

ATA QB-H Series Medium-Voltage Soft Starter



PRODUCT MANUAL

Dedicated to Motor Drive and Control



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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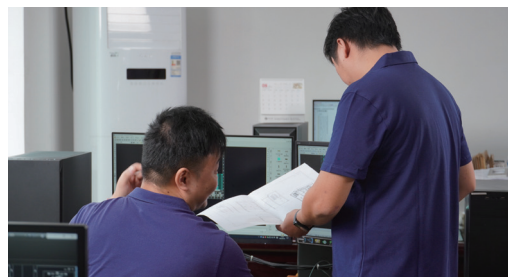
Company Profile

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-H 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.

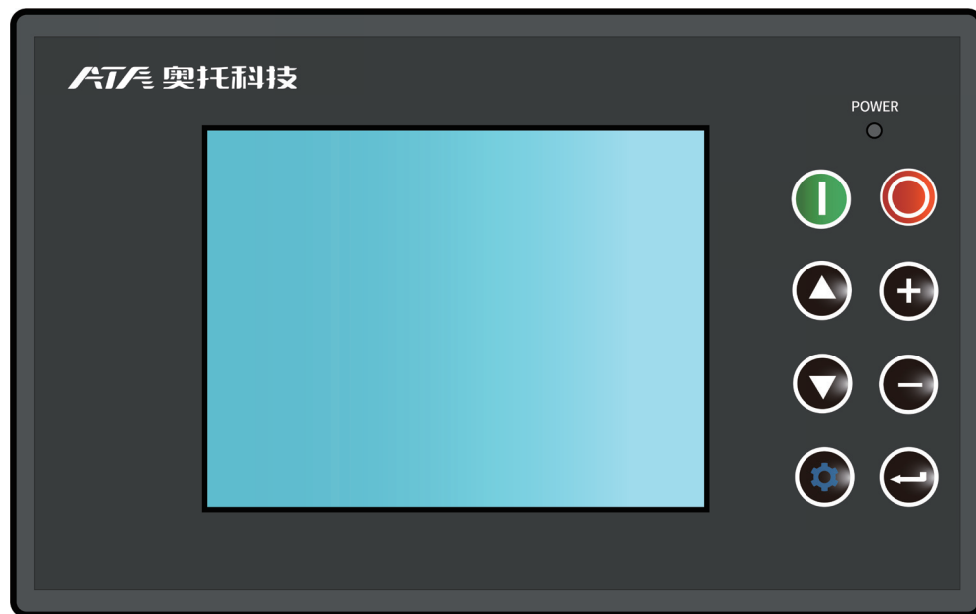


ATA QB-H Series Medium-Voltage Soft Starter

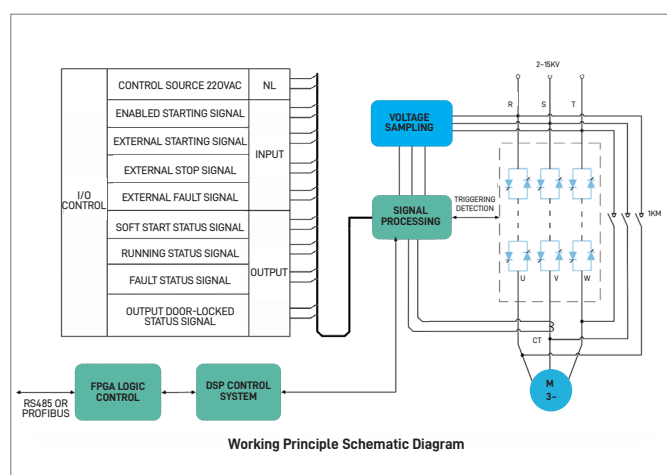
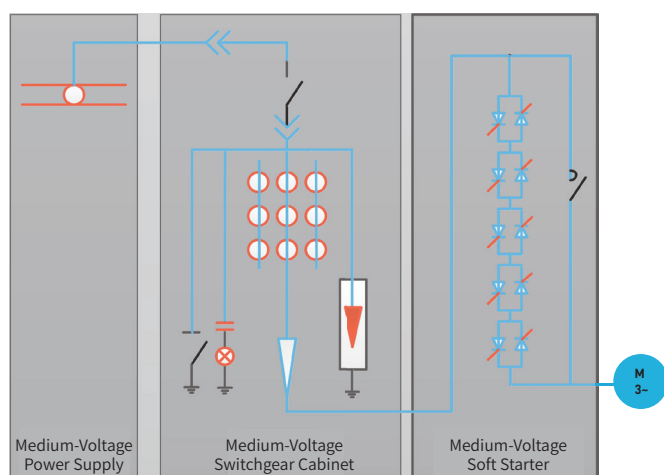
- Comprehensive applicable voltage levels
- Wide industry applications
- Full load adaptability
- Broad application frequency range

