

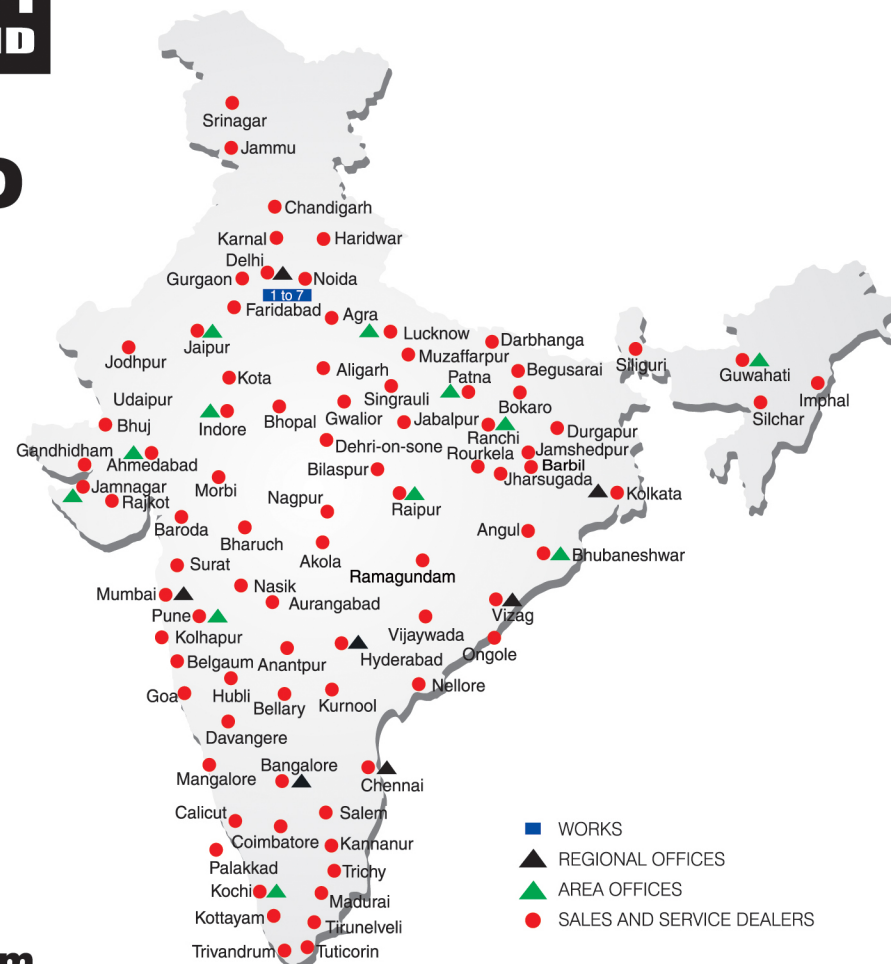
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CRANE BRAND

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SPARE PARTS & SERVICE

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ACE

Action Construction Equipment Ltd.

Contact:

CVI
CERTIFIED
MANAGEMENT SYSTEM
ISO 9001

ACE reserves the right to alter any specifications without prior notice. Dimensions, weights & capacities mentioned herein are variable by ± 5%. Accessories if shown are not part of the Standard Equipment.

Rotary Drilling Machines/08/19

ACE
SUNWARD
Rotary Drilling Machines

High Performance and Rugged
Piling Rigs for Hard and Rocky Terrains
Torque Range : 60 kN.m to 600 kN.m



SUNWARD : Innovative Manufacturer of Underground Constructions Foundation Equipment

- Sunward Intelligent Equipment group was founded in 1990's by Mr. He Qinghua with a distinct feature of industry university research integration initiative. Headquartered in Changsha city, it has gradually grown into an international enterprise which focuses on underground construction equipment, hydraulic excavators and aviation industry. Sunward is credited with independent intellectual patents and has global presence ranking amongst top 50 global enterprises in the field of construction machines and top 20 company in excavator brands.
- Sunward with its engagement for more than 20 years in underground construction has successfully developed complete comprehensive solution including static pile drivers, rotary drilling rigs, dual purpose drilling rigs, hydraulic crawler drills, tunnel boring machine which stands for innovation, reliability and highest geological adaptability for hard strata application.
- Sunward developed the rotary drilling rigs with the most complete specifications for China and global market with power head output torque ranging from 40 kNm to 600 kNm and construction bore diameter ranging from 350 mm to 3500 mm. Sunward takes pride in designing drilling rigs for hard strata applications and have the unique stand out performance in high capacity range.

Building Foundation Equipment

Sunward covers the complete range of foundation equipment which includes the foundation piles, foundation pits, foundation treatment and includes more than 70 construction technologies such as hole drilling method, wall method, static pressure method, pile planting method, mixing method, percussion and grabbing method, screw expansion method, inject method, vibro-flotation method, etc., meeting the requirement of mountain (rock), underground (soil) and undersea (water) construction, of which:

- Hydraulic static pile driver owns 15 patents and has won the second prize of National Scientific and Technological Progress Award, covering the full range of 60-1200t and owns the highest share in the domestic and international market. Products like tube-sinking cast-in-situ pile driver, hole leading pile driver and sheet pile driver are quite popular in the market.
- Rotary drilling rig owns more than 20 patents in hole-machine structure, parts and other aspects covering the full range of 40 - 680kNm torque series & drilling diameter ranging from 3.5mm to a maximum drilling depth of 130m. Sunward is listed as one of the nation's major equipment supplier and boasts of as a premium brand in China.
- Double Rotary Head Strength Multifunctional Drilling Rig owns 15 patents and can systematically solve a variety of underground construction problems under complex geological conditions. Sunward is the only manufacturer for such equipment in China.
- High-performance hydraulic crawler pile frame contains a full range of products with height of 24 - 60m, and can be equipped with dozens of machines such as hydraulic hammer and multi-axis drill. Sunward is the only manufacturer for the full range of products in China.

Sunward products are exported to many countries and regions around the world, especially they are leading in the high-end markets of Singapore, Macau, South Korea, Malaysia, Turkey and Europe where the competition is tough.



