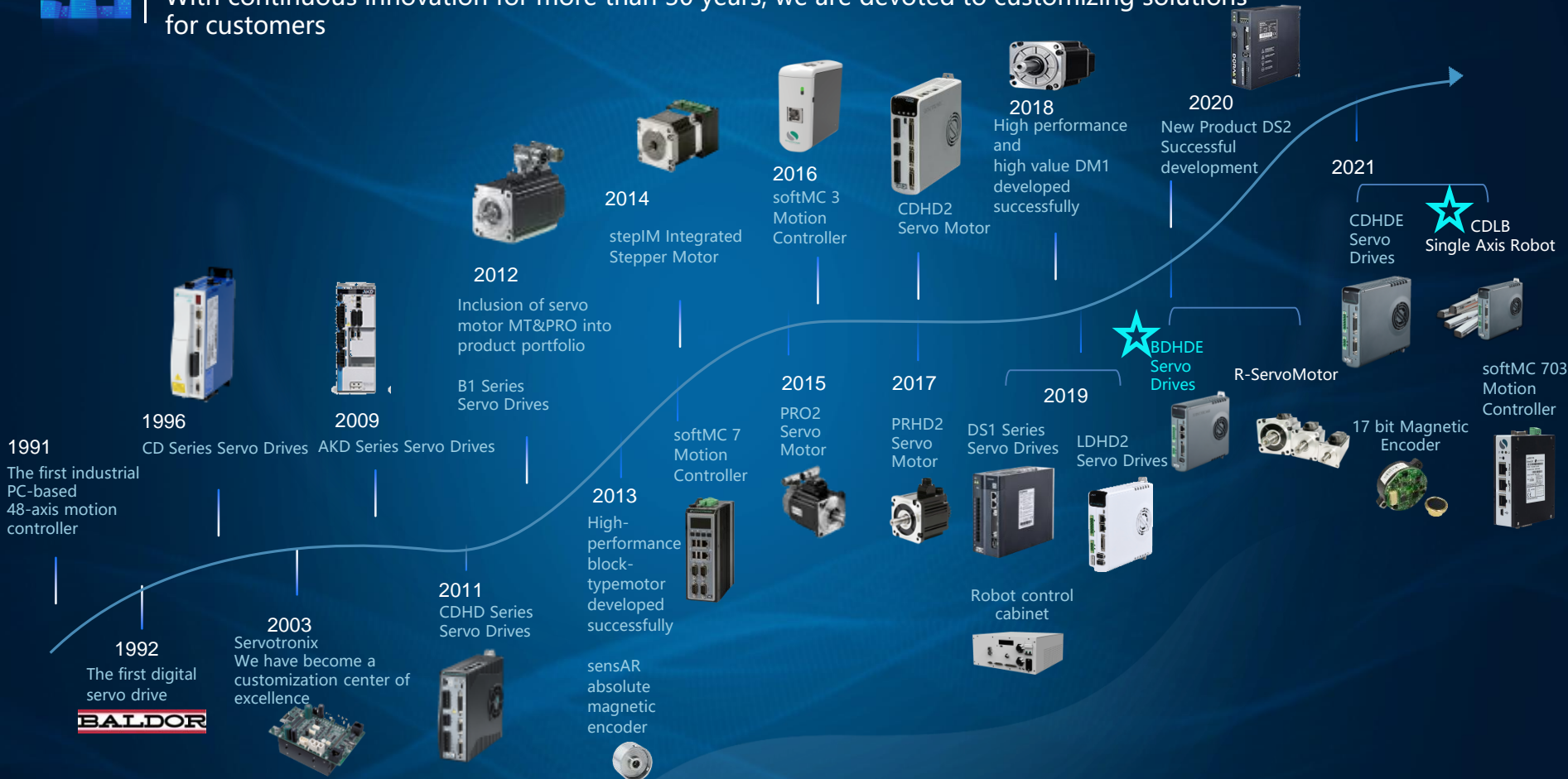
Precipitation and accumulation of expertise





# Technology Roadmap

With continuous innovation for more than 30 years, we are devoted to customizing solutions for customers





