

PROFESSIONAL UNDERGROUND ENGINEERING CONSTRUCTION
EQUIPMENT MANUFACTURER

SUNWARD

Multi-functional Rotary Drilling Rig

SWDM

300 • 300H • 300HA • 300HB

360 360HIII



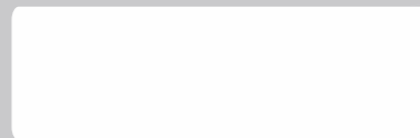
SUNWARD

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SWDM EN 2020-06

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

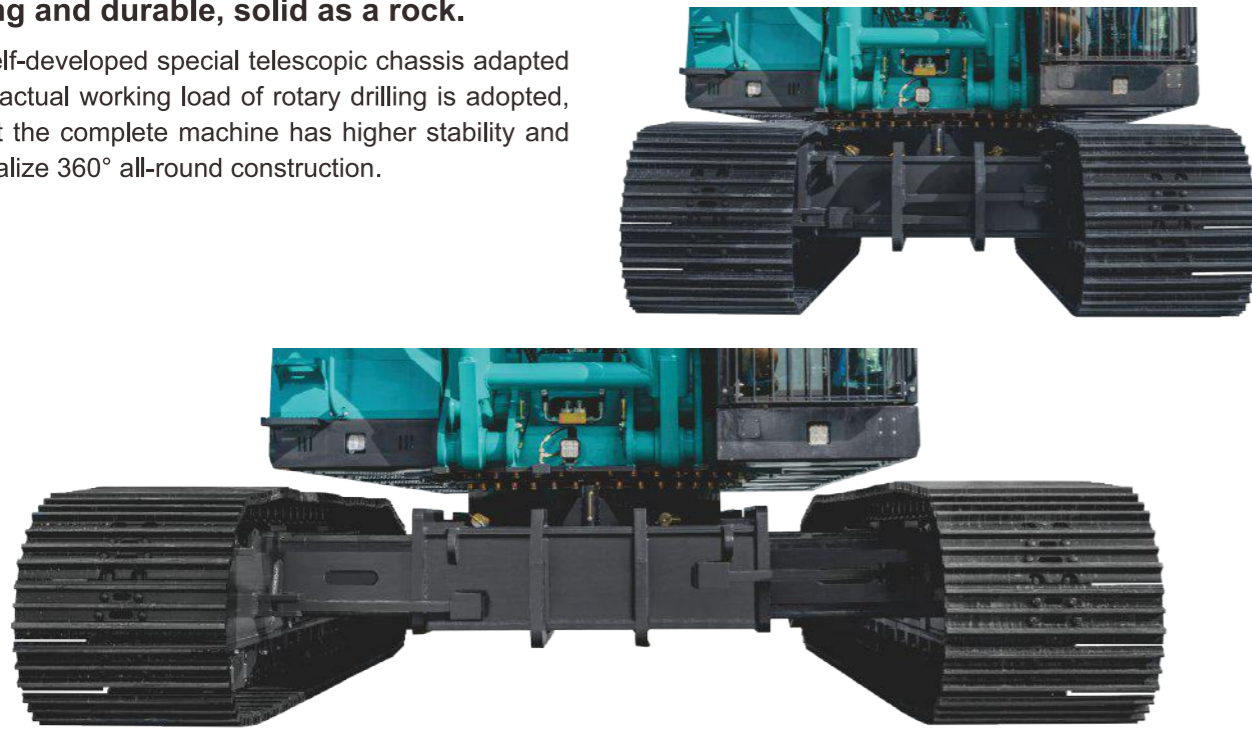
- 1992 Joined the pile industry
- 2003 The first rotary drilling rig SWDM20 has been successfully launched
- 2005 SWDM series rotary spectrum extension
- 2007 Built the first pile in Harbin-Dalian High-speed Railway
Launched a series of small rotary drilling rigs to enter the European market in batches
- 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.

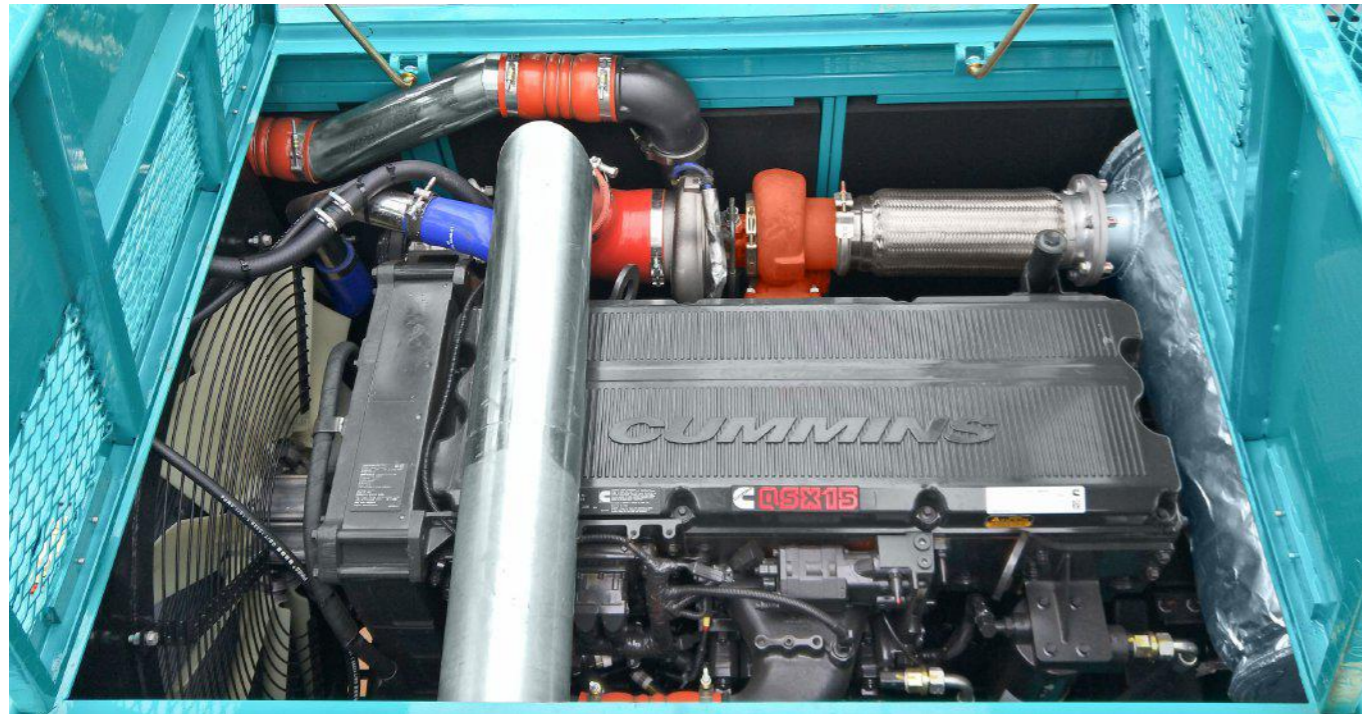
The self-developed special telescopic chassis adapted to the actual working load of rotary drilling is adopted, so that the complete machine has higher stability and can realize 360° all-round construction.