Rotary Drilling Machine Introduction

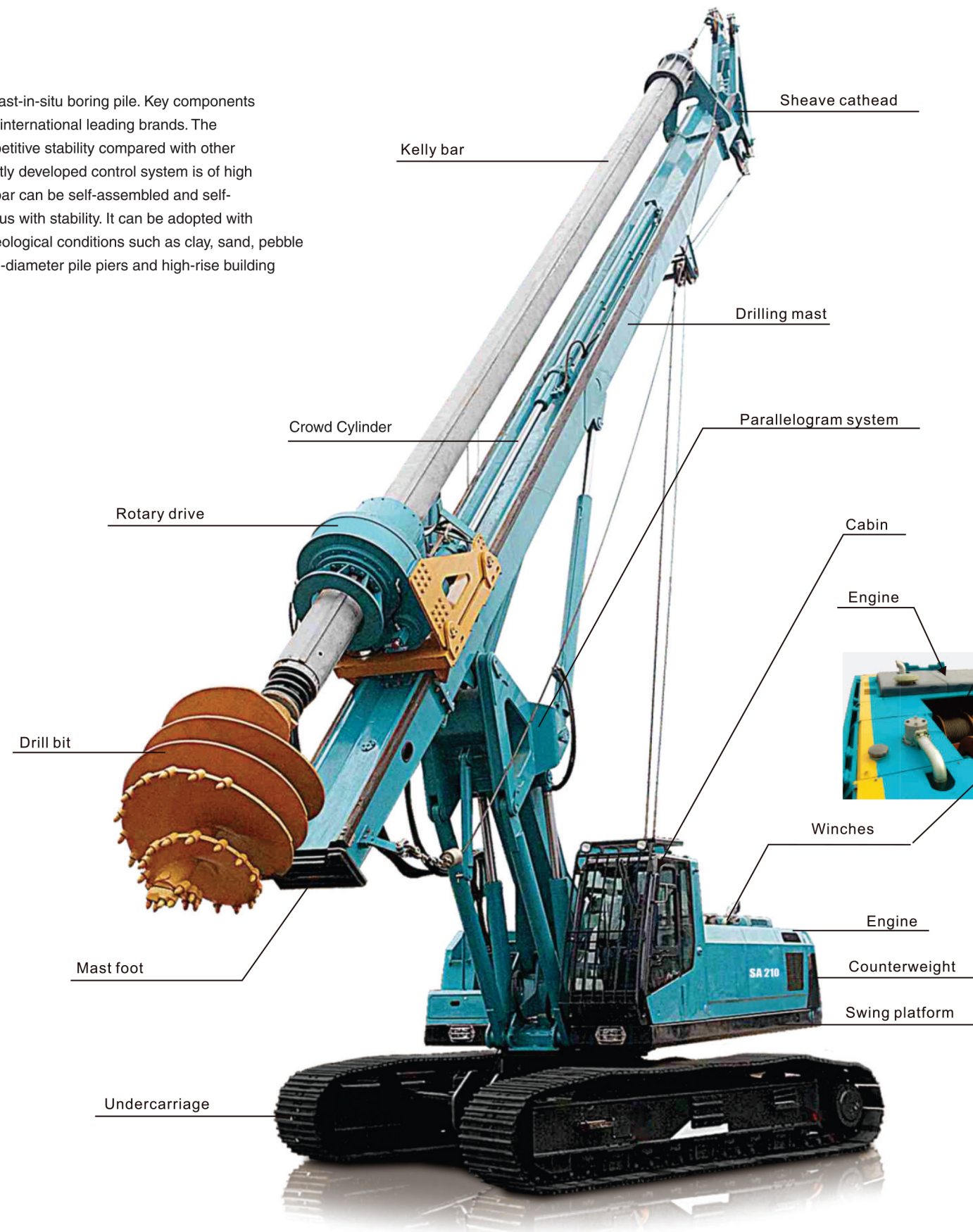
Product Introduction

Sunward multi-purpose Rotary Drilling rig is a kind of equipment for cast-in-situ boring pile. Key components including engine, hydraulic pump, motor and hydraulic valve are from international leading brands. The independently developed retractable undercarriage ensures the competitive stability compared with other competitors installed with general excavator chassis. The independently developed control system is of high integration, multiple functions, quick responses, high accuracy. Kelly bar can be self-assembled and self-disassembled. The patent parallelogram system offers big drilling radius with stability. It can be adopted with various drilling tools, applicable for construction under complicated geological conditions such as clay, sand, pebble and weathered rock stratum and widely used in construction of large-diameter pile piers and high-rise building foundations for highways, railway overpasses, via ducts, etc.

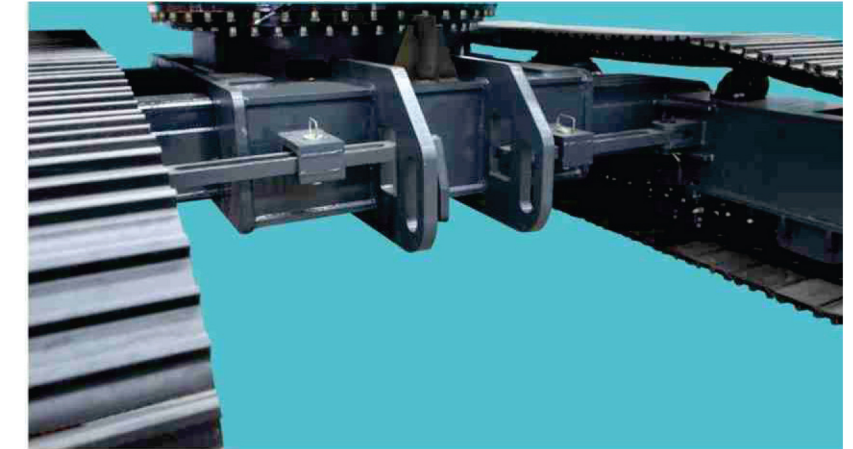


Main Features

- Cabin with large space and comfortable operating condition
- Patented Parallelogram system with big driving force and free erecting mechanism.
- Multi-purpose auxiliary mast foot
- Flexible and convenient self-assembly and disassembly system
- Energy-saving and safe hydraulic system
- Advanced and reliable independently developed electronic control system, with multiple functions, with ease of maintenance.
- Top brand environment-friendly and energy-saving power system
- Tailored strong rotary table with reliable lubrication system.
- Strong technology development capability and quality assurance system.



- ▼ Tailored retractable chassis, large-roller winch platform, with solid stability and extended duration of winch rope



The dedicated retractable hydraulic chassis independently developed by Sunward match the practical load. Meanwhile, the main and auxiliary winches are installed rear on the rotating platform can greatly reduce the tipping loads for high stability during drilling 360° round the rig, and can also adopt the patent wide & large roller winches. According to the working features of heavy-duty piling the patent winch roller (Patent No. : 2010101522335) is designed to reduce the winding layers and even to single-layer winding for double increased duration of winch rope, thus improve the reliability of the machine and greatly reduce the operating cost.



Multiple Construction Method

- CFA (Continuous Flight Auger): CFA is a kind of method with continuous flight augering and grouting. As a new type of composite foundation treatment method, it can ensure high construction efficiency, especially suits for small, dry or shallow holes drilling.
- Casing Oscillator : Casing Oscillator suits wild geologic conditions, even if cased in hard stratum. With the advantages of high pile forming quality, low noise, free of mud pollution, it is mainly used for complicated stratum that easily collapse. with flowing sand, mud deposit , underground river and swamp area.
- Cased bored piles: The casing adaptor provide vertical continuous casing to prevent from collapse Drilling with casing simultaneously greatly improves drilling efficiency.

Kelly Bar and Drilling Tools

- No need to replace the kelly sleeve to equip both friction or interlocking kelly bar or other combination kelly bar.
- Optional drilling tools including Bucket, Auger, Core barrel, Roller bit core barrel to drill into clay, sand, pebble and rock stratum.

Rotary Drilling Machine Features

Super Durable Reliable Bearing

The drilling reactive force of the rotary drilling rig is transmitted from the drilling rig to the machine and then from the machine to the ground. Various structural components of the machine are subject to the structural stress resulting from the drilling force. Unique design is adopted for various structural components of the transmission chain on the rotary drilling rig of Sunward so as to guarantee a more stable structure and higher bearing capacity of the machine.

Special Chassis

Sunward made special extendable chassis is suitable for the actual load at it improves the stability of the complete machine. With this chassis, construction in any range of 360° can be implemented, and performance of the structural components of the complete machine can be improved, thus ensuring a balanced center of gravity.



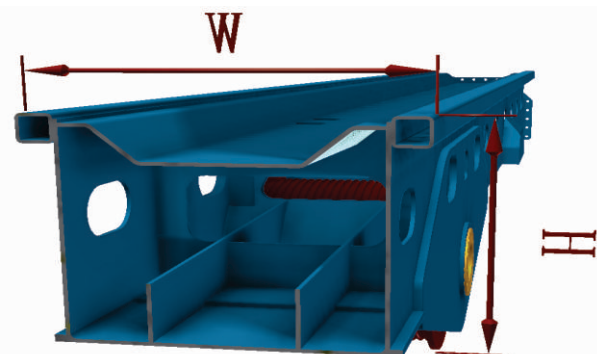
Winch Arrangement

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 whole machine. Moreover, the main winch is wound in a single layer, doubling the service life of steel wire rope and significantly reducing the construction cost.



Mast Structure

The high-strength anti-deformation design is adopted for the drill mast. The rectangular mast section is even wider in the guide rail direction. This can effectively reduce the structural stress of the mast and make it more suitable for the rock penetrating construction conditions which involves high-strength variable.



Slewing Brake

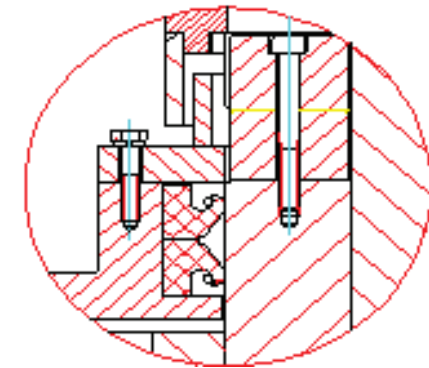
It can effectively solve the problem of insufficiency of the rotating power and prevent the output shaft of the reducer from damage in rock entry construction.



Power Head

Controlled with variable pump and variable motor, the actual output torque can reach the calibration value, automatically change torque and drilling speed with different geological conditions and maintain efficient operation.

- Equipped with multi-stage damping buffer structure, it can retard the impact of the drill pipe on the power head when the drill is in normal operation, and the great impact caused by drill rod on the power, Effectively protect the power tank, carriage, reducer and motor from damage.
- The Patented driving key installation method solves the problem of bolt fracture in installation and maintenance. The long driving key matches the drill rod perfectly, effectively guiding and protecting the drill pipe and prolonging its service life.
- The reducer with independent oil lubrication reduces pollution, protects and extends the service life of the reducer.
- The multi sealing structure of the tank body can effectively prevent the sediment from entering and protect the parts in the tank from being damaged.
- The tank body adopts a multi-point forced lubrication cooling system, which enhances lubrication and heat dissipation, thus prolonging the service life of the parts in it.
- Equipped with cylinder driving interface, it speeds up the installation of the lower shield.
- After changing the power head, the construction of long spiral, reverse circulation, belled pile and DTH hammer can be implemented.



