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Fujian Aivyter Intelligent Equipment Co., Ltd

# COMPANY PROFILE

Aivyter, established in 2009, and located in Fuzhou China, is a professional enterprise engaged in the R&D, production, sales and service of screw air compressor, drill jumbo, shotcrete manipulator and relative equipment for the engineering construction and mining.

After more than ten years of development, the shareholders have established three factories during this period, namely Fujian Aivyter Intelligent Equipment Co., Ltd., Fuzhou Tuowei Mechanical & Electrical Equipment Co., Ltd and Fujian Aivyter Compressor Co., Ltd. The annual output value is 300 million yuan. There are nearly 200 employees. Among them, there are 20 technical R&D personnel and 70 technicians in after-sales service team. 7 sales personnel in international business department.

Dedicated to strict quality control and thoughtful customer service, our experienced staff members are always available to discuss clients' requirements and ensure full customer satisfaction by supplying high-quality equipment. Aivyter company not only has its own import and export right and stable distributors worldwide, but also has a team of professional after sales and service. In addition, we have obtained CE, TUV, SGS, ISO certificates.

After long-term development, our company has established two well-known brands: Aivyter and TUOWEI.

In domestic market, our Aivyter brand of screw air compressors, drill jumbo and concrete spray manipulators are well-known in tunnel industry, textile industry and steel industry, with cooperation of China Railway Bureau Group Co., Ltd, and also formed a long-term strategic partnership with China Railway (the first) Bureau Group Co., Ltd to China Railway (the tenth) Bureau Group Co., Ltd.

In overseas market, our TUOWEI and Aivyter brand of equipment are widely used in various industries, like textile, steel, shipbuilding, mining, oil field, food, pharmacy, package, electronic, glasses, power, sand blasting, cement, tunnel, railway, municipal engineering. Selling well in all cities and provinces around China, our products are also exported to more than 70 countries and regions, such as, Russia, Thailand, Vietnam, Indonesia, South Africa, Tunisia, Saudi Arabia, Uzbekistan, Danmark, Poland, Mexico, Chile, Peru, India, Pakistan, Malaysia, Philippines, etc.

Our equipment gain wide praises at home and abroad. We also welcome OEM, ODM orders. As a supplier, Aivyter has its own factory, covers an area of 20,000 square meters. Whether selecting a current product from our catalog or seeking engineering assistance for your application, you can email or phone us about your sourcing requirements. We warmly welcome customers all over the world to establish cooperation and create a bright future with us together.

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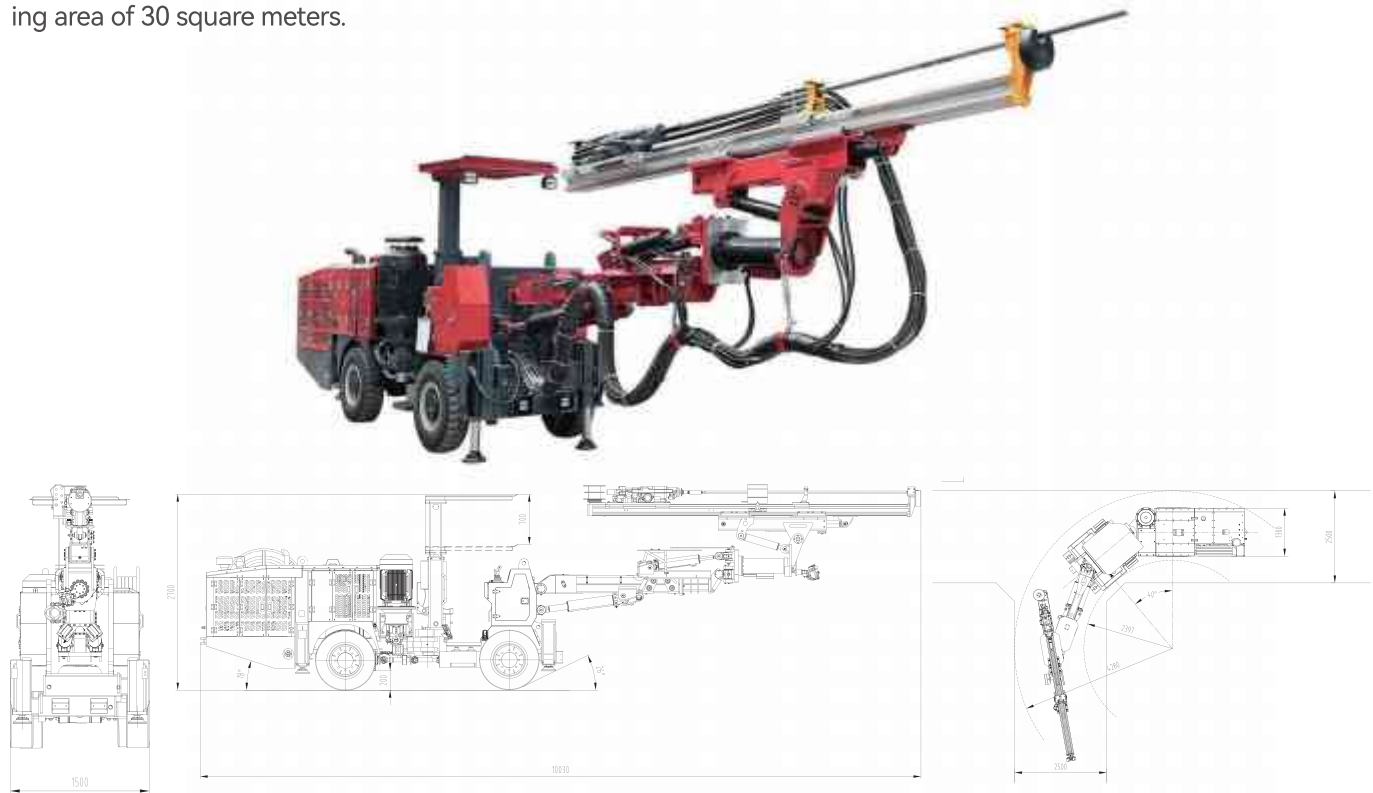
# CERTIFICATE



Single Boom Drilling Jumbo - AZK125

Brief Introduction

It is mainly suitable for excavation operations in metal mines, underground tunnels of hydropower stations, culverts and other fields, especially for drilling blasting holes and anchor holes in narrow tunnels. The equipment adopts a hydraulic rock drilling system, which has advanced system, fast rock drilling speed and high work efficiency; the whole machine has a compact structure, is flexible and mobile, and is convenient for operation in a small space, with a maximum operating area of 30 square meters.



Rock Drill

The brand rock drill has the characteristics of super anti-bending ability, high drilling speed and low loss of drill tools, which effectively improves the adaptability of tunnel hole drilling.

Drill Arm

All-round parallel retractable drill arm, fast and accurate positioning; square structure, high strength and good shock absorption performance.

Electric System

Well-known electrical components such as Schneider and Siemens, with high reliability and long service life; equipped with protection and alarm functions, such as ground fault protection, phase sequence protection, motor overload protection and engine fault alarm.

Feed Beam

Light aluminum alloy beam, high efficiency anti-bending, anti-torsion and anti-fatigue performance, long service life. Unique single-layer hose reel, with reliable hose clamp structure, good hose tensioning performance, effectively improves hose life and reduces maintenance times.

Hydraulic System

The rock drilling operation is directly controlled by hydraulic, and auxiliary actions such as outriggers and lighting are electronically controlled, with simple pipelines and easy maintenance. The drilling system has anti-stuck drill, anti- empty drilling and automatic retraction functions, which effectively improves drilling efficiency and reduces loss of drilling tools.

Main Technical Parameters of AZK125

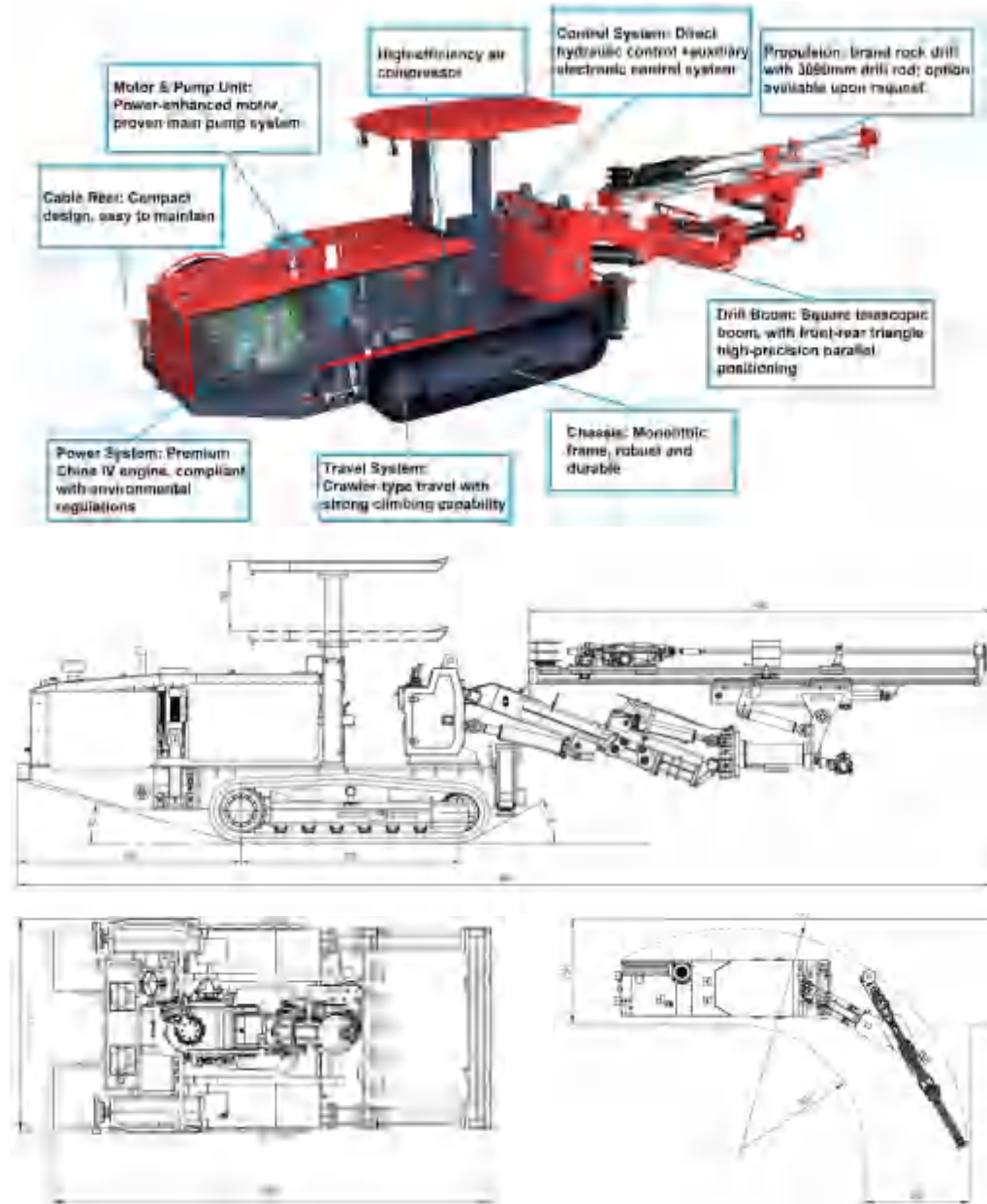
| Item | Category                                  |                                              | Technical parameters                                              |               |
|------|-------------------------------------------|----------------------------------------------|-------------------------------------------------------------------|---------------|
| 1    | Basic parameters                          |                                              |                                                                   |               |
| 1.1  | Equipment weight (kg)                     |                                              | 11300                                                             |               |
| 1.2  | External dimensions (mm) L x W x H        |                                              | 10030X1500X2000(2700)                                             |               |
| 1.3  | Maximum working area (width × height, mm) |                                              | 6200×5430                                                         |               |
| 1.4  | Turning radius (mm)                       |                                              | 5200/7800                                                         |               |
| 1.5  | Maximum coverage area (m²)                |                                              | 30                                                                |               |
| 1.6  | Tunnel width * Height (m)                 |                                              | 2.2x2.3                                                           |               |
| 2    | Equipment Configuration                   |                                              |                                                                   |               |
| 2.1  | Rock drill                                | Model                                        | Standard AD380 (optional)                                         |               |
|      |                                           | Brand                                        | Aivyter                                                           |               |
|      |                                           | Working pressure (MPa)                       | 18                                                                |               |
|      |                                           | Impact frequency (Hz)                        | 60                                                                |               |
|      |                                           | Impact energy (J)                            | 360                                                               |               |
|      |                                           | Maximum slewing torque (N·m)                 | 410                                                               |               |
|      |                                           | Rotation speed (r/min)                       | 180                                                               |               |
|      |                                           | Lubrication air consumption (at 3 bar) (L/s) | 3.3                                                               |               |
|      |                                           | Water consumption (L/min)                    | 30-50                                                             |               |
|      | Drill hole diameter (mm)                  | 45                                           |                                                                   |               |
| 2.2  | Drill arm                                 | Thruster compensation stroke (mm)            | 1500                                                              |               |
|      |                                           | Maintain parallelism throughout the process  | Yes                                                               |               |
|      |                                           | Coverage area (m²)                           | 24                                                                |               |
|      |                                           | Coverage width/height (mm)                   | 5025/5000                                                         |               |
|      |                                           | Boom lifting angle                           | -43°/+52°                                                         |               |
|      |                                           | Boom swing angle                             | ±30°                                                              |               |
| 2.3  | Feed Beam                                 | Total length of the propulsion beam (mm)     | 4740 (standard) / 5400                                            |               |
|      |                                           | Maximum propulsion force (kN)                | 10                                                                |               |
|      |                                           | Drill rod length (mm)                        | 3090 (standard) / 3700                                            |               |
|      |                                           | Drilling depth per push (mm)                 | 2830 (standard) / 3440                                            |               |
|      |                                           | Flip angle                                   | ±360°                                                             |               |
|      |                                           | Rotation angle                               | -3°/+90°                                                          |               |
| 2.4  | Chassis                                   | Climbing ability (°)                         | ±13                                                               |               |
|      |                                           | Engine                                       | Manufacturer                                                      | Yuchai        |
|      |                                           |                                              | Power (kW)                                                        | 55.8          |
|      |                                           |                                              | Maximum torque                                                    | 310Nm/1600rpm |
|      |                                           |                                              | Emission and noise standards                                      | National IV   |
|      |                                           | Transmission system                          | Four-wheel drive                                                  |               |
|      |                                           | Walking speed (km/h)                         | Low speed 5 / High speed 9                                        |               |
|      |                                           | Ground clearance (mm)                        | 200                                                               |               |
|      |                                           | Steering system                              | Articulated steering                                              |               |
|      |                                           | Steering angle (°)                           | ±40                                                               |               |
|      |                                           | Wheelbase (mm)                               | 2300                                                              |               |
| 2.5  | Drilling hydraulic system                 | Hydraulic control method                     | Manual valve control                                              |               |
|      |                                           | Motor power (kW)                             | 55                                                                |               |
|      |                                           | Hydraulic oil tank volume (L)                | 180                                                               |               |
|      |                                           | Pressure oil and return oil accuracy (μm)    | 10                                                                |               |
| 2.6  | Water system                              | Water pump power (kW)                        | 3                                                                 |               |
|      |                                           | Rated flow rate (L/min)                      | 70                                                                |               |
|      |                                           | Water pressure (bar)                         | 12                                                                |               |
|      |                                           | Ratedpressure(MPa)                           | 1.2                                                               |               |
| 2.7  | Electrical system                         | Major electrical component manufacturers     | ABB/Siemens/Schneider                                             |               |
|      |                                           | Voltage (V) / Frequency (Hz)                 | 380/50                                                            |               |
|      |                                           | Startup method                               | Star delta                                                        |               |
|      |                                           | Safety protection system functions           | Leakage protection, overload protection, short circuit protection |               |

## Single Boom Drilling Jumbo - AZK125B

### Brief Introduction

AZK125B is mainly designed for excavation and construction operations in metal mines, underground hydropower tunnels, culverts and other scenarios, and is especially suitable for drilling blast holes and rock bolt holes in narrow road-ways.