Engine

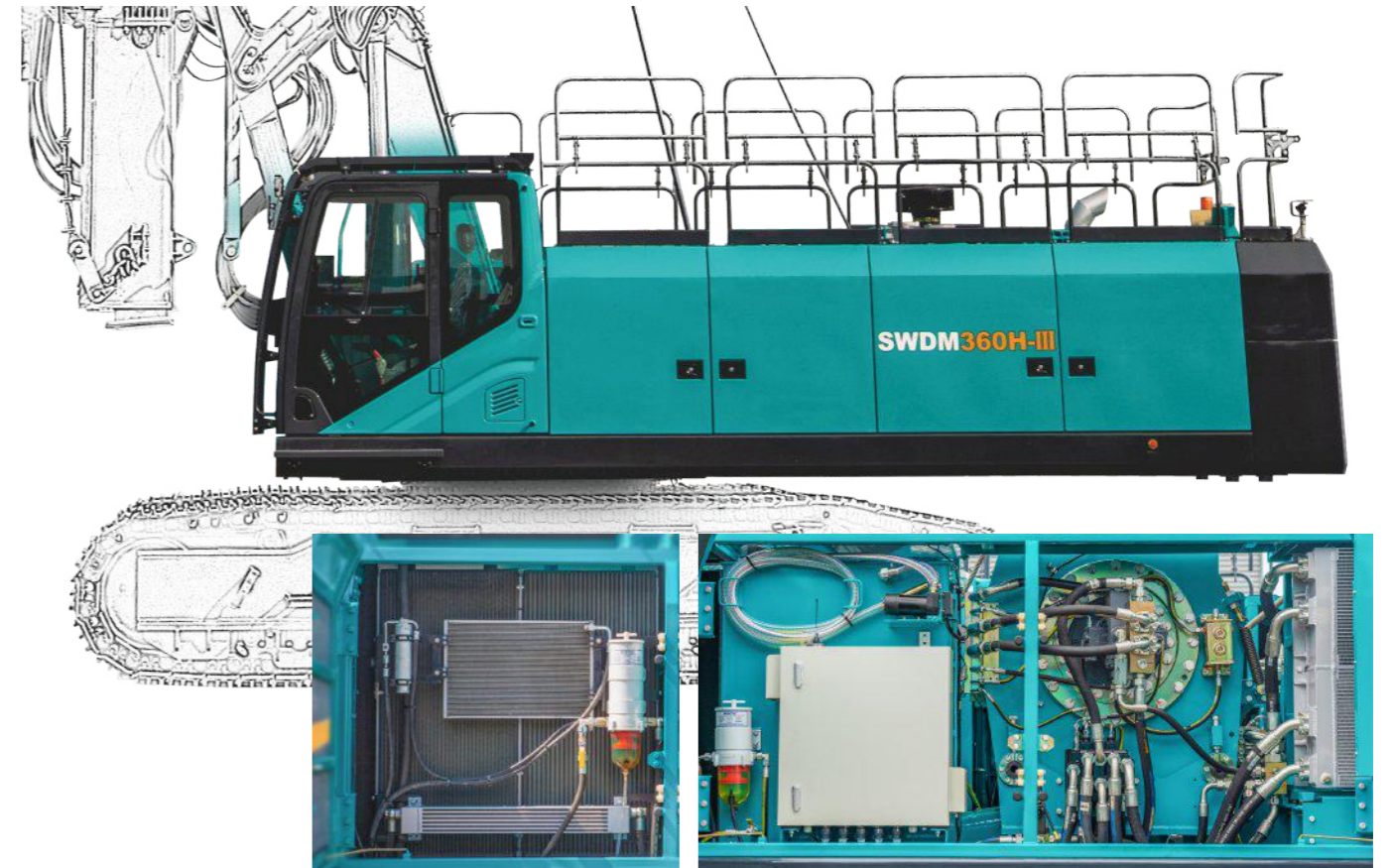
Cummins engine has strong power and is environmentally friendly.

The engine is Cummins electronic fuel injection turbocharged and intercooled engine with high reliability, fuel economy and rather high reserve power. The emission complies with the European standard EPAC3, so the engine is environmentally friendly. It can operate normally at areas with high altitude and extremely cold climate.



Platform Layout Optimization

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



Convenient Transportation, Cost Reduction and Efficiency Increase

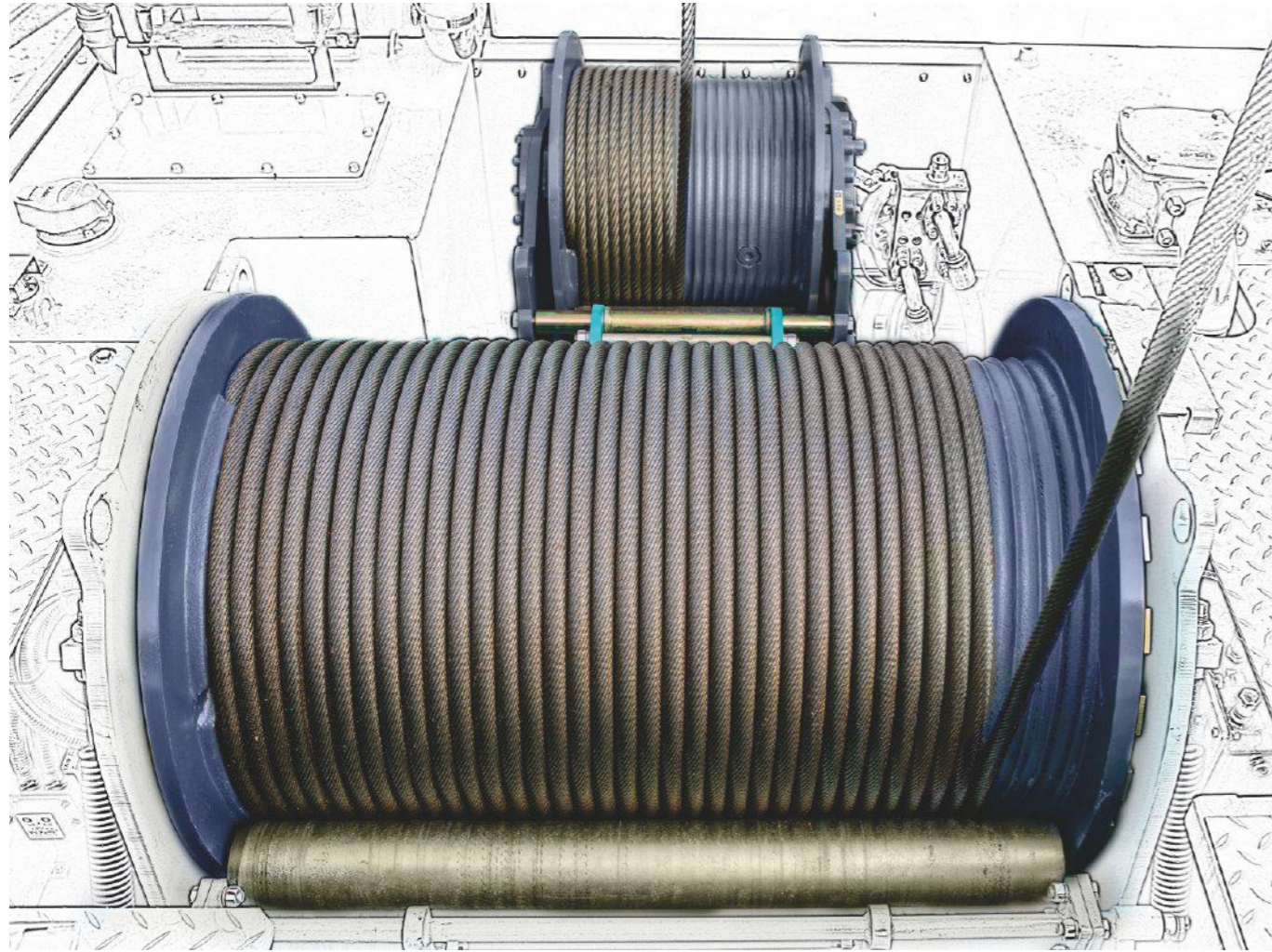
The structure is compact for loading and unloading, and it doesn't need to be disassembled for highway transport



