

PROFESSIONAL UNDERGROUND ENGINEERING CONSTRUCTION  
EQUIPMENT MANUFACTURER

SUNWARD

*Super Piling Equipment*

Super-large Multi-functional  
Rotary Drilling Rig

**SWDM**

420•420V•450V

550H2•600



**SUNWARD INTELLIGENT EQUIPMENT CO.,LTD.**

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SWDM EN 2021-03

# Professional underground engineering construction equipment manufacturer

In the field of underground engineering equipment, Sunward adheres to the concept of "pilot innovation" and starts with original products: hydraulic static pile driver. After 20 years of accumulation and development, Sunward has formed a product cluster of underground engineering equipment covering "building foundation equipment" and "underground space equipment". It has innovated and developed more than 20 series products of nearly 100 models. Hunan Hua'an Foundation Engineering Co., Ltd. with the first-class qualification for professional contracting of substructure and foundation engineering under Sunward Equipment Group provides complete solutions for underground engineering construction. And the overall technical level and product series perfection of Sunward rank the top in the world.



## Development History of Rotary Drilling Rig

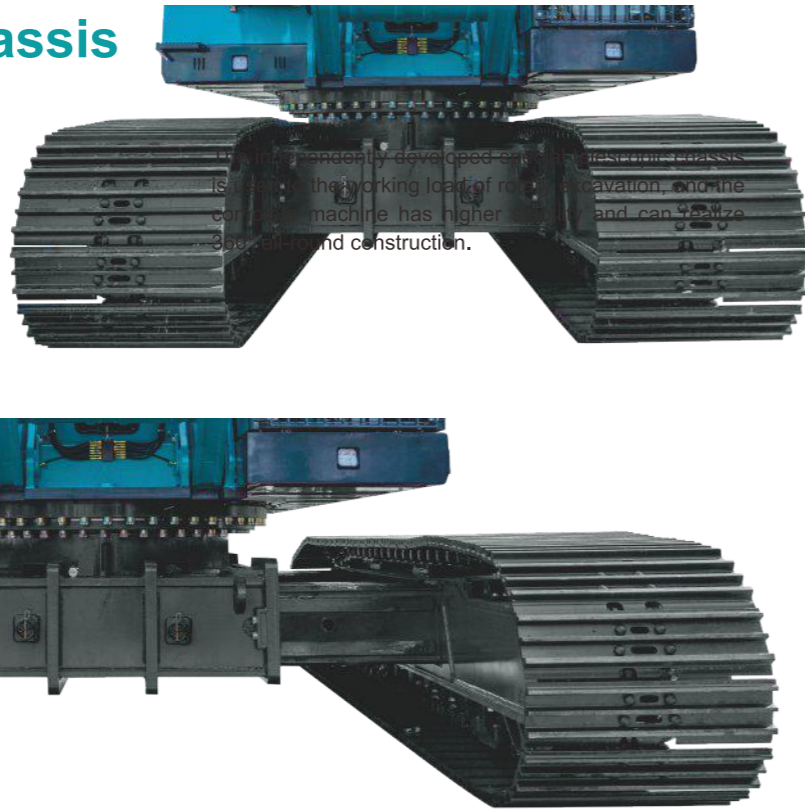
- 1992 Joined the pile industry
- 2003 The first rotary drilling rig SWDM20 has been successfully launched
- 2005 SWDM series rotary spectrum extension
- 2007 Built the first pile in Harbin-Dalian High-speed Railway  
Launched a series of small rotary drilling rigs to enter the European market in batches
- 2008 Many breakthroughs have been made in technical field of construction method and accessory. It is realized to use multiple construction methods on one drilling rig.  
Second generation full rotary series upgradation
- 2010 Launch rotary drilling rig SWDM36 and SWDM42
- 2012 High performance rotary drilling rig won the first prize of Scientific and Technological Progress Award in Hunan Province
- 2014 Large diameter deep hole reverse circulation drilling rig and large diameter DTH hammer drilling rig have been successfully launched
- 2015 World's first SWRC170 self-propelled fully rotary casing drilling rig has been successfully launched
- 2016 Super large rotary drilling rig SWDM550 has been successfully launched
- 2017 World's largest walking rotary drilling rig SWDM600W has been successfully launched
- 2019 The application of information technology and intelligent technology has upgraded the full series of the third generation rotary drilling rig  
SWDM360H won the Annual Product Golden Awards of China Construction Machinery  
SWDM300H won the Star Product Award of CMIIC
- 2020 SWDM600 has been successfully launched  
SWDM300H won the Gold Award for Market Performance of China Construction Machinery Annual Product



## Special Telescopic Chassis

**Strong and durable, solid as a rock.**

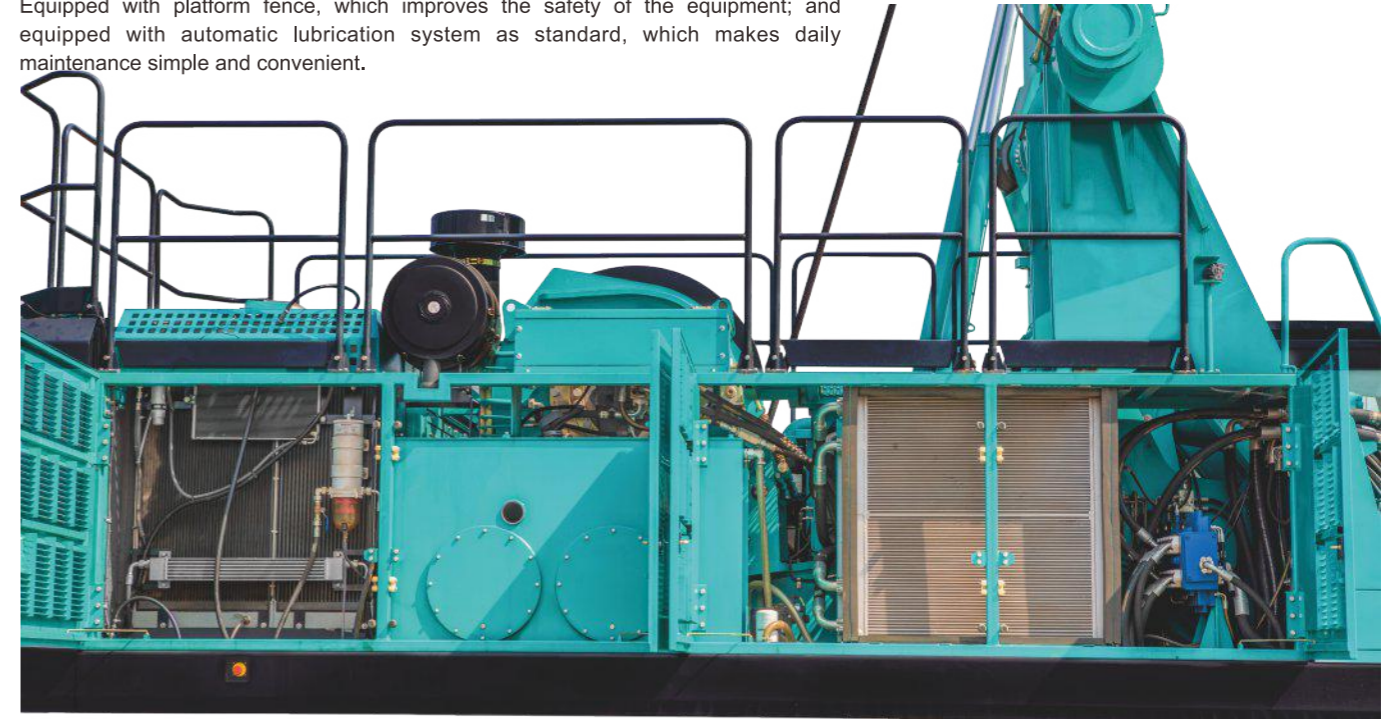
The independently developed special telescopic chassis is used to the working load of rotary excavation, and the complete machine has higher stability and can realize 360° all-round construction.