Operation Interface

The operation interface of the ATA QB-H 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.



The diagram illustrates the power distribution architecture. It starts with a 'Medium-Voltage Power Incoming Line' (indicated by a blue arrow) entering a 'Medium-Voltage Power Distribution Cabinet' (a large white cabinet with multiple compartments and a control panel). From this cabinet, a 'Medium-Voltage Cable' (indicated by a blue arrow) leads to a 'Medium-Voltage Synchronous Motor' (a large white motor). Another 'Medium-Voltage Cable' (indicated by a blue arrow) leads from the cabinet to a 'Medium-voltage induction motor' (a large blue motor). A third 'Medium-Voltage Cable' (indicated by a blue arrow) leads from the cabinet to a 'Medium-voltage slip-ring motor' (a smaller blue motor). The entire system is set against a dark blue background with glowing blue lines and arrows.

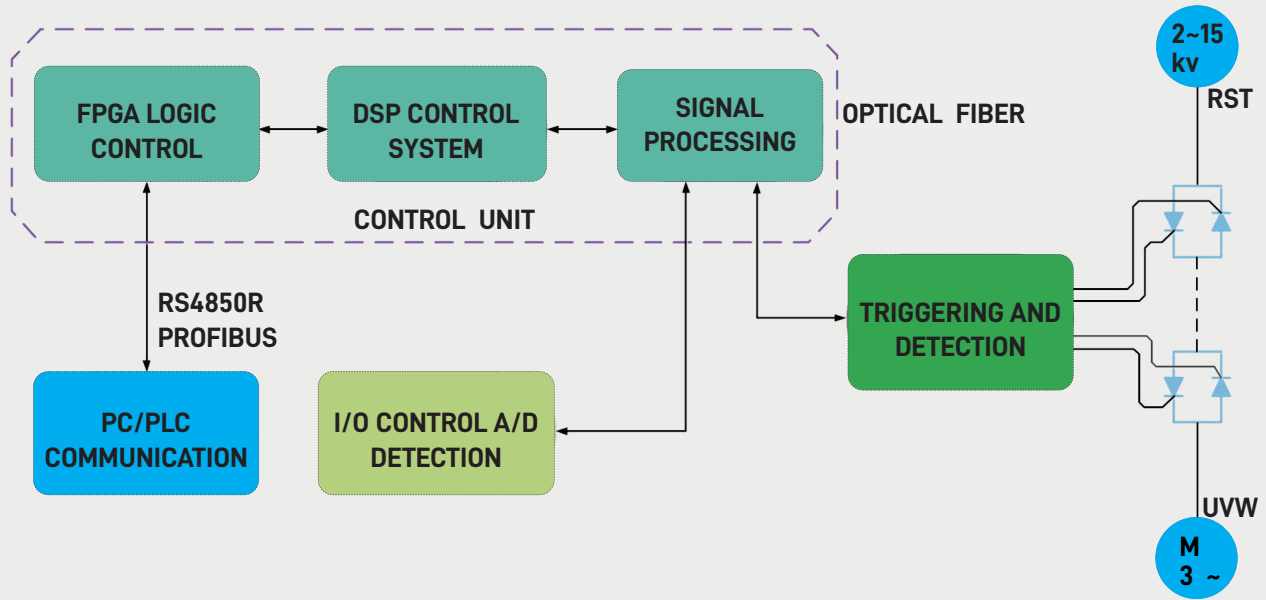


System Structure

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

Product Features

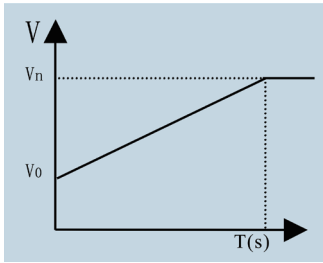
Control Block Diagram



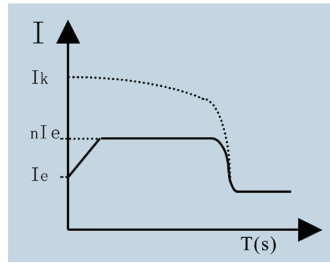
- 01** Medium-voltage thyristors serve as the main circuit components, equipped with voltage sharing protection and overvoltage protection systems.
- 02** Advanced optical fiber or magnetic ring transmission technology isolates the trigger detection of medium-voltage thyristors from the low-voltage control 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

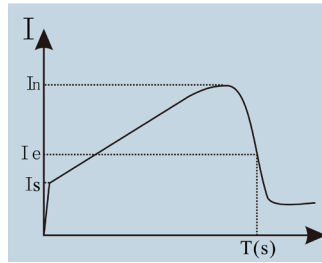
Ramp Voltage Control, Current Limiting Control, Ramp Current Control, Soft Stop Control