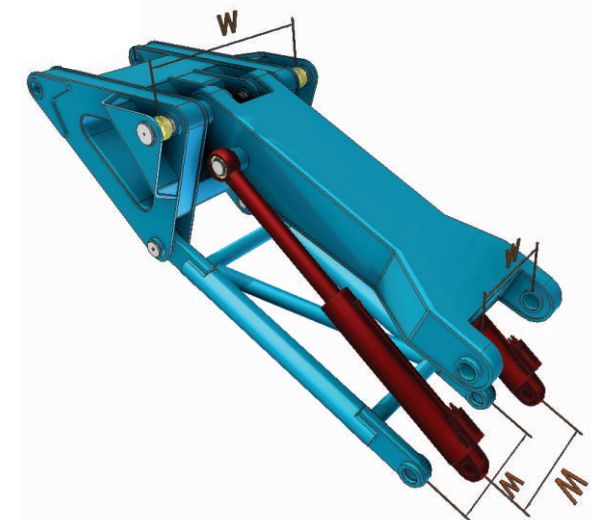
Square Shaft Casing Structure

The box type square shaft casing structure is used for the mast deflection seat. The force of mast is directly transferred onto the trolley traveling mechanism, thus eliminating the stress of the rotary drilling force on weak links of the deflection structure thus improving the structural



Luffing Structure

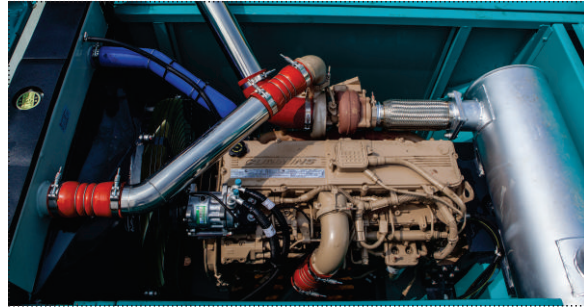
The wide-span design is adopted for the parallelogram adjusting mechanism, (i.e. the size of M is large). The installation distance between the trolley traveling cylinders of the two drill masts, is equivalent to the triangle structure. This improves the stability of the operation device for piling operation on hard strata.



Best in Class Configuration

The efficient and reliable engine coupled with efficient hydraulic transmission system guarantees high torque at the power head of the machine. The advance intelligent electronic control system can give full play to the efficiency of the machine whereas the right structural design reduces the wear and tear of the machine and consumable consumption.

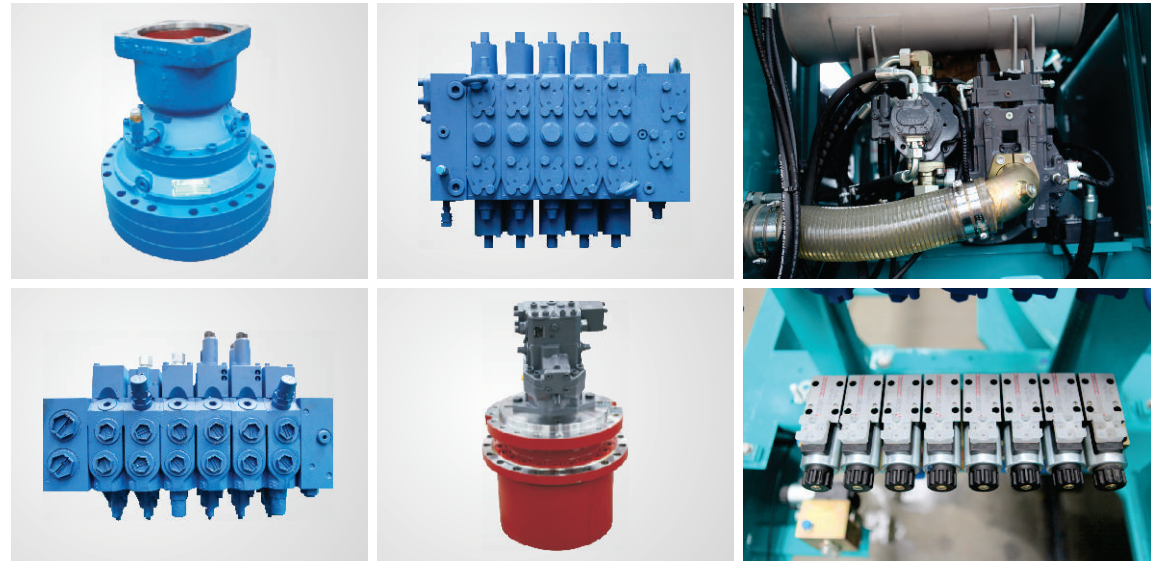
Engine



Cummins electronic fuel-injection turbocharged inter-cooling engine adopted has high reliability, fuel economy and high reserve power. The engine emission meets the European EPAC3 standard thus making the engine environment friendly. In addition, it can operate efficiently even in challenging temperatures and high-altitude areas & energy saving.

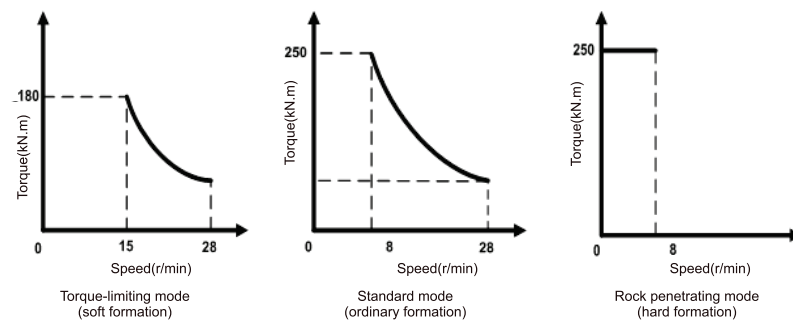
Hydraulic Components

The hydraulic system developed in joint efforts with world class component manufacturer improves the hydraulic energy conversion rate of the components and reduce the transmission loss within the system.



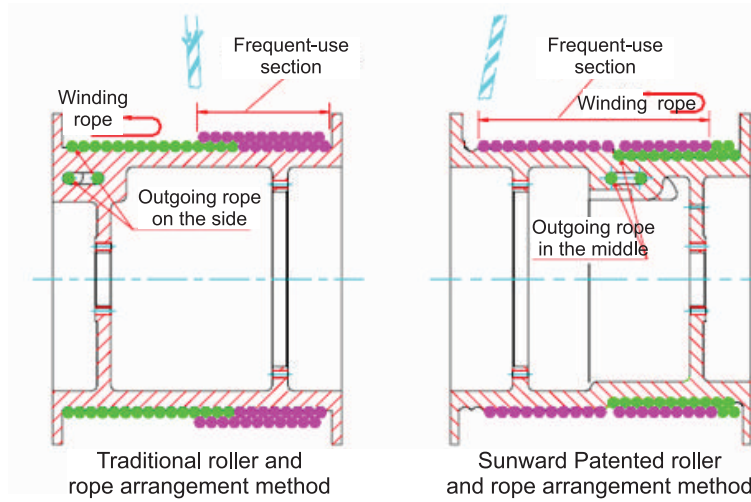
Multi-Mode Power Head Can Achieve Efficient Drilling in Different Strata

According to different geological conditions, the power output mode that matches with the loads can be selected, making the construction process efficient and energy-saving.



Patented Roller Design

The main winch device is designed innovatively based on the construction characteristics of the rotary drilling rig. The rope bearing groove is divided into two layers: the inner stair layer and the outer stair layer by the roller to effectively protect the wearing rope sections that are used frequently and prolong the service life of steel wire rope by more than 100%.



Auxiliary Landing Leg

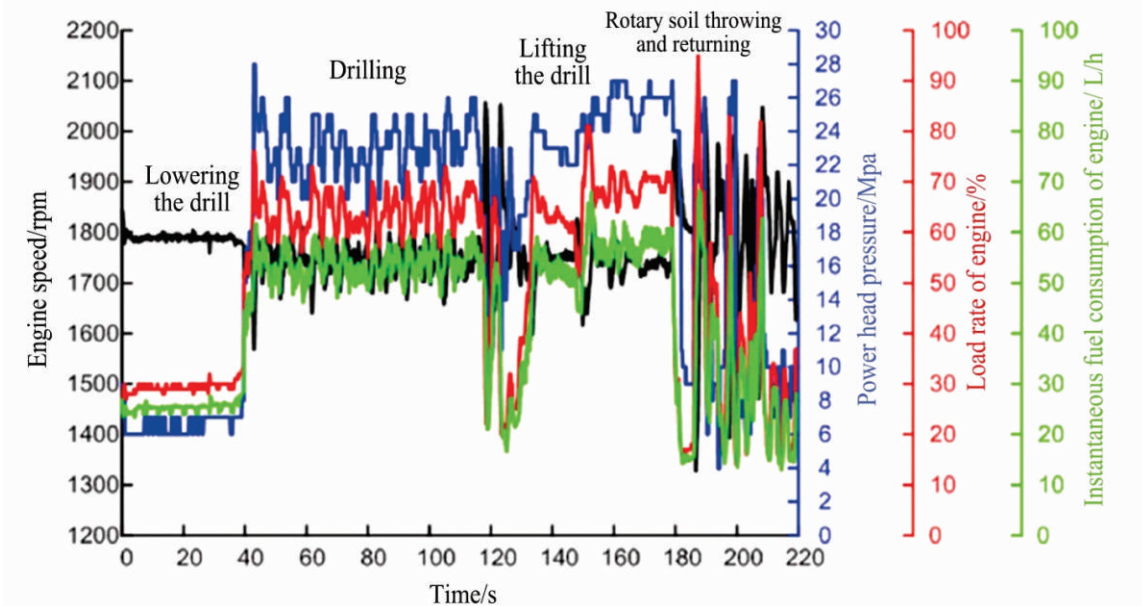
The standing leg hidden below the lower mast can not only act as the auxiliary support for drilling construction, but can also help you realize other unimaginable functions.



