

ATA QB-S Series Medium-Voltage Soft Starter



PRODUCT MANUAL

Dedicated to Motor Drive and Control

A modern, multi-story office building with a glass facade and a concrete frame. The building is identified by the logo 'ATF 奥托科技' at the top. The image is used as a background for a corporate culture presentation, with a semi-transparent blue box overlaid on the left side containing text.

ATF 奥托科技

Corporate Culture

Vision

To be a leader in motor drive and control

Mission

Inherit the military gene, create first-class products, and make national contributions

Values

Integrity, unity, creativity, risk taking

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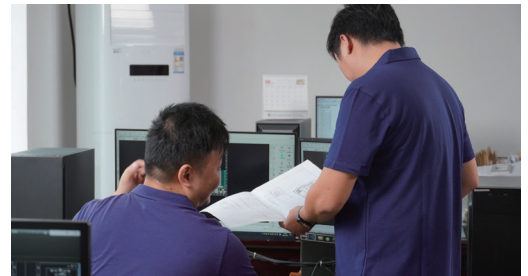
Company Profile

Changsha ATA Automation Co., Ltd. is a national “Little Giant” enterprise specialized in the R&D, production, and sales of soft starters, variable frequency drives (VFDs), and intelligent motor control solutions. We have consistently focused on the development of motor drive and control products and the provision of complete solutions, establishing in-depth cooperation with over 1,000 large-scale enterprises.



A highly experienced R&D team has independently established the Changsha Medium/High Voltage High-Power Variable Frequency Soft-Start Technology Innovation Center and the Hunan Provincial Enterprise Technology Center, fostering deep exchanges with global researchers and experts to ensure product reliability.

With over 80 patents, more than 20 software copyrights, and participation in numerous national standard formulations, we have achieved key technological breakthroughs—including series voltage equalization, medium-low voltage isolation, large-margin long-life multi-level redundancy, flying start, three-phase digital phase-locked loop algorithms, high-power seamless switching, and reliable thyristor/IGBT drive and magnetic triggering. Our medium-voltage soft starters ($\geq 28,000$ kW) and variable-frequency soft starters ($\geq 16,000$ kVA) have been successfully deployed in major projects, positioning us as an industry leader and trusted partner.



The company's flagship products include low-voltage soft starters, medium-voltage soft starters, low-voltage variable frequency drives, medium-voltage variable frequency drives, medium-voltage variable frequency soft starters, and motor intelligent drive controllers. These products are widely used across diverse industrial sectors such as metallurgy, petroleum, chemicals, machinery, shipbuilding, oil fields, mining, papermaking, cement, fire protection, power generation, coal mining, and wastewater treatment.

We have been successfully applied in major domestic and international enterprises and national key projects, including PetroChina, Sinopec, CNOOC, Ansteel Group, Shougang Group, and Messer Group. The company has earned consistent praise from customers for its superior product quality and reliable after-sales service. The products are exported to countries including Saudi Arabia, Oman, Indonesia, Malaysia, Vietnam, Russia, Democratic Republic of the Congo, Zambia, Georgia and Brazil etc, enjoying a strong international reputation.

Certifications

Since 1998 – Driving & Protecting Industrial Power Systems



- ISO 9001 Quality Management System Certification
- ISO 14001 Environmental Management System Certification
- ISO 45001 Occupational Health and Safety Management System Certification
- Intellectual Property Management System Certification
- CCC Certification
- CE Certification
- EAC Certification



Product Description

ATA QB-S series medium-voltage soft starter is mainly used for the control and protection of starting, operation and stopping of medium-voltage AC motors.

The device integrates computer control technology and power electronics technology, adopting medium-voltage high-power thyristors as main circuit switching components. By adjusting the thyristor conduction angle, it controls smooth voltage rise/fall and contactless on/off of the motor to achieve stable start-stop. It starts the motor with ideal current, effectively reducing grid impact, equipment vibration, noise and starting mechanical stress, and extending the service life of the motor and related equipment.

This series of medium-voltage soft starters features advanced technology, stable and reliable operation, and comprehensive protection functions, with performance reaching the advanced level of international similar products.