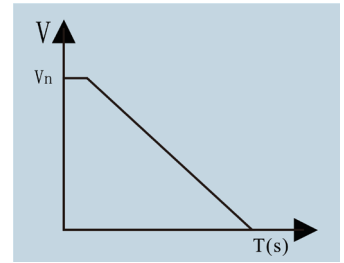
Ramp Voltage Control



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	2~15kV AC
Power Range	110kW~50000kW
Operating Frequency	50Hz/60Hz $\pm$ 1Hz
Phase Sequence Requirement	Can operate under any phase sequence
Load Requirement	Medium-voltage synchronous motor、Medium-voltage induction motor and Medium-voltage slip-ring motor
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	20~80% (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)
Detection Functions	
Current Detection	Phase current
Voltage Detection	Power input voltage
Communication Interfaces	
Communication Interface	RS-485 and Profibus interfaces (optional)
Communication Protocol	Modbus RTU and Profibus-DP protocols (optional)

Protection Functions	
Phase Loss & Undervoltage Protection	Undervoltage value is configurable
Power Supply Overvoltage Protection	Overvoltage value is configurable
Running Overcurrent Protection	Automatic inverse-time protection, CPU-controlled
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
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 - H 10/2500											
Model Definition: Medium-Voltage Motor Solid-State Soft Starter	Soft Starter Power Specification: 2500kW Rated Operating Voltage: <table> <tr> <td>2.4kV</td><td>6.6kV</td></tr> <tr> <td>3kV</td><td>10kV</td></tr> <tr> <td>3.3kV</td><td>11kV</td></tr> <tr> <td>4.16kV</td><td>12.47kV</td></tr> <tr> <td>6kV</td><td>13.8kV</td></tr> </table>	2.4kV	6.6kV	3kV	10kV	3.3kV	11kV	4.16kV	12.47kV	6kV	13.8kV
2.4kV	6.6kV										
3kV	10kV										
3.3kV	11kV										
4.16kV	12.47kV										
6kV	13.8kV										