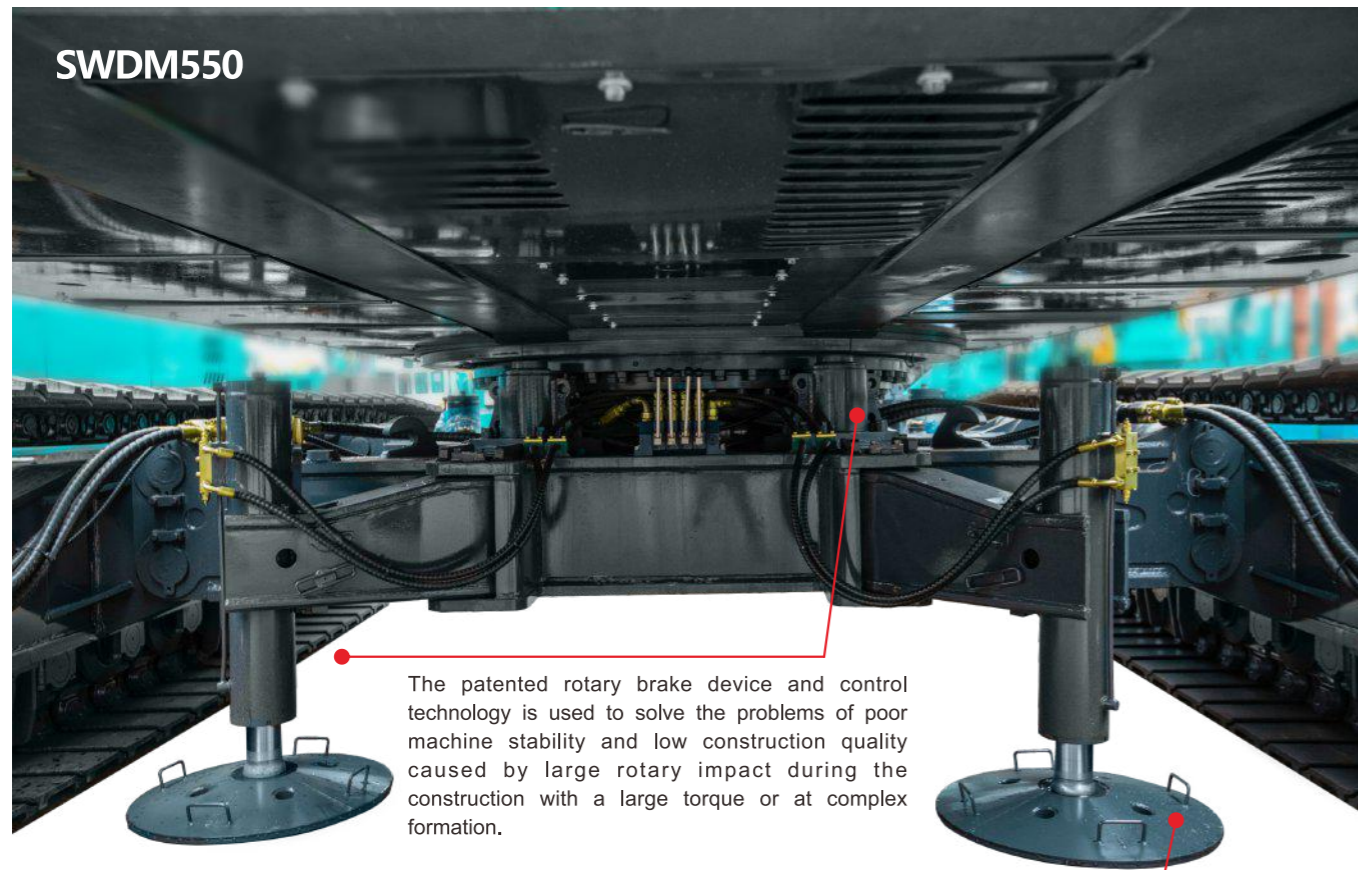
## Platform Layout Optimization

**The pipeline is neat, the space is large and easy to maintain.**

Equipped with platform fence, which improves the safety of the equipment; and equipped with automatic lubrication system as standard, which makes daily maintenance simple and convenient.



SWDM550



The patented rotary brake device and control technology is used to solve the problems of poor machine stability and low construction quality caused by large rotary impact during the construction with a large torque or at complex formation.

The self-loading and self-unloading crawler chassis technology is used to solve the problems of overweight, ultra-wide and on-site transportation difficulties of the super-large complete machine.

## Engine

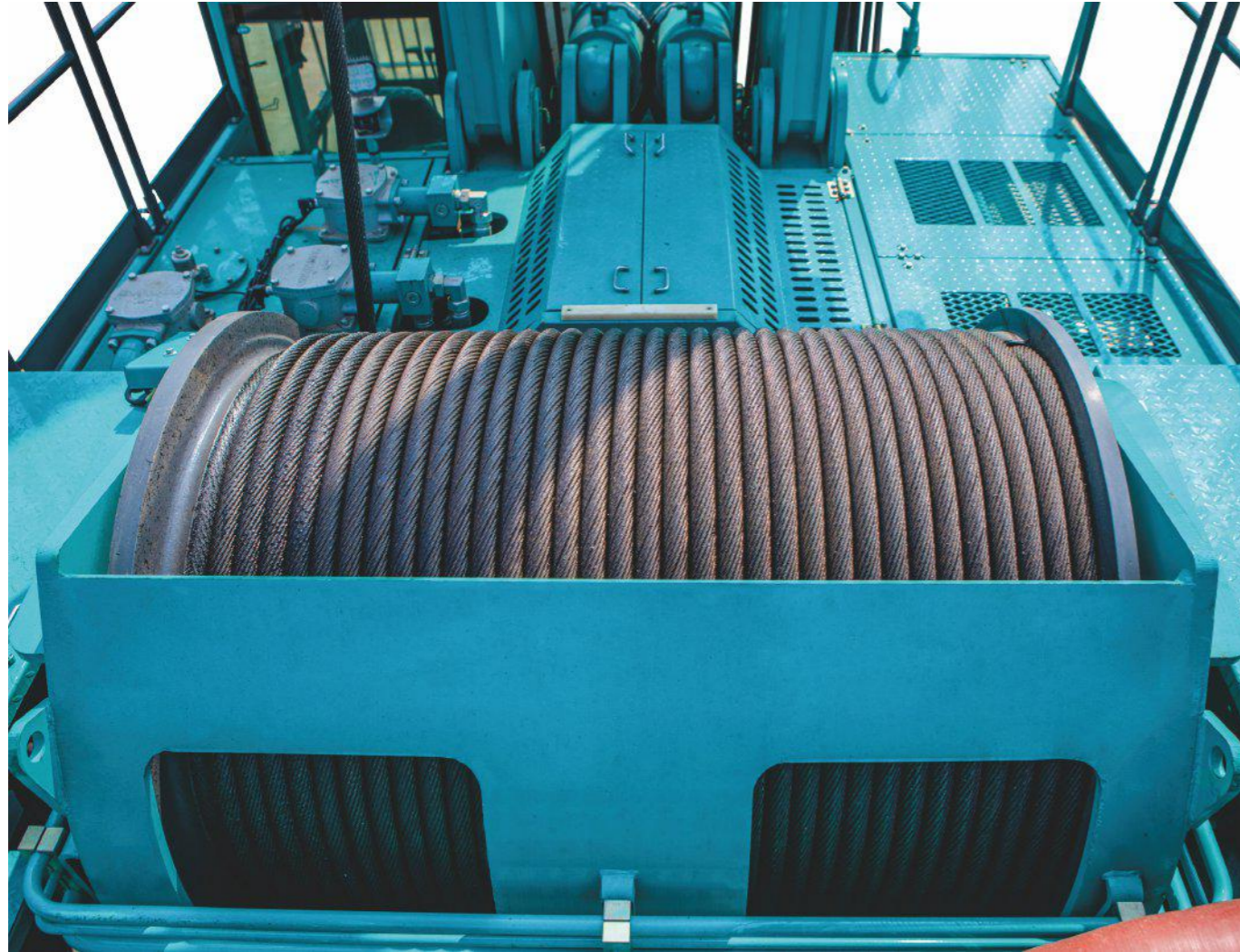
**It has strong power and is environmentally friendly.**