(Available in models upto SA420W)

Fuel-Conserving and Efficient System

The perfect matching of the power of the engine, hydraulic system and load increases the bore forming efficiency from 10% to 25%. The optimized hydraulic system can help reduce the spill loss, throttle loss, and pressure loss along the stroke of the system and can save fuel consumption by 7% to 20%.



Intelligent Control Ensuring Easy Driving

The advanced intelligent control system gives full play to the performance of the equipment and makes operation much easier.

Ergonomically Designed Cabin with Latest Safety Features

Sunward has taken full consideration for safety in the manufacturing of rotary drilling machine, so that you will feel relieved during the construction process. The driver's cab is made of special-shaped frame structure. The front and top of the cab are equipped with high strength panels and frames to protect the operator's safety.



Self-Locking of Handles

The dedicated electromagnetic locking handle can achieve one-key positioning at one time, which saves heavy physical manual labor.



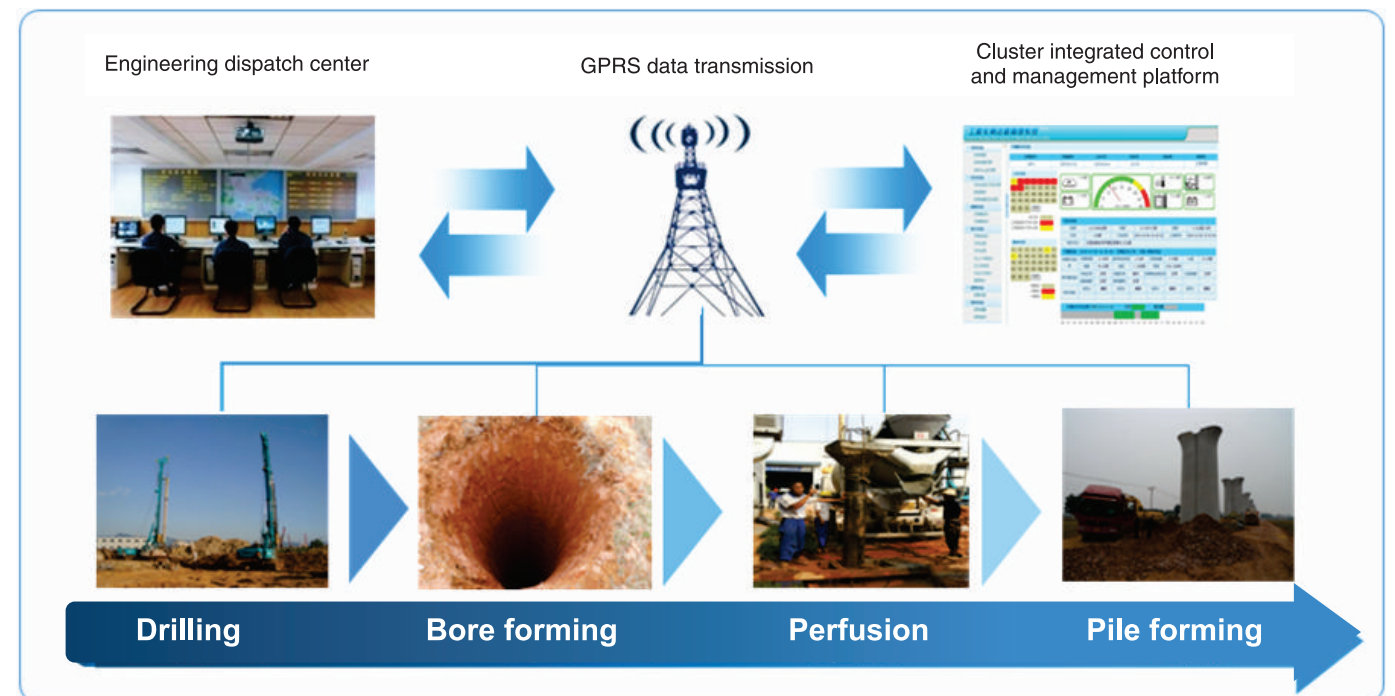
Middle position

Left locked position

Right locked position

GPS Remote Service

GPS, GIS, 2G/3G mobile communication technology is used to build the remote operation, maintenance, monitoring and cluster collaborative operation control platform of the rotary drilling rig.



(Remote service is optional as it has to be integrated with Indian Mobile Network)

ACE Sunward Pilling Rigs are suitable for Hard Soil and Rock Strata and the machines are designed to self adjust the parameters as soon as they sense rock during drilling



The Rock Specialists



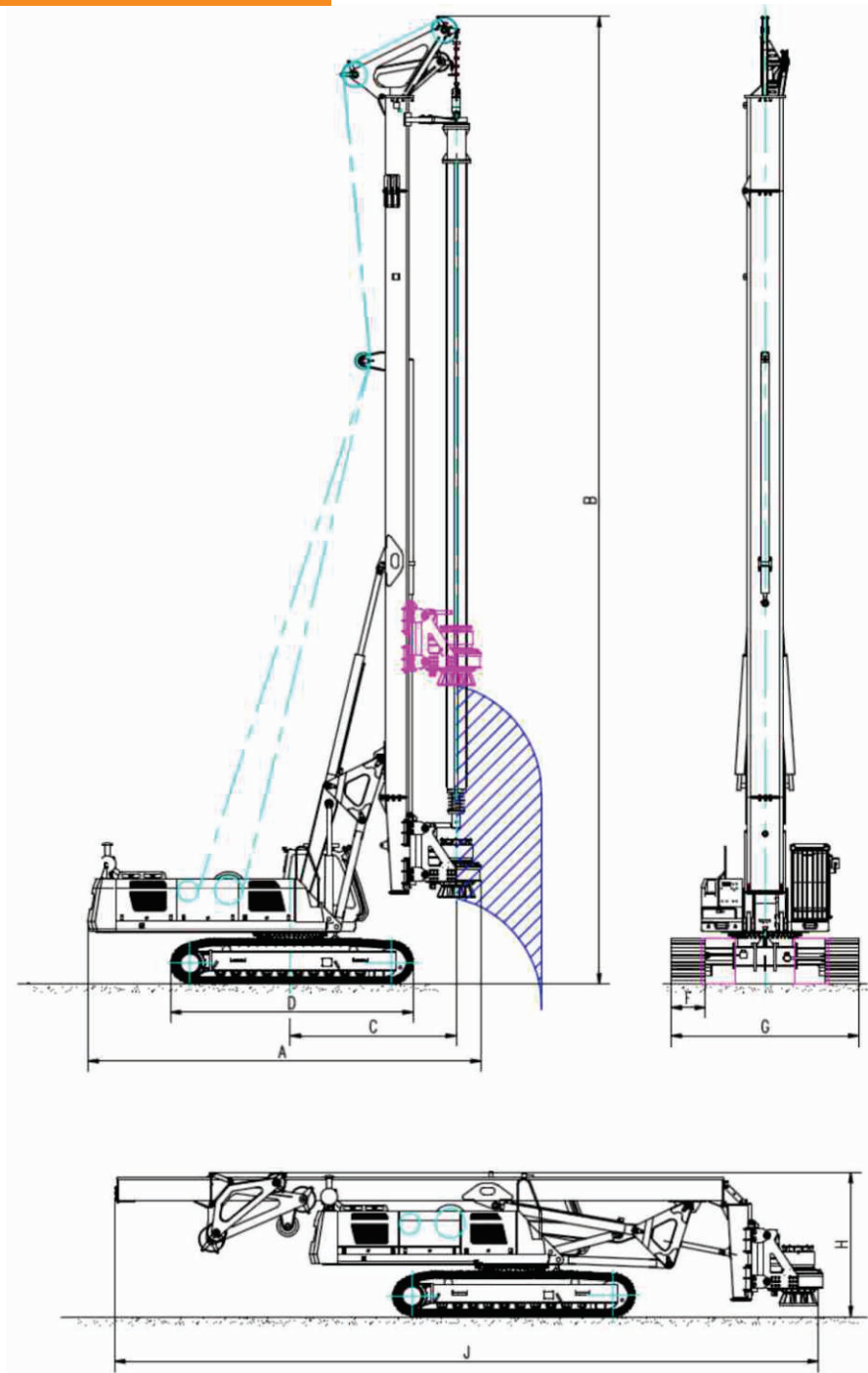
ACE Sunward expert team provides you with comprehensive solutions for Hard Soil.