The equipment is equipped with an advanced hydraulic rock drilling system, delivering high drilling speed and operational efficiency. With a compact structure and excellent maneuverability, it is well-suited for working in confined spaces, offering a maximum operating coverage of 30m<sup>2</sup>.



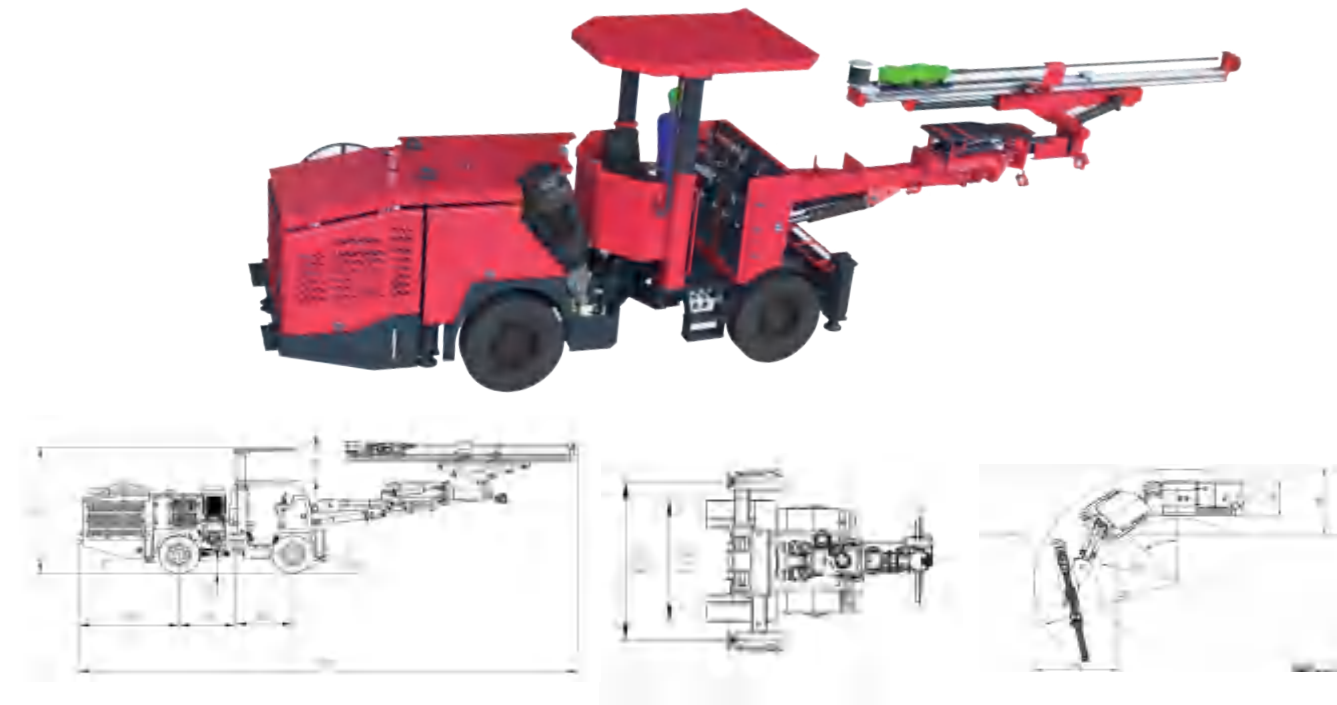
### Main Technical Parameters of AZK125B

| Item | Category                                     |                                                   | Technical parameters                                              |
|------|----------------------------------------------|---------------------------------------------------|-------------------------------------------------------------------|
| 1    | Basic parameters                             |                                                   |                                                                   |
| 1.1  | Equipment weight (kg)                        |                                                   | 10000                                                             |
| 1.2  | Dimensions (mm) L x W x H                    |                                                   | 9400×1430×2170 (2870)                                             |
| 1.3  | Maximum operating range (width x height, mm) |                                                   | 5760×6116                                                         |
| 1.4  | Turning radius (mm)                          |                                                   | 3000/5415                                                         |
| 1.5  | Maximum coverage area (m <sup>2</sup> )      |                                                   | 30                                                                |
| 1.6  | Tunnel width * Height (m)                    |                                                   | 2.5X2.5                                                           |
| 2    | Equipment Configuration                      |                                                   |                                                                   |
| 2.1  | Rock drill                                   | Model                                             | Standard RD19 (optional)                                          |
|      |                                              | Brand                                             | Well-known manufacturer                                           |
|      |                                              | System pressure (bar)                             | 200                                                               |
|      |                                              | Impact power (kW)                                 | 20                                                                |
|      |                                              | Impact energy (Hz)                                | 380                                                               |
|      |                                              | Maximum rotation torque (N·m)                     | 820                                                               |
|      |                                              | Rotation speed (r/min)                            | 220                                                               |
|      |                                              | Lubrication air consumption (at 3bar) (L/s)       | 3.3                                                               |
|      |                                              | Water consumption (L/min)                         | 30-50                                                             |
|      |                                              | Drilling diameter (mm)                            | φ45-φ115                                                          |
| 2.2  | Drill arm                                    | Thruster compensation stroke (mm)                 | 1500                                                              |
|      |                                              | Parallel maintenance throughout the whole process | Yes                                                               |
|      |                                              | Coverage area (m <sup>2</sup> )                   | 24                                                                |
|      |                                              | Coverage width/height (mm)                        | 5025/5000                                                         |
|      |                                              | Boom lifting angle                                | -43° ~ +52°                                                       |
| 2.3  | Feed Beam                                    | Boom swing angle                                  | ±30°                                                              |
|      |                                              | Total length of propulsion beam (mm)              | 4740 (standard)/5400                                              |
|      |                                              | Maximum propulsion force (kN)                     | 15                                                                |
|      |                                              | Drill rod length (mm)                             | 3090 (standard)/3700                                              |
|      |                                              | Drilling depth per push (mm)                      | 2830 (standard)/3440                                              |
|      |                                              | Flip angle(°)                                     | ±360°                                                             |
|      |                                              | Pitch angle(°)                                    | -3°~ +90°                                                         |
| 2.4  | Chassis                                      | Gradeability (°)                                  | 20                                                                |
|      |                                              | Engine                                            | Manufacturer                                                      |
|      |                                              |                                                   | Yuchai                                                            |
|      |                                              |                                                   | Power (kW)                                                        |
|      |                                              |                                                   | 55.8                                                              |
|      |                                              |                                                   | Maximum torque                                                    |
|      |                                              |                                                   | 310Nm/1600rpm                                                     |
|      |                                              |                                                   | Emission and noise standards                                      |
|      |                                              |                                                   | National IV (EURO IV)                                             |
|      |                                              | Transmission system                               | Tracked walking                                                   |
| 2.5  | Drilling hydraulic system                    | Travel speed (km/h)                               | 0~15                                                              |
|      |                                              | Ground clearance (mm)                             | 220                                                               |
|      |                                              | Steering system                                   | Track steering                                                    |
|      |                                              | Hydraulic control method                          | Manual valve control                                              |
| 2.6  | Water system                                 | Motor power (kW)                                  | 55                                                                |
|      |                                              | Hydraulic oil tank capacity (L)                   | 180                                                               |
|      |                                              | Pressure oil and return oil accuracy (μm)         | 10                                                                |
|      |                                              | Water pump power (kW)                             | 3                                                                 |
| 2.7  | Electrical system                            | Rated displacement (L/min)                        | 52 (12bar)                                                        |
|      |                                              | Water outlet pressure (bar)                       | 12                                                                |
|      |                                              | Minimum water inlet pressure (bar)                | 2                                                                 |
|      |                                              | Main electrical component manufacturer            | Schneider                                                         |
|      |                                              | Voltage (V)/frequency (Hz)                        | 380/50                                                            |
|      |                                              | Starting method                                   | Star delta                                                        |
|      |                                              | Safety protection system function                 | Leakage protection, overload protection, short circuit protection |

## Single Boom Drilling Jumbo - AZK135

### Brief Introduction

The AZK135 rock drilling jumbo is primarily designed for underground development operations in metal mines such as gold, iron, and copper, as well as non-metallic mines including gypsum and phosphate. It is also suitable for hydropower projects, small tunnels, inclined shafts, and culverts. The machine is capable of drilling both blast-ing holes and anchor holes.



### Rock Drill

Equipped with a well-known domestic brand rock drill as standard, with optional imported models available. It features excellent anti-bending capability, high drilling speed, and low tool consumption, significantly improving adaptability for contour hole drilling in tunnel-ing applications.

### Hydraulic System

The system replaces the traditional step-based drilling control (collar-ing and drilling stages) with stepless adjustment, greatly improving collar-ing performance. Impact power automatically adjusts according to feed force, reducing drill tool consumption. The use of non-electric proportional hydraulic valves simplifies maintenance and improves system reliability.

### Powertrain System

Powered by a China Stage IV engine and equipped with four-wheel drive, the machine delivers strong gradeability and excellent traction in underground conditions. The braking system adopts a spring-applied, hydraulic-release design, ensuring high safety and reliability during operation.

### Feed Beam

The feed beam features a lightweight yet heavy-duty aluminum alloy structure, offering outstanding resistance to bending, torsion, and fatigue, and ensuring a long service life. It is equipped with a highly compatible hose reel system and a reliable hose clamping structure, enhancing overall adaptability and operational stability.

### Operator Cabin

The operator cabin features a liftable roof design, allowing the machine to adapt to tunnels of varying sizes and meet different operational requirements.

### Electrical System

The electrical system is equipped with electrical components from internationally renowned brands such as Schneider Electric and Siemens, ensuring high reliability and a long service life. The system includes comprehensive protection and alarm functions, such as:

|                           |                           |
|---------------------------|---------------------------|
| Ground fault protection   | Phase sequence protection |
| Motor overload protection | Engine fault alarm        |