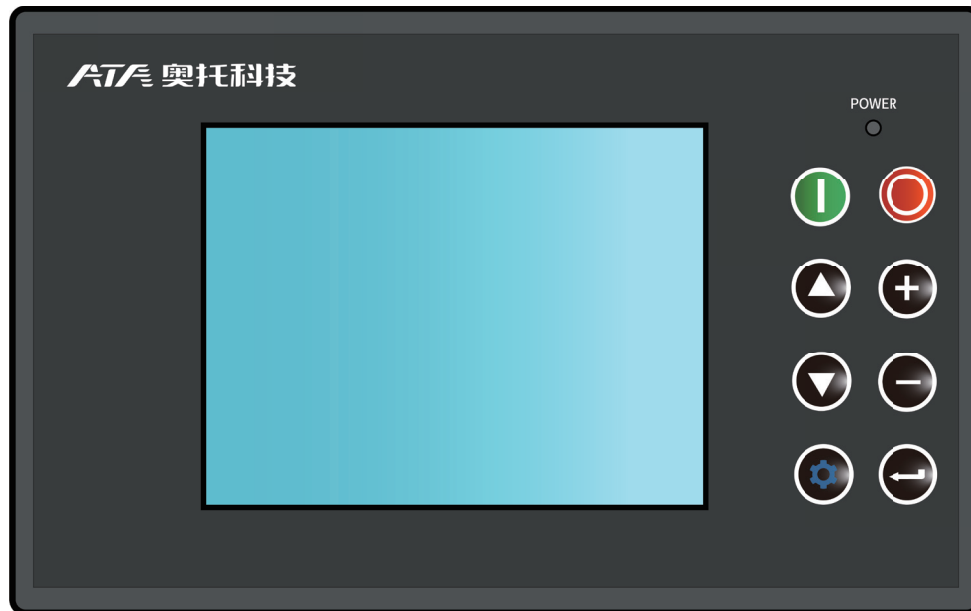


ATA QB-S Series Medium-Voltage Soft Starter

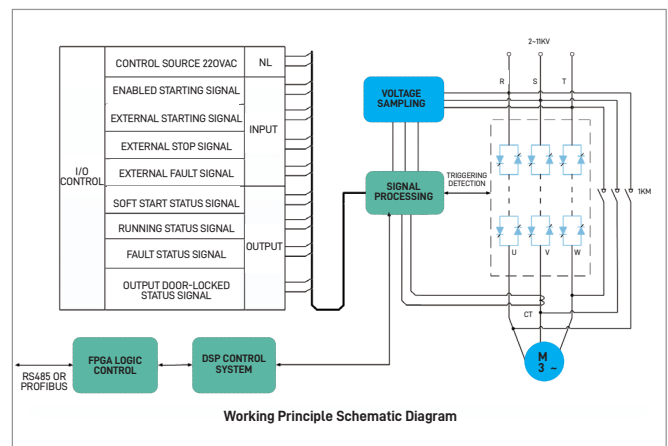
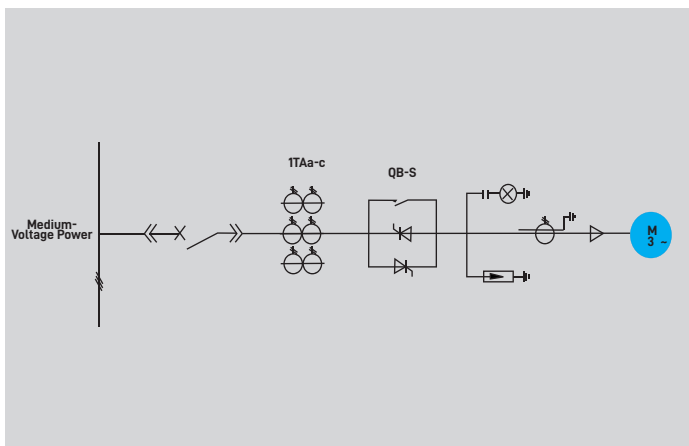
- Comprehensive applicable voltage levels
- Wide industry applications
- Full load adaptability
- Broad application frequency range

Operation Interface

The operation interface of the ATA QB-S series medium-voltage soft starter is shown below. The display has backlight control and screen protection functions. Unified management of Chinese/English display and data communication ensures efficiency, reliability, and excellent human-machine interaction.