MODELS:

- | | |
|-----------------|-----------------|
| SA 60 | SA 300 |
| SA 150 | SA 320 |
| SA 160 | SA 390 |
| SA 175 | SA 420 W |
| SA 210 | SA 490 W |
| SA 250 | SA 540 W |
| SA 600 W | |



Working Dimensions



Size

Model	A(mm)	B(mm)	D(mm)	F(mm)	G(mm)	H(mm)	J(mm)
SA 60	5308	12700	4630	600	2600	3440	9085
SA 150	7350	16300	4450	600	2600-3500	3480	11800
SA 160	7796	18500	4630	700	2780-3980	3512	15560
SA 175	7796	18500	4630	700	2780-3980	3512	15560
SA 210	8600	20500	5145	700	2900-4200	3400	15030

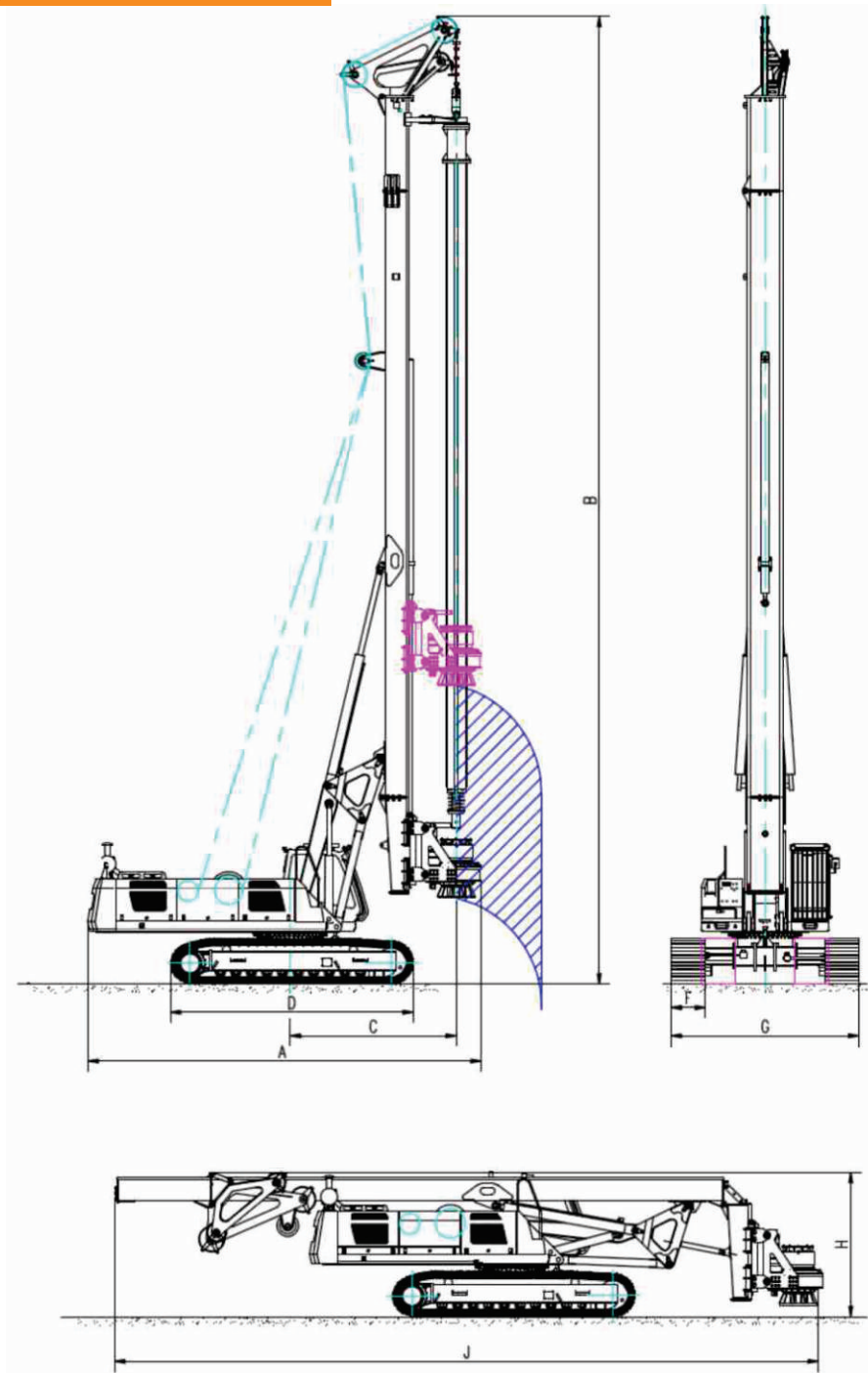
Technical Parameters

Crowd Cylinder

Parameters		Unit	SA 60	SA 150	SA 160	SA 175	SA 210
Max. drilling diameter		mm	1000	1300	1500	1500	1800
Max. drilling depth							
	with interlocking kelly bar	m	20	35	44	44	50
	with friction kelly bar	m	27	46	56	56	62
Rotary Power Head	Max. torque	kN.m	60	150	156	170	205
	Rotation speed	rpm	8~35	8~40	6~32	6~32	6~26
	High-speed throwing soil(optional)	rpm	-	70	70	70	70
Engine	Brand		ISUZU	CUMMINS			
	Model		4JJ1XKSG-02	QSB7-C166G3	QSB6.7-C220	QSB6.7-C220	QSB6.7-C260
	Power	kW/rpm	84/2200	124/2050	164/2200	164/2200	194/2200
Pressurized Systems	Max. applied pressure	kN	100	150	160	160	200
	Max. lifting force	kN	120	150	160	160	210
	Max. stroke	mm	3000	4000	4000	4000	5000
Main Winch	Max. lifting force	kN	80	130	160	160	200
	Max. rope speed	m/min	72	65	64	64	75
Aux Winch	Max. lifting force	kN	30	50	50	50	80
	Max. rope speed	m/min	50	45	45	45	55
Drill Mast	Left and Right tilt		±3	±5	±5	±5	±5
	Forward tilt		5	5	5	5	5
Overall height		m	12.7	16.3	18.5	18.5	20.4
Total weight		t	26	40.5	49.5	50.5	67
Chassis	Max. travel speed	km/h	3.2	3	1.5	1.5	1.63
	Max. grade ability		20	15	15	15	15
	Crawler width	mm	600	600	700	700	700
	Crawler extension width	mm	2600	2600~3500	2780~3980	2780~3980	2900~4200
	Chassis length	mm	3745	4450	4630	4630	5145

*Remove the lower mast

Working Dimensions



Size

Model	A(mm)	B(mm)	D(mm)	F(mm)	G(mm)	H(mm)	J(mm)
SA 250	9110	22700	5145	800	3000-4400	3330	16600
SA 300	9920	24500	5700	900	3000-4500	3432	18150
SA 320	9963	24500	5700	900	3000-4500	3432	18150
SA 390	10480	26630	6120	900	3300-4800	3600	20210