Soft Starter Device Model	Rated Voltage (kV)	Rated Current (A)	Output Power (kW)	External Dimensions (mm)		
				Width	Depth	Height
ATA QB-H2.4/400	2.4	120	400	800	1500	2300
ATA QB-H2.4/710	2.4	214	710			
ATA QB-H2.4/1000	2.4	283	1000			
ATA QB-H2.4/1500	2.4	425	1500	1000	1500	2300
ATA QB-H2.4/1800	2.4	510	1800			
ATA QB-H03/400	3	96	400	800	1500	2300
ATA QB-H03/710	3	170	710			
ATA QB-H03/1000	3	240	1000			
ATA QB-H03/1500	3	340	1500			
ATA QB-H03/2000	3	453	2000	1000	1500	2300
ATA QB-H03/2300	3	520	2300			
ATA QB-H3.3/400	3.3	88	400	800	1500	2300
ATA QB-H3.3/710	3.3	155	710			
ATA QB-H3.3/1000	3.3	219	1000			
ATA QB-H3.3/1500	3.3	328	1500			
ATA QB-H3.3/2000	3.3	412	2000	1000	1500	2300
ATA QB-H3.3/2500	3.3	515	2500			
ATA QB-H4.16/400	4.16	69	400	800	1500	2300
ATA QB-H4.16/710	4.16	123	710			
ATA QB-H4.16/1000	4.16	174	1000			
ATA QB-H4.16/1500	4.16	260	1500			
ATA QB-H4.16/2000	4.16	347	2000			
ATA QB-H4.16/2500	4.16	408	2500	1000	1500	2300
ATA QB-H4.16/2800	4.16	457	2800			
ATA QB-H4.16/3200	4.16	522	3200			
ATA QB-H06/400	6	48	400	800	1500	2300
ATA QB-H06/710	6	85	710			
ATA QB-H06/1000	6	120	1000			
ATA QB-H06/1500	6	170	1500			
ATA QB-H06/2000	6	230	2000			
ATA QB-H06/2500	6	280	2500			
ATA QB-H06/2800	6	308	2800			
ATA QB-H06/3500	6	386	3500	1000	1500	2300
ATA QB-H06/4000	6	440	4000			
ATA QB-H06/4500	6	500	4500			
ATA QB-H06/5000	6	551	5000	2430	1500	2300
ATA QB-H06/5800	6	639	5800			
ATA QB-H06/6500	6	720	6500			
ATA QB-H06/7100	6	782	7100			
ATA QB-H06/8000	6	882	8000			

Soft Starter Device Model	Rated Voltage (kV)	Rated Current (A)	Output Power (kW)	External Dimensions (mm)		
				Width	Depth	Height
ATA QB-H06/10000	6	1102	10000	3430	1500	2300
ATA QB-H06/14000	6	1470	14000	4800	1500	2300
ATA QB-H06/20000	6	2200	20000			
ATA QB-H6.6/400	6.6	44	400	800	1500	2300
ATA QB-H6.6/710	6.6	78	710			
ATA QB-H6.6/1000	6.6	109	1000			
ATA QB-H6.6/1500	6.6	164	1500			
ATA QB-H6.6/2000	6.6	219	2000			
ATA QB-H6.6/2500	6.6	273	2500			
ATA QB-H6.6/2800	6.6	306	2800			
ATA QB-H6.6/3500	6.6	360	3500	1000	1500	2300
ATA QB-H6.6/4000	6.6	412	4000			
ATA QB-H6.6/4500	6.6	463	4500			
ATA QB-H6.6/5000	6.6	515	5000			
ATA QB-H10/400	10	26	400	800	1500	2300
ATA QB-H10/710	10	52	710			
ATA QB-H10/1000	10	66	1000			
ATA QB-H10/1500	10	120	1500			
ATA QB-H10/2000	10	132	2000			
ATA QB-H10/2500	10	165	2500			
ATA QB-H10/2800	10	185	2800			
ATA QB-H10/3500	10	231	3500			
ATA QB-H10/4000	10	264	4000			
ATA QB-H10/4500	10	320	4500			
ATA QB-H10/5800	10	384	5800	1000	1500	2300
ATA QB-H10/6500	10	440	6500			
ATA QB-H10/7100	10	480	7100			
ATA QB-H10/8000	10	540	8000			
ATA QB-H10/10000	10	680	10000	2430	1500	2300
ATA QB-H10/12000	10	810	12000			
ATA QB-H10/14000	10	927	14000			
ATA QB-H10/18000	10	1100	18000	3430	1500	2300
ATA QB-H10/20000	10	1333	20000	4800	1500	2300
ATA QB-H10/23000	10	1523	23000			
ATA QB-H10/28000	10	1760	28000			
ATA QB-H10/32000	10	2010	32000			
ATA QB-H10/40000	10	2520	40000			
ATA QB-H10/50000	10	3150	50000			