Cubicle Assembly Solution

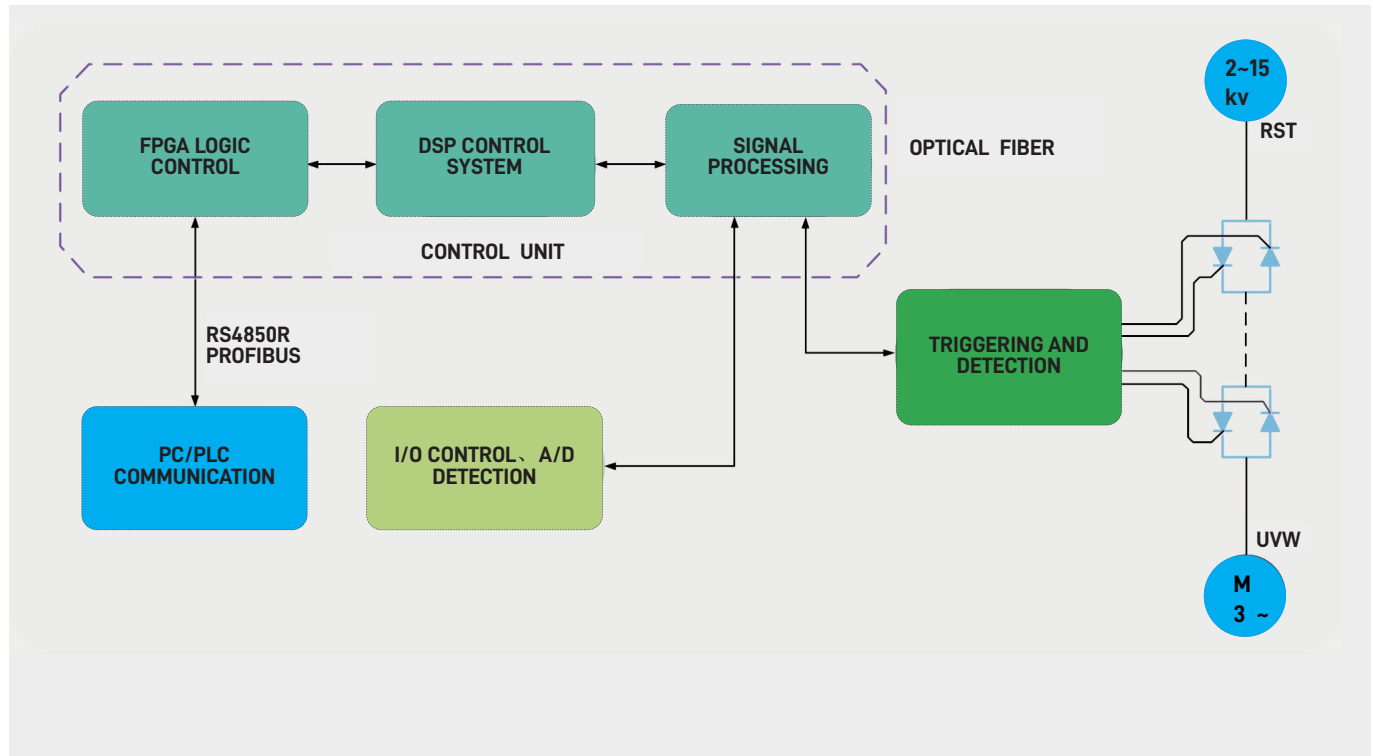


System Structure

- ☒ Medium-Voltage Thyristor Module
- ☒ Voltage Sharing Protection Component
- ☒ Vacuum Switch Component
- ☒ Signal Acquisition and Protection Component
- ☒ Optical Fiber or Magnetic Ring Trigger Component
- ☒ System Control and Display Component