Cummins EFI turbocharged intercooled engine is used, which has high reliability, fuel economy and high reserve power emission, meets the European EPAC3 standard, is green and environmentally friendly, and can still operate normally in cold and high altitude areas.

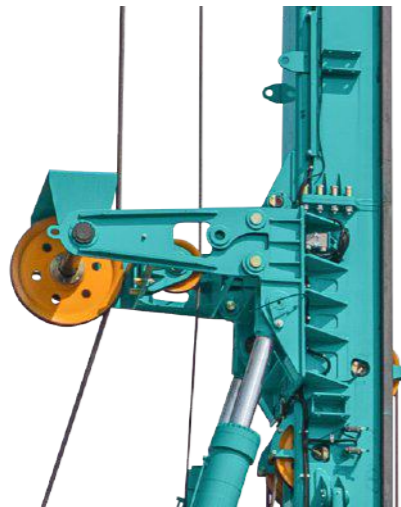


## Single Drum

Large diameter long drum, single layer winding of steel wire rope, and longer service life



The sliding stroke of the transition main pulley is long, and the special internal lubrication structure ensures its sliding flexibility, avoiding bending, squeezing and abrasion of the steel wire rope here.



Bottoming protection device can effectively prevent over laying and disordering of steel wire rope.



## Driving Head

It has high guiding precision and good sealing performance.

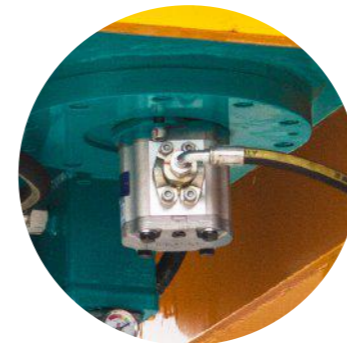
Multi-seal structure, high-end quality, drip-proof, improve bearing and gear life.



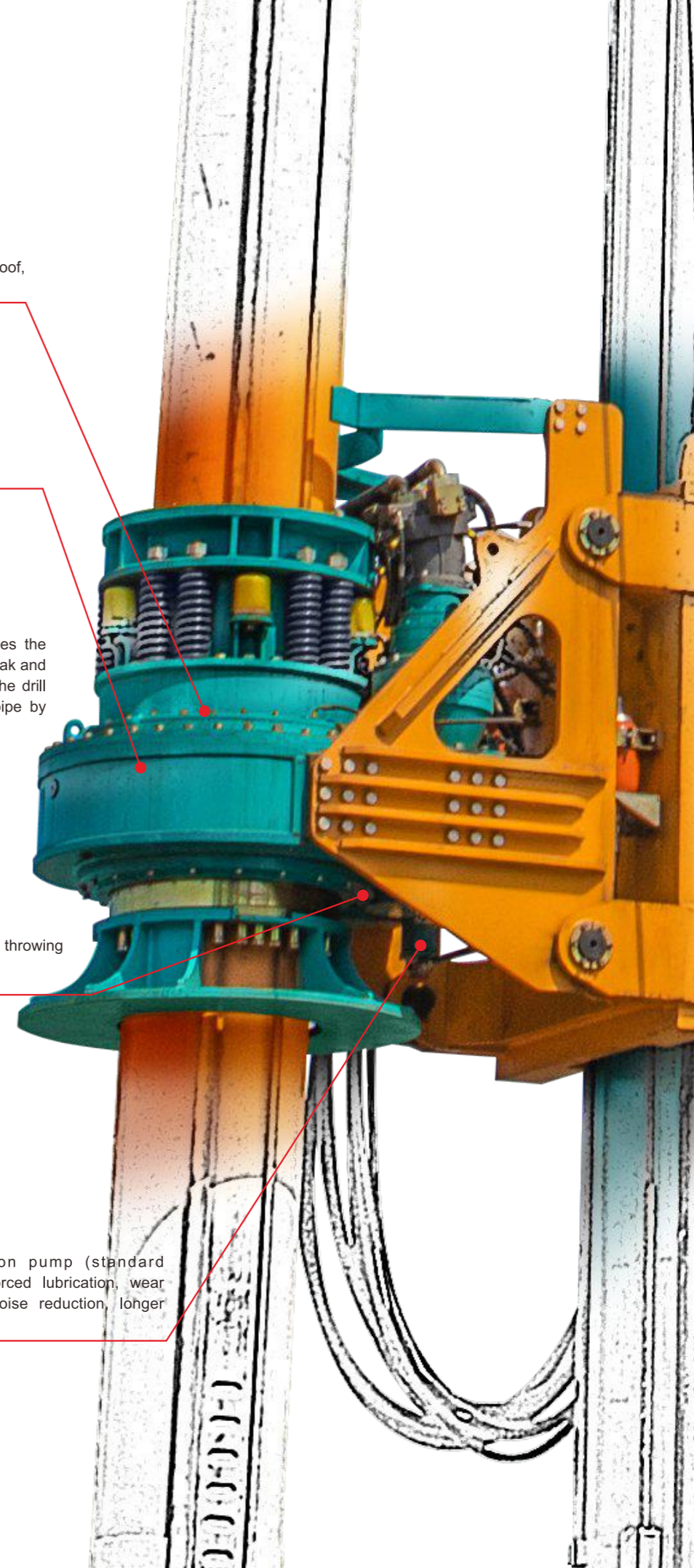
Patented lengthened drive key bar effectively solves the problem that the key bar mounting bolt is easy to break and difficult to maintain, and is perfectly matched with the drill pipe, thus prolonging the service life of the drill pipe by more than 10%.