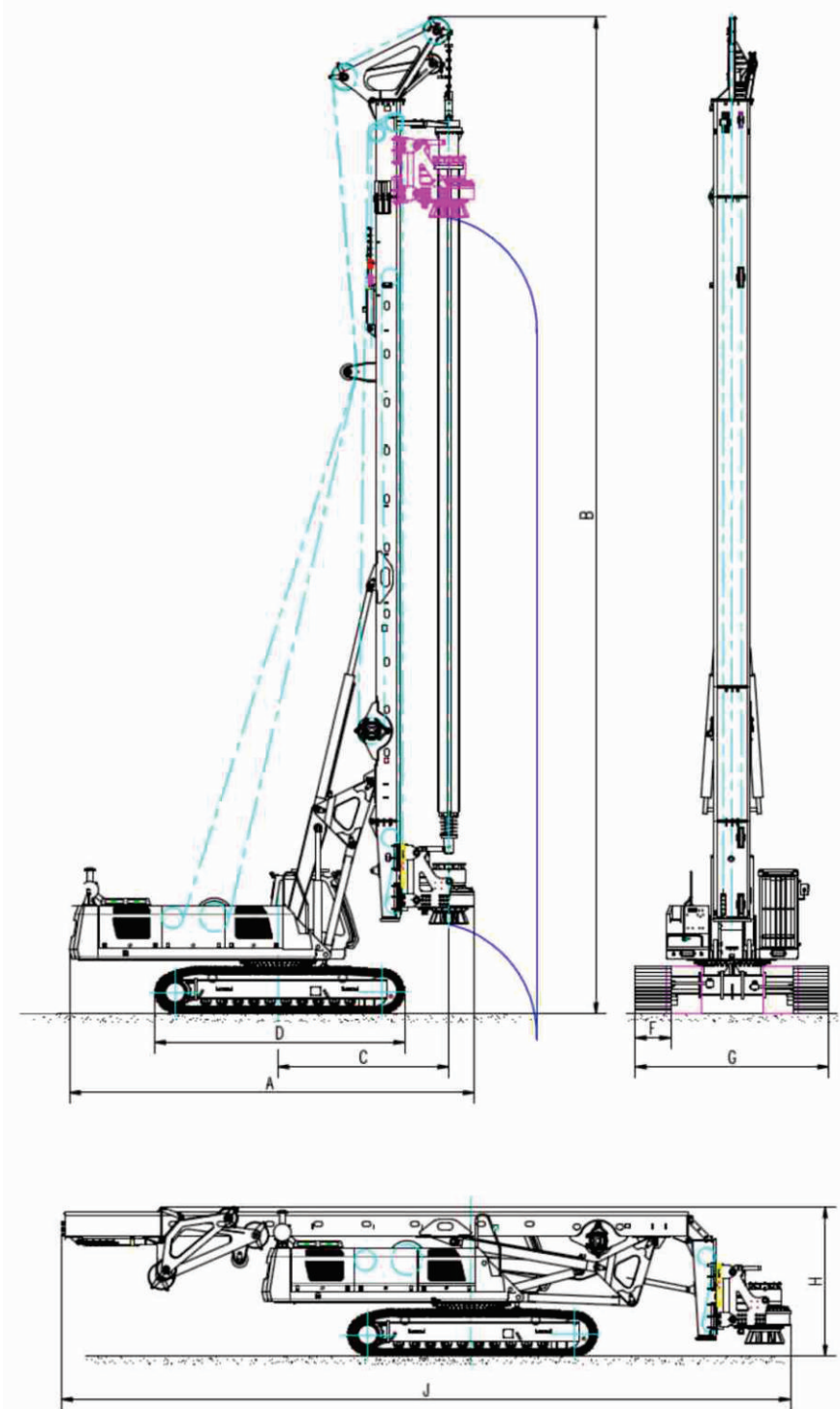
Technical Parameters

Crowd Cylinder

Parameters		Unit	SA 250	SA 300	SA 320	SA 390
Max. drilling diameter		mm	2000	2500	2500	2500 (3000)*
Max. drilling depth						
with interlocking kelly bar		m	56	61	61	62
with friction kelly bar		m	67	86	95	96
Rotary Power Head	Max. torque	kN.m	250	300	320	390
	Rotation speed	rpm	6~26	6~28	6~32	6~31
	High-speed throwing soil(optional)	rpm	70	70	70	70
Engine	Brand					
	Model		QSL9-325	QSM11-335	QSM11-400	QSM11-C400
	Power	kW/rpm	242/2100	250/2100	298/2100	298/2100
Pressurized Systems	Max. applied pressure	kN	210	260	260	330
	Max. lifting force	kN	220	260	280	340
	Max. stroke	mm	5000	6000	6000	6000
Main Winch	Max. lifting force	kN	230	280	320	370
	Max. rope speed	m/min	70	65	80	60
Aux Winch	Max. lifting force	kN	80	110	110	110
	Max. rope speed	m/min	55	65	65	65
Drill Mast	Left and Right tilt		±5	±4	±4	±4
	Forward tilt		5	5	5	5
Overall height		m	22.7	24.5	24.5	27.2
Total weight		t	80	103	110	128
Chassis	Max. travel speed	km/h	1.63	1.75	1.75	1.2
	Max. grade ability		15	15	15	15
	Crawler width	mm	800	900	900	900
	Crawler extension width	mm	3000~4400	3000~4500	3000~4500	3300~4800
	Chassis length	mm	5145	5700	5700	6120

*Remove the lower mast

Working Dimensions



Model	A(mm)	B(mm)	D(mm)	F(mm)	G(mm)	H(mm)	J(mm)
SA 210 W	8595	20430	5145	700	2900-4200	3400	15020
SA 250 W	9212	22680	5680	800	2990-4400	3400	16600
SA 300 W	9920	23800	5700	900	3000-4500	3400	18100
SA 420 W	10480	26630	6120	900	3300-4800	3600	20210

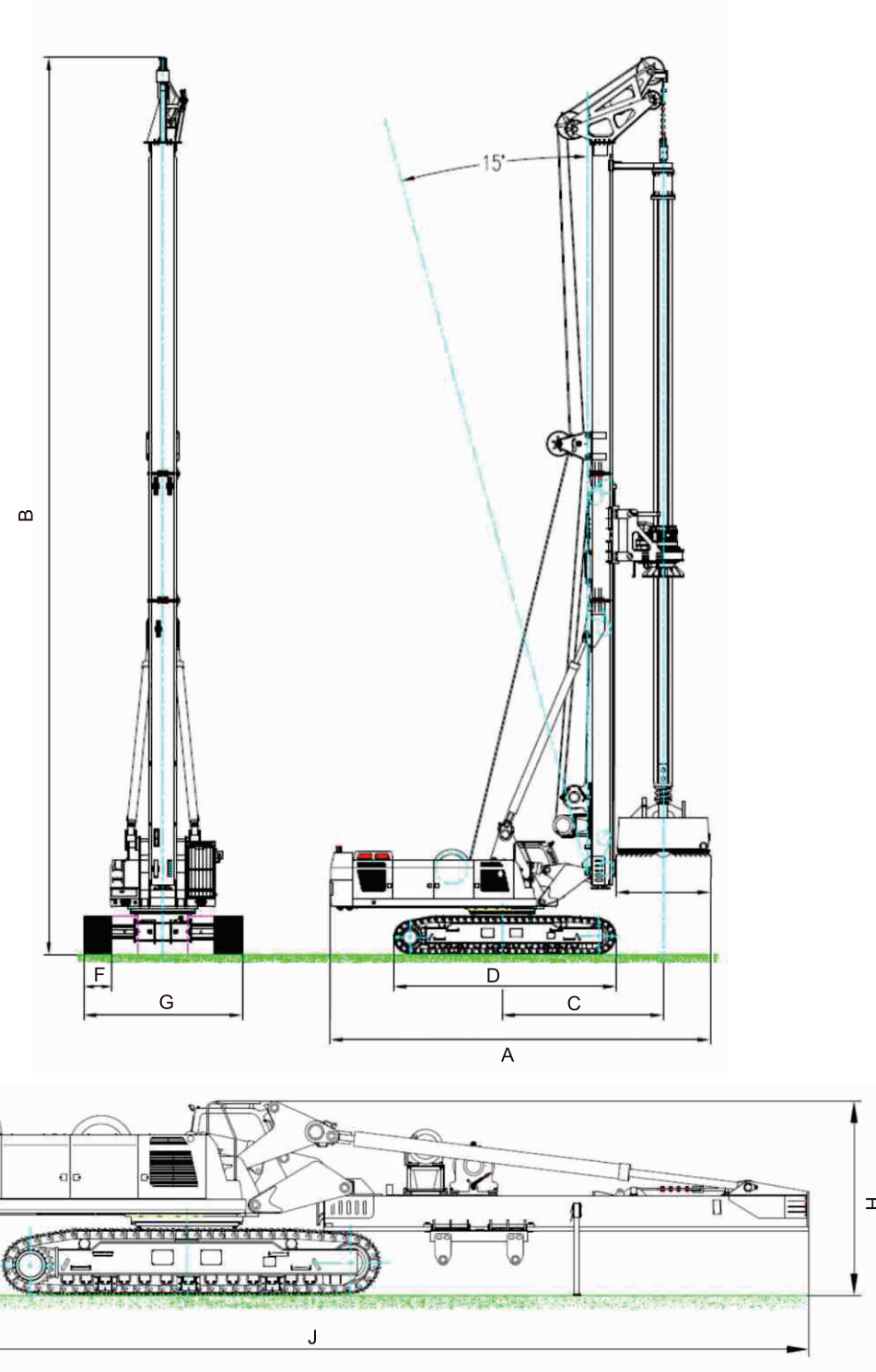
Technical Parameters

Crowd Winch

Parameters		Unit	SA 210 W	SA 250 W	SA 300 W	SA 420 W
Max. drilling diameter		mm	1600	1800	2300	2500 (3000)*
Max. drilling depth						
with interlocking kelly bar		m	50	56	61	66
with friction kelly bar		m	62	67	86	102
Rotary Power Head	Max. torque	kN.m	205	250	300	460
	Rotation speed	rpm	6~26	6~26	6~28	6~24
	High-speed throwing soil(optional)	rpm	70	70	70	70
Brand		Cummins				
Model				QSL9-325	QSM11-335	QSX15-C535
Power		kW/rpm	194/2200	242/2100	250/2100	399/2100
Pressurized Systems	Max. applied pressure	kN	230	270	280	340
	Max. lifting force	kN	230	270	280	380
	Max. stroke	mm	13700	16000	17500	13000
Main Winch	Max. lifting force	kN	200	230	280	370
	Max. rope speed	m/min	75	70	65	60
Aux Winch	Max. lifting force	kN	80	80	110	110
	Max. rope speed	m/min	55	55	65	65
Drill Mast	Left and Right tilt		±5	±5	±4	±4
	Forward tilt		5	5	5	5
Overall height		m	20.4	22.7	24.5	27.2
Total weight		t	66.3	80	102.6	135.5
Chassis	Max. travel speed	km/h	1.63	1.63	1.75	1.2
	Max. grade ability		15	15	15	15
	Crawler width	mm	700	800	900	900
	Crawler extension width	mm	2900~4200	3000~4400	3000~4500	3300~4800
	Chassis length	mm	5145	5145	5700	6120