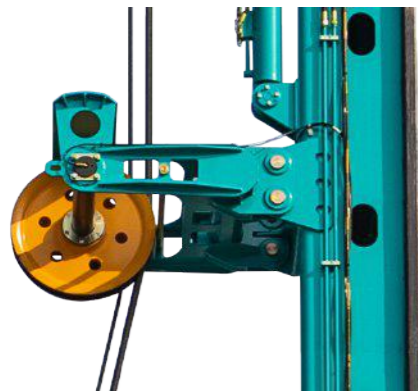
Single Drum

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

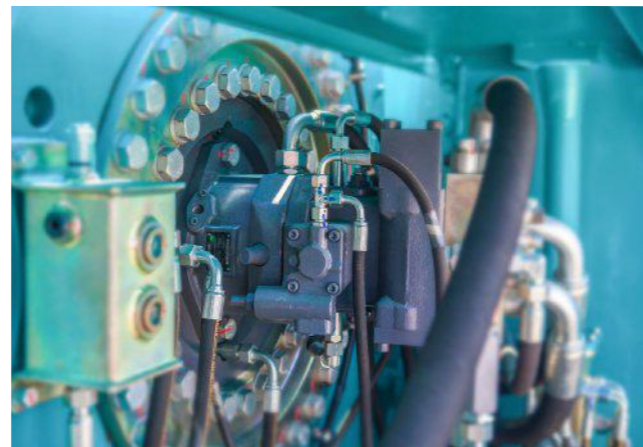
The main and auxiliary winches are installed on the platform. This design greatly reduces the rotary inertia at the upper part of the platform and the tilting moment of the working device, and improves the stability of the complete machine.



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.



Rotary Power Head

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

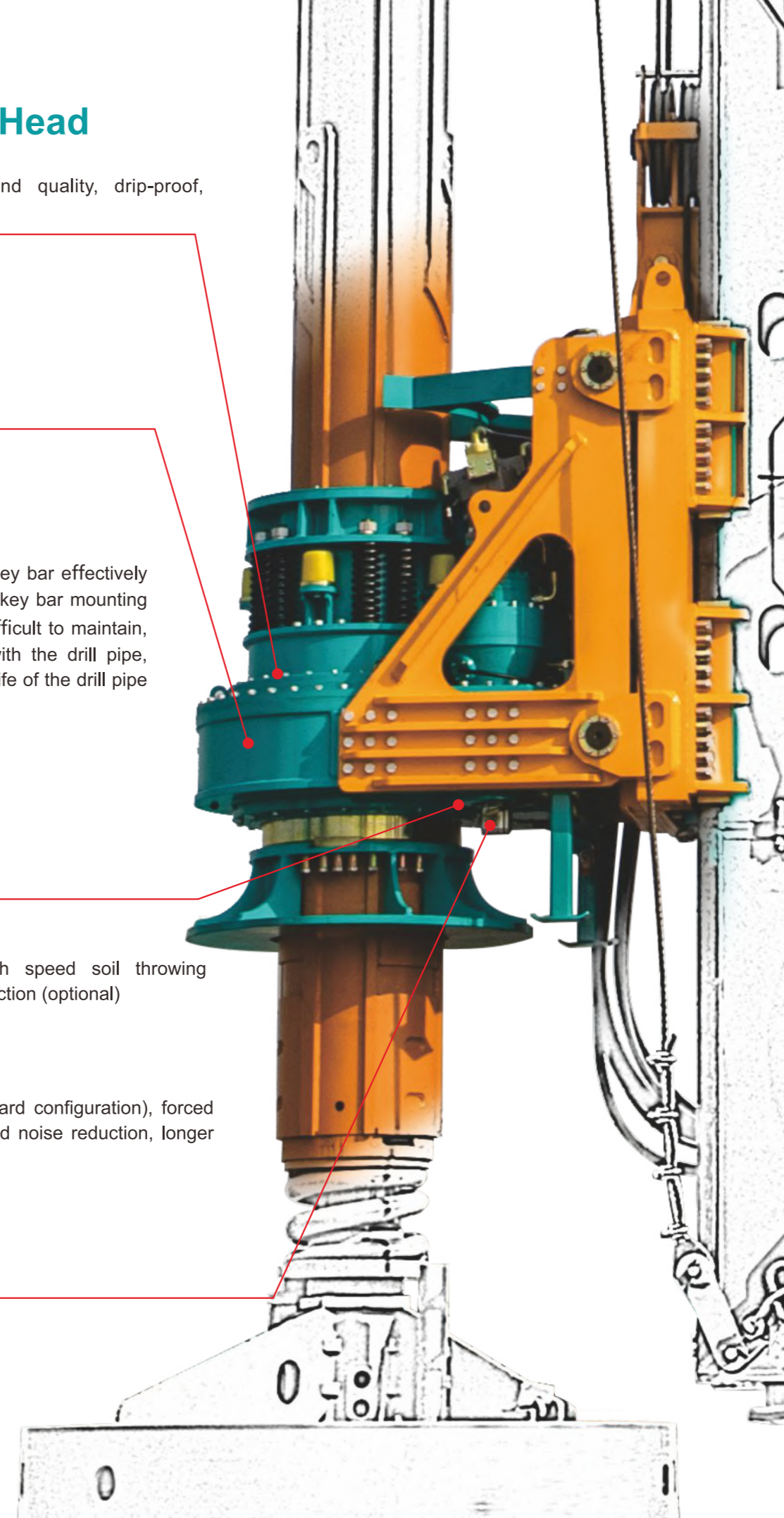
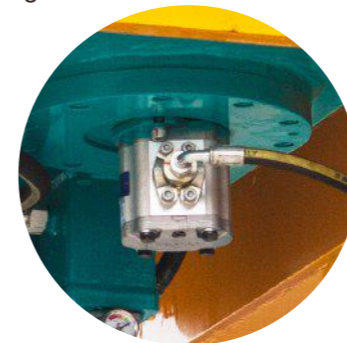


Patented lengthened drive key bar effectively solves the problem that the key bar mounting bolt is easy to break and difficult to maintain, and is perfectly matched with the drill pipe, thus prolonging the service life of the drill pipe by more than 10%.