High speed soil throwing function (optional)



Gear lubrication pump (standard configuration), forced lubrication, wear reduction and noise reduction, longer gear bearing life.



## Working Device

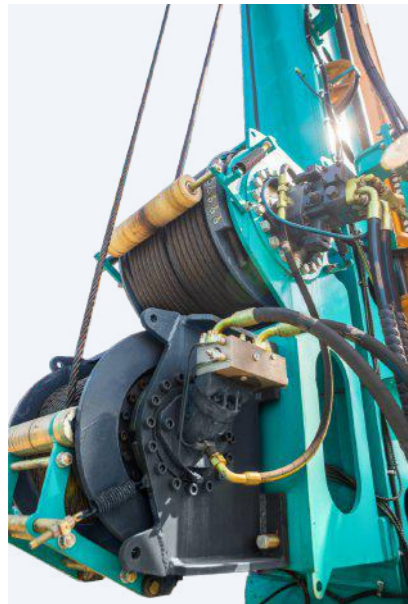
**It is stable and reliable with optimized design.**

The drilling mast is designed with lightweight high-strength steel. The structural members have higher strength and longer service life.

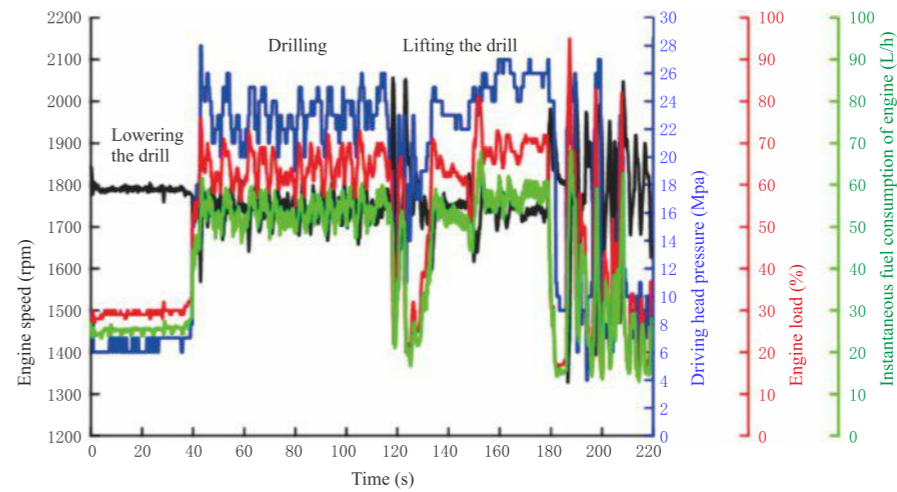
With the large triangle luffing mechanism, the support size becomes larger and the operation is more stable.



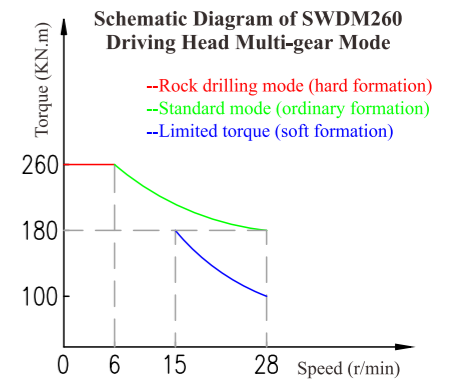
Long pressing stroke and large pressing force, which is suitable for various construction methods; Auxiliary winch is convenient to operate and easy to maintain.



## Energy-efficient



Power system—perfect matching between load and power



Driving head multi-gear one-key switching  
Energy consumption perfectly matches with formation working conditions



The torque test bench and tension test bench that independently developed by the Company can accurately and conveniently detect relevant data which fill the gap in the domestic technical field of them.

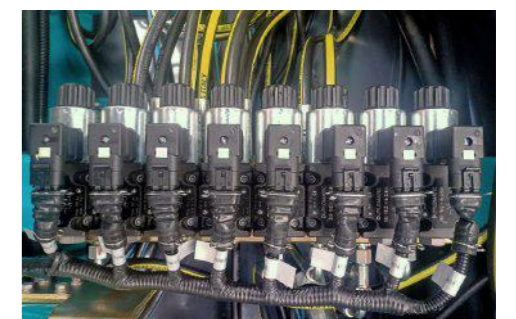
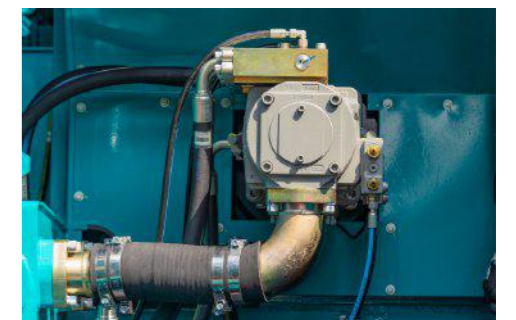


Driving head torque test bench



Hoisting tension test bench

**Hydraulic system configuration is high, pipeline loss is small, and comprehensive transmission efficiency is high.**



# Intelligent Control and Easy Driving



Remote control of the optional operating system allows a wider field of vision and keeps you outside the "machine" to ensure safety.



- ◆ Fault self-diagnosis alarm, immediate solutions, effective response to emergencies.
- ◆ The control parameters are displayed in real time, the construction data can be exported by USB flash disk, and the man-machine integration is under control.
- ◆ Special electromagnetic handle, one-button locking, cruise operation, getting rid of heavy physical labor.

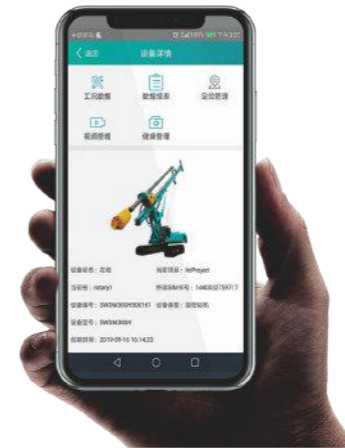


# Sunward Cloud



## System cloud platform

Mobile phone APP and WEB dual system are online, data are transmitted synchronously, and construction status is controlled at any time. One device in hand enables highly efficient control of multiple equipment.