*Remove the lower mast

Working Dimensions



Size

Model	A(mm)	B(mm)	C(mm)	D(mm)	E(mm)	F(mm)	G(mm)	H(mm)
SA490 W	11550	3400-5000	31070	4650-4980	900	7030	18925	3590
SA550 W	12600	6000	33510	5000-5300	1000	7640	20270	3640
SA600 W	12600	6000	35310	5000-5300	1000	7640	20270	3640

Technical Parameters

Crowd Winch

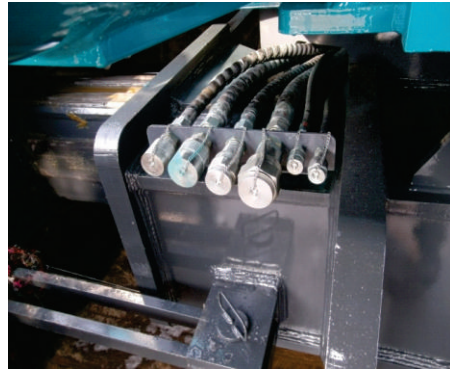
Parameters		Unit	SA 490 W	SA 540 W	SA 600 W
Max. drilling diameter		mm	3000	3500	3500
Max. drilling depth					
with interlocking kelly bar		m	77	81	88
with friction kelly bar		m	121	125	135
Rotary Power Head	Max. torque	kN.m	490	545	600
	Rotation speed	rpm	6~24	5~22	5~22
Engine	Brand	Cummins			
	Model		QSX15-C600	QSX15-C600	QSX15-C600
	Power	kW/rpm	447/2100	447/2100	447/2100
Pressurized Systems	Max. applied pressure	kN	420	480	480
	Max. lifting force	kN	420	480	480
	Max. stroke	mm	8000	9000	9000
Main Winch	Max. lifting force	kN	450	580	600
	Max. rope speed	m/min	55	50	50
Aux Winch	Max. lifting force	kN	110	110	110
	Max. rope speed	m/min	65	65	65
Drill Mast	Left and Right tilt		±4	±4	±4
	Forward tilt		5	5	5
Overall Height		m	31.1	33.5	35.3
Total Weight		t	158	196	202
Chassis	Max. travel speed	km/h	1.2	1.2	1.2
	Max. grade ability		5	5	5
	Crawler width	mm	900	1000	1000
	Crawler extension width	mm	3400~5000	6000	6000
	Chassis length	mm	7030	7640	7640

Multi-Function Expansion, High-Value Representation

ACE-Sunward offer customers a variety of rotary drilling rig configurations, which enables you to achieve multiply functions with one machine, and carry out diversified construction.

Construction Method of Casing Oscillator

The main machine can be equipped with external oil source interface for construction of casing oscillator. The construction method of casing oscillator is used to solve the collapse that frequently occurs during construction on soil layers of drift sand, sludge and backfill.



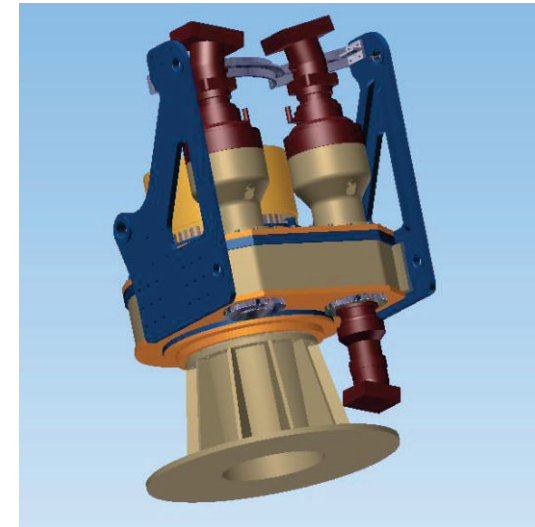
Construction Method of Pile Casing Driver

With the help of pile casing driver, the rotary drilling rig could increase the embedding speed of pile casing. It is particularly suitable for the backfill layer, superficial sand and gravel layer, multi-karst cave limestone layer, etc. The option of lower pile casing of the pile casing driver could guarantee perpendicularity of the casing and prevent collapse effectively. The drilling machine and the lower pile casing can function at the same time, so as to improve efficiency of the drilling machine.



High-Speed Soil Throwing of Power Head

The power head integrating high-speed soil throwing function has a soil throwing speed of 140 rpm, thus realizing high-speed soil throwing function.

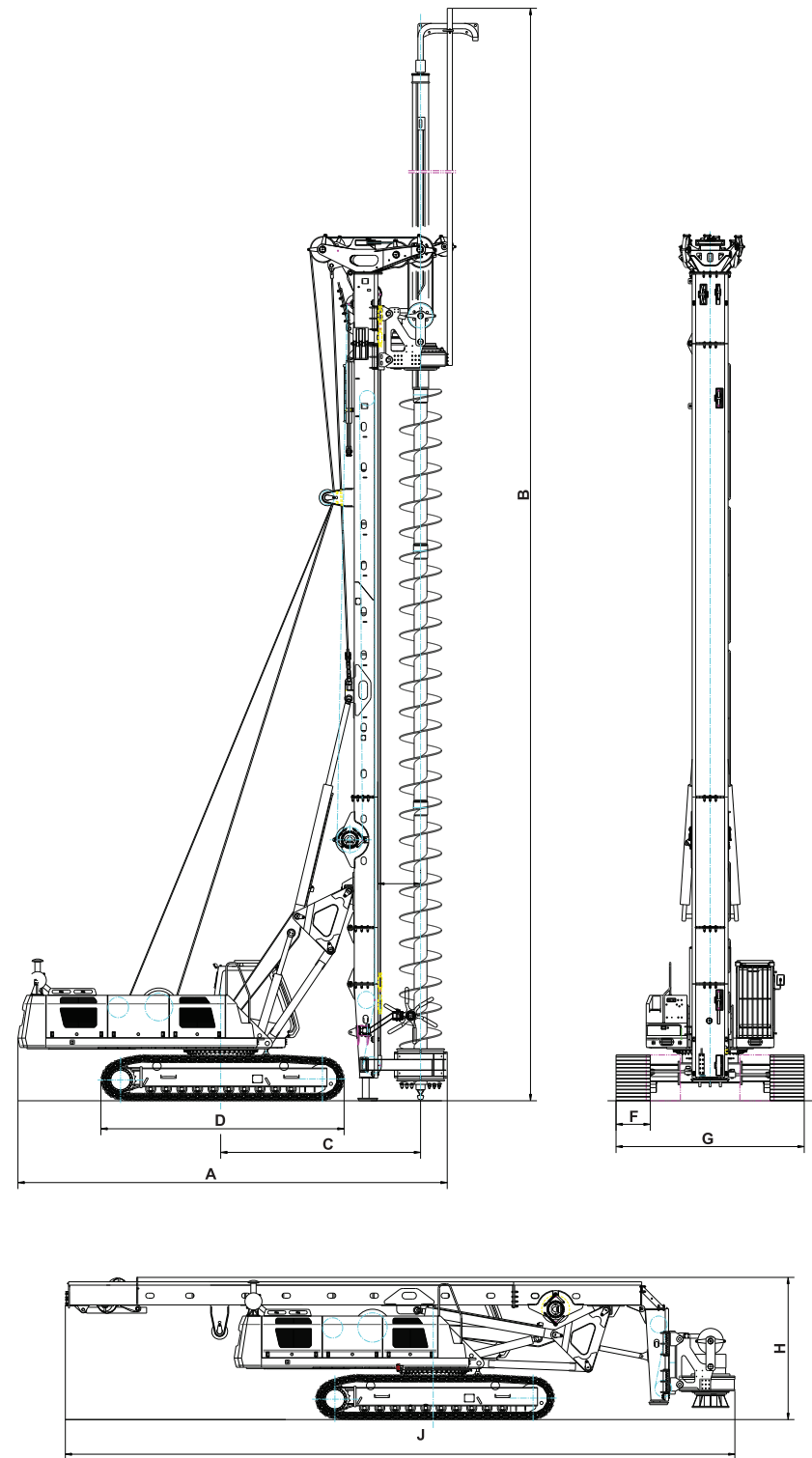


Construction Method of CFA Long Spiral Drilling Machine

Continuous pile drilling and perfusion are allowed with the construction method of CFA long spiral drilling machine, which is a novel composite base treatment method with high efficiency, especially for small bores, dry bores and shallow bores.