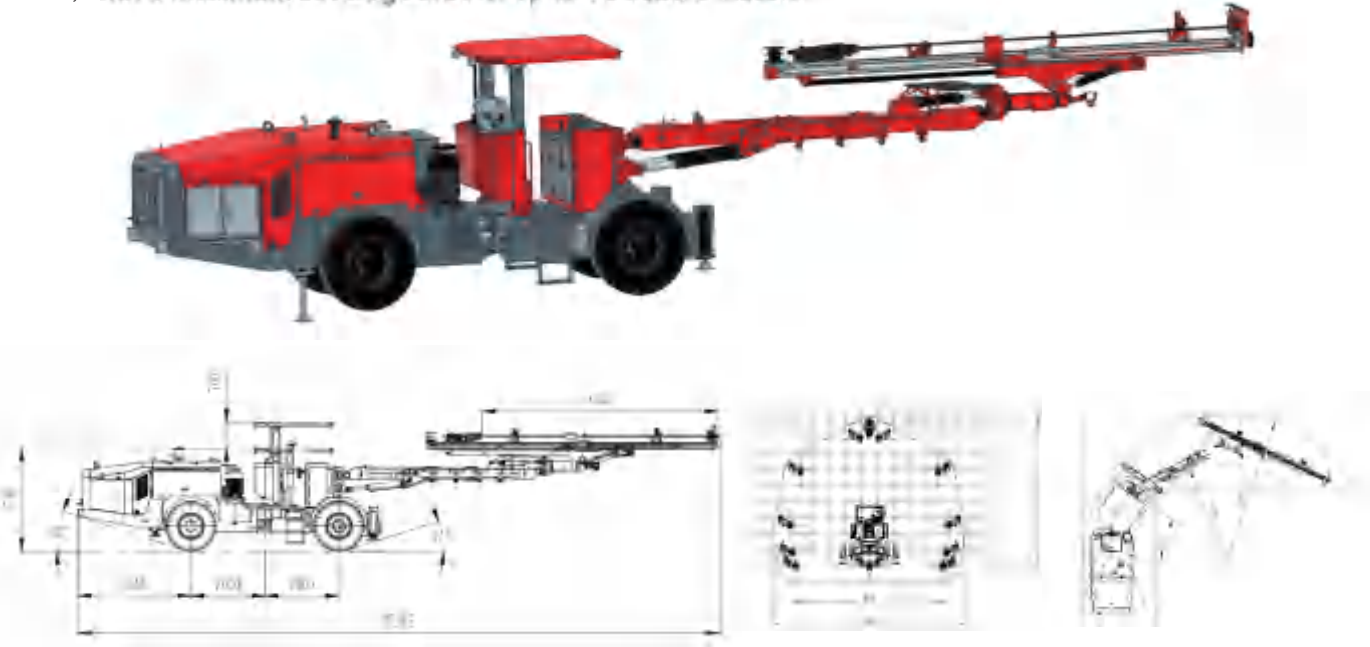
### Main Technical Parameters of AZK135

| NO.            | Category                                         |                                              | Technical parameters      |                                                                   |
|----------------|--------------------------------------------------|----------------------------------------------|---------------------------|-------------------------------------------------------------------|
| 1              | Basic parameters                                 |                                              |                           |                                                                   |
| 1.1            | Equipment weight (kg)                            |                                              | 13000                     |                                                                   |
| 1.2            | External dimensions (mm) Length x Width x Height |                                              | 11400×1750×2430(3130)     |                                                                   |
| 1.3            | Maximum working area (width × height, mm)        |                                              | 6600×6630                 |                                                                   |
| 1.4            | Turning radius (mm)                              |                                              | 2970/5180                 |                                                                   |
| 1.5            | Maximum coverage area (m²)                       |                                              | 35                        |                                                                   |
| 1.6            | Tunnel width * Height (m)                        |                                              | 3x3                       |                                                                   |
| 2              | Equipment Configuration                          |                                              |                           |                                                                   |
| 2.1            | Rock drill                                       | Model                                        | Standard PD400 (optional) |                                                                   |
|                |                                                  | Brand                                        | Well-known manufacturer   |                                                                   |
|                |                                                  | System pressure (bar)                        | 200                       |                                                                   |
|                |                                                  | Impact power (kW)                            | 20                        |                                                                   |
|                |                                                  | Impact energy (J)                            | 400                       |                                                                   |
|                |                                                  | Maximum slewing torque (N·m)                 | 820                       |                                                                   |
|                |                                                  | Rotation speed (r/min)                       | 220                       |                                                                   |
|                |                                                  | Lubrication air consumption (at 3 bar) (L/s) | 3.3                       |                                                                   |
|                |                                                  | Water consumption (L/min)                    | 70                        |                                                                   |
|                | Drill hole diameter (mm)                         | φ43-φ102                                     |                           |                                                                   |
| 2.2            | Drill arm                                        | Coverage area (m²)                           | 35                        |                                                                   |
|                |                                                  | Extension stroke (mm)                        | 1250                      |                                                                   |
|                |                                                  | Thruster compensation stroke (mm)            | 1250                      |                                                                   |
|                |                                                  | Boom lifting angle(°)                        | +65° ~ -30°               |                                                                   |
|                |                                                  | Upper arm swing angle(°)                     | ±40°                      |                                                                   |
|                |                                                  | Automatic parallelism                        | Automatic parallelism     |                                                                   |
| 2.3            | Feed Beam                                        | Total length of the beam (mm)                | 5437(Std.) / 5986         |                                                                   |
|                |                                                  | Maximum thrust (kN)                          | 15                        |                                                                   |
|                |                                                  | Drill pipe length (mm)                       | 3700(Std.)/4310           |                                                                   |
|                |                                                  | Drilling depth per pass (mm)                 | 3400(Std.)/4000           |                                                                   |
|                |                                                  | Flip angle(°)                                | ±180°                     |                                                                   |
|                |                                                  | Pitch angle(°)                               | -4° ~ 90°                 |                                                                   |
| 2.4            | Chassis                                          | Engine                                       | Climbing ability (°)      | 15                                                                |
|                |                                                  |                                              | Manufacturer              | Yuchai                                                            |
|                |                                                  |                                              | Power (kW)                | 55                                                                |
|                |                                                  |                                              | Maximum torque            | 310Nm/1600rpm                                                     |
|                |                                                  | Emission level                               |                           | National IV                                                       |
|                |                                                  | Transmission system                          |                           | Four-wheel drive                                                  |
|                |                                                  | Walking speed (km/h)                         |                           | 0~15                                                              |
|                |                                                  | Ground clearance (mm)                        |                           | 260                                                               |
|                |                                                  | Steering system                              |                           | Articulated steering                                              |
|                |                                                  | Steering angle (°)                           |                           | ±38                                                               |
| Wheelbase (mm) |                                                  | 2800                                         |                           |                                                                   |
| 2.5            | Hydraulic system                                 | Hydraulic control method                     |                           | Multi-way valve control                                           |
|                |                                                  | Motor power (kW)                             |                           | 55                                                                |
|                |                                                  | Hydraulic oil tank volume (L)                |                           | 240                                                               |
|                |                                                  | Pressure oil and return oil accuracy ( μm)   |                           | 10                                                                |
| 2.6            | Water system                                     | Water pump power (kW)                        |                           | 3                                                                 |
|                |                                                  | Rated displacement (L/min)                   |                           | 52 (12bar)                                                        |
|                |                                                  | Water pressure (bar)                         |                           | 12                                                                |
|                |                                                  | Minimum inlet pressure (bar)                 |                           | 2                                                                 |
| 2.7            | Electrical system                                | Major electrical component manufacturers     |                           | ABB / Siemens / Schneider                                         |
|                |                                                  | Voltage (V) / Frequency (Hz)                 |                           | 380/50                                                            |
|                |                                                  | Startup method                               |                           | Star delta                                                        |
|                |                                                  | Safety protection system functions           |                           | Leakage protection, overload protection, short circuit protection |

## Single Boom Drilling Jumbo - AZD190

### Brief Introduction

The AZD190 face rock drill jumbo is mainly suitable for the excavation of medium-sized tunnels and other underground engineering roadways and tunnels. It can drill blasting holes, anchor bolt holes, and slotting holes, with a maximum coverage area of up to 93 square meters.



### Rock drill (drifter)

It comes standard with a domestically renowned brand rock drill, and imported rock drills are optional.

### Drill arm

The drill arm maintains parallel positioning in all directions for rapid and accurate positioning; the cast hinge components paired with the square drill arm provide high rigidity, strength, and shock absorption; internal wear-resistant guide plates with directional planar orientation ensure surface contact sliding between the inner and outer sleeves during drill arm extension and retraction. Adjustable wear-resistant plate gaps guarantee smooth and accurate drill arm movement and a long service life.

### Powertrain

Equipped with a National IV emission standard engine and four-wheel drive, the vehicle boasts strong climbing ability. Its braking system features spring brakes and hydraulic release, ensuring safety and reliability.

### Feed Beam

Lightweight, heavy-duty aluminum alloy beams offer excellent resistance to bending, torsion, and fatigue, resulting in a long service life. Combined with a more versatile hose reel and a reliable clamp structure, it enhances product adaptability.

### Hydraulic system

The traditional hole-opening and tunneling grading system has been upgraded to stepless adjustment, which significantly improves drilling performance. The impact force automatically adjusts according to changes in propulsion force, reducing drill bit wear. The proportional hydraulic valves are hydraulically controlled rather than electrically controlled, reducing potential failure points and making troubleshooting and maintenance easier.

### Electrical system

It uses electrical components from internationally renowned brands such as Schneider Electric and Siemens, ensuring high reliability and a long service life; it is equipped with protection and alarm functions such as ground fault protection, phase sequence protection, motor overload protection, and engine fault alarm.

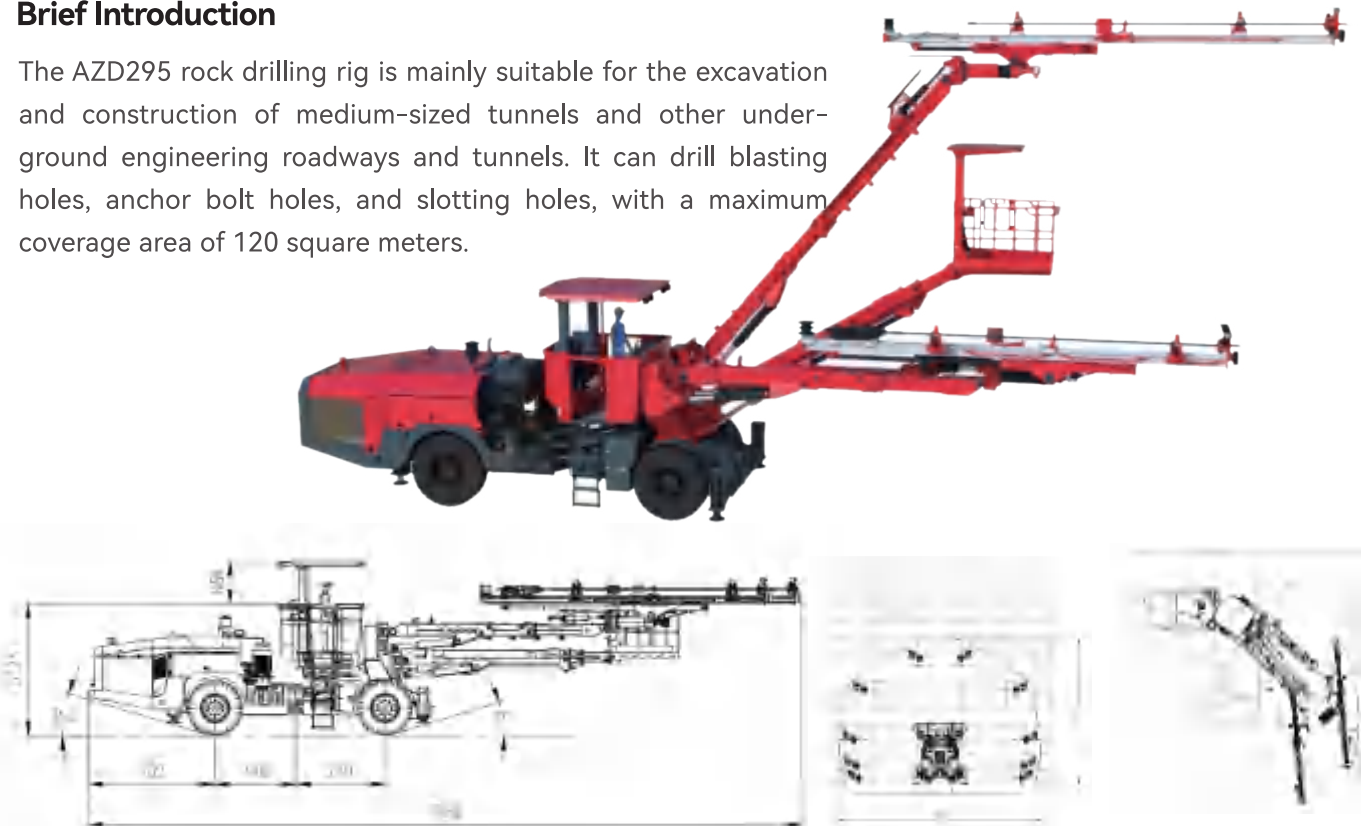
### Main Technical Parameters of AZD190

| NO. | Category                                         |                                              | Technical parameters                                              |                      |
|-----|--------------------------------------------------|----------------------------------------------|-------------------------------------------------------------------|----------------------|
| 1   | Basic parameters                                 |                                              |                                                                   |                      |
| 1.1 | Equipment weight (kg)                            |                                              | 23000                                                             |                      |
| 1.2 | External dimensions (mm) Length x Width x Height |                                              | 17385X2380X2790 (3490)                                            |                      |
| 1.3 | Maximum working area (width × height, mm)        |                                              | 11600 × 9345                                                      |                      |
| 1.4 | Turning radius (mm)                              |                                              | 5193 / 7895                                                       |                      |
| 1.5 | Maximum coverage area (m²)                       |                                              | 93                                                                |                      |
| 1.6 | Tunnel width * Height (m)                        |                                              | 5X5                                                               |                      |
| 2   | Equipment Configuration                          |                                              |                                                                   |                      |
| 2.1 | Rock drill                                       | Model                                        | Standard PD400 (optional)                                         |                      |
|     |                                                  | Brand                                        | Well-known manufacturer                                           |                      |
|     |                                                  | System pressure (bar)                        | 200                                                               |                      |
|     |                                                  | Impact power (kW)                            | 20                                                                |                      |
|     |                                                  | Impact energy ( J )                          | 400                                                               |                      |
|     |                                                  | Maximum slewing torque (N · m)               | 820                                                               |                      |
|     |                                                  | Rotational speed (r/min)                     | 220                                                               |                      |
|     |                                                  | Lubrication air consumption (at 3 bar) (L/s) | 3.3                                                               |                      |
|     |                                                  | Water consumption (L/min)                    | 70                                                                |                      |
|     | Drill hole diameter (mm)                         | φ43 ~φ102                                    |                                                                   |                      |
| 2.2 | Drill arm                                        | Thruster compensation stroke (mm)            | 1800                                                              |                      |
|     |                                                  | Maintain parallelism throughout              | Yes                                                               |                      |
|     |                                                  | Coverage area (m²)                           | 93                                                                |                      |
|     |                                                  | Maximum coverage width/height (mm)           | 11600 × 9345                                                      |                      |
|     |                                                  | Boom lifting angle                           | - 30 ° — + 60 °                                                   |                      |
|     |                                                  | Upper arm swing angle                        | ± 35 °                                                            |                      |
| 2.3 | Feed Beam                                        | Total length of the beam (mm)                | 5400 (optional)                                                   |                      |
|     |                                                  | Maximum thrust (kN)                          | 15                                                                |                      |
|     |                                                  | Drill pipe length (mm)                       | 3700                                                              |                      |
|     |                                                  | Drilling depth per pass (mm)                 | 3440                                                              |                      |
|     |                                                  | Flip angle                                   | ±180°                                                             |                      |
|     |                                                  | Pitch angle                                  | -3 ° —+90°                                                        |                      |
| 2.4 | Chassis                                          | Climbing ability (°)                         | 15                                                                |                      |
|     |                                                  | Engine                                       | Manufacturer                                                      | Yuchai               |
|     |                                                  |                                              | Power (kW)                                                        | 118                  |
|     |                                                  |                                              | Maximum torque                                                    | 688 Nm / 1500rpm     |
|     |                                                  |                                              | Emission level                                                    | National IV          |
|     |                                                  | Transmission system                          |                                                                   | Four-wheel drive     |
|     |                                                  | Walking speed (km/h)                         |                                                                   | 0 ~ 15               |
|     |                                                  | Ground clearance (mm)                        |                                                                   | 325                  |
|     |                                                  | Steering system                              |                                                                   | Articulated steering |
|     |                                                  | Steering angle (°)                           |                                                                   | ± 35                 |
|     |                                                  | Wheelbase (mm)                               |                                                                   | 4000                 |
| 2.5 | Drilling hydraulic system                        | Hydraulic control method                     | Manual valve control                                              |                      |
|     |                                                  | Motor power (kW)                             | 55                                                                |                      |
|     |                                                  | Hydraulic oil tank volume (L)                | 400                                                               |                      |
|     |                                                  | Pressure oil and return oil accuracy ( μm)   | 10                                                                |                      |
| 2.6 | Water system                                     | Water pump power (kW)                        | 3                                                                 |                      |
|     |                                                  | Rated displacement (L/min)                   | 52 (12 bar)                                                       |                      |
|     |                                                  | Water pressure (bar)                         | 12                                                                |                      |
|     |                                                  | Minimum inlet pressure (bar)                 | 2                                                                 |                      |
| 2.7 | Electrical system                                | Major electrical component manufacturers     | ABB/Siemens/ Schneider                                            |                      |
|     |                                                  | Voltage (V) / Frequency (Hz)                 | 380/50                                                            |                      |
|     |                                                  | Startup method                               | Star delta                                                        |                      |
|     |                                                  | Safety protection system functions           | Leakage protection, overload protection, short circuit protection |                      |

## Double Booms Drilling Jumbo - AZD295

### Brief Introduction

The AZD295 rock drilling rig is mainly suitable for the excavation and construction of medium-sized tunnels and other underground engineering roadways and tunnels. It can drill blasting holes, anchor bolt holes, and slotting holes, with a maximum coverage area of 120 square meters.



### Rock drill (drifter)

It comes standard with a domestically renowned brand rock drill, and imported rock drills are optional.

### Drill arm

The drill arm maintains parallel positioning in all directions for rapid and accurate positioning; the cast hinge components paired with the square drill arm provide high rigidity, strength, and shock absorption; internal wear-resistant guide plates with directional planar orientation ensure surface contact sliding between the inner and outer sleeves during drill arm extension and retraction. Adjustable wear-resistant plate gaps guarantee smooth and accurate drill arm movement and a long service life.

### Powertrain

Equipped with a National IV emission standard engine and four-wheel drive, the vehicle boasts strong climbing ability. Its braking system features spring brakes and hydraulic release, ensuring safety and reliability.

### Feed Beam

Lightweight, heavy-duty aluminum alloy beams offer excellent resistance to bending, torsion, and fatigue, resulting in a long service life. Combined with a more versatile hose reel and a reliable clamp structure, it enhances product adaptability.

### Hydraulic system

The traditional hole-opening and tunneling grading system has been abandoned in favor of stepless adjustment, which greatly improves hole-opening performance; the impact automatically follows changes in propulsion force, resulting in less drill bit consumption; and the absence of electro-hydraulic proportional valves makes maintenance easier.

### Electrical system

It uses electrical components from internationally renowned brands such as Schneider Electric and Siemens, ensuring high reliability and long service life; it is equipped with protection and alarm functions such as ground fault protection, phase sequence protection, motor overload protection, and engine fault alarm.