## QC Advantages

Strict quality control to ensure product reliability and meet global quality requirements

**Providing customers with satisfactory and assured high-quality products is the constant commitment to every customer of Servotronix Motion Control**



Selection of raw materials



Production, processing, and manufacturing



Inspection, and acceptance of finished products

**Have passed CE certification in China,  
ISO9001:2008 quality system certification,  
TUV certification in Israel, and UL  
certification**



# Marketing Network

Establish a global marketing network centered on customers to provide products and services for over 1000 clients around the world



Suzhou/Shanghai/Changsha  
Beijing/Tianjin/Foshan  
Jinan/Wuxi/Quanzhou  
Shenzhen/Jiashan/...

10+  
Service  
outlets

Serving for  
over 1000+  
worldwide  
customers



Service Network

Products are sold in over 30 countries and regions worldwide

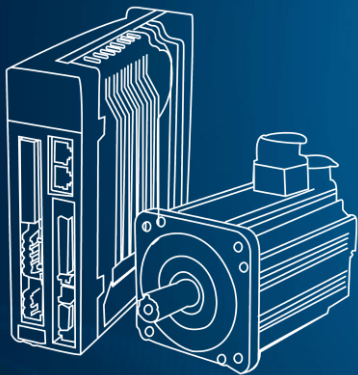
Industry Sharing

providing system technical solutions to customers in various fields

Local Support

Providing technical support and services to customers around the world

# Product & Application





# Technology Roadmap

Customized motion control solutions are aimed at maximizing customer value

Software Tools



Motion Controller

softMC 703



softMC 301



Servo Drives

LDHD2



BDHDE



CDHDE



CDHD2



CDHD



AIO



DS1



DS2

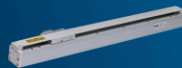


M1



Servo Motor

CDLB



stepIM



PRHD2



PM1



DM1M



Encoder

sensAR



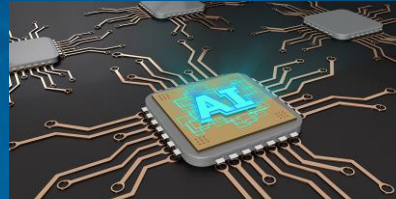


# Industry Applications

Covering most industries and automation equipment



lithium battery



Semiconductor



Robotics



Manipulator



3C



Linear CNC



Laser



Photovoltaic



Carpentry



# Typical Product

Linear Drive: CDHD-High Performance Servo Drive








## High speed, high precision, high performance



CDHD-High Performance Servo Drive

**Version:** EtherCAT Field Bus version, CANOpen version, AP pulse/direction version

**Voltage:** High voltage 400V (3A-30A), Medium Voltage 220V (1.5A-24A)

-  Support multiple feedback devices
-  I/O programming for any drive functionality
-  Adopt advanced control algorithms to ensure equipment accuracy and minimize production capacity
-  Safe Torque Off (STO)
-  Simple commissioning using ServoStudio™ GUI along with comprehensive parameterization options
-  Optimal configuration
-  Fast firmware modifications to meet particular application needs



# Typical Product

Linear Drive: CDHD2-High Performance Servo Drive











CDHD2-High Performance Servo Drive

## Support for frequency domain analysis and support for gantry system

**Version:** EtherCAT Field Bus version, CANOpen version, AP pulse/direction version

**Voltage:** High voltage 220V (1.5A-55A) 、 low voltage 20V-90V (3A-15A)

-  Secondary encoder interface for dual loop control
-  Built in drive configuration and diagnostics
-  Position compare output module
-  Built-in support for rigid and flexible gantry systems
-  1D error correction compensation table
-  Advanced control algorithms for highest machine accuracy and maximum capacity
-  High power density
-  Safe Torque off STO function





# Typical Product

Linear Drive: CDHDE-Servo Drive



CDHDE-Servo Drive

## Simple tuning, high performance

**Version:** EtherCAT Field Bus version, AP pulse/direction version

↘ ↙ Support rigid table debugging method to facilitate minimizing position error and rectification time