Product Features

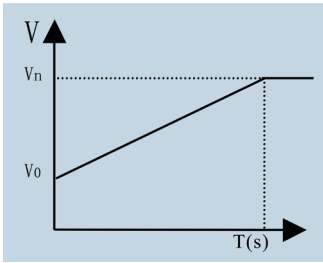
Control Block Diagram



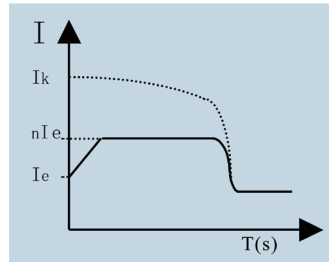
- 01** Medium-voltage thyristors serve as the main circuit components, equipped with voltage sharing protection and overvoltage protection systems.
- 02** Advanced optical fiber or magnetic ring transmission technology isolates the trigger detection of medium-voltage thyristors from the low-voltage control circuit.
- 03** Dual-CPU structure: The advanced digital signal processor (DSP) executes core control, while the microcontroller manages data and communication—ensuring real-time, efficient device control, intuitive display, high reliability and good stability.
- 04** Multi-level signal processing and isolation technology gives the system strong anti-interference capability.
- 05** Chinese/English display, membrane keys, simple operation and user-friendly interface.
- 06** Equipped with RS-485 or Profibus communication interfaces, enabling communication with upper computers or central control centers.

07 Optional Control Modes

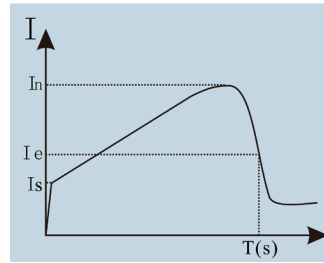
Ramp Voltage Control, Current Limiting Control, Ramp Current Control, Soft Stop Control



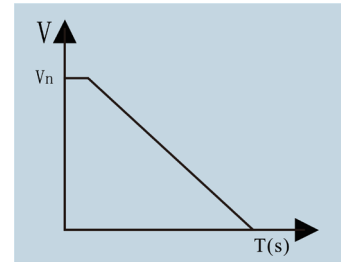
Ramp Voltage Control



Current Limiting Control



Ramp Current Control



Soft Stop Control

08 Diverse Starting Methods

Local Button Starting, Keyboard Key Starting, Upper Computer Remote Starting, Combination Starting

09 Comprehensive Protection Functions

- ▶ Phase Loss & Undervoltage Protection
- ▶ Power Supply Overvoltage Protection
- ▶ Running Overcurrent Protection
- ▶ Thyristor Module Protection
- ▶ Instantaneous Overvoltage Protection

- ▶ Start Interval Time Protection
- ▶ Start Timeout Protection
- ▶ Interlock Control Protection
- ▶ Three-Phase Unbalance Protection
- ▶ Phase Sequence Protection



Technical Specifications

Operating Conditions	
Voltage Range	2~11kV AC
Power Range	110kW~5000kW
Operating Frequency	50Hz/60Hz $\pm$ 1Hz
Phase Sequence Requirement	Can operate under any phase sequence
Load Requirement	Three-phase squirrel-cage induction motors, synchronous motors, wound-rotor motors
Control Power Supply	Provided by user: 220VAC (220VDC, 110VDC available upon agreement)
Cooling Method	Natural cooling
Installation Location	Indoor installation (locations free of conductive dust and violent vibration) Outdoor installation (rain shelter can be added)
Environmental Conditions	Ambient temperature: -20°C ~ +50°C
	Relative humidity: 5%~95% (no condensation)
	Altitude: $\leq$ 1500m (derating is required for altitude >1500m)
Setup Parameters	
Soft Start Time	0~120s (configurable)
Soft Stop Time	0~60s (configurable)
Initial Voltage	20~90% (configurable)
Rated Current	Configurable
Protection Parameters	Configurable
Kick Start Time	0.0~3.0s at 90% voltage (configurable)
Control Mode	Configurable (Ramp Voltage Control, Current Limiting Control, Ramp Current Control)
Start Mode	Configurable (Local, Key, Remote, Combination)