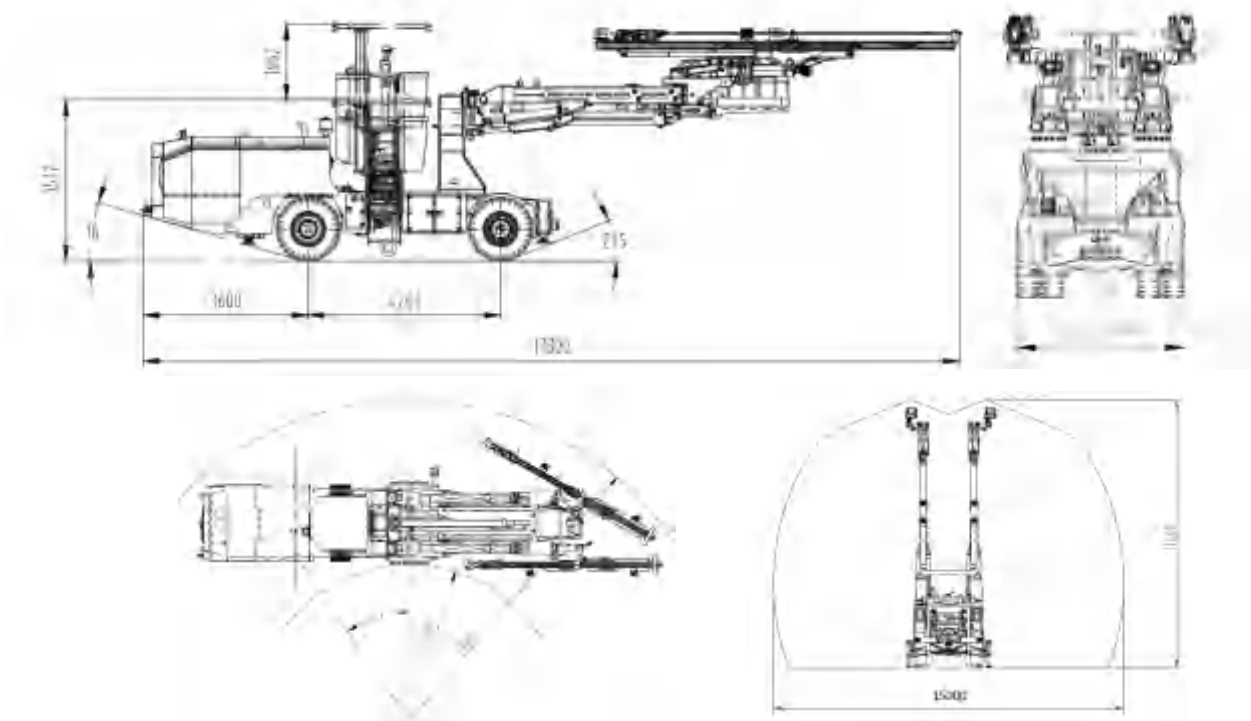
### Main Technical Parameters of AZD295

| NO.            | Category                                         |                                              | Technical parameters                                              |                      |
|----------------|--------------------------------------------------|----------------------------------------------|-------------------------------------------------------------------|----------------------|
| 1              | Basic parameters                                 |                                              |                                                                   |                      |
| 1.1            | Equipment weight (kg)                            |                                              | 35,000                                                            |                      |
| 1.2            | External dimensions (mm) Length x Width x Height |                                              | 17630X2380X3250(3950)                                             |                      |
| 1.3            | Maximum working area (width × height, mm)        |                                              | 13730X9850                                                        |                      |
| 1.4            | Turning radius (mm)                              |                                              | 5350/10300                                                        |                      |
| 1.5            | Maximum coverage area (m²)                       |                                              | 120                                                               |                      |
| 1.6            | Lane width X height (m)                          |                                              | 6X6                                                               |                      |
| 2              | Equipment Configuration                          |                                              |                                                                   |                      |
| 2.1            | Rock drill                                       | Model                                        | Standard PD400 (optional)                                         |                      |
|                |                                                  | Brand                                        | Well-known manufacturers                                          |                      |
|                |                                                  | System pressure (bar)                        | 200                                                               |                      |
|                |                                                  | Impact power (kW)                            | 20                                                                |                      |
|                |                                                  | Impact energy ( J )                          | 400                                                               |                      |
|                |                                                  | Maximum slewing torque (N·m)                 | 820                                                               |                      |
|                |                                                  | Rotational speed (r/min)                     | 220                                                               |                      |
|                |                                                  | Lubrication air consumption (at 3 bar) (L/s) | 3.3                                                               |                      |
|                |                                                  | Water consumption (L/min)                    | 70                                                                |                      |
|                | Drill hole diameter (mm)                         | φ43 -φ102                                    |                                                                   |                      |
| 2.2            | Drill arm                                        | Thruster compensation stroke (mm)            | 1800                                                              |                      |
|                |                                                  | Maintain parallelism throughout              | Yes                                                               |                      |
|                |                                                  | Coverage area (m²)                           | 93                                                                |                      |
|                |                                                  | Maximum coverage width/height (mm)           | 13730X9850                                                        |                      |
|                |                                                  | Boom lifting angle                           | - 30 ° — + 60 °                                                   |                      |
|                |                                                  | Upper arm swing angle                        | ± 45 °                                                            |                      |
| 2.3            | Feed Beam                                        | Total length of the beam (mm)                | 7000 ( optional )                                                 |                      |
|                |                                                  | Maximum thrust (kN)                          | 22.5                                                              |                      |
|                |                                                  | Drill pipe length (mm)                       | 5525                                                              |                      |
|                |                                                  | Drilling depth per pass (mm)                 | 5100                                                              |                      |
|                |                                                  | Flip angle                                   | ±180°                                                             |                      |
|                |                                                  | Pitch angle                                  | -3 ° —+90°                                                        |                      |
| 2.4            | Chassis                                          | Climbing ability (°)                         | 15                                                                |                      |
|                |                                                  | Engine                                       | Manufacturer                                                      | Yuchai               |
|                |                                                  |                                              | Power (kW)                                                        | 140                  |
|                |                                                  |                                              | Maximum torque                                                    | 832 Nm/1600rpm       |
|                |                                                  |                                              | Emission and noise standards                                      | National IV          |
|                |                                                  | Transmission system                          |                                                                   | Four-wheel drive     |
|                |                                                  | Walking speed (km/h)                         |                                                                   | 0 ~ 15               |
|                |                                                  | Ground clearance (mm)                        |                                                                   | 325                  |
|                |                                                  | Steering system                              |                                                                   | Articulated steering |
|                |                                                  | Steering angle (°)                           |                                                                   | ± 35                 |
| Wheelbase (mm) |                                                  | 4200                                         |                                                                   |                      |
| 2.5            | Drilling hydraulic system                        | Hydraulic control method                     | Manual valve control                                              |                      |
|                |                                                  | Motor power (kW)                             | 55                                                                |                      |
|                |                                                  | Hydraulic oil tank volume (L)                | 400                                                               |                      |
|                |                                                  | Pressure oil and return oil accuracy ( μm)   | 10                                                                |                      |
| 2.6            | Water system                                     | Water pump power (kW)                        | 3 * 2pcs                                                          |                      |
|                |                                                  | Rated displacement (L/min)                   | 166                                                               |                      |
|                |                                                  | Minimum inlet pressure (bar)                 | 2                                                                 |                      |
| 2.7            | Electrical system                                | Major electrical component manufacturers     | ABB/Siemens/ Schneider                                            |                      |
|                |                                                  | Voltage (V) / Frequency (Hz)                 | 380/50                                                            |                      |
|                |                                                  | Startup method                               | Star delta                                                        |                      |
|                |                                                  | Safety protection system functions           | Leakage protection, overload protection, short circuit protection |                      |

## Double Booms Drilling Jumbo - AZD2120

### Brief Introduction

The AZD2120 is a twin-arm excavation drilling jumbo specifically designed for multi-stage and full-face excavation methods, overcoming the shortcomings of traditional drilling jumbos that cannot simultaneously meet the needs of multiple excavation methods in a single tunnel. It possesses the capability to perform both multi-stage and full-face excavation, making the equipment more adaptable to a wider range of excavation methods and working conditions, thus redefining the value of multi-arm tunnel drilling jumbos.



### Rock drill

It comes standard with a domestically renowned brand rock drill, and imported rock drills are optional.

### Feed Beam

Lightweight, heavy-duty aluminum alloy beams offer excellent resistance to bending, torsion, and fatigue, resulting in a long service life. Combined with a more versatile hose reel and a reliable clamp structure, it enhances product adaptability.

### Electrical system

It uses electrical components from internationally renowned brands such as Schneider Electric, ensuring high reliability and long service life; it is equipped with protection and alarm functions such as ground fault protection, phase sequence protection, motor overload protection, and engine fault alarm.

### Hydraulic system

The traditional hole-opening and tunneling grading system has been abandoned in favor of stepless adjustment, which greatly improves hole-opening performance; the impact automatically follows changes in propulsion force, resulting in less drill bit consumption; and the absence of electro-hydraulic proportional valves makes maintenance easier.

### Drill arm

The drill arm maintains parallel positioning in all directions for rapid and accurate positioning; the cast hinge components paired with the square drill arm provide high rigidity, strength, and shock absorption; internal wear-resistant guide plates with directional planar orientation ensure surface contact sliding between the inner and outer sleeves during drill arm extension and retraction. Adjustable wear-resistant plate gaps guarantee smooth and accurate drill arm movement and a long service life.



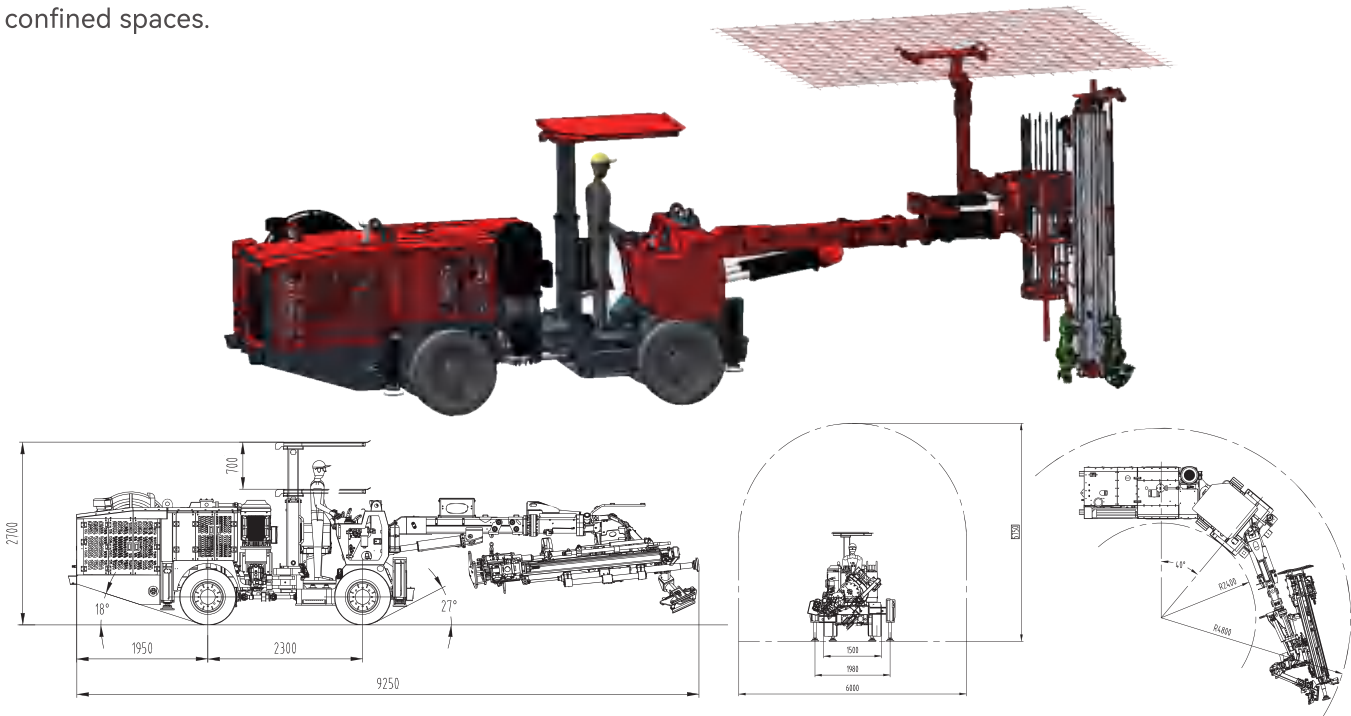
### Main Technical Parameters of AZD2120

| NO. | Category                                         |                                            | Technical parameters            |                |
|-----|--------------------------------------------------|--------------------------------------------|---------------------------------|----------------|
| 1   | Basic parameters                                 |                                            |                                 |                |
| 1.1 | Equipment weight (kg)                            |                                            | 43,000                          |                |
| 1.2 | External dimensions (mm) Length x Width x Height |                                            | 17800X2800X3517(5176)           |                |
| 1.3 | Maximum working area (width × height, mm)        |                                            | 15,000 × 11,682                 |                |
| 1.4 |                                                  | Turning radius (mm)                        | 5800/12000                      |                |
| 2   |                                                  | Equipment Configuration                    |                                 |                |
| 2.1 | Rock drill                                       | Model                                      | Standard PD400×2 (optional)     |                |
|     |                                                  | Impact power (kW)                          | 20                              |                |
| 2.2 | Drill arm                                        | Drill arm extension/retraction stroke (mm) | 2500                            |                |
|     |                                                  | Boom lifting angle                         | +65°/-30°                       |                |
|     |                                                  | Upper arm swing angle                      | ±45°                            |                |
|     |                                                  | Maintain parallelism throughout            | Yes                             |                |
| 2.3 | Feed Beam                                        | Total length of the beam (mm)              | 7000                            |                |
|     |                                                  | Maximum thrust (kN)                        | 22.5                            |                |
|     |                                                  | Drill pipe length (mm)                     | 5525                            |                |
|     |                                                  | Drilling depth per pass (mm)               | 5100                            |                |
|     |                                                  | Compensation stroke of the feed beam (mm)  | 2000                            |                |
|     |                                                  | Flip angle                                 | ±180°                           |                |
|     |                                                  | Swing angle                                | ±45°                            |                |
|     |                                                  | Drill hole diameter (mm)                   | φ43 -φ102                       |                |
| 2.4 | Chassis                                          | Engine                                     | Manufacturer                    | Yuchai         |
|     |                                                  |                                            | Power (kW)                      | 140            |
|     |                                                  |                                            | Emission level                  | National IV    |
|     |                                                  |                                            | Maximum torque                  | 832 Nm/1600rpm |
|     |                                                  | Walking speed (km/h)                       |                                 | 0~ 15          |
|     |                                                  | Climbing ability (°)                       |                                 | 15             |
|     |                                                  | Ground clearance (mm)                      |                                 | 3 8 5          |
|     |                                                  | Tire Model                                 |                                 | 14.00R24       |
|     |                                                  | Motor power (kW) × quantity                |                                 | 55×2           |
| 2.5 | Gas system                                       | Displacement (m³/min)                      | 1.1                             |                |
|     |                                                  | Motor power KW                             | 7.5                             |                |
| 2.6 | Water system                                     | Water pump model                           | CDM10-14/Southern Pump Industry |                |
|     |                                                  | Water pump power (kW)                      | 7.5                             |                |
|     |                                                  | Rated displacement (L/min)                 | 166                             |                |
| 2.7 | Electrical system                                | Major electrical component brands          | ABB/Siemens/ Schneider Electric |                |
|     |                                                  | Total input power (kW)                     | 123                             |                |
|     |                                                  | Voltage (V) / Frequency (Hz)               | 380/50Hz                        |                |
|     |                                                  | Cable length and reel capacity             | 80                              |                |
|     |                                                  | Hydraulic oil tank volume (L)              | 500                             |                |
|     |                                                  | Pressure oil and return oil accuracy (μm)  | 10                              |                |

# Rock Bolting Rig - AZB125

## Brief Introduction

The AZB125 mining hydraulic rock drill rig is mainly suitable for rock bolting operations such as system rock bolt holes and anchor bolt holes in low-lying, small-to-medium-sized underground roadways, tunnels, and culverts. The equipment adopts a hydraulic rock drilling system, which is advanced, has a fast drilling speed, and high work efficiency; the machine has a compact structure, is highly maneuverable, and convenient for operation in confined spaces.