Position compensation function eliminates the effect of accumulated encoder errors by multi-segment position deviation correction



# Typical Product

Linear Drive: LDHD2-Servo Drive



LDHD2-Servo Drive

## High performance, switching of various control modes

Version: Field Bus version

- Support direct-drive linear motor, direct-drive rotary motor control
- High performance HD and HDM control loops
- 5kHz current loop bandwidth
- Supports differential pulse control
- ServoStudio™ GUI for easy debugging
- Support motor online active and operation mode switch control method



# Typical Product

Linear Drive Robot: CDLB Single Axis Robot

## Simple tuning, high performance

- Precision:  $\pm 0.002\text{mm}$
- Acceleration and deceleration are speed up to 2000mm
- Keep a stable speed of 2000mm/s to complete the course
- Straightness and flatness range  $\pm 0.02\text{mm}$
- Using non-contact drive hardware, the lifetime of the linear motor module is more than twice that of the traditional screw module, the module wears little, and the accuracy can be maintained for a long time
- Excellent speed stability
- Long life, low noise, simple maintenance
- Suitable for many occasions in industrial control
- High accuracy, high speed, long stroke and low noise can be achieved simultaneously



CDLB Single Axis Robot



# Typical Product

Single-axial rotation: BDHDE-Servo Drive



BDHDE-Servo Drive

## High efficiency, stabilization

**Version:** EtherCAT Field Bus version, AP pulse/direction version

**Power range:** 0.05kW-1kW



Advanced control algorithms



Auto tuning for load adjustment, list of gain table parameters, with a special motor control method, automatic adaptation and automatic suppression of mechanical vibration, simple and reliable debugging method, make industrial equipment reach high performance and stability



High speed, high precision, customized the needs of customers in different industrial occasions



# Typical Product

Single-axis rotation: DS2-Servo Drive



DS2-Servo Drive

## High precision, high response, high performance

Power Range: 0.1kW-1.5kW

- ⚡ Velocity loop frequency response up to 1.6KHZ
- 📡 Can be equipped with high resolution 23bit absolute encoder
- ⚙️ 4-notch trap filter
- 🕒 Shortened positioning adjustment time
- 🚀 Torque 3.5 times overload
- 🏠 With external disturbance suppression function



# Typical Product








Single-axial rotation: B1-Servo Drive



B1-Servo Drive

## Wide range of application

**Power Range: 0.1kW-22kW (Full power range)**

-  Achieving a speed response frequency of 1KHz, with a 3-backup overload capability
-  The ability to set a 2-stage filter, improve the response performance of servo in all aspects
-  Support the highest single-turn 17bit, multi-turn 16bit absolute encoder
-  Matching with low cogging torque to achieve smooth operation
-  Frictional torque compensation function
-  Built in various types of gain switching function
-  Standardly equipped with terminals for connecting DC reactor to effectively deal with high harmonics of power supply



# Typical Product





Multiaxial rotation: M1-Servo Drive



M1-Servo Drive

## Compact size and strong synchronization

Power Range: 0.2kW-1.5kW

-  Simple operation integrating parameter management, monitoring and commissioning
-  Maximum three-axis simultaneous control
-  Double-axis separation control without interfering with each other
-  Minimization of volume, reduction of 40% installation space, optimal configuration









## Typical Product

Rotating motor: PRHD2-High Dynamic Servo Motor

### High overload capacity

Applicable motor power range includes: 0.05kW-0.75kW

-  Servomotor speed up to 6000 rpm
-  Low cogging, less than 2% of rated torque
-  Low temperature rise during operation
-  High motor overload capability
-  Built-in 20-bit dedicated absolute magnetic encoder
-  IP 65 (IP67 with oil seal)



PRHD2-High Dynamic Servo Motor





# Typical Product







Rotary Motor: R Series Servo Motor

## High precision, high reliability

Applicable motor power range includes: 0.05kW-0.75kW



R Series Servo Motor

-  High power density, the motor length is the shortest in the industry
-  Instantaneous overload up to 3.5 times the rated overload
-  Torque ripple is within 1.5% of rated torque
-  Rated rotation speed 3000rpm, max 8000rpm
-  Self-developed magnetic coding 20bit 60 arcsec, on-line monitoring of motor temperature
-  High reliability braking system, emergency braking 2000 times, service life 5 million times