High speed soil throwing function (optional)

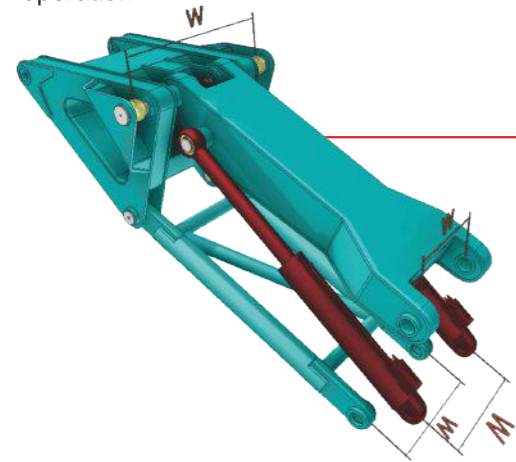
Gear lubrication pump (standard configuration), forced lubrication, wear reduction and noise reduction, longer gear life.



Working Device

Lightweight design of high strength steel is adopted for drilling mast
The structural parts have higher strength and longer service life.

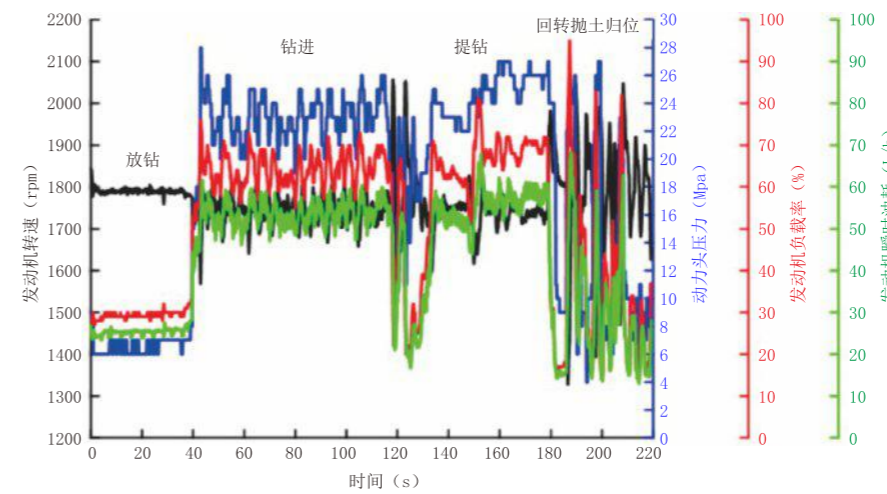
The large parallelogram luffing mechanism has a wide luffing range, large support size and more stable operation.



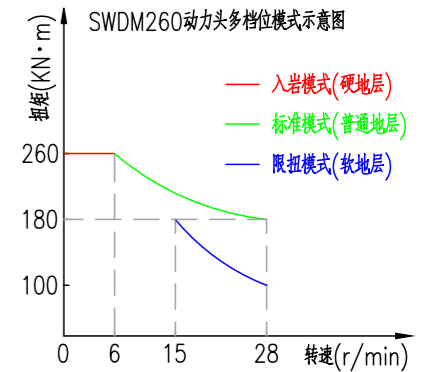
The auxiliary legs hidden in the lower mast not only can provide auxiliary support for drilling construction, but also can accomplish some unexpected things for you.



High Efficiency and Energy Saving



Power system perfectly matches with load power



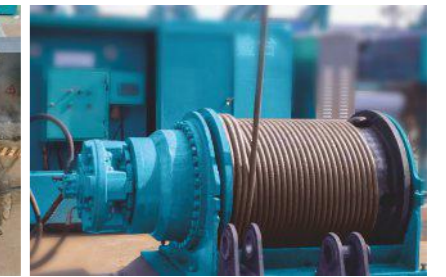
Driving head multi-gear one-key switching
Energy consumption perfectly matches with formation working conditions



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.

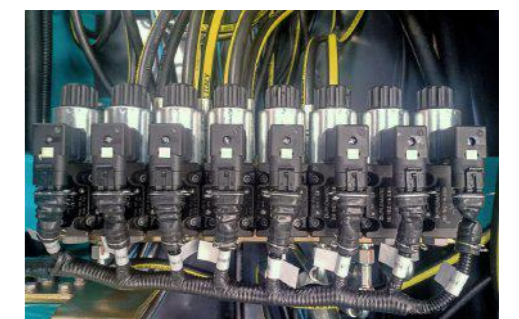
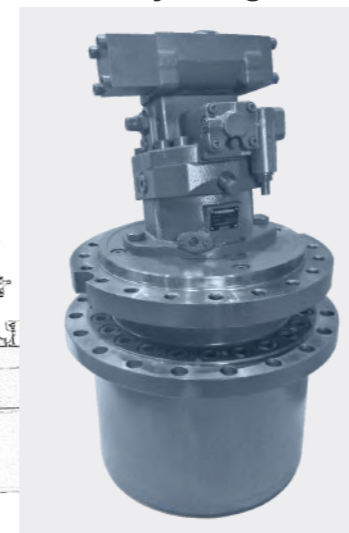


Driving head torque test bench



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 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

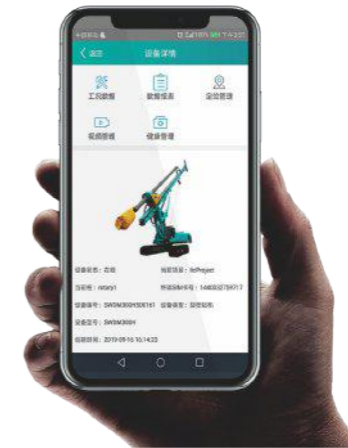


Sunward Cloud



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.



Multi-function Expansion and High Value Embodiment

Sunward intelligent rotary drilling rig has a variety of configurations for you to choose from, realizing multi-function and diversified construction of one machine.