### Rock drill

Imported rock drills (optional) feature superior anti-bending capabilities, high drilling speed, and low drill bit wear, improving the adaptability of drilling side holes in tunnels.

### Drill arm

It offers rapid and accurate positioning; its square structure provides high strength and excellent shock absorption.

### Drilling system

It features anti-jamming, anti-dry drilling, and automatic retraction functions, effectively improving drilling efficiency and reducing drill bit wear.

### Electrical system

It uses internationally renowned brand electrical components, ensuring high reliability and long service life; it is equipped with protection and alarm functions such as ground fault protection, phase sequence protection, motor overload protection, and engine fault alarm.

### Anchor bolt head

It features high versatility, a high-strength ejector cylinder, high anchoring accuracy and production efficiency, and a height-adjustable anchor bolt magazine to store anchor bolts of different lengths, suitable for resin anchor bolts or pipe seam anchor bolts.

### Hood

The vehicle hood features a full-coverage structure, providing safe and reliable protection for the power, transmission, hydraulic, and electrical systems.

### Hydraulic system

The outriggers and ceiling light auxiliary functions are electronically controlled, with simplified piping and easy maintenance.

### Driver's cab

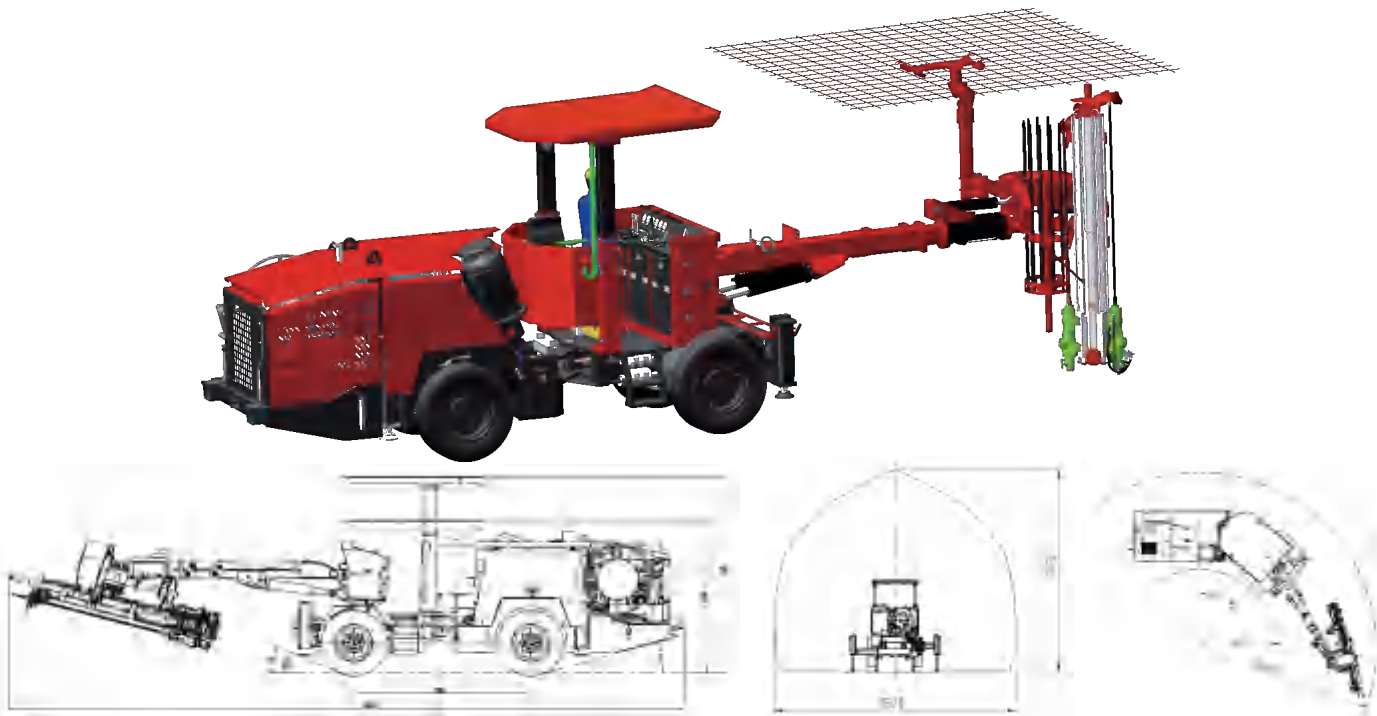
The cab roof can be raised and lowered to adapt to the needs of driving and operating in tunnels of different sizes.

## Main Technical Parameters of AZB125

| No. | Category                                         |                                               | Technical parameters                                                         |                                                                   |
|-----|--------------------------------------------------|-----------------------------------------------|------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1   | Basic parameters                                 |                                               |                                                                              |                                                                   |
| 1.1 | Equipment weight (kg)                            |                                               | 11500                                                                        |                                                                   |
| 1.2 | External dimensions (mm) Length x Width x Height |                                               | 9550×1600×2000(2700)                                                         |                                                                   |
| 1.3 | Working area (width × height, mm)                |                                               | 6550×5850                                                                    |                                                                   |
| 1.4 | Minimum turning radius (mm)                      |                                               | 2350/5350                                                                    |                                                                   |
| 1.5 | Minimum height of mine tunnel(mm)                |                                               | 2500                                                                         |                                                                   |
| 2   | Equipment Configuration                          |                                               | Optional configuration                                                       |                                                                   |
| 2.1 | Rock drill                                       | Model                                         | HC25                                                                         | Domestic brand alternatives                                       |
|     |                                                  | Brand                                         | Manufactured by well-known manufacturer                                      |                                                                   |
|     |                                                  | Impact pressure (bar)                         | 110-150                                                                      |                                                                   |
|     |                                                  | Impact power (kW)                             | 8                                                                            |                                                                   |
|     |                                                  | Impact frequency (Hz)                         | 55-65                                                                        |                                                                   |
|     |                                                  | Maximum slewing torque (N·m)                  | 401                                                                          |                                                                   |
|     |                                                  | Rotational speed (r/min)                      | 300                                                                          |                                                                   |
|     |                                                  | Lubrication air consumption (L/min)           | 300 (2 bar)                                                                  |                                                                   |
|     |                                                  | Water consumption (L/min)                     | 20-50                                                                        |                                                                   |
|     |                                                  | Drill hole diameter (mm)                      | 32-51                                                                        |                                                                   |
| 2.2 | Drill arm                                        | Quantity                                      | 1                                                                            |                                                                   |
|     |                                                  | Control method                                | Rear triangular cylinder + rotary cylinder + pitch cylinder positioning type |                                                                   |
|     |                                                  | Telescopic stroke (mm)                        | 900                                                                          |                                                                   |
| 2.3 | Anchor bolt assembly                             | Quantity                                      | 1                                                                            |                                                                   |
|     |                                                  | Total length of the device (mm)               | 2975/3355/3650/4165                                                          |                                                                   |
|     |                                                  | Anchor bolt length (mm)                       | 1525/1830/2135/2440                                                          |                                                                   |
|     |                                                  | Drill pipe length (mm)                        | 1870/2175/2475/2795                                                          |                                                                   |
|     |                                                  | One-time drilling depth (mm)                  | 1680/1980/2290/2550                                                          |                                                                   |
|     |                                                  | Barrel volume (pcs)                           | 10                                                                           |                                                                   |
|     |                                                  | Flip angle (°)                                | ±180                                                                         |                                                                   |
| 2.4 | Chassis                                          | Walking speed (km/h)                          |                                                                              | 0~10                                                              |
|     |                                                  | Climbing ability(°)                           |                                                                              | 15                                                                |
|     |                                                  | Ground clearance                              |                                                                              | ≥220                                                              |
|     |                                                  | Front and rear wheelbase (mm)                 |                                                                              | 2300                                                              |
|     |                                                  | Forward/Rear track (mm)                       |                                                                              | 1500/1300                                                         |
|     |                                                  | Engine                                        | Manufacturer                                                                 | Yuchai                                                            |
|     |                                                  |                                               | Power (kW)                                                                   | 55                                                                |
|     |                                                  |                                               | Emission level                                                               | National IV                                                       |
|     |                                                  | Transmission system                           |                                                                              | Four-wheel drive                                                  |
|     |                                                  | Braking system                                |                                                                              | Wet dual-circuit emergency braking, mechanical parking brake      |
|     |                                                  | Steering system                               |                                                                              | Articulated steering                                              |
|     |                                                  | Fuel tank volume (L)                          |                                                                              | 60                                                                |
|     |                                                  | Hydraulic control method                      |                                                                              | Direct-acting, multi-way valve control                            |
| 2.5 | Drilling hydraulic system                        | Motor power (kW) × quantity                   |                                                                              | 55×1                                                              |
|     |                                                  | Main hydraulic oil pump manufacturer          |                                                                              | PUSH                                                              |
|     |                                                  | Main hydraulic pump rated pressure (bar)      |                                                                              | 250                                                               |
|     |                                                  | Main hydraulic pump displacement (L/min)      |                                                                              | 100                                                               |
|     |                                                  | Auxiliary hydraulic oil pump manufacturer     |                                                                              | PUSH                                                              |
|     |                                                  | Auxiliary hydraulic pump rated pressure (bar) |                                                                              | 250                                                               |
|     |                                                  | Auxiliary hydraulic pump displacement (L/min) |                                                                              | 60                                                                |
|     |                                                  | Hydraulic oil tank volume (L)                 |                                                                              | 240                                                               |
|     |                                                  | Pressure oil and return oil accuracy (μm)     |                                                                              | 10                                                                |
|     |                                                  | Air compressor manufacturer                   |                                                                              | Aivyter                                                           |
| 2.6 | Air system                                       | Displacement (L/min) / Pressure (bar)         |                                                                              | 700/8                                                             |
|     |                                                  | Gas consumption (L/min)                       |                                                                              | 300                                                               |
|     |                                                  | Booster water pump manufacturer               |                                                                              | Southern Pump Industry                                            |
| 2.7 | Water system                                     | Booster pump power (kW)                       |                                                                              | 3                                                                 |
|     |                                                  | Rated displacement (m3/h)                     |                                                                              | 5                                                                 |
|     |                                                  | Minimum inlet pressure (bar)                  |                                                                              | 2                                                                 |
|     |                                                  | Rated pressure (bar)                          |                                                                              | 12.4                                                              |
|     |                                                  | Water pressure (bar) during drilling work     |                                                                              | 15-25                                                             |
|     |                                                  | Major electrical component manufacturer       |                                                                              | ABB                                                               |
| 2.8 | Electrical system                                | Motor power (kW) × quantity                   |                                                                              | 55×1                                                              |
|     |                                                  | Total input power (kW)                        |                                                                              | 63                                                                |
|     |                                                  | Voltage (V) / Frequency (Hz)                  |                                                                              | 380/50                                                            |
|     |                                                  | Cable length and reel capacity                |                                                                              | 80m                                                               |
|     |                                                  | Startup method                                |                                                                              | Star delta                                                        |
|     |                                                  | Safety protection system functions            |                                                                              | Leakage protection, overload protection, short circuit protection |

## Rock Bolting Rig - AZB135

The AZB135 mining hydraulic rock drill rig is mainly suitable for anchor bolt construction operations such as system anchor bolt holes and locking anchor bolt holes in small and medium-sized underground roadways, tunnels, and culverts. The equipment adopts a hydraulic rock drilling system, which is advanced, has a fast drilling speed, and high working efficiency; the whole machine has a compact structure, is highly maneuverable, and is convenient for operation in confined spaces.



### Rock drill

Imported rock drills feature superior anti-bending capabilities, high drilling speeds, and low drill bit wear, effectively improving the adaptability of drilling side holes in tunnels.

### Drill arm

It offers rapid and accurate positioning; its square structure provides high strength and excellent shock absorption.

### Hydraulic system

The outriggers and ceiling light auxiliary functions are electrically controlled, with simplified piping and easy maintenance.

### Electrical system

It uses internationally renowned brand electrical components, ensuring high reliability and long service life; it is equipped with protection and alarm functions such as ground fault protection, phase sequence protection, motor overload protection, and engine fault alarm.

### Anchor bolt head

It features high versatility, a high-strength ejector cylinder, high anchoring accuracy and production efficiency, and a height-adjustable anchor bolt magazine to store anchor bolts of different lengths, suitable for resin anchor bolts or pipe seam anchor bolts.

### Drilling system

It features anti-jamming, anti-dry drilling, and automatic retraction functions, effectively improving drilling efficiency and reducing drill bit wear.

### Driver's cab

The cab roof can be raised and lowered to adapt to the needs of driving and operating in tunnels of different sizes.

### Hood

The vehicle hood features a full-coverage structure, providing safe and reliable protection for the power, transmission, hydraulic, and electrical systems.