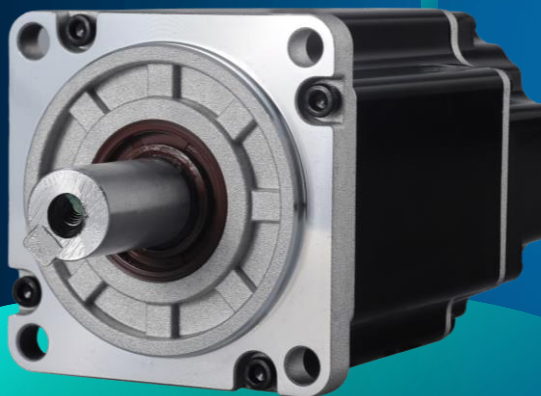


## Typical Product

Rotating motor: DM1-Servo Motor

### High Protection,high Vibration Resistance

Applicable motor power range includes: 0.1kW-7.5kW



DM1-Servo Motor

- 🚀 Up to 6000RPM, up to 3.5 times overload
- 📡 Support 17-bit single-turn absolute electromagnetic encoder, and 23-bit photoelectric encoder
- 🛡️ High protection capability, up to IP67



# Typical Product

Motion Control: softMC 301-Compact Motion Controller



softMC 301-Compact Motion Controller

## Compact, flexible and powerful

- 📄 Support two open and integrated development environments: Codesys or Control Studio
- 🔬 Built-in high real-time Linux operating system
- 📁 EtherCAT and CANopen field bus support
- 🔄 Support up to 6 axes
- ⚙️ As an ideal solution for controlling mechanical stages, gantry platforms, Delta and Scara robots
- 📄 Applies IEC61131 programming language
- 📁 Supports multiple communication protocols: TCP/IP, Modbus TCP, OPC, UA etc
- 📄 Customized software design



# Typical Product

Motion Control: softMC 703-High Performance Servo Drive



softMC 703-High Performance Servo Drive

## Various functions and flexible matching



Open and modular software environment



Support high real-time Linux operating system



Support Ethernet human interface



Support EtherCAT bus



Support up to 64 axes



Robotics Studio toolkit



Support programming language, compatible with Codesys  
programming environment



Customized software design










## Typical Product

Control cabinet: Robot control cabinet



Robot control cabinet

### Easy installation and high compatibility

-  When the action range of the manipulator is 500 mm, the peak cycle time can reach 0.36 s
-  When the action range of the manipulator is 700 mm, the peak cycle time can reach 0.38 s
-  Small sizes that save floor mounting space and greatly improve mounting flexibility
-  High compatibility that can be easily integrated into existing infrastructure
-  Plug-in wiring that is easy to operate and install
-  Seamless integration of OT and IT that supports various cloud platforms
-  High safety that conforms to CE requirements



# Typical Product

Encoders: sensAR-Encoders



sensAR-Encoders

## High resolution, high robustness

- ✔ Simple and compact mechanical design
- ✔ 20bit single-turn absolute magnetic encoder, and 16-bit multiturn absolute encoder (battery powered)
- ✔ Range of operating temperatures: -20~120°C
- ✔ High robustness against contamination, shock and vibration
- ✔ Not susceptible to mechanical deviations
- ✔ Position/velocity feedback
- ✔ Four serial communication interfaces
- ✔ Fully digital
- ✔ Built-in temperature sensor



# Typical Product

Encoders: 17bit Magnetic Encoder

## High reliability and strong environmental adaptability

- ✍ 17 bit single-turn absolute magnetic encoder
- 🏠 Split-type mounting makes installation easier
- 🔧 High Robustness for pollution, shock and vibration
- 🌡 Operating temperature: -10°C to 105°C
- 📡 RS485 communication interface
- 📄 Maximum output frequency up to 16kHz