Working Dimensions



Size

Model	A(mm)	B(mm)	D(mm)	F(mm)	G(mm)	H(mm)	J(mm)
SA 210 C	10400	23750	5145	700	2900~4200	3400	14960
SA 250 C	10400	27600	5680	800	2990~4400	3400	16600
SA 300 C	10400	27660	5700	900	3000~4500	3400	17656

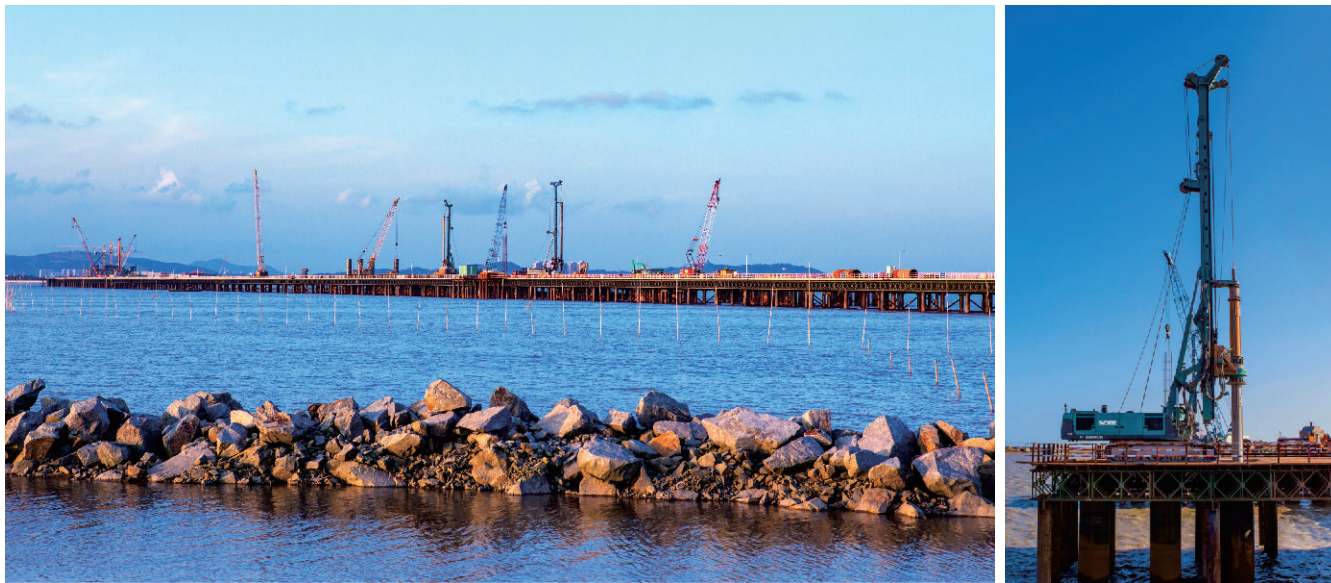
Technical Parameters

CFA Long Spiral Drilling Machines

Parameters		Unit	SA 210 C	SA 250 C	SA 300 C
Max. drilling diameter		mm	1600	1800	2200
Max. Drilling Depth	CFA	m	20.5	23.0	23.5
	with interlocking kelly bar	m	50	56	61
	with friction kelly bar	m	62	67	86
Rotary Power Head	Max. torque	kN.m	205	250	300
	Rotation speed	rpm	6~26	6~26	6~28
	High-speed throwing soil(optional)	rpm	70	70	70
Engine	Brand	Cummins			
	Model		QSB6.7-C260	QSL9-325	QSM11-335
	Power	kW/rpm	194/2200	242/2100	250/2100
Pressurized System	Max. applied pressure	kN	230	270	280
	Max. lifting force	kN	230	270	280
	Max. stroke	mm	13700	16000	17500
Main Winch	Max. lifting force	kN	200	230	280
	Max. rope speed	m/min	75	70	65
Aux Winch	Max. lifting force	kN	80	80	110
	Max. rope speed	m/min	55	55	65
Drill Mast	Left and Right tilt	Degree	±5	±5	±4
	Forward tilt	Degree	5	5	5
Overall height		m	20.4	22.7	24.5
Total weight		t	66.3	80	102.6
Chassis	Max. travel speed	km/h	1.63	1.63	1.75
	Max. grade ability	Degree	15	15	15
	Crawler width	mm	700	800	900
	Crawler extension width	mm	2900~4200	3000~4400	3000~4500
	Chassis length	mm	5145	5145	5700

Construction Applications

Sunward rotary drilling rigs have been used to carry out constructions in various geological conditions in China and abroad, and has worked efficiently in all geological conditions in intermediate (moderate) weathered rock layer, hardened sand layer, large gravel layer or hard rock strata. This product boasts of unique advantages in terms of integrated control and long life of all aggregates, thus making the product stand out in terms of reliability efficiency & innovation. A large number of such machines have been exported to Europe, America, Africa and other places, and have been used in many typical projects such as Beijing-Shanghai Railway, Hada Passenger Railway, Bird's Nest, Caofeidian Project of relocation of Shougang Group, Taiyuan-Zhongwei- Yinchuan Railway, Wuhan-Guangzhou Railway, Zhengzhou-Xi'an Railway, etc.



This is Feiyun river bridge construction in Wenzhou. In this project, the construction aperture is 2.2 meters and the depth is about 98 meters which is about 90 meters below the surface. Under the bottom of the sea surface is within 0 ~ 60 meters for silt layer, muddy clay layer, as well as 60 meters for gravel layer. Single-hole drilling a hole is about 7 hours.



The maximum length of the rock core taken out of 1.95 meters and 1.2 meters in diameter in the Xiamen subway construction.



ACE - Sunward Expert Team Fully Serves You with a Comprehensive Solution



CFA, casing driven, High pressure jet grouting, large diameter DTH hammer, equipped with casing oscillator, DX Pile, drilling rock efficiently...

Rotary Rigs at Sites Across the Globe



SWDM600W Yunnan high-speed cross Red River grand bridge construction, bearing a complex geological condition with backfill, boulders, gravel layers and other strata. The construction adopted the technology of vibrating hammer retaining cylinder and mud protection wall. The pile diameter is 2.5m, the drilling depth is 72m, and the drilling time is 39 hours for each pile



Widening of Azzno Highway in Italy



Salerno construction site, Italy



CFA Drilling - Switzerland



CFA Drilling - France



Construction of Metro - Singapore



Construction job site - The Ganga River, India



Railway Project - Venezuela



Construction of Tinaco-Anaco Railway - Venezuela



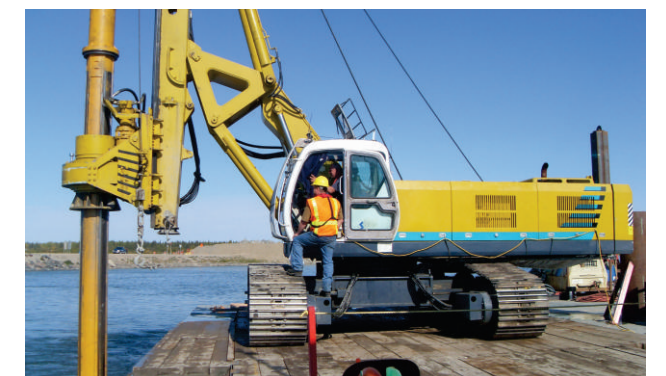
Godavari Bridge - India



Construction site at -30 - Moscow, Russia

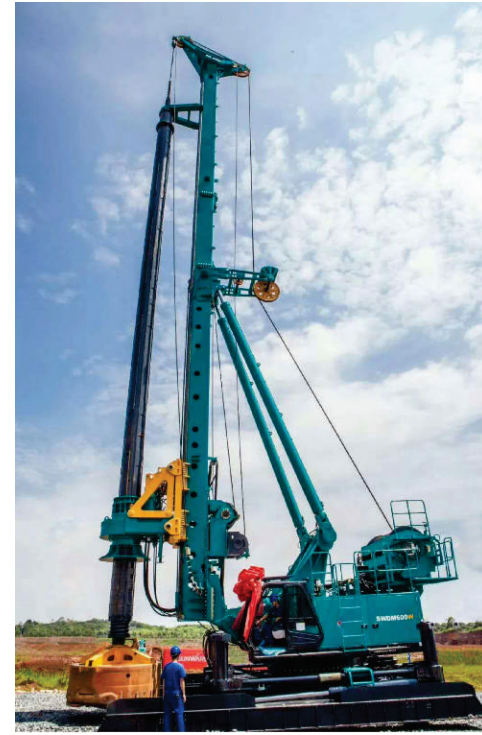


Construction job site - USA



Mackenzie River Cable-stayed Bridge - Canada

Rotary Rigs at Sites Across the Globe



Dawrka Expressway Site, Delhi, India



Dawrka Expressway Site, Delhi, India