Protection Functions	
Phase Loss & Undervoltage Protection	Undervoltage value is configurable
Power Supply Overvoltage Protection	Overvoltage value is configurable
Running Overcurrent Protection	Automatic inverse-time overcurrent protection with adjustable overcurrent threshold
Thyristor Module Protection	Dynamic & static voltage sharing
Instantaneous Overvoltage Protection	dv/dt absorption network
Start Interval Time Protection	Start interval time is configurable
Start Timeout Protection	Triggers protection when exceeding the soft start time setting
Interlock Control Protection	Mechanical & electrical interlock
Detection Functions	
Current Detection	Phase Current
Voltage Detection	Power Input Voltage and Motor Operating Voltage
Power Quality Monitoring	Measure and analyze the AC power quality at the user's power-receiving end
Communication Interfaces	
Communication Interface	RS-485 and Profibus interfaces (optional)
Communication Protocol	Modbus RTU and Profibus-DP protocols (optional)
Operation Interface	
LCD Display	Chinese/English display, showing various statuses and set parameters
Keyboard	Membrane keys
Status Indicator Lights	Including: Power, Soft Start, Running, Fault
Memory Functions	
Operation Memory	Can automatically download control parameters from EEPROM
Event Log	Can record historical events

Model Description and Dimensions

Model Explanation

ATA QB - S 10/2000

Model Definition:

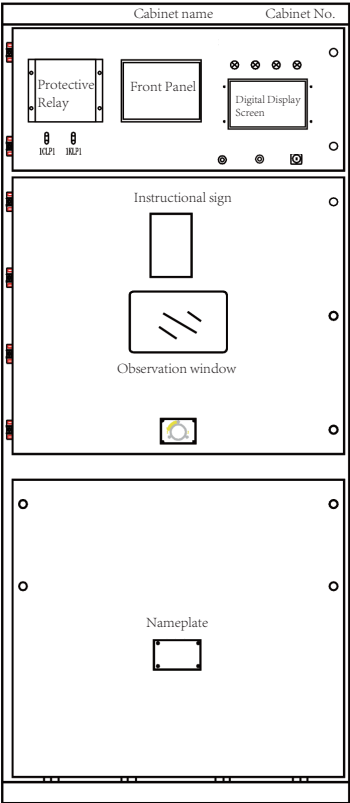
Medium-Voltage Motor
Solid-State Soft Starter

Soft Starter Power Specification:

400 5000kW
(Custom Solution Above 5000kW)

Rated Operating Voltage:

2.4kV	6kV
3kV	6.6kV
3.3kV	10kV
4.16kV	11kV



Front View

Dimensions of Single Cabinet:

Width 800/1000mm*Depth 1510mm*High 2300mm

Note:

Other dimensions can be customized upon negotiation

Soft Starter Device Model	Rated Voltage (kV)	Rated Current (A)	Output Power (kW)	External Dimensions (mm)		
				Width	Depth	Height
ATA QB-S2.4/400	2.4	120	400	800/1000	1510	2300
ATA QB-S2.4/710	2.4	214	710	800/1000	1510	2300
ATA QB-S2.4/1000	2.4	283	1000	800/1000	1510	2300
ATA QB-S03/400	3	96	400	800/1000	1510	2300
ATA QB-S03/710	3	170	710	800/1000	1510	2300
ATA QB-S03/1000	3	240	1000	800/1000	1510	2300
ATA QB-S03/1500	3	340	1500	800/1000	1510	2300
ATA QB-S3.3/400	3.3	88	400	800/1000	1510	2300
ATA QB-S3.3/710	3.3	155	710	800/1000	1510	2300
ATA QB-S3.3/1000	3.3	219	1000	800/1000	1510	2300
ATA QB-S3.3/1500	3.3	328	1500	800/1000	1510	2300
ATA QB-S4.16/400	4.16	69	400	800/1000	1510	2300
ATA QB-S4.16/710	4.16	123	710	800/1000	1510	2300
ATA QB-S4.16/1000	4.16	174	1000	800/1000	1510	2300
ATA QB-S4.16/1500	4.16	260	1500	800/1000	1510	2300
ATA QB-S4.16/2000	4.16	347	2000	800/1000	1510	2300
ATA QB-S06/400	6	48	400	800/1000	1510	2300
ATA QB-S06/710	6	85	710	800/1000	1510	2300
ATA QB-S06/1000	6	120	1000	800/1000	1510	2300
ATA QB-S06/1500	6	170	1500	800/1000	1510	2300
ATA QB-S06/2000	6	230	2000	800/1000	1510	2300
ATA QB-S06/2500	6	280	2500	800/1000	1510	2300
ATA QB-S6.6/400	6.6	44	400	800/1000	1510	2300
ATA QB-S6.6/710	6.6	78	710	800/1000	1510	2300
ATA QB-S6.6/1000	6.6	109	1000	800/1000	1510	2300
ATA QB-S6.6/1500	6.6	164	1500	800/1000	1510	2300
ATA QB-S6.6/2000	6.6	219	2000	800/1000	1510	2300
ATA QB-S6.6/2500	6.6	273	2500	800/1000	1510	2300
ATA QB-S6.6/2800	6.6	306	2800	800/1000	1510	2300
ATA QB-S10/400	10	26	400	800/1000	1510	2300
ATA QB-S10/710	10	52	710	800/1000	1510	2300
ATA QB-S10/1000	10	66	1000	800/1000	1510	2300
ATA QB-S10/1500	10	120	1500	800/1000	1510	2300
ATA QB-S10/2000	10	132	2000	800/1000	1510	2300
ATA QB-S10/2500	10	165	2500	800/1000	1510	2300
ATA OB-S10/2800	10	185	2800	800/1000	1510	2300
ATA OB-S10/3500	10	231	3500	800/1000	1510	2300
ATA OB-S10/4000	10	264	4000	800/1000	1510	2300
ATA OB-S10/4500	10	320	4500	800/1000	1510	2300
ATA QB-S11/400	11	26	400	800/1000	1510	2300
ATA QB-S11/710	11	47	710	800/1000	1510	2300
ATA QB-S11/1000	11	66	1000	800/1000	1510	2300
ATA QB-S11/1500	11	98	1500	800/1000	1510	2300
ATA QB-S11/2000	11	131	2000	800/1000	1510	2300
ATA QB-S11/2500	11	164	2500	800/1000	1510	2300
ATA QB-S11/2800	11	184	2800	800/1000	1510	2300
ATA QB-S11/3500	11	230	3500	800/1000	1510	2300
ATA QB-S11/4000	11	262	4000	800/1000	1510	2300
ATA QB-S11/4500	11	295	4500	800/1000	1510	2300
ATA QB-S11/5000	11	328	5000	800/1000	1510	2300

Applications & Cases

The ATA QB-S series medium-voltage soft starter is suitable for the soft starting of large and medium AC motors with a rated voltage of 2~11kV. This product is widely applied in industrial sectors including large-scale steel, petroleum, chemical, aluminum, fire protection, mining, sewage treatment, and electric power. It can be well matched with motor-driven equipment such as pumps, fans, compressors, crushers, mixers, and belt conveyors.

Typical Project Cases

Steel Industry Cases:



Environmental Upgrading and Transformation Project of Comprehensive Stockyard for Old Ironmaking Line

Soft Starter Model: 10kV 2800kW
Load: Compressor



Startup of Repurposed Nitrogen Turbine in Steel Plant

Soft Starter Model: 10kV 4000kW
Load: Compressor

Petroleum & Petrochemical Industry Cases:



Energy Base – Oil Transportation Project, Section 1

Soft Starter Model: QB-S10/2500
Load Type: Crude Oil Pump



Large Oil Pumping Station Project

Soft Starters Model:
QB-H06/2800, QB-H06/1500, QB-H06/2000
Load Type: Crude Oil Pump

New Energy Industry Cases:



750,000 tons/year photovoltaic module cover glass project

Soft Starter Model:
ATA QB-S10/1100
ATA QB-S10/710

Paper Industry Cases:



China Paper Southern Base High-end Packaging New Material Project

Soft Starter Model: ATA QB-S10/5000
Load Type: Refiner



Jiangxi Zhenguan Multi-function Production Line Project

Soft Starter Model:
ATA QB-S10/710、ATA QB-S10/1000
Motor: Induction Motor

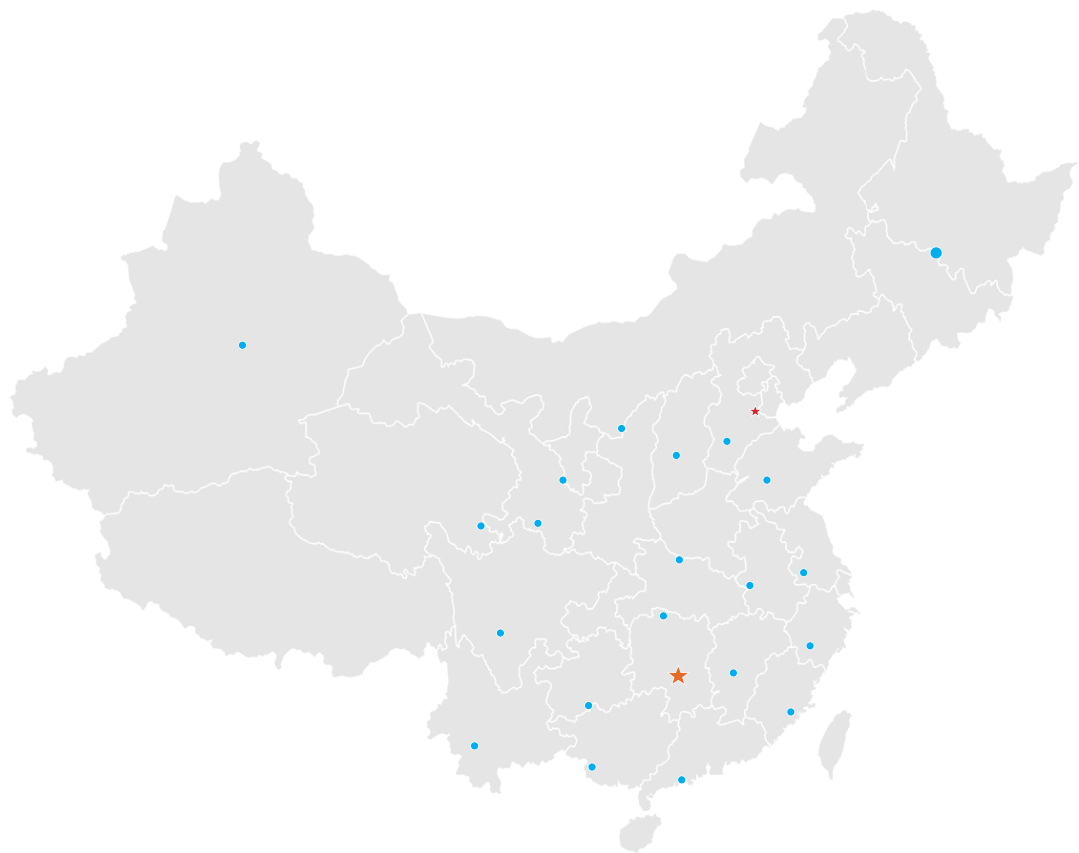
Water Conservancy Industry Cases:

Large Reservoir Irrigation Area Project	
Load:	Water Pump
Motor Type:	Synchronous Motor
Soft Starters Model:	ATA QB-S10/6500 ATA QB-S10/2000 ATA QB-S10/400



Service Support

We provide comprehensive post-sales services including technical consultation, training programs, on-site support, rapid response mechanisms, 24/7 monitoring, scheduled maintenance, and documentation management.



● Subsidiaries / Offices

★ Headquarters / Inventory Center / Spare Parts Center



Service Hotline
+852 6589 9216



Tech. Support Hotline
+86 0731-88996605 +86 0731-88996887

Ordering Instructions

Committed to providing the highest quality services and efficient ordering solutions.

**When placing an order
please provide the following information**

01

Motor Mode
Rated Power
Rated Current
Rated Voltage
Rated Speed

02

The type of motor
driving load such
as fan, water pump,
compressor and
etc.

03

If the device will be
operated in special
environment, please
inform us when you
place the order

04

Please contact
us for additional
requirements

- ◆ The company reserves the right to modify product design and specifications without prior notice.
- ◆ In case of any discrepancy between the images in this product selection manual and the actual product, the actual product shall prevail.
- ◆ The final interpretation right of this product selection manual belongs to Changsha ATA Automation Co., Ltd.



WhatsApp Account



English Website

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