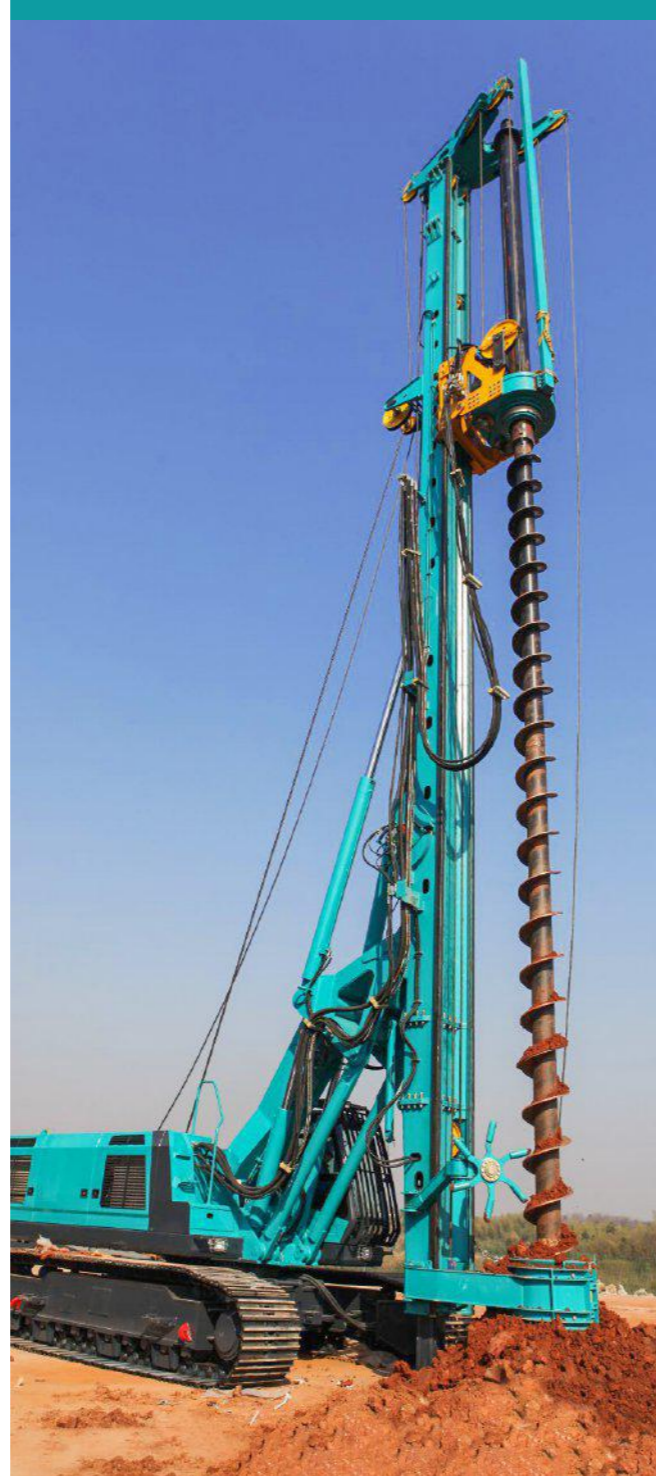
Casing Oscillator Construction Method

The main machine can be equipped with an external oil source interface for casing oscillator construction. The casing oscillator construction method is adopted to effectively solve the problem of easy collapse in formation construction such as quicksand, silt, backfill soil and the like.



CFA long spiral drilling rig construction method

The CFA long spiral drilling rig construction method can realize continuous pile drilling and grouting. It is a new composite foundation treatment method with high construction efficiency, especially for small holes, dry holes and shallow holes.



DTH Construction Method

Technological Characteristics:

- ◆Drilling with concentric simultaneous casing and wall protection in the whole process
- ◆The positive circulation slag discharge will restrict the slag discharge airflow in the casing to ensure the construction safety.
- ◆The construction scheme of large-diameter down-the-hole hammer is adopted to deal with both hard and soft formation.



Casing driver construction method

The construction of rotary drilling rig equipped with casing driver can effectively and quickly bury casing, which can give play to obvious advantages in backfilling soil layer, shallow sandy pebble layer and limestone layer with multiple karst caves. Placing casing by the optional casing driver can ensure the verticality of the casing and effectively prevent collapse. The drilling and the casing placement can be carried out simultaneously to improve the efficiency of the drilling rig.



Comprehensive Technical Parameters

Parameters		Model	SWDM300	SWDM300H	SWDM300HA	SWDM300HB
Drill hole	Max. drilling diameter	mm	2500	2500	2300	1000
	Max. drilling depth	m	90/57	95/62	95/62	26
Engine	Brand		Cummins	Cummins	Cummins	Cummins
	Model		QSM11-C400	QSM11-C400	QSM11-C400	QSM11-C400
	Power	kW@rpm	298@2100	298@2100	298@2100	298@2100
Rotary power head	Max.torque	kN.m	300	320	320	320
	Rotation speed	rpm	6~28	6~32	6~32	6~32
	High-speed throwing soil (optional)	rpm	/	/	/	/
Pressurization system	Max. applied pressure	kN	260	260	270	270
	Max.lifting force	kN	280	280	280	280
	Max.stroke	mm	6000	6000	17000	17000
Main winch	Max.lifting force	kN	320	320	320	1280
	Max.ropespeed	m/min	80	80	80	80
Auxiliary winch	Max.lifting force	kN	110	110	110	110
	Max.ropespeed	m/min	65	65	65	65
Drilling mast	Left and Right tilt	°	±4	±4	±4	±4
	Forward tilt	°	5	5	5	5
Chassis	Crawler width	mm	900	900	900	900
	Crawler extension width	mm	3000~4500	3000~4500	3000~4500	3000~4500
	Chassis length	mm	5700	5700	5700	5700
Complete machine	Working height	mm	24230	24830	24830	24830
	Working Weight	t	102	105	105	105

Comprehensive Technical Parameters

Parameters		Model	SWDM360	SWDM360H III
Drill hole	Max. drilling diameter	mm	2500	2500(3000)
	Max. drilling depth	m	100/64 (Special match: 106/68)	102/66
Engine	Brand		Cummins	Cummins
	Model		QSM11-C400	QSX15-C550
	Power	kW@rpm	298@2100	410@2100
Rotary power head	Max.torque	kN.m	360	418
	Rotation speed	rpm	6~29	6~25
	High-speed throwing soil(optional)	rpm	/	/
Pressurization system	Max. applied pressure	kN	300	340
	Max.lifting force	kN	360	380
	Max.stroke	mm	6000	13000
Main winch	Max.lifting force	kN	370 (Special match: 390)	390
	Max.ropespeed	m/min	72	76
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	5
Chassis	Crawler width	mm	900	900
	Crawler extension width	mm	3200~4700	3300~4800
	Chassis length	mm	5910	6120
Complete machine	Working height	mm	26150	27200
	Working Weight	t	115	132

Kelly bar parameters

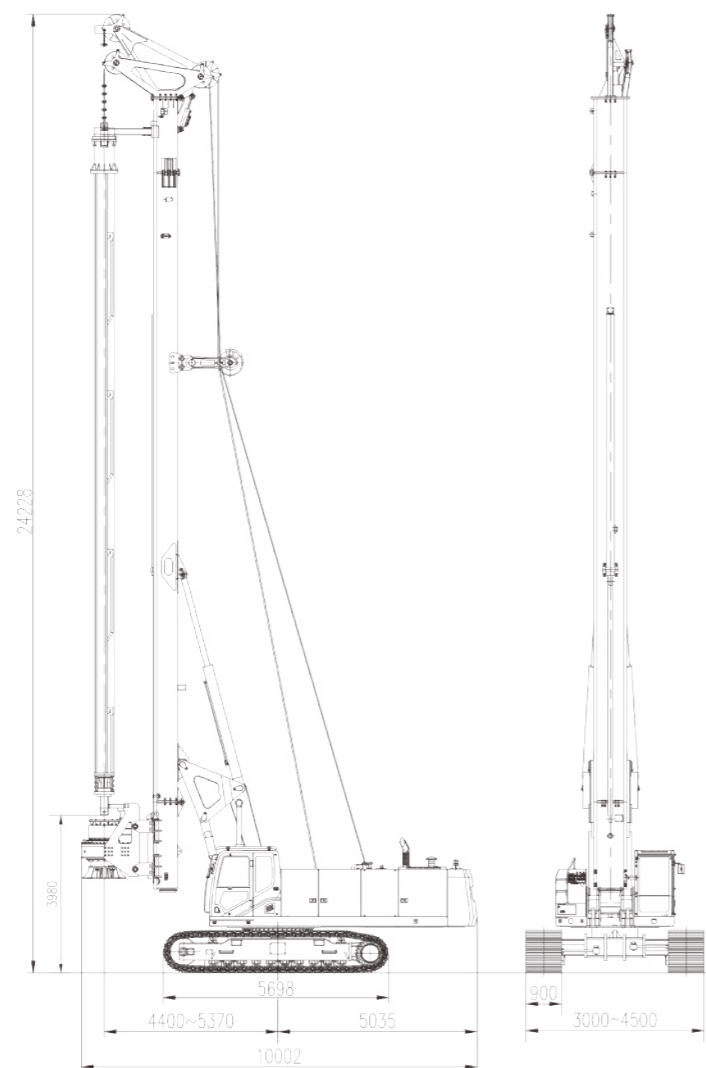
Model	Friction Kelly Bar	Hole depth (m)	Drill rod weight (kg)	Configuration	Model	Interlocking Kelly Bar	Hole depth (m)	Drill rod weight (kg)	Configuration
SWDM300	MZ508-6X16m	90	15900	○	SWDM300	JS508-4X16m	57	14100	●
	MZ508-6X12m	63	12000	☆		JS508-4X12m	41	11000	☆
SWDM300H	MZ508-6X17m	95	16600	○	SWDM300H	JS508-4X17m	62	15500	●
SWDM300HA	MZ508-6X13m	71	13000	☆	SWDM300HA	JS508-6X13m	46	12000	☆