## Main Technical Parameters of AZB135

| No. | Category                                    |                                                 | Technical parameters                                                                                   |                                           |
|-----|---------------------------------------------|-------------------------------------------------|--------------------------------------------------------------------------------------------------------|-------------------------------------------|
| 1   | Basic parameters                            |                                                 |                                                                                                        |                                           |
| 1.1 | Equipment weight (kg)                       |                                                 | 13500                                                                                                  |                                           |
| 1.2 | External dimensions (mm)Length×Width×Height |                                                 | 10700×1800×2400(3100)                                                                                  |                                           |
| 1.3 | Working area (width × height, mm)           |                                                 | 3500×3500-8800×7400                                                                                    |                                           |
| 1.4 | Minimum turning radius (mm)                 |                                                 | ≤6200                                                                                                  |                                           |
| 1.5 | Minimum height of the mine shaft (mm)       |                                                 | 3500                                                                                                   |                                           |
| 2   | Equipment Configuration                     |                                                 | Optional configuration                                                                                 |                                           |
| 2.1 | Rock drill                                  | model                                           | HC28 (optional)                                                                                        | HC25                                      |
|     |                                             | Brand                                           | Manufactured by well-known manufacturer                                                                |                                           |
|     |                                             | Impact pressure (bar)                           | 130-160                                                                                                | 110-150                                   |
|     |                                             | Impact power (kW)                               | 10                                                                                                     | 8                                         |
|     |                                             | Impact frequency (Hz)                           | 47-53                                                                                                  | 55-65                                     |
|     |                                             | Maximum slewing torque (N·m)                    | 482                                                                                                    | 401                                       |
|     |                                             | Rotational speed (r/min)                        | 300                                                                                                    | 300                                       |
|     |                                             | Lubrication air consumption (L/min)             | 300 (3 bar)                                                                                            | 300 (2 bar)                               |
|     |                                             | Water consumption (L/min)                       | 30-60                                                                                                  | 20-50                                     |
|     |                                             | Drill hole diameter (mm)                        | 32-64                                                                                                  | 32-51                                     |
| 2.2 | Drill arm                                   | Quantity                                        | 1                                                                                                      |                                           |
|     |                                             | Control method                                  | Positioning structure adopting rear triangular hydraulic cylinder, slewing cylinder and pitch cylinder |                                           |
|     |                                             | Telescopic stroke (mm)                          | 1250                                                                                                   |                                           |
|     |                                             | Lifting angle (°)                               | +65 ~ -30                                                                                              |                                           |
|     |                                             | Swing angle (°)                                 | ±40                                                                                                    |                                           |
| 2.3 | Anchor bolt assembly                        | Quantity                                        | 1                                                                                                      |                                           |
|     |                                             | Total length of the device (mm)                 | 2975/3355/3650/4165                                                                                    |                                           |
|     |                                             | Anchor bolt length (mm)                         | 1525/1830/2135/2440                                                                                    |                                           |
|     |                                             | Drill pipe length (mm)                          | 1870/2175/2475/2795                                                                                    |                                           |
|     |                                             | Drilling depth per pass (mm)                    | 1680/1980/2290/2550                                                                                    |                                           |
|     |                                             | Bar capacity (bars)                             | 10                                                                                                     |                                           |
|     |                                             | Flip angle (°)                                  | ±180                                                                                                   |                                           |
| 2.4 | Chassis                                     | Walking speed (km/h)                            | 18                                                                                                     |                                           |
|     |                                             | Climbing ability (°)                            | 15                                                                                                     |                                           |
|     |                                             | Ground clearance                                | ≥260                                                                                                   |                                           |
|     |                                             | Front and rear wheelbase (mm)                   | 2800                                                                                                   |                                           |
|     |                                             | Front/rear track (mm)                           | 1540/1540                                                                                              |                                           |
|     |                                             | Front/Rear tire model × Quantity                | 9-20×2/9-20×2                                                                                          |                                           |
|     |                                             | Engine                                          | Manufacturer                                                                                           | YuChai                                    |
|     |                                             |                                                 | Power (kW)                                                                                             | 60                                        |
|     |                                             |                                                 | Exhaust gas emission standards                                                                         | Turbocharged, China III emission standard |
|     |                                             | Transmission system                             | Four-wheel hydraulic drive                                                                             |                                           |
|     |                                             | Braking system                                  | Wet dual-circuit emergency braking, mechanical parking brake                                           |                                           |
|     |                                             | Steering system                                 | Articulated steering                                                                                   |                                           |
|     |                                             | Fuel tank capacity (L)                          | 60                                                                                                     |                                           |
| 2.5 | Drilling hydraulic system                   | Hydraulic control method                        | Direct-acting multi-way valve control                                                                  |                                           |
|     |                                             | Main hydraulic oil pump manufacturer            | PUSH                                                                                                   |                                           |
|     |                                             | Rated pressure (bar) of the main hydraulic pump | 310                                                                                                    |                                           |
|     |                                             | Main hydraulic pump displacement (L/min)        | 100                                                                                                    |                                           |
|     |                                             | Auxiliary hydraulic oil pump manufacturer       | PUSH                                                                                                   |                                           |
|     |                                             | Auxiliary hydraulic pump rated pressure (bar)   | 310                                                                                                    |                                           |
|     |                                             | Auxiliary hydraulic pump displacement (L/min)   | 60                                                                                                     |                                           |
|     |                                             | Hydraulic oil tank volume (L)                   | 240                                                                                                    |                                           |
|     |                                             | Pressure oil and return oil accuracy (μm)       | 10                                                                                                     |                                           |
|     |                                             | Air compressor manufacturers                    | Aivyter                                                                                                |                                           |
| 2.6 | Air system                                  | Displacement (L/min) / Pressure (bar)           | 700/8                                                                                                  |                                           |
|     |                                             | Gas consumption (L/min)                         | 300                                                                                                    |                                           |
|     |                                             | Booster pump manufacturers                      | Southern Pump Industry                                                                                 |                                           |
| 2.7 | Water system                                | Booster pump power (kW)                         | 3                                                                                                      |                                           |
|     |                                             | Rated displacement (m3/h)                       | 5                                                                                                      |                                           |
|     |                                             | Minimum inlet pressure (bar)                    | 2                                                                                                      |                                           |
|     |                                             | Rated pressure (bar)                            | 12.4                                                                                                   |                                           |
|     |                                             | Water pressure (bar) during drilling            | 15-25                                                                                                  |                                           |
|     |                                             | Major electrical component manufacturers        | ABB                                                                                                    |                                           |
|     |                                             | Motor power (kW) × quantity                     | 55×1                                                                                                   |                                           |
| 2.8 | Electrical system                           | Total input power (kW)                          | 63                                                                                                     |                                           |
|     |                                             | Voltage (V) / Frequency (Hz)                    | 380/50                                                                                                 |                                           |
|     |                                             | Cable length and reel capacity                  | 80m                                                                                                    |                                           |
|     |                                             | Startup method                                  | Star/Triangle                                                                                          |                                           |
|     |                                             | Safety protection system functions              | Leakage protection, overload protection, short circuit protection                                      |                                           |

## Shotcrete Spraying Machine -- AWT20

### Product Overview of Shotcrete Machine for Underground Mining

AWT20 shotcrete spraying machine is special designed for the spraying support operation of underground mining, water diversion tunnels, inclined shafts, etc. The maximum spraying volume can reach 20m³/h.

#### Main Features

- ◆ With robust and compact chassis, reduced turning radius and crab-mode that allow a major range of movements.
- ◆ Applying homogeneous shotcrete technique, ensures the required quality and layer thickness of concrete, as well as reducing rebound.
- ◆ The maximum vertical reach of the spraying arm is 8 meters.
- ◆ Automatic additive dosage: equipped with an automatic dosing device proportional to the concrete flow, ensuring spraying accuracy and quality.
- ◆ Easy to operate: thanks to the wireless proportional remote control, the spraying arm can achieve smooth movement.
- ◆ Easy maintenance and repair.
- ◆ On-board electric air compressor.

### Main Parameters of AWT20 Shotcrete Spraying Machine

#### Chassis system

|                        |                                                            |
|------------------------|------------------------------------------------------------|
| Engine                 | Diesel engine                                              |
| Engine power           | 60 kW, Cummins                                             |
| Driving speed          | Low speed 0–5KW/h, high speed 0–15KW/h                     |
| Climbing ability       | 25°                                                        |
| Suspension swing angle | ±8°, to make sure the chassis better adapt to uneven roads |
| Approach Angle         | 15°                                                        |
| Departure angle        | 15°                                                        |
| Steering               | ±40° (articulated steering)                                |
| Ground Clearance       | 300 mm                                                     |
| Whole machine weight   | 12.0 T                                                     |
| Overall dimensions     | 8000*2000*2450 mm (L*W*H)                                  |
| Brake                  | Wet brake                                                  |

#### Concrete pump

|                                                                                                                                                                              |             |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| AWT–SPJ20 hydraulically driven piston concrete pump, automatic fast switching S–type pendulum valve, hopper equipped with vibrating screen and bottom–opening discharge gate |             |
| Pumping capacity                                                                                                                                                             | 4–20 m3/h   |
| Maximum delivery pressure                                                                                                                                                    | 8.0 Mpa     |
| Maximum particle size of aggregate                                                                                                                                           | 20 mm       |
| Diameter of concrete cylinder                                                                                                                                                | 160 mm      |
| Master cylinder diameter × rod diameter × stroke                                                                                                                             | φ90×φ55×580 |
| Feeding height                                                                                                                                                               | 1290 mm     |

#### Electro–hydraulic power pack

|                    |                                                                                                                                                       |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| Electric motor     | 37KW/1480rpm; Protection class: IP55                                                                                                                  |
| Hydraulic pump set | The latest optimized pumping system has stable and reliable performance. The main pump and valve group adopt international and domestic famous brand. |

#### Shotcrete robotic arm

|                                |          |
|--------------------------------|----------|
| Maximum spray vertical height  | 8 m      |
| Maximum horizontal spray width | 13 m     |
| Spray depth                    | 2.5 m    |
| Maximum arm angle              | +65/–40° |
| Telescopic stroke              | 4 m      |

#### Air compressor

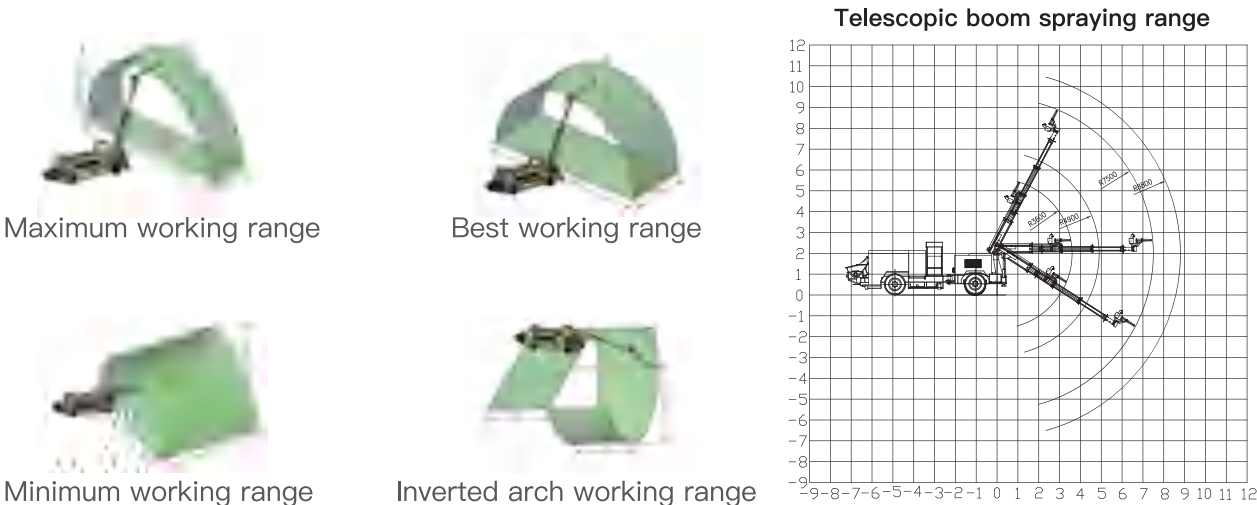
|                         |            |
|-------------------------|------------|
| Maximum air flow        | 9.3 m3/min |
| Power of electric motor | 45 kW      |
| Pressure                | 0.6 Mpa    |

#### Cable reel

|              |       |
|--------------|-------|
| Cable length | 80 m  |
| Diameter     | 900 m |

#### Accelerator

|                           |                                                            |
|---------------------------|------------------------------------------------------------|
| Accelerator tank          | 1×300L                                                     |
| Accelerator delivery pump | Hydraulic motor drive, electric proportional valve control |



## Concrete Spraying Machine -- AWT3016F

### Main Features

- ◆ Highly cost-effective, stable and reliable.
- ◆ Advantage of boom: two-stage telescopic and two-stage slewing, with no blind spots in operation. Particularly competent for: small-scale working surfaces on single and double side walls, working surfaces with large invert volumes (without moving the vehicle), working surfaces on central deep ditch, working surfaces on foundation pit slope support, working surfaces on the side holes of civil air defense tunnel walls (can be turned back without moving the vehicle), working surfaces on the top support of horizontal tunnels/inclined shafts, and working surfaces on reverse tunnel portals.
- ◆ Hydraulic control: Electric load-sensitive proportional control multi-way valve, compared with other brands of switch valves, the action is more sensitive and smooth, without delay, the operation center point is stable, the spraying quality is more controllable, and the flatness is high. The speed of each arm movement can be steplessly adjusted and wirelessly remote controlled.
- ◆ Engineering chassis: four-wheel drive, four-wheel steering, with inclined and eight-way walking function, good passability.
- ◆ Upgrade the pumping system, optimize the pipeline combination, low pumping pressure, and wider adaptability to materials.
- ◆ The 1000L+500L dual accelerator barrel design is adopted to meet the needs of large-scale spraying construction at one time.

### Main technical parameters

|                          |                                                                                                    |
|--------------------------|----------------------------------------------------------------------------------------------------|
| Chassis system           | Internal combustion-hydraulic torque converter transmission, four-wheel drive, four-wheel steering |
| Engine                   | YUNNEI brand output power: 92KW/2400rpm                                                            |
| Transmission system      | Hydraulic transmission system                                                                      |
| Travel speed             | Low speed gear 0-5km/h, high speed gear 0-15km/h                                                   |
| Climbing ability         | 40%(22°)                                                                                           |
| Minimum Ground Clearance | 400mm                                                                                              |
| Suspension Swing Angle   | ±10°enables the chassis better adapt to uneven road surfaces                                       |
| Steering                 | Hydraulic four-wheel steering, with diagonal and figure eight travel functions                     |
| Minimum Turning Radius   | Inside 3500mm, outside 7300mm                                                                      |
| Weight                   | 17t                                                                                                |
| Overall Dimension        | 8970x2500x3500mm(LxWxH)                                                                            |

|                            |                                                                                                                                                                              |
|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Concrete transfer pump     | AWT-SPJ30 hydraulically driven piston concrete pump, automatic fast switching S-type pendulum valve, hopper equipped with vibrating screen and bottom-opening discharge gate |
| Pumping transfer capacity  | 30m3/h, 4-30m3, adjustable                                                                                                                                                   |
| Maximum conveying pressure | 8MPa                                                                                                                                                                         |
| Aggregate size             | 16mm                                                                                                                                                                         |

|                               |                                                                                                                                        |
|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| Electro-hydraulic power packs |                                                                                                                                        |
| Electric motors               | 55KW/1480rpm; protection grade:IP54                                                                                                    |
| Hydraulic pumps               | Latest optimized pumping system, stable and reliable performance. Main pumps and valves adopt international and domestic famous brand. |

|                                 |                                                                                                                                                                                                                                                                                                                              |
|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Shotcrete robotic arm           | The two-stage telescopic and two-stage rotating spraying arm is fully hydraulically controlled and the small arm is folded, so there is no blind spot in operation. It can be operated by both wired and wireless remote control, and the speed of each movement of the arm can be adjusted, with stepless speed regulation. |
| Maximum shotcrete height        | 16m                                                                                                                                                                                                                                                                                                                          |
| Maximum shotcrete width         | 30m                                                                                                                                                                                                                                                                                                                          |
| The farthest shotcrete distance | 15m (front)                                                                                                                                                                                                                                                                                                                  |
| Minimum shotcrete tunnel height | 4m                                                                                                                                                                                                                                                                                                                           |
| Maximum shotcrete depth         | 8m (below parking surface)                                                                                                                                                                                                                                                                                                   |
| Pitch angle of small boom       | -90° ~ +90°                                                                                                                                                                                                                                                                                                                  |
| Pitch angle of large boom       | -30° ~ +65°                                                                                                                                                                                                                                                                                                                  |
| Two-stage telescoping           | Two-stage telescopic boom                                                                                                                                                                                                                                                                                                    |
| Large arm rotation              | 270°rotation                                                                                                                                                                                                                                                                                                                 |
| Small arm rotation              | 360°rotation, large and small arms can be folded by 0°                                                                                                                                                                                                                                                                       |

|                                  |                                                                                                                                                  |
|----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| Double speed coagulant barrel    | 1000L+500L                                                                                                                                       |
| Cable reel                       | Shotcrete piping and accessories                                                                                                                 |
| Hydraulic motor driven rewinding | Concrete pump outlet hinged pipe, DN125-100 reducer and DN90 delivery pipe, additive and compressed air injection device, and flow changer, etc. |
| Cable specification 3x35+1*16    |                                                                                                                                                  |

|                                                               |                                                                                                         |
|---------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| Accelerating coagulant transfer pump                          |                                                                                                         |
| Hydraulic motor drive, electro-hydraulic proportional control |                                                                                                         |
| Output capacity                                               | 30-1000L/h                                                                                              |
| Control                                                       | Realization of remote control and human-machine interface (display), both can control the specific flow |

#### (Standard configuration)

- High-pressure cleaning system, reversing camera, self suction pump for accelerator
- (1) High-pressure cleaning system: plunger-type high-pressure water pump, hydraulic motor drive, with cleaning hose and water gun
  - (2) Reversing camera
  - (3) Self suction pump for accelerator

#### Telescopic boom spraying range



Maximum working range



Best working range



Minimum working range



Inverted arch working range



# Concrete Spraying Machine -- AWT3516N

## Main Features

- ◆ Highly cost-effective, stable and reliable.
  - ◆ Advantage of boom: two-stage telescopic and two-stage slewing, with no blind spots in operation.
- Particularly competent for: small-scale working surfaces on single and double side walls, working surfaces with large invert volumes (without moving the vehicle), working surfaces on central deep ditch, working surfaces on foundation pit slope support, working surfaces on the side holes of civil air defense tunnel walls (can be turned back without moving the vehicle), working surfaces on the top support of horizontal tunnels/inclined shafts, and working surfaces on reverse tunnel portals.
- ◆ Hydraulic control: Electric load-sensitive proportional control multi-way valve, compared with other brands of switch valves, the action is more sensitive and smooth, without delay, the operation center point is stable, the spraying quality is more controllable, and the flatness is high. The speed of each arm movement can be steplessly adjusted and wirelessly remote controlled.
  - ◆ Engineering chassis: four-wheel drive, four-wheel steering, with inclined and eight-way walking function, good passability.
  - ◆ Upgrade the pumping system, optimize the pipeline combination, low pumping pressure, and wider adaptability to materials.
  - ◆ The 1000L+500L dual accelerator barrel design is adopted to meet the needs of large-scale spraying construction at one time.