### Comprehensive Technical Parameters

| Parameters            |                                    | Model  | SWDM420    | SWDM420V   |
|-----------------------|------------------------------------|--------|------------|------------|
| Drill hole            | Max. drilling diameter             | mm     | 2500(3000) | 2800       |
|                       | Max. drilling depth                | m      | 106/69     | 110/73     |
| Engine                | Brand                              |        | Cummins    | Cummins    |
|                       | Model                              |        | QSX15-C550 | QSX15-C550 |
|                       | Power                              | kW@rpm | 410@2100   | 410@2100   |
| Rotary power head     | Max.torque                         | kN.m   | 420        | 420        |
|                       | Rotation speed                     | rpm    | 6~25       | 6~25       |
|                       | High-speed throwing soil(optional) | rpm    | /          | /          |
| Pressurization system | Max. applied pressure              | kN     | 360        | 360        |
|                       | Max.lifting force                  | kN     | 400        | 400        |
|                       | Max.stroke                         | mm     | 13000      | 8000       |
| Main winch            | Max.lifting force                  | kN     | 400        | 450        |
|                       | Max.ropespeed                      | m/min  | 76         | 70         |
| Aux Winch             | Max.lifting force                  | kN     | 110        | 110        |
|                       | Max.ropespeed                      | m/min  | 65         | 65         |
| Drilling mast         | Left and Right tilt                | °      | ±4         | ±4         |
|                       | Forward tilt                       | °      | 5          | 90         |
| Chassis               | Crawler width                      | mm     | 900        | 900        |
|                       | Crawler extension width            | mm     | 3400~5000  | 3400~5000  |
|                       | Chassis length                     | mm     | 6550       | 6560       |
| Complete machine      | Working height                     | mm     | 27200      | 28995      |
|                       | Working Weight                     | t      | 136        | 140        |

### Kelly bar parameters

| Model    | Friction Kelly Bar | Hole depth (m) | Drill rod weight (kg) | Configuration | Model    | Interlocking Kelly Bar | Hole depth (m) | Drill rod weight (kg) | Configuration |
|----------|--------------------|----------------|-----------------------|---------------|----------|------------------------|----------------|-----------------------|---------------|
| SWDM420  | MZ580-6X19m        | 106            | 21500                 | ○             | SWDM420  | JS580-4X19m            | 69             | 20200                 | ●             |
|          | MZ580-6X16m        | 85             | 18800                 | ☆             |          | JS580-4X16m            | 56             | 17500                 | ☆             |
|          | MZ580-6X14m        | 73             | 15890                 | ★             |          | JS580-4X14m            | 46             | 14335                 | ★             |
|          | MZ530-6X19m        | 106            | 19500                 | ○             |          | JS530-4X19m            | 69             | 19500                 | ○             |
|          | MZ530-6X16m        | 85             | 16500                 | ☆             |          | JS530-4X16m            | 56             | 15500                 | ☆             |
|          | MZ530-6X14m        | 73             | 15000                 | ★             |          | JS530-4X14m            | 46             | 14000                 | ★             |
| SWDM420V | MZ580-6X20m        | 110            | 22500                 | ○             | SWDM420V | JS580-4X20m            | 73             | 21000                 | ●             |
|          | MZ580-6X16m        | 85             | 18800                 | ☆             |          | JS580-4X16m            | 56             | 17500                 | ☆             |
|          | MZ580-6X14m        | 73             | 15890                 | ★             |          | JS580-4X14m            | 46             | 14335                 | ★             |

### Comprehensive Technical Parameters

| Parameters            |                                     | Model  | SWDM450V   | SWDM550H2   | SWDM600     |
|-----------------------|-------------------------------------|--------|------------|-------------|-------------|
| Drill hole            | Max. drilling diameter              | mm     | 3000       | 3500        | 3500        |
|                       | Max. drilling depth                 | m      | 121/78     | 135/88      | 145/95      |
| Engine                | Brand                               |        | Cummins    | VOLVO       | VOLVO       |
|                       | Model                               |        | QSX15-C600 | TAD1643VE-B | TAD1643VE-B |
|                       | Power                               | kW@rpm | 448@2100   | 565@1900    | 565@1900    |
| Rotary power head     | Max.torque                          | kN.m   | 450        | 550         | 600         |
|                       | Rotation speed                      | rpm    | 6~25       | 5~24        | 9~32        |
|                       | High-speed throwing soil (optional) | rpm    | /          | /           | /           |
| Pressurization system | Max. applied pressure               | kN     | 420        | 480         | 480         |
|                       | Max.lifting force                   | kN     | 420        | 500         | 500         |
|                       | Max.stroke                          | mm     | 8000       | 10000       | 10000       |
| Main winch            | Max.lifting force                   | kN     | 490        | 600         | 640         |
|                       | Max.ropespeed                       | m/min  | 70         | 50          | 65          |
| Auxiliary winch       | Max.lifting force                   | kN     | 110        | 110         | 110         |
|                       | Max.ropespeed                       | m/min  | 65         | 65          | 65          |
| Drilling mast         | Left and Right tilt                 | °      | ±4         | ±4          | ±4          |
|                       | Forward tilt                        | °      | 90/15      | 90/15       | 90/15       |
| Chassis               | Crawler width                       | mm     | 900        | 1000        | 1000        |
|                       | Crawler extension width             | mm     | 3400~5000  | 6000        | 6000        |
|                       | Chassis length                      | mm     | 7030       | 7640        | 7640        |
| Complete machine      | Working height                      | mm     | 31055      | 35310       | 36285       |
|                       | Working Weight                      | t      | 158        | 202         | 210         |