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

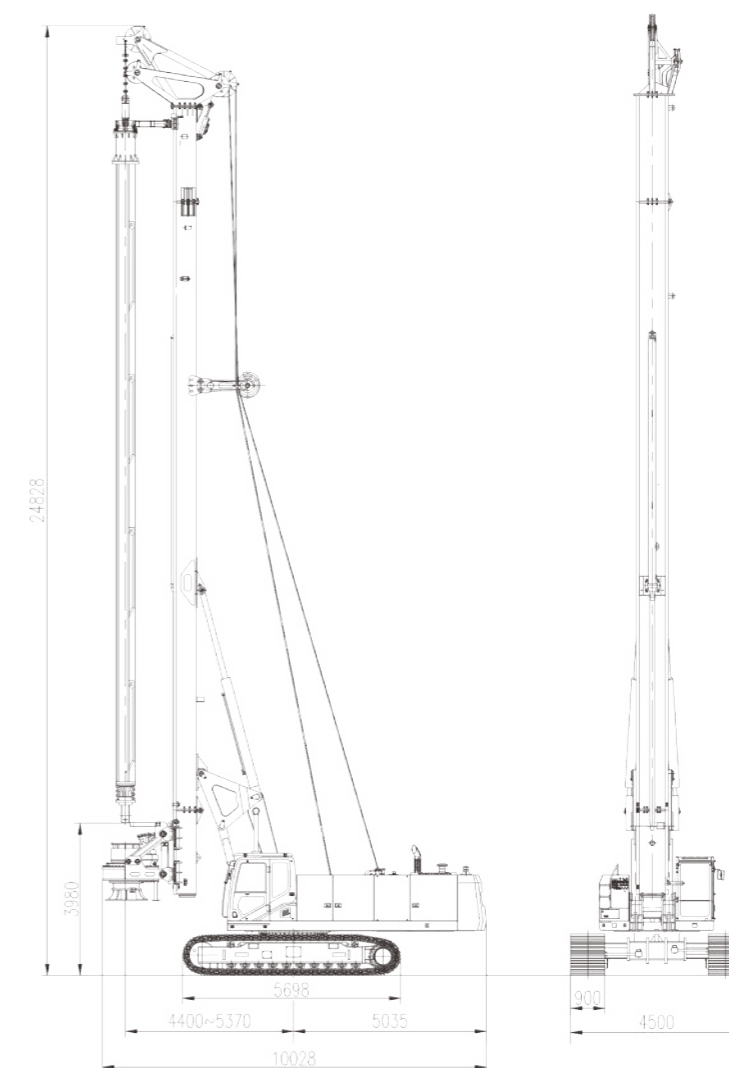
Kelly bar parameters

Model	Friction Kelly Bar	Hole depth (m)	Drill rod weight (kg)	Configuration	Model	Interlocking Kelly Bar	Hole depth (m)	Drill rod weight (kg)	Configuration
SWDM360	MZ530-6X18m	100	18400	○	SWDM360	JS530-4X18m	64	17300	●
	MZ530-6X14m	75	16500	☆		JS530-4X13m	45	14000	☆
	MZ530-6X12m	63	14000	★		JS530-4X12m	41	13500	★
	MZ530-6X19m	105	18200			JS530-4X19m	68	18400	
SWDM360H III	MZ580-6X18.4m	102	20000	○	SWDM360H III	JS580-4X18.4m	66	18415	●
	MZ580-6X17.4m	97	17800	○		JS580-4X17.4m	58	17200	○
	MZ580-6X14.5m	78	16500	☆		JS580-4X14.5m	47	14425	☆
	MZ580-6X12.5m	66	14550	★		JS580-4X12.5m	43	13500	★

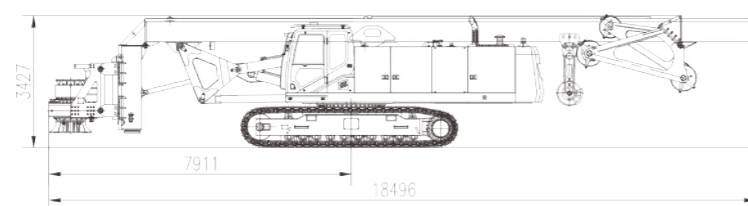
■ Operation status SWDM300 (unit:mm)



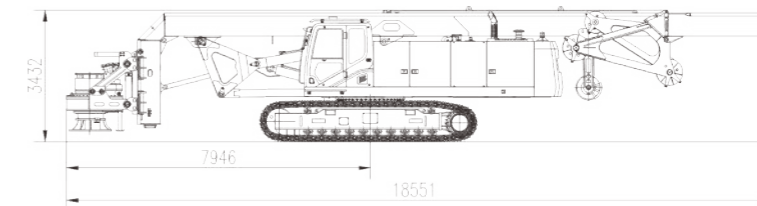
■ Operation status SWDM300H (unit:mm)