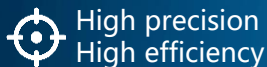


17 bit Magnetic Encoder



## Solutions for Semiconductors Industry

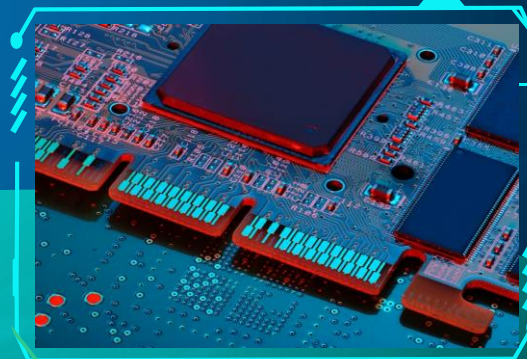
Wafers is the foundation of the semiconductor industry. During manufacturing, **accurate action control** is critical to prevent wafer defects and maximize wafer processing throughput. Our company can provide servo solutions for equipment such as **wire bonders**, **separators** and **wafer dicing machines**, to reduce position errors and shorten the positioning time of the equipment so as to improve production efficiency.



High precision  
High efficiency



Collaborative operation of electric rotating machinery and linear motor



CDHD-High Performance

Servo Drives

PRHD2 Servo Motor






## Solutions for Lithium Battery Industry

Lithium batteries have special discrete production characteristics and the need for accurate docking of racks, which calls for **reliability** and **stability** of the equipment before, during and after the manufacturing processes and for **high accuracy of the process control**. We can provide a high-performance servo system to enable efficient, stable and high-precision manufacturing of production equipment.

 Highly coordinated on turning

 High usability, High compability



*BDHDE-Servo Drive*

*PRHD2 Servo Motor*



## Solutions for SCARA Robotics Industry

The servo system of SCARA industrial robot is a key element that restricts SCARA from improving production efficiency. We adopt the servo system composed of the AIO system and the PH2-R series servo motor, which has the characteristics of **high efficiency, high speed** and **high accuracy**, and is suitable for many application scenarios such as **pick and place, precision assembly, handling, glue dispensing, and glue coating**.



Shorter cycle time for the robot



Higher performance and accuracy of the robot



Quickly adapt to almost all required applications



*AIO-High Performance  
Multi-Axis Drives*

*PRHD2-R Series  
Servo Motor*





## Solutions for Laser Industry

Equipment used in the laser industry often has a high degree of flexibility, fast cutting speed, high production efficiency and high processing accuracy. We can provide complete servomechanism for laser cutting machines to **improve the cutting process while improving cutting accuracy and economy of equipment use.**



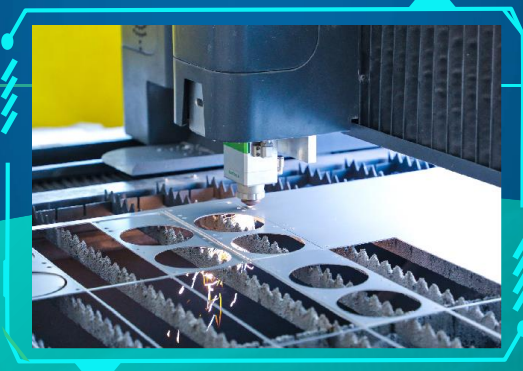
High power, low inertia



Customized motor



CDHD-High Performance PRHD2 Servo Motor  
Servo Drive



BDHDE-Servo Drive PRHD2 Servo Motor



## Solutions for PV Industry

Photovoltaic equipment as a whole has a high demand for servomechanism, with many axes and **faster response timeliness**, We can provide **high-speed and high-precision control** servomechanism solutions, which can be used in **screen printing machines, coating machines** and other equipment.



High power, Low inertia



Custom performance motor



CDHD-High Performance  
Servo Drives

PRHD2 Servo Motor



## Solutions for 3C Industry

In the 3C industry, common equipment such as surface mount systems, testing equipment, PCB drilling machine, glass cutting machine and so forth have strong demand for **accuracy and efficiency**. Our high-performance servomechanism can be fully customized and developed according to requirements and has the technical advantages of high precision and high efficiency.