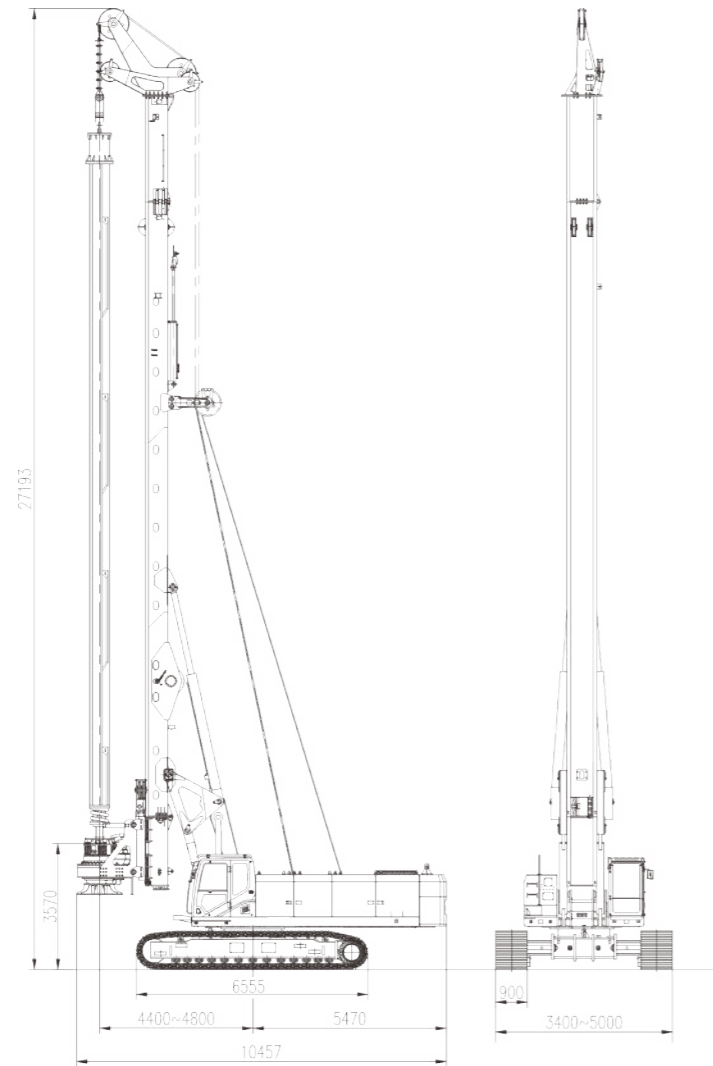
### Kelly bar parameters

| Model     | Friction Kelly Bar | Hole depth (m) | Drill rod weight (kg) | Configuration | Model     | Interlocking Kelly Bar | Hole depth (m) | Drill rod weight (kg) | Configuration |
|-----------|--------------------|----------------|-----------------------|---------------|-----------|------------------------|----------------|-----------------------|---------------|
| SWDM450V  | MZ580-6X22m        | 121            | 24500                 | ○             | SWDM450V  | JS580-4X22m            | 78             | 23000                 | ●             |
|           | MZ580-6X18m        | 98             | 20190                 | ☆             |           | JS580-4X18m            | 64             | 19365                 | ☆             |
|           | MZ580-6X16m        | 88             | 18200                 | ★             |           | JS580-4X16m            | 56             | 17390                 | ★             |
| SWDM550H2 | MZ630-6X24.5m      | 135            | 32990                 | ○             | SWDM550H2 | JS630-4X24.5m          | 88             | 30305                 | ●             |
|           | MZ630-6X21m        | 114            | 28495                 | ☆             |           | JS630-4X21m            | 74             | 26065                 | ☆             |
|           | MZ630-6X19m        | 102            | 25995                 | ★             |           | JS630-4X19m            | 67             | 23710                 | ★             |
| SWDM600   | MZ630-6X26m        | 145            | 36000                 | ○             | SWDM600   | JS630-4X26m            | 95             | 32000                 | ●             |
|           | MZ630-6X22.5m      | 123            | 28495                 | ☆             |           | JS630-4X22.5m          | 80             | 26065                 | ☆             |

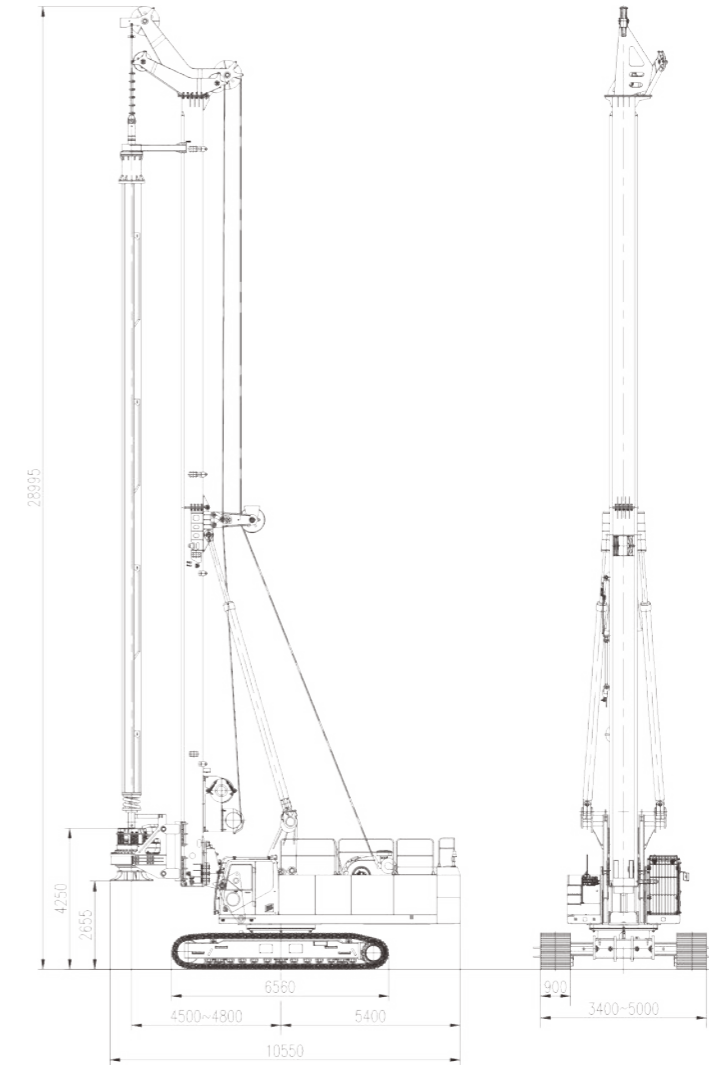
- Standard
- Optional
- ★ Longest drill pipe that can be provided for placing the 8m casing.
- ☆ Longest drill pipe that can be provided for placing the 6m casing.



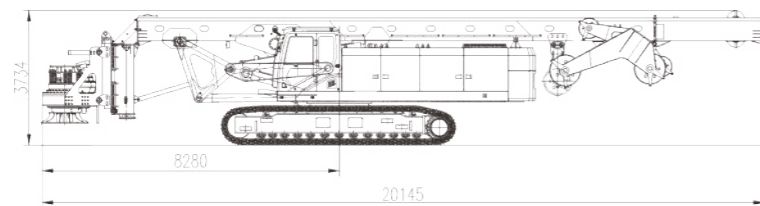
■ Working status SWDM420 (unit: mm)



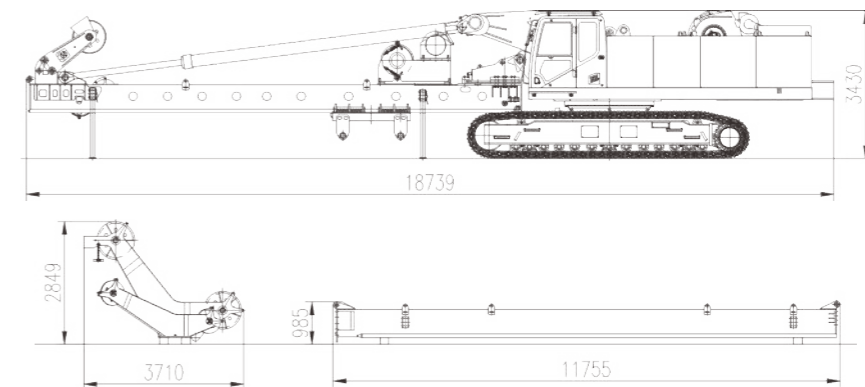
■ Working status SWDM420V (unit: mm)



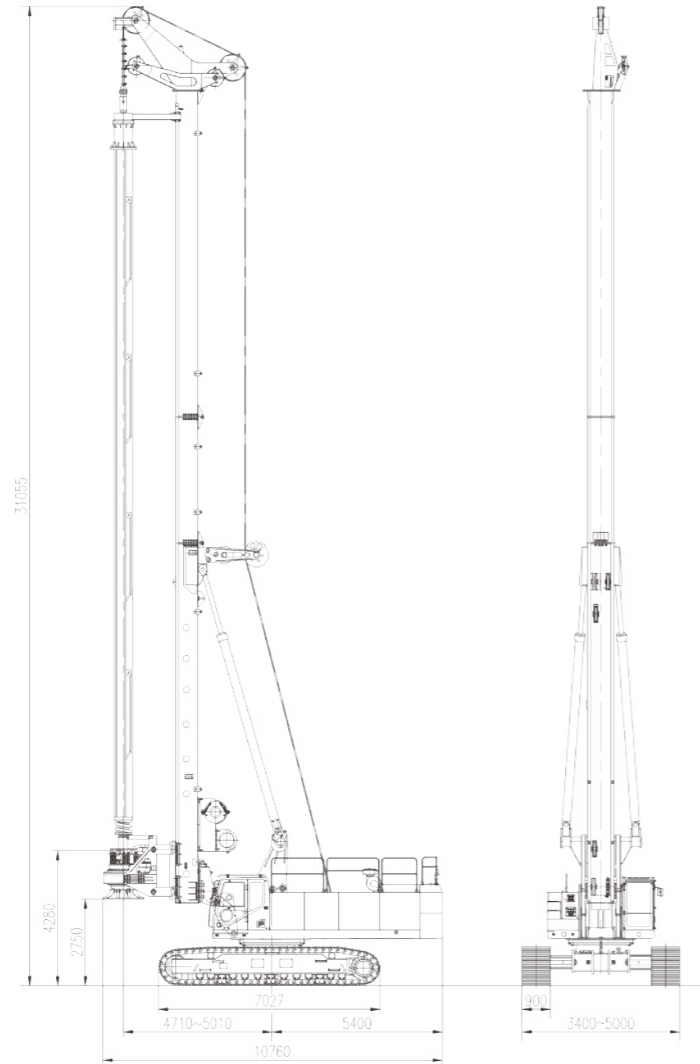
■ Transport status SWDM420 (unit: mm)