Soft Starter Device Model	Rated Voltage (kV)	Rated Current (A)	Output Power (kW)	External Dimensions (mm)		
				Width	Depth	Height
ATA QB-H11/400	11	26	400	800	1500	2300
ATA QB-H11/710	11	47	710			
ATA QB-H11/1000	11	66	1000			
ATA QB-H11/1500	11	98	1500			
ATA QB-H11/2000	11	131	2000			
ATA QB-H11/2500	11	164	2500			
ATA QB-H11/2800	11	184	2800			
ATA QB-H11/3500	11	230	3500			
ATA QB-H11/4000	11	262	4000			
ATA QB-H11/5800	11	358	5800	1000	1500	2300
ATA QB-H11/6500	11	401	6500			
ATA QB-H11/7100	11	438	7100			
ATA QB-H11/8000	11	494	8000			
ATA QB-H11/8400	11	519	8400			
ATA QB-H12.5/400	12.47	23	400	1000	1700	2300
ATA QB-H12.5/710	12.47	41	710			
ATA QB-H12.5/1000	12.47	58	1000			
ATA QB-H12.5/1500	12.47	87	1500			
ATA QB-H12.5/2000	12.47	116	2000			
ATA QB-H12.5/2500	12.47	145	2500			
ATA QB-H12.5/2800	12.47	162	2800			
ATA QB-H12.5/3500	12.47	203	3500			
ATA QB-H12.5/4000	12.47	232	4000			
ATA QB-H12.5/5800	12.47	336	5800	2430	1500	2300
ATA QB-H12.5/6500	12.47	354	6500			
ATA QB-H12.5/7100	12.47	387	7100			
ATA QB-H12.5/8000	12.47	436	8000			
ATA QB-H12.5/10000	12.47	545	10000			
ATA QB-H12.5/12000	12.47	654	12000			
ATA QB-H12.5/14000	12.47	763	14000			
ATA QB-H13.8/400	13.8	21	400	1000	1700	2300
ATA QB-H13.8/710	13.8	37	710			
ATA QB-H13.8/1000	13.8	52	1000			
ATA QB-H13.8/1500	13.8	78	1500			
ATA QB-H13.8/2000	13.8	105	2000			
ATA QB-H13.8/2500	13.8	131	2500			
ATA QB-H13.8/2800	13.8	146	2800			
ATA QB-H13.8/3500	13.8	183	3500			
ATA QB-H13.8/4000	13.8	209	4000			
ATA QB-H13.8/5800	13.8	303	5800	2430	1500	2300
ATA QB-H13.8/6500	13.8	340	6500			
ATA QB-H13.8/7100	13.8	350	7100			
ATA QB-H13.8/8000	13.8	394	8000			
ATA QB-H13.8/10000	13.8	492	10000			
ATA QB-H13.8/12000	13.8	591	12000			
ATA QB-H13.8/14000	13.8	689	14000			
ATA QB-H13.8/15500	13.8	763	15500			

Applications & Cases

The ATA QB-H series medium-voltage soft starter is suitable for the soft starting of large and medium AC motors with a rated voltage of 2~15kV. 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:



**Baowu Meisteel No.4 Sintering Plant
& No.5 Sintering Plant**

Soft Starter Model: QB-H10/12000 (two drives four)
Load Type: Centrifugal Fan



**Baogang Group – Pellet Belt Roaster Desulfurization
and Denitrification Upgrading Project**

Soft Starter Model: QB-H10/15000
Load Type: Axial Fan



Henan Fengbao Steel Co., Ltd.

Soft Starter Model: QB-H10/19000
Load Type: Axial Compressor (AECC)



Ansteel Ironmaking General Plant No.2 Sintering

Soft Starter Model: QB-H10/8500
Load Type: Axial Flow Fan (Howden Hua)

Oil & Petrochemical Industry Cases:



A certain petrochemical project

Soft Starter Model:
QB-H10/28000 (2 sets)
Load Type: Centrifugal Compressor
(MAN)



Integrated Refining and Petrochemical Project of a Petrochemical Plant in Guangdong

Soft Starter Models:

QB-H10/6500 (4 sets), QB-H10/8500 (2 sets),
QB-H10/10000 (2 sets), QB-H10/12000 (1 set)

Load Type: High Pressure Water Pump (Centrifugal Pump), Reciprocating Compressor



Shandong Petrochemical Plant

Soft Starter Model:

QB-H10/20000

Load Type:
Extruder (Kobelco)



A Petrochemical Plant

Soft Starter Model:

QB-H10/23000 (one drives two)

Load Type:
Axial compressor

Shipbuilding Industry Cases:



Zhoushan COSCO Project

Soft Starter Model: ATAQB-H10/2500

Load Type: Water Pump

Water Conservancy Industry Cases:



Dabie Mountains Huai River Water Supply and Irrigation Project

Soft Starters Model: QB-H10/1000 , QB-H10/1000,
QB-H10/710 , QB-H10/710

Load Type: Water Pump

Foreign-invested Enterprise Cases:



Messer Gas (Germany) Panzhihua Branch Oxygen Compressor System

Soft Starter Model:

ATA QB-H10/19200、ATA QB-H10/17000

Load Type: Centrifugal compressor



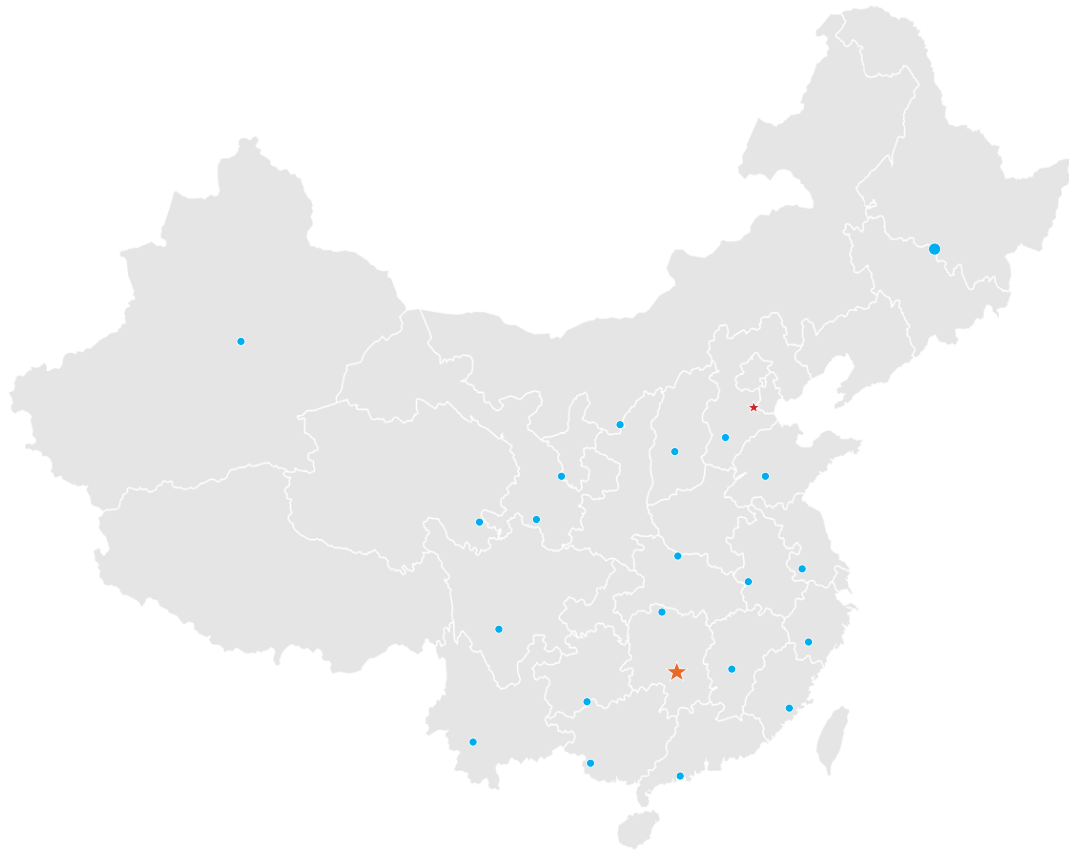
Messer Gas (Germany) Kunming Branch Oxygen Compressor System

Soft Starter Model: ATAQB-H10/22000

Load Type: Centrifugal compressor

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

CHANGSHA ATA AUTOMATION CO., LTD.

Technical Support: +86 0731-88996605/88996887 Tel: +852 6589 9216 Fax: 0731-88996968

URL: en.atawindow.com Address: 38 Lufeng Road, Yuelu District, Changsha City, Hunan , China