## Main technical parameters

|                          |                                                                                                    |
|--------------------------|----------------------------------------------------------------------------------------------------|
| Chassis system           | Internal combustion-hydraulic torque converter transmission, four-wheel drive, four-wheel steering |
| Engine                   | YUNNEI brand output power: 92KW/2400rpm                                                            |
| Transmission system      | Hydraulic transmission system                                                                      |
| Travel speed             | Low speed gear 0-5km/h, high speed gear 0-15km/h                                                   |
| Climbing ability         | 40%(22°)                                                                                           |
| Minimum Ground Clearance | 400mm                                                                                              |
| Suspension Swing Angle   | ±10°enables the chassis better adapt to uneven road surfaces                                       |
| Steering                 | Hydraulic four-wheel steering, with diagonal and figure eight travel functions                     |
| Minimum Turning Radius   | Inside 3500mm, outside 7300mm                                                                      |
| Weight                   | 17t                                                                                                |
| Overall Dimension        | 8970x2500x3500mm(LxWxH)                                                                            |

|                            |                                                                                                                                                                              |
|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Concrete transfer pump     | AWT-SPJ30 hydraulically driven piston concrete pump, automatic fast switching S-type pendulum valve, hopper equipped with vibrating screen and bottom-opening discharge gate |
| Pumping transfer capacity  | 35m3/h, 4-35m3, adjustable                                                                                                                                                   |
| Maximum conveying pressure | 8MPa                                                                                                                                                                         |
| Aggregate size             | 16mm                                                                                                                                                                         |

|                               |                                                                                                                                        |
|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| Electro-hydraulic power packs |                                                                                                                                        |
| Electric motors               | 55KW/1480rpm; protection grade:IP54                                                                                                    |
| Hydraulic pumps               | Latest optimized pumping system, stable and reliable performance. Main pumps and valves adopt international and domestic famous brand. |

|                                 |                                                                                                                                                                                                                                                                                                                              |
|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Shotcrete robotic arm           | The two-stage telescopic and two-stage rotating spraying arm is fully hydraulically controlled and the small arm is folded, so there is no blind spot in operation. It can be operated by both wired and wireless remote control, and the speed of each movement of the arm can be adjusted, with stepless speed regulation. |
| Maximum shotcrete height        | 16m                                                                                                                                                                                                                                                                                                                          |
| Maximum shotcrete width         | 30m                                                                                                                                                                                                                                                                                                                          |
| The farthest shotcrete distance | 15m (front)                                                                                                                                                                                                                                                                                                                  |
| Minimum shotcrete tunnel height | 4m                                                                                                                                                                                                                                                                                                                           |
| Maximum shotcrete depth         | 8m (below parking surface)                                                                                                                                                                                                                                                                                                   |
| Pitch angle of small boom       | -90° ~ +90°                                                                                                                                                                                                                                                                                                                  |
| Pitch angle of large boom       | -30° ~ +65°                                                                                                                                                                                                                                                                                                                  |
| Two-stage telescoping           | Two-stage telescopic boom                                                                                                                                                                                                                                                                                                    |
| Large arm rotation              | 270 Slewing                                                                                                                                                                                                                                                                                                                  |
| Small arm rotation              | 360°swing, large and small arms can be folded by 0°.                                                                                                                                                                                                                                                                         |

|                               |            |
|-------------------------------|------------|
| Double speed coagulant barrel | 1000L+500L |
|-------------------------------|------------|

|                                                                                                                                          |                                                                                                                                                                                                                                          |
|------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Cable reel</b> <ul style="list-style-type: none"><li>Hydraulic motor driven rewinding</li><li>Cable specification 3x35+1*16</li></ul> | <b>Shotcrete piping and accessories</b> <ul style="list-style-type: none"><li>Concrete pump outlet hinged pipe, DN125-100 reducer and DN90 delivery pipe, additive and compressed air injection device, and flow changer, etc.</li></ul> |
|------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

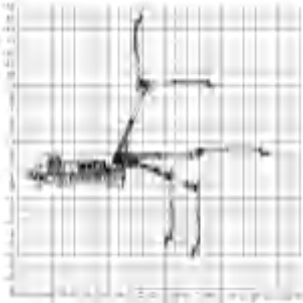
|                                                               |                                                                                                         |
|---------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| Accelerating coagulant transfer pump                          |                                                                                                         |
| Hydraulic motor drive, electro-hydraulic proportional control |                                                                                                         |
| Output capacity                                               | 30-1000L/h                                                                                              |
| Control                                                       | Realization of remote control and human-machine interface (display), both can control the specific flow |

### (Optional)

High-pressure cleaning system, reversing camera, self suction pump for accelerator

- (1) High-pressure cleaning system: plunger-type high-pressure water pump, hydraulic motor drive, with cleaning hose and water gun
- (2) Reversing camera
- (3) Self suction pump for accelerator

### Telescopic boom spraying range



Maximum working range



Best working range



Minimum working range



Inverted arch working range

## Concrete Spraying Machine -- AWT4016N

### Main Features

- ◆ Highly cost-effective, stable and reliable.
- ◆ Advantage of boom: two-stage telescopic and two-stage slewing, with no blind spots in operation. Particularly competent for: small-scale working surfaces on single and double side walls, working surfaces with large invert volumes (without moving the vehicle), working surfaces on central deep ditch, working surfaces on foundation pit slope support, working surfaces on the side holes of civil air defense tunnel walls (can be turned back without moving the vehicle), working surfaces on the top support of horizontal tunnels/inclined shafts, and working surfaces on reverse tunnel portals.
- ◆ Hydraulic control: electric load-sensitive proportional control multi-way valve, compared with other brands of switch valves, the action is more sensitive and smooth, without delay, the operation center point is stable, the spraying quality is more controllable, and the flatness is high. The speed of each arm movement can be steplessly adjusted and wirelessly remote controlled.
- ◆ Engineering chassis: four-wheel drive, four-wheel steering, with inclined and eight-way walking function, good passability.
- ◆ Upgrade the pumping system, optimize the pipeline combination, low pumping pressure, and wider adaptability to materials.
- ◆ The 1000L+500L dual accelerator barrel design is adopted to meet the needs of large-scale spraying construction at one time.

### Main technical parameters

|                          |                                                                                                    |
|--------------------------|----------------------------------------------------------------------------------------------------|
| Chassis system           | Internal combustion-hydraulic torque converter transmission, four-wheel drive, four-wheel steering |
| Engine                   | YUNNEI brand output power: 92KW/2400rpm                                                            |
| Transmission system      | Hydraulic transmission system                                                                      |
| Travel speed             | Low speed gear 0-5km/h, high speed gear 0-15km/h                                                   |
| Climbing ability         | 40%(22°)                                                                                           |
| Minimum Ground Clearance | 400mm                                                                                              |
| Suspension Swing Angle   | ±10°enables the chassis better adapt to uneven road surfaces                                       |
| Steering                 | Hydraulic four-wheel steering, with diagonal and figure eight travel functions                     |
| Minimum Turning Radius   | Inside 3500mm, outside 7300mm                                                                      |
| Weight                   | 17t                                                                                                |
| Overall Dimension        | 8970x2500x3500mm(LxWxH)                                                                            |

|                            |                                                                                                                                                                              |
|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Concrete transfer pump     | AWT-SPJ30 hydraulically driven piston concrete pump, automatic fast switching S-type pendulum valve, hopper equipped with vibrating screen and bottom-opening discharge gate |
| Pumping transfer capacity  | 40m3/h, 4-40m3, adjustable                                                                                                                                                   |
| Maximum conveying pressure | 8MPa                                                                                                                                                                         |
| Aggregate size             | 16mm                                                                                                                                                                         |

|                               |                                                                                                                                        |
|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| Electro-hydraulic power packs |                                                                                                                                        |
| Electric motors               | 75KW/1480rpm; protection grade:IP54                                                                                                    |
| Hydraulic pumps               | Latest optimized pumping system, stable and reliable performance. Main pumps and valves adopt international and domestic famous brand. |

|                                 |                                                                                                                                                                                                                                                                                                                              |
|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Shotcrete robotic arm           | The two-stage telescopic and two-stage rotating spraying arm is fully hydraulically controlled and the small arm is folded, so there is no blind spot in operation. It can be operated by both wired and wireless remote control, and the speed of each movement of the arm can be adjusted, with stepless speed regulation. |
| Maximum shotcrete height        | 16m                                                                                                                                                                                                                                                                                                                          |
| Maximum shotcrete width         | 30m                                                                                                                                                                                                                                                                                                                          |
| The farthest shotcrete distance | 15m (front)                                                                                                                                                                                                                                                                                                                  |
| Minimum shotcrete tunnel height | 4m                                                                                                                                                                                                                                                                                                                           |
| Maximum shotcrete depth         | 8m (below parking surface)                                                                                                                                                                                                                                                                                                   |
| Pitch angle of small boom       | -90° ~ +90°                                                                                                                                                                                                                                                                                                                  |
| Pitch angle of large boom       | -30° ~ +65°                                                                                                                                                                                                                                                                                                                  |
| Two-stage telescoping           | Two-stage telescopic boom                                                                                                                                                                                                                                                                                                    |
| Large arm rotation              | 270°rotation                                                                                                                                                                                                                                                                                                                 |
| Small arm rotation              | 360°rotation, large and small arms can be folded by 0°                                                                                                                                                                                                                                                                       |

|                               |            |
|-------------------------------|------------|
| Double speed coagulant barrel | 1000L+500L |
|-------------------------------|------------|

|                                                                                                                           |                                                                                                                                                                                                  |
|---------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Cable reel                                                                                                                | Shotcrete piping and accessories                                                                                                                                                                 |
| <ul style="list-style-type: none"><li>Hydraulic motor driven rewinding</li><li>Cable specification 3x50+1*16/25</li></ul> | <ul style="list-style-type: none"><li>Concrete pump outlet hinged pipe, DN125-100 reducer and DN90 delivery pipe, additive and compressed air injection device, and flow changer, etc.</li></ul> |

|                                                               |                                                                                                         |
|---------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| Accelerating coagulant transfer pump                          |                                                                                                         |
| Hydraulic motor drive, electro-hydraulic proportional control |                                                                                                         |
| Output capacity                                               | 30-1000L/h                                                                                              |
| Control                                                       | Realization of remote control and human-machine interface (display), both can control the specific flow |

(Optional)

High-pressure cleaning system, reversing camera, self suction pump for accelerator

(1) High-pressure cleaning system: plunger-type high-pressure water pump, hydraulic motor drive, with cleaning hose and water gun

(2) Reversing camera

(3) Self suction pump for accelerator

Telescopic boom spraying range





Maximum working range



Best working range



Minimum working range



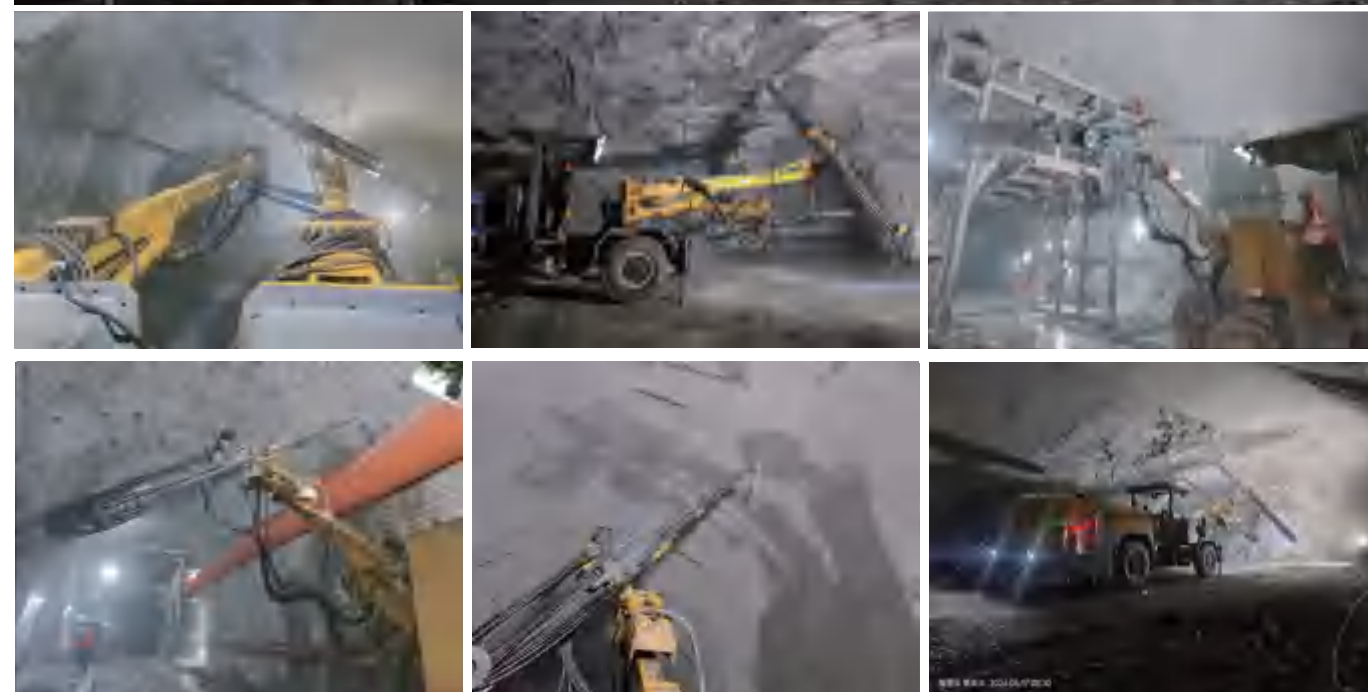
Inverted arch working range



25

26

## Drilling Jumbo Application Scenarios



## Concrete Spraying Machine Application Scenarios



Portable Diesel Engine Drive Screw Air Compressor



Advantage

- Adopt two-stage compression air end
- Vibration isolation installation technology is adopted, which ensures stable operation.
- Equipped with brand diesel engines, such as Cummins, Yuchai, etc.
- Equipped with multiple automatic alarm systems, alarm and shutdown when high temperature occurs.
- Simple operation and easy maintenance.
- A lifting ring is installed on the top for safe lifting and transportation.