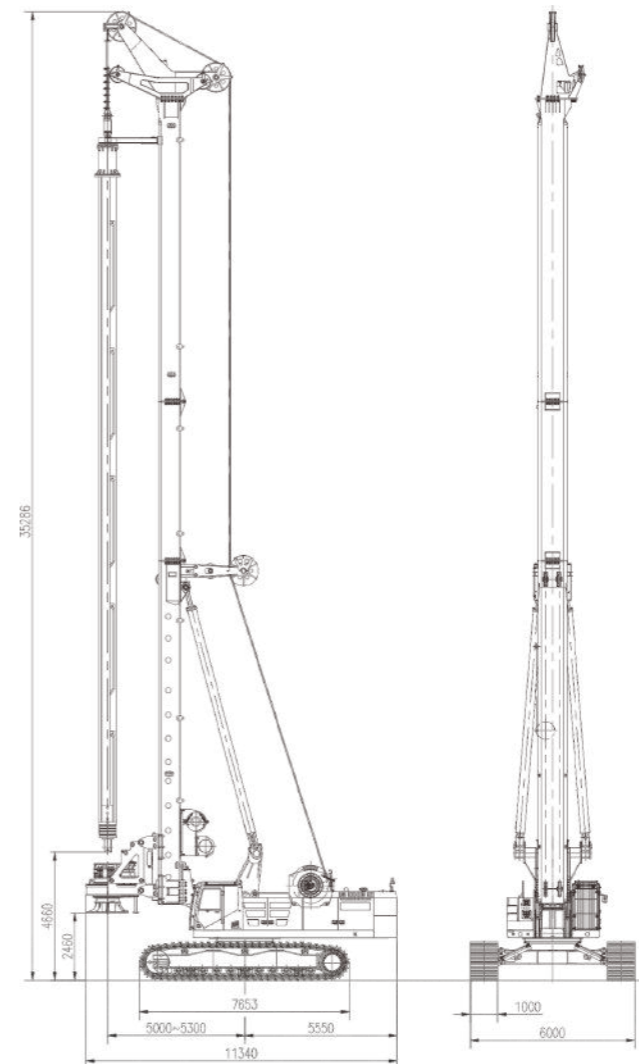
■ Transport status SWDM420V (unit: mm)



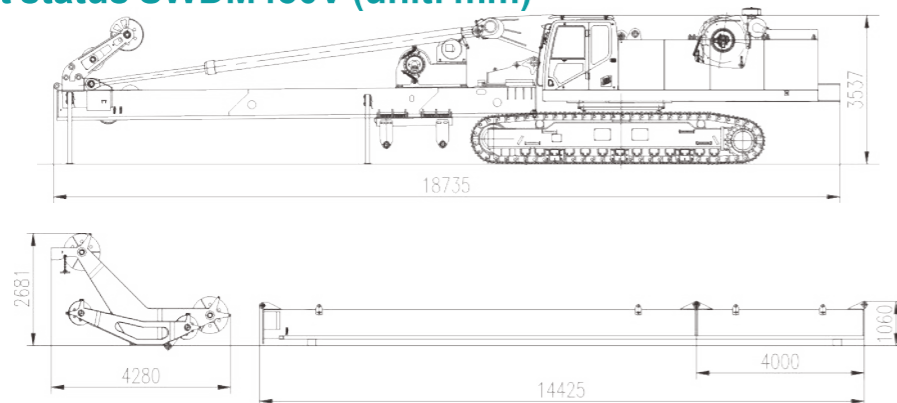
■ Working status SWDM450V (unit: mm)



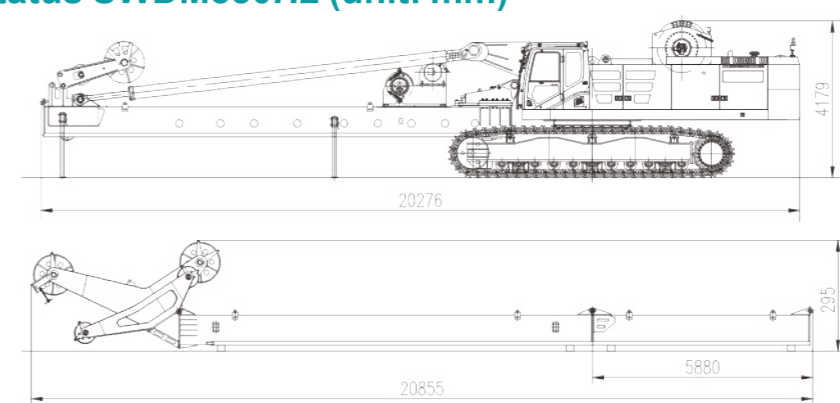
■ Working status SWDM550H2 (unit: mm)



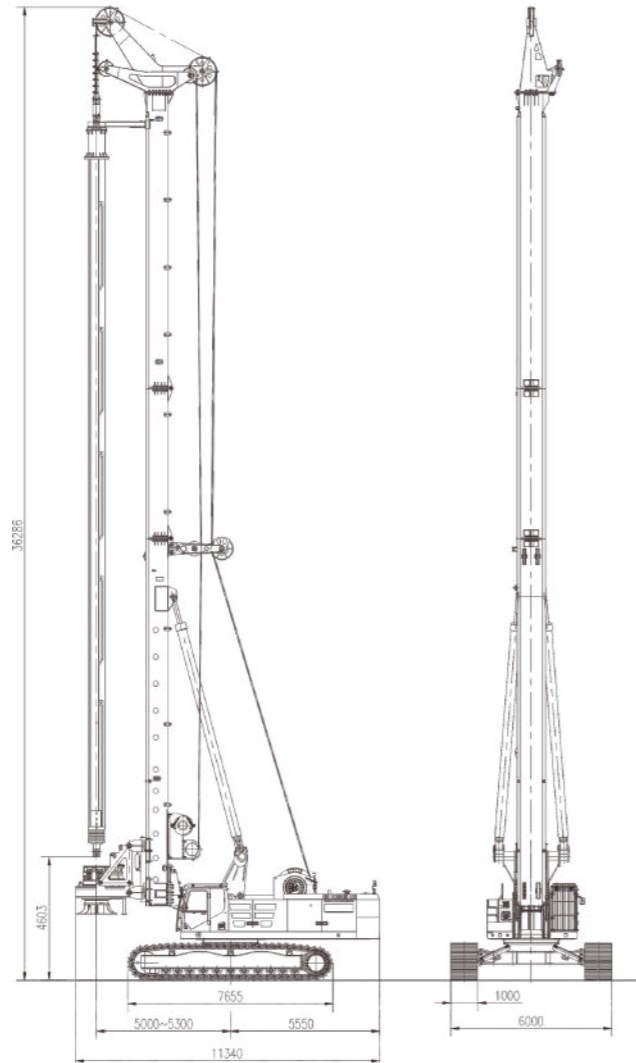
■ Transport status SWDM450V (unit: mm)