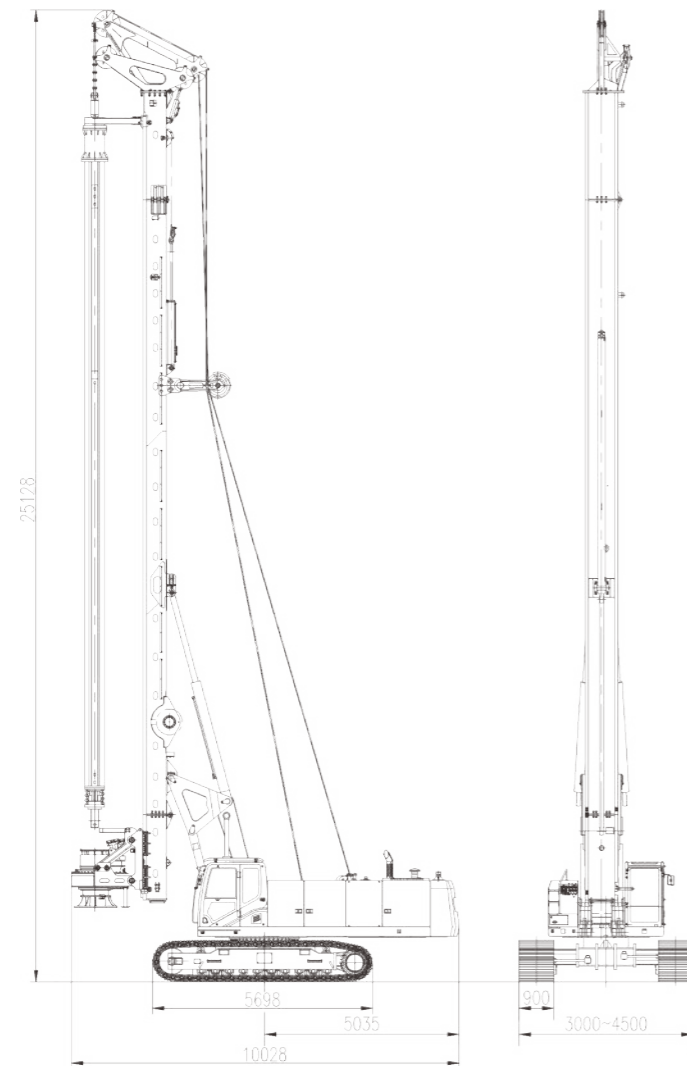
■ Transportation status SWDM300H (unit:mm)



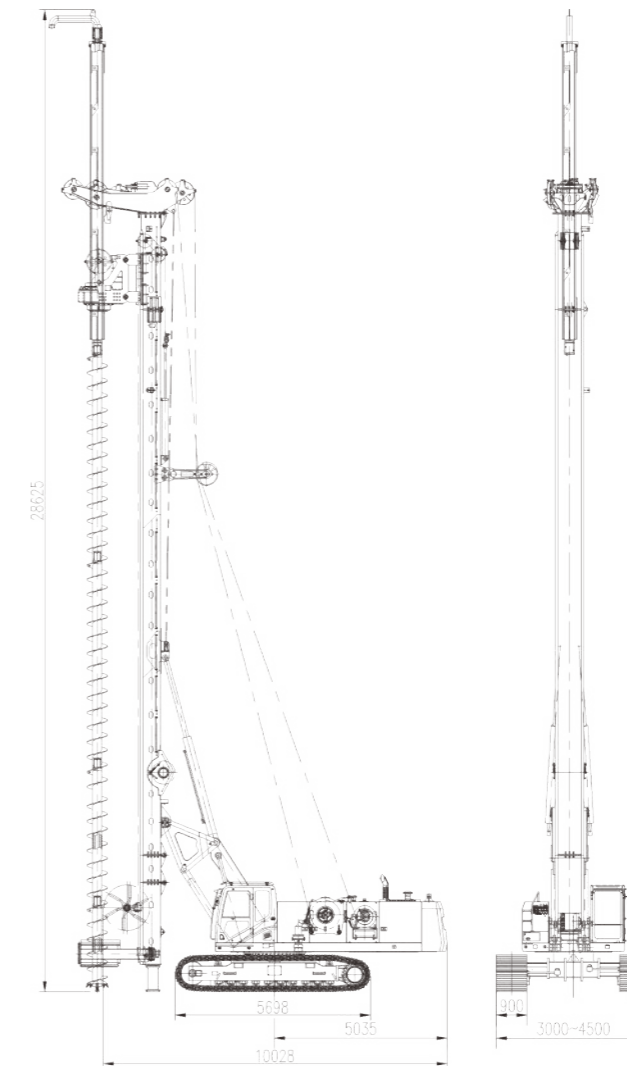
■ Transportation status SWDM300H (unit:mm)



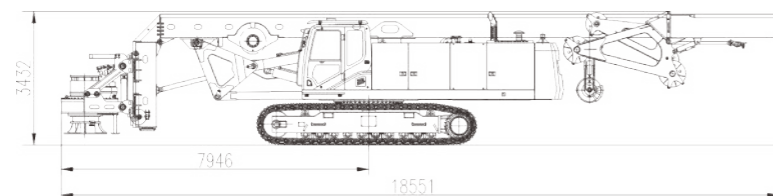
■ Operation status SWDM300HA (unit:mm)



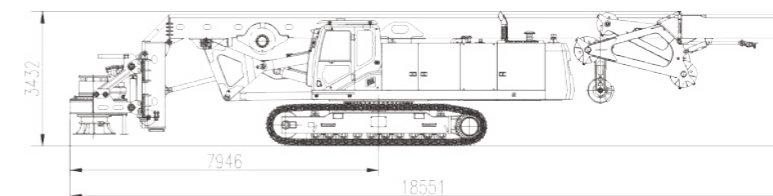
■ Operation status SWDM300HB (unit:mm)



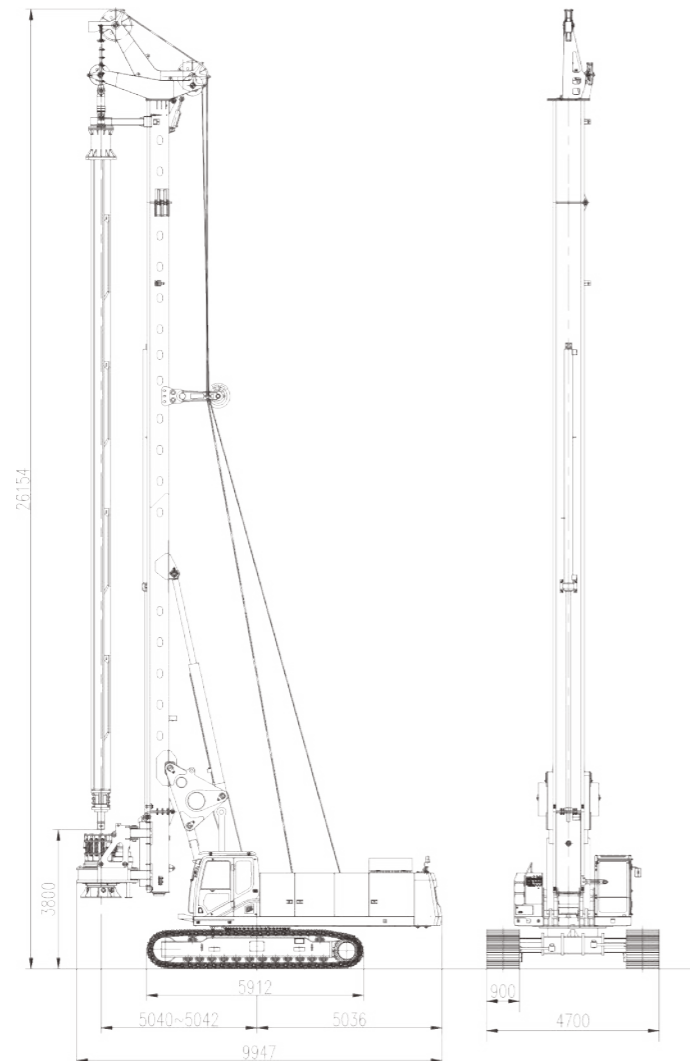
■ Transportation status SWDM300HA (unit:mm)