 Provide full customization

 High precision, high efficiency



*CDHD-High Performance  
Servo Drives*

*PRHD2 Servo Motor*

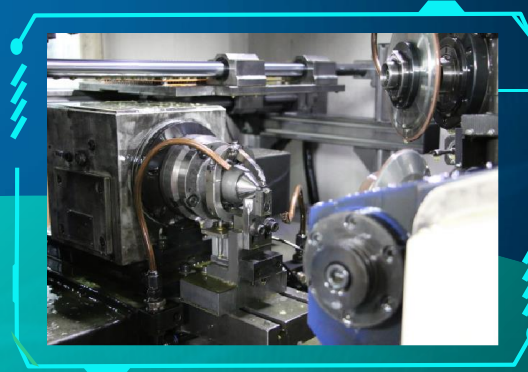


## Solutions for Linear CNC Industry

CNC is the core of the precision machine tool for metal machining. The special spindle motor and drive are necessary to drive the spindle of the machine tool, while the **high-performance** servo drive is used to locate the machining objects in the Cartesian space (X, Y and Z-axes), and is currently mainly used in the engraving and milling machine tool.

Special HDM algorithm for the industry

High speed, high precision



CDHD-High Performance  
Servo Drives

CDHD2-High Performance  
Servo Drives


PRHD2 Servo Motor



## Solutions for woodworking Industry

The mass customized production mode is adopted in the woodworking industry, which requires various **flexible production** such as cutting, edge sealing and drilling. M1 servo system, as the main machine drive component, is mainly used for the X, Y and Z axes of cutting machine, which can **match with various control systems** and be applied to engraving equipment such as side punch and veneer peeling lathe.

 Advanced control algorithms

 High efficiency



*M1 high-performance multi-axis drive system*



## Solutions for Manipulator Industry

Manipulator is an automatic operating device used to capture and handle objects or operate tools with the fixed procedure. DS2P servo system, as the main component of manipulator drive system, is mainly used for three-axis and five-axis manipulators. After being matched with a variety of control systems, it can be applied to automatic production equipment such as machine tool pick-up equipment and injection molding pick-up equipment, so that the manipulator has the advantages of **high precision**, **short control response** time and good repeatability, and the production capacity can be **increased by 30-40%** by using this manipulator.



High response, Strong performance



DS2P-Servo Drive    DM1M Servo Motor



Strong overload ability








## Solutions for Dispensing Machine Industry

Dispensing machine is an automatic machine specialized in fluid control, which can meet the development needs of **high precision**, **high efficiency**, **high quality and intelligence** in many fields of automatic production. Our servo system can help the dispensing operation to locate more accurately and achieve dispensing with higher precision.

 High speed

 High precision



*BDHDE-Servo Drive*

*CDHD2-Servo Drive*


*PRHD2 Servo Motor*





## Solutions for Printing Industry

Special requirements for digital printing may include: drum synchronization system with gap and gear, interference (gripper) and change (weight of paper), paper feed or continuous paper, CYMK overprinting (strip), etc. We provide servo drive solutions for the entire printing process starting from the pre-print stage, including various types of printing, such as **digital printing** and **wide-format printing**.

 High stability

 High precision and fast speed




*BDHDE-Servo Drive PRHD2 Servo Motor*



## Solutions for New Energy Industry

**Efficient motion solutions** are required in the new energy industry, especially wind turbines, solar-powered and heat pump combination technology, and the development and manufacturing of electric vehicles. Our representative solution for the development of customized servo drives for the clean technology industry is the 2.5 MW wind turbine variable-pitch control drive, which is used for the blade pitch control in the variable-pitch control system of the fan hub.

 Advanced control algorithm

 High efficiency



*PPD-Pitch Control Drive*





## Solutions for Medical Treatment Industry

Nuclear Medicine, PET/CT scanners and MRI machines **demand precision** for **high inertia loads at high speeds**. Precise and smooth control of the patient table is critical in ensuring the accuracy of the diagnostic image as well as patient's comfort.



High stability, safety and reliability



*MCM-Motion Control Module*



always in motion™