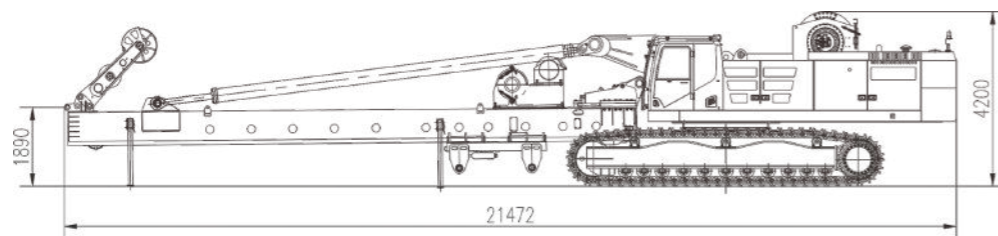
■ Transport status SWDM550H2 (unit: mm)



■ Working status SWDM600 (unit: mm)



■ Transport status SWDM600 (unit: mm)

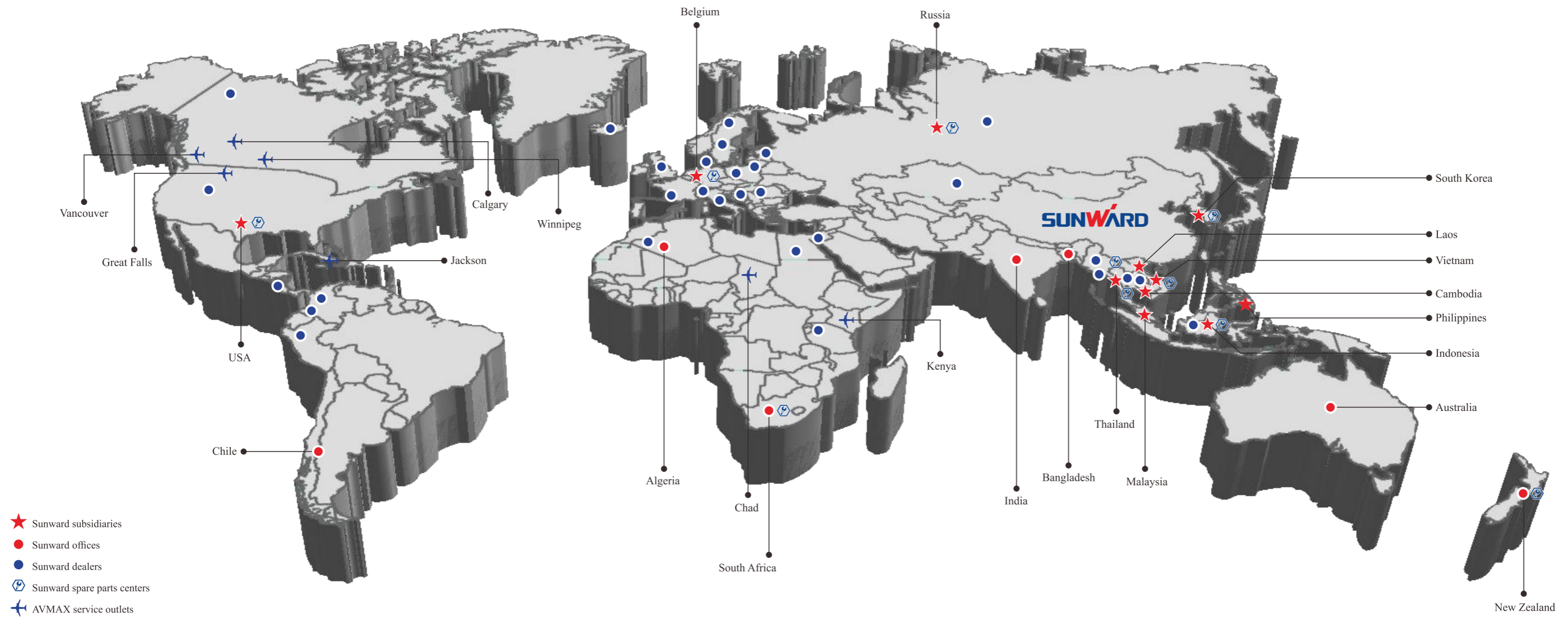


## Construction Application

Sunward Rotary Drilling Rig has unique advantages in complete machine stability, control technology, steel wire rope consumption and other performance indicators, and its comprehensive performance has reached the international advanced level. Sunward rotary drilling rig is not afraid of medium (slight) weathering, hard sand layer, large gravel layer and other complicated geological conditions, and has successively participated in the construction of Panzihua Steel Vanadium and Titanium Base, Hong Kong-Zhuhai-Macao Bridge, Harbin-Dalian Passenger Dedicated Line, Bird's Nest Stadium, Shanghai-Nanjing Railway, Shanghai-Kunming Railway, Lasa-Rikaze Railway, Lanzhou-Urumqi High-speed Railway and other major projects. At the same time, Sunward rotary drilling rigs have also been exported to Southeast Asia, Europe, America, Africa and other countries and regions in large quantities to participate in local key projects.



# After-sales service



## Efficient and Fast After-sales Service

Accessory warehouses have been set up all over China, forming a four-in-one accessory supply guarantee system consisting of headquarters warehouses, regional center warehouses, provincial warehouses and prefecture-level warehouses, storing over 20,000 kinds of accessories worth hundreds of millions of CNY. We have 800 front-line service engineers, 200 service outlets, 300 service vehicles and hundreds of service consulting units, ensuring efficient and fast after-sales service.



### 24-hour Hotline

If you need any help, please dial the 24-hour after-sales service hotline 400-887-8230.



### Reply in 15 min

Within 15 min, the after-sales service engineer will contact you, ask you about the equipment and service requirements, and handle the problem through telephone remote guidance.



### Departure within 1h

If the telephone instruction fails to handle the fault properly, the service engineer will carry the maintenance tools to the site where the equipment is located for on-site maintenance service within 1 hour.



### Arrival within 2h

The office service engineer will arrive at the site within 2h in the city, 12h in the province and 48h outside the province.



### Handling of Major Situation

For major and special situations, the service system will activate a rapid response mechanism, an expert support mechanism and a green channel for accessories.



### Call-back

After the field service, the call center of Sunward's headquarters will call back to track the quality and completion of the service, listen to the opinions and suggestions of customers and feed them back to various functional units for implementation and improvement to provide better service for customers.