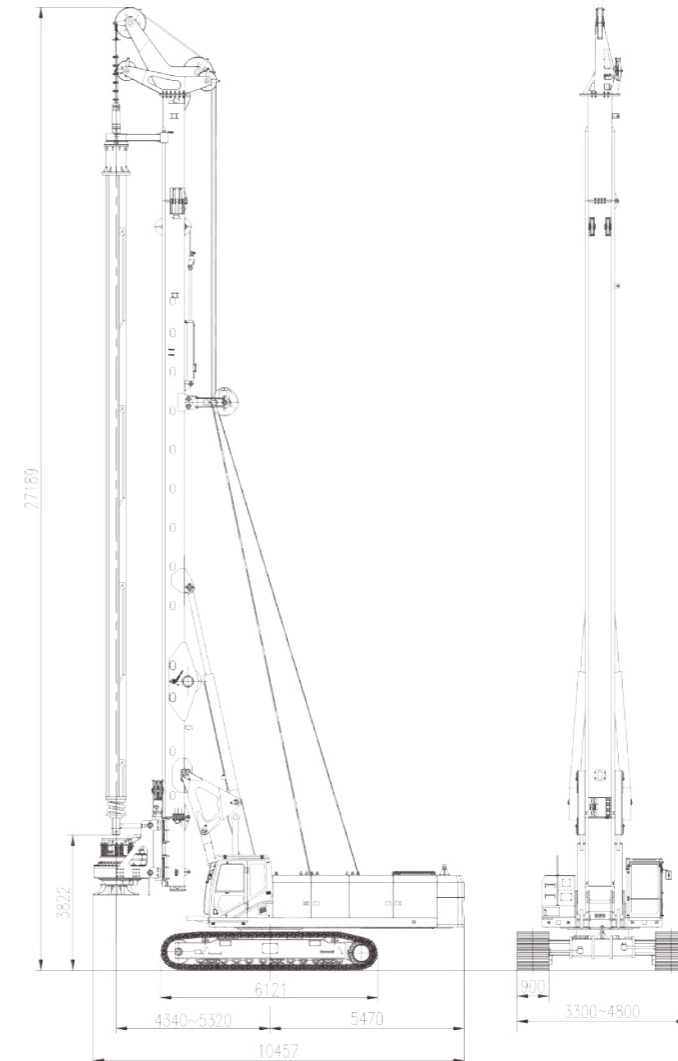
■ Transportation status SWDM300HB (unit:mm)



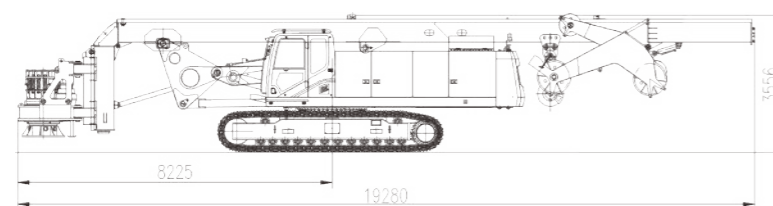
■ Operation status SWDM360 (unit:mm)



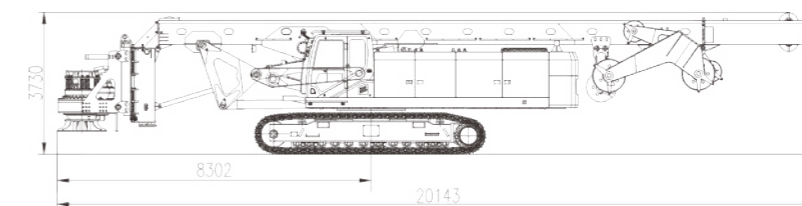
■ Operation status SWDM360H III (unit:mm)



■ Transportation status SWDM360 (unit:mm)



■ Transportation status SWDM360H III (unit:mm)

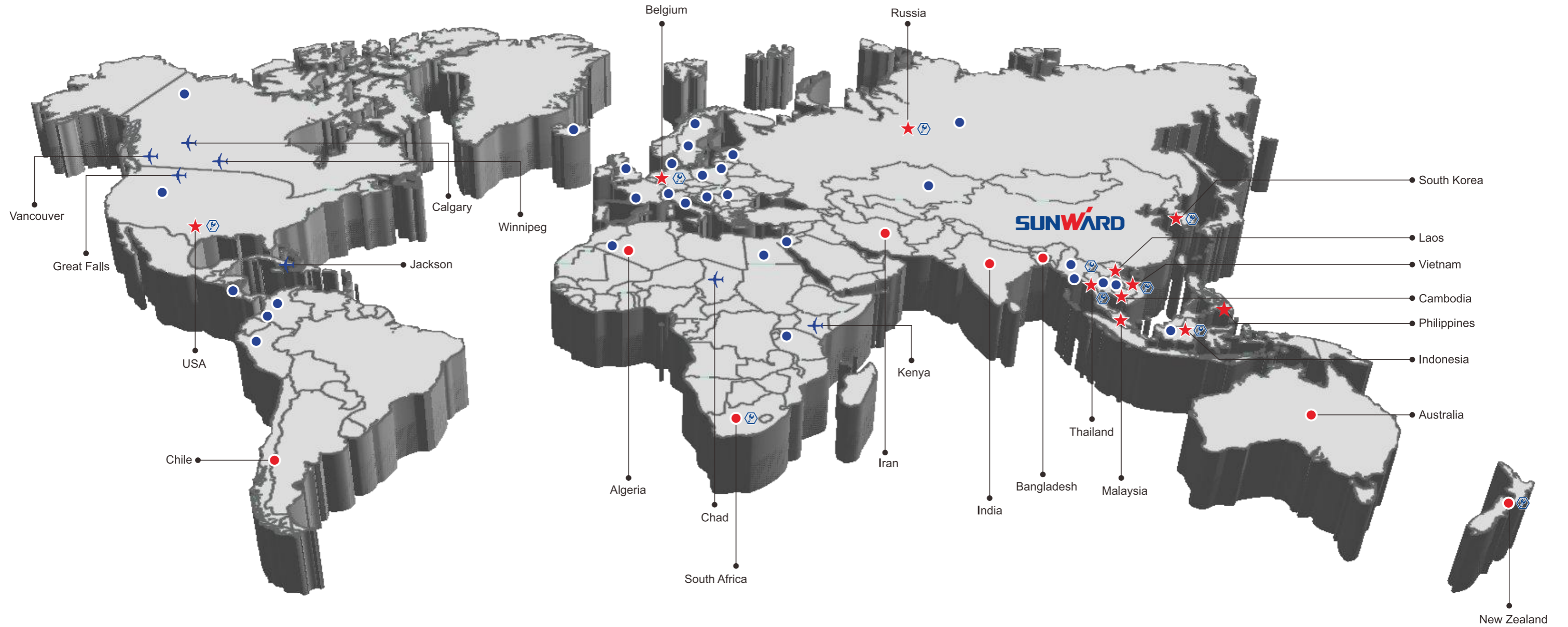


Construction Application

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 Panzhihua 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.



Distribution Network



- ★ Sunward subsidiaries
- Sunward offices
- Sunward dealers
- ⬡ Sunward spare parts centers
- ✈ AVMAX service outlets