The air control system is simple and reliable. Inlet rate can be adjusted depending on the air consumption. The engine throttle can also be adjusted to save diesel fuel.

01

Intelligent microcomputer controls air compressor discharge pressure, exhaust gas temperature, engine speed, oil pressure, water temperature and fuel tank level. With auto alarm and shutdown protection.

02

Parts and components can be maintained within the accessible range which is convenient and easy.

03

Easy to move in rough terrain. Each compressor has lifting rings on the top for safe hoisting and transportation.

04

Basic Parameters

Single Stage Compression Portable Diesel Engine Drive Screw Air Compressor

| Model       | Capacity |     | Pressure |     | Diesel Brand | Diesel engine type | Weight | Dimensions     |
|-------------|----------|-----|----------|-----|--------------|--------------------|--------|----------------|
|             | m3/min   | cfm | bar      | psi |              |                    | KGS    | L*W*H mm       |
| SYC-5/7     | 5        | 177 | 7        | 102 | YUNNEI       | 42kW               | 1400   | 2200*1800*1800 |
| SYC-6/7     | 6        | 212 | 7        | 102 | CUMMINS      | 60kW               | 1400   | 2200*1800*1800 |
| SYC-6/8     | 6        | 212 | 8        | 117 | CUMMINS      | 60kW               | 1400   | 2200*1800*1800 |
| SYC-7/7     | 7        | 247 | 7        | 102 | CUMMINS      | 60kW               | 1400   | 2200*1800*1800 |
| SYC-7/8     | 7        | 247 | 8        | 117 | CUMMINS      | 60kW               | 1400   | 2700*1700*1800 |
| SYC-7.5/7   | 7.5      | 265 | 7        | 102 | CUMMINS      | 60kW               | 1400   | 2700*1700*1800 |
| SYC-8/7     | 8        | 282 | 7        | 102 | CUMMINS      | 74kW               | 1400   | 2700*1700*1800 |
| SYC-8/8     | 8        | 282 | 8        | 117 | CUMMINS      | 74kW               | 1400   | 2300*1800*1850 |
| SYC-9/8     | 9        | 318 | 8        | 117 | CUMMINS      | 74kW               | 1400   | 2300*1800*1850 |
| SYC-10/7    | 10       | 353 | 7        | 102 | CUMMINS      | 74kW               | 1400   | 2300*1800*1850 |
| SYC-8.5/14  | 8.5      | 300 | 14       | 204 | CUMMINS      | 119kW              | 1600   | 2500*1800*1850 |
| SYC-10/10   | 10       | 353 | 10       | 146 | CUMMINS      | 119kW              | 1600   | 2500*1800*1850 |
| SYC-10/13   | 10       | 353 | 13       | 189 | CUMMINS      | 119kW              | 1600   | 2500*1800*1850 |
| SYC-13/10   | 13       | 459 | 10       | 146 | CUMMINS      | 119kW              | 1600   | 2600*1800*2050 |
| SYC-12/7    | 12       | 424 | 7        | 102 | CUMMINS      | 119KW              | 1600   | 2600*1800*2050 |
| SYC-12/10   | 12       | 424 | 10       | 146 | CUMMINS      | 119kW              | 1600   | 2600*1800*2050 |
| SYC-12/12   | 12       | 424 | 12       | 175 | CUMMINS      | 119kW              | 1600   | 2600*1800*2050 |
| SYC-12/13   | 12       | 424 | 13       | 189 | CUMMINS      | 119kW              | 1600   | 2600*1800*2050 |
| SYC-13/13   | 13       | 459 | 13       | 189 | CUMMINS      | 119kW              | 1600   | 2600*1800*2050 |
| SYC-17/7    | 17       | 600 | 7        | 102 | CUMMINS      | 119kW              | 1600   | 2600*1800*2050 |
| SYC-22/8    | 22       | 777 | 8        | 117 | CUMMINS      | 179kW              | 1700   | 3500*2000*2050 |
| SYC-15/13   | 15       | 530 | 13       | 189 | CUMMINS      | 194kW              | 1600   | 2600*1760*2050 |
| SYC-16/13   | 16       | 565 | 13       | 189 | CUMMINS      | 194KW              | 1600   | 2600*1760*2050 |
| SYC-13/17   | 13       | 459 | 17       | 248 | CUMMINS      | 194kW              | 1600   | 2600*1760*2050 |
| SYC-17/14.5 | 17       | 600 | 14.5     | 211 | CUMMINS      | 194kW              | 1600   | 2600*1760*2050 |
| SYC-20/13   | 20       | 706 | 13       | 189 | CUMMINS      | 194kW              | 1700   | 3500*2000*2050 |
| SYC-26/8    | 26       | 918 | 8        | 117 | CUMMINS      | 194kW              | 4600   | 3300*2000*2250 |

Two Stage Compression Portable Diesel Engine Drive Screw Air Compressor

| Model       | Capacity |      | Pressure |     | Diesel Brand | Diesel engine type | Weight | Dimensions     |
|-------------|----------|------|----------|-----|--------------|--------------------|--------|----------------|
|             | m3/min   | cfm  | bar      | psi |              |                    | KGS    | L*W*H mm       |
| SYC-17/17   | 17       | 600  | 17       | 248 | CUMMINS      | 239kW              | 1700   | 3500*2000*2050 |
| SYC-19/14.5 | 19       | 671  | 14.5     | 211 | CUMMINS      | 239kW              | 1700   | 3500*2000*2050 |
| SYC-18/17   | 18       | 636  | 17       | 248 | CUMMINS      | 239kW              | 1700   | 3500*2000*2050 |
| SYC-22/14   | 22       | 777  | 14       | 204 | CUMMINS      | 239kW              | 4600   | 3300*2000*2250 |
| SYC-26/10   | 26       | 918  | 10       | 146 | CUMMINS      | 239kW              | 4600   | 3300*2000*2250 |
| SYC-27/10   | 27       | 953  | 10       | 146 | CUMMINS      | 239kW              | 4600   | 3300*2000*2250 |
| SYC-30/10   | 30       | 1059 | 10       | 146 | CUMMINS      | 264kW              | 5300   | 3350*2100*2250 |
| SYC-19.5/19 | 19.5     | 689  | 19       | 277 | CUMMINS      | 264kW              | 5300   | 3350*2100*2250 |
| SYC-22/20   | 22       | 777  | 20       | 291 | CUMMINS      | 264kW              | 3200   | 3500*2040*2200 |
| SYC-26/20   | 26       | 918  | 20       | 291 | CUMMINS      | 298kW              | 4900   | 4200*2100*1950 |
| SYC-27/22   | 27       | 953  | 22       | 321 | CUMMINS      | 335kW              | 4500   | 3600*2140*2100 |
| SYC-26/25   | 26       | 918  | 35       | 364 | CUMMINS      | 335kW              | 4500   | 3600*2140*2100 |
| SYC-33/25   | 33       | 1165 | 25       | 364 | CUMMINS      | 410kW              | 6700   | 3800*2200*2300 |
| SYC-26/35   | 26       | 918  | 35       | 510 | CUMMINS      | 410KW              | 5200   | 3800*2200*2300 |

## Portable Electric Motor Driven Screw Air Compressor

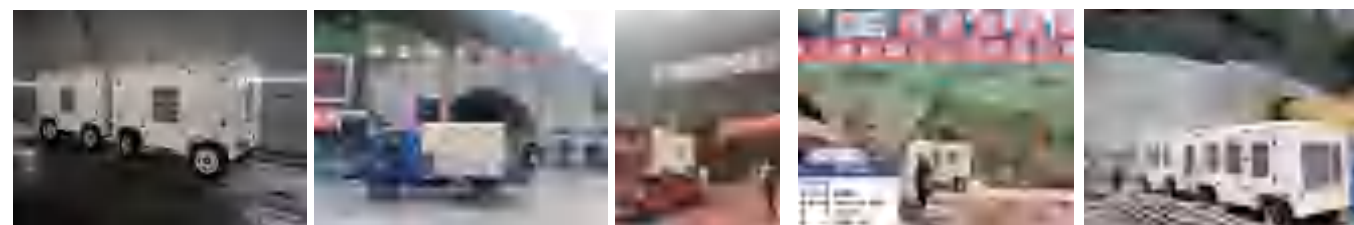
**MLGF31/7-165TB**



**MLGF38/7-200TB**



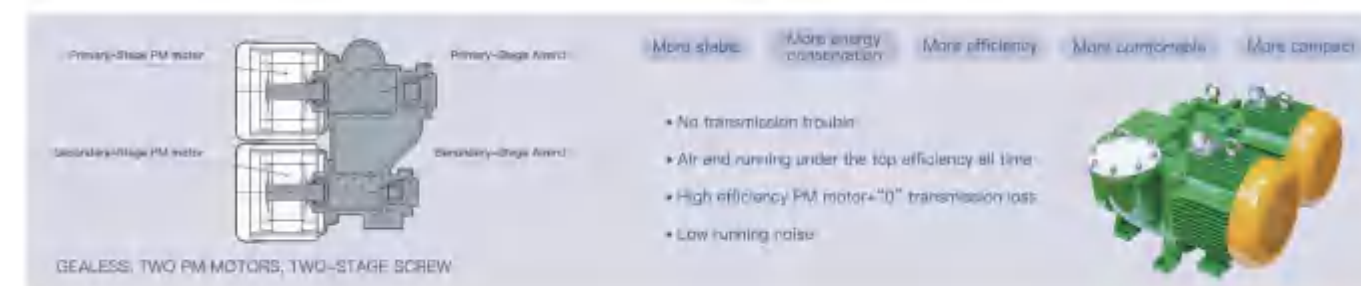
**MLGF45/7-242TB**



### Technical Parameters

| Model                  | MLGF31/7-165TB          | MLGF38/7-200TB           | MLGF45/7-242TB           |
|------------------------|-------------------------|--------------------------|--------------------------|
| Voltage                | AC380V                  | AC380V                   | AC380V                   |
| Power                  | 35-160KW                | 45-200KW                 | 70-250KW                 |
| Current Range          | 85-325A                 | 100-400A                 | 130-480A                 |
| Speed Range            | 700-2500R/min           | 700-2300R/min            | 790-2250R/min            |
| Air flow               | 9-35m <sup>3</sup> /min | 10-45m <sup>3</sup> /min | 12-55m <sup>3</sup> /min |
| Discharge Pressure     | 0.6-0.7Mpa              | 0.6-0.7Mpa               | 0.6-0.7Mpa               |
| Motor Protection Level | IP54                    | IP54                     | IP54                     |
| Net Weight             | 4000KG                  | 5000KG                   | 6000KG                   |
| Dimensions             | 2913*1763*2300mm        | 3900*1930*2400mm         | 4000*1940*2400mm         |

### Two Stages Compression Dual Permanent Magnet Motor Driven



#### More stable

##### No transmission trouble

- (1) No gearbox: The high-efficiency permanent magnet synchronous motor and the screw rotor adopt an embedded integrated connecting shaft structure, without coupling failure or broken gear danger.
- (2) No coupling: Two independent permanent magnet motors directly drive two airends without gear transmission, completely eliminating gear pitting.

#### More energy conservation

##### Running under the top efficiency all time

- (1) Independent permanent magnet motor drive, the whole process of intelligent control, through the control of exhaust pressure and interstage pressure, so that the air end in different speeds, different pressures, always running in the best interstage pressure point.
- (2) During operation, the respective optimum running speed is automatically calculated, and through the best matching and balancing of the compression ratio, the compressor is always in the optimum running state and obtains the best efficiency.

#### More efficiency

##### High efficiency PM motor + "0" transmission loss

- (1) A high-efficiency permanent magnet synchronous IP54 motor is equipped for excellent energy-saving performance.
- (2) At low frequency and low speed, the permanent magnet synchronous motor continuously maintains high efficiency.

#### More comfortable

##### Low running noise

No motor bearing noise, no gear meshing noise, no coupling transmission noise.

#### More compact

The permanent magnet motor is small in size, and the integrated structure saves space.

Tunnel Construction Axial Flow Fan



Main Features

·The high-efficiency rotor and stator blades are designed with fluid dynamics technology from Beihang University. The rotor impeller adopts a lightweight lead alloy die-casting process with high strength and wide adaptability, enabling long-term stable operation even under extreme working conditions.

Core components

·The VFD cabinet is an ABB authorized cabinet equipped with ABB dedicated frequency inverters for fan applications; the motor adopts Wande high-efficiency permanent magnet motor, which achieves virtually no demagnetization under normal use.

Performance advantages

·ABB frequency inverters are significantly superior to conventional domestic inverters. As the fan is a 24/7 year-round uninterrupted operation equipment, the anti-aging performance of ABB inverters for long-term operation is far better than domestic inverters of the same type (the reason for not choosing domestic inverters).

Intelligent operation & maintenance

- Equipped with IoT remote monitoring and start/stop functions, the power saving status can be checked in real time, and the energy saving effect is visible.
- The single-unit dual-impeller fan adopts a relay structure, which doubles the air pressure, greatly increases the air delivery distance, and its power saving effect is far better than traditional counter-rotating axial flow fans.

Technical Parameters

| Model                 | Impeller diameter (mm) | Rated air pressure (Pa) | Rated air volume (m³ / min ) | Maximum air volume (m³ / min ) | Maximum wind pressure (Pa) | Motor power (kW) | Motor speed (rpm) |
|-----------------------|------------------------|-------------------------|------------------------------|--------------------------------|----------------------------|------------------|-------------------|
| AWT14.0 (A) -110/12   | 1400                   | 1100                    | 3600                         | 3800                           | 2500                       | 110              | 1500              |
| AWT14.0 (A) -132/12   | 1400                   | 1812                    | 3090                         | 4000                           | 2718                       | 132              | 1500              |
| AWT14.0 (A) -160/12   | 1400                   | 2500                    | 2400                         | 4200                           | 2900                       | 160              | 1500              |
| AWT14.0 (A) -110/12×2 | 1400                   | 2000                    | 3600                         | 3800                           | 4800                       | 110×2            | 1500              |
| AWT14.0 (A) -132/12×2 | 1400                   | 3300                    | 3090                         | 4000                           | 5100                       | 132×2            | 1500              |
| AWT14.0 (A) -160/12×2 | 1400                   | 4500                    | 2400                         | 4200                           | 5300                       | 160×2            | 1500              |

Working conditions

- 1.The ambient temperature shall not be lower than -40 °C and not higher than 40 °C;
- 2.Relative humidity not exceeding 95%;
- 3.No corrosive gases or liquids that would cause erosion to the ventilation fan;
- 4.No violent vibration.