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# DRA系列 多功能套管 螺旋钻机

DRA Series Dual Power  
Rotary Auger



# DRA Series Dual Power Rotary Auger

## DRA系列 多功能套管 螺旋钻机

DRA系列多功能套管螺旋钻机是上工机械在吸收国内外先进技术和经验的基础上，创新研发的一项拥有自主知识产权的新型钻机产品。

DRA系列多功能套管螺旋钻机主要由可分离式的双动力头和电气控制系统构成，配置套管螺旋钻杆及潜孔锤等组合钻具，可进行多功能、多用途施工，特别是能在卵石漂石层及坚硬岩层等复杂地层完成高效率钻孔。具有成桩孔径、孔壁形状规整，质量好，垂直精度高，施工无泥浆污染等特点，是一种环保型的桩工机械新产品，符合国家节能减排绿色施工的政策要求，具有良好的经济社会效益和广阔的市场推广前景。

DRA Series Dual Power Rotary Auger is one kind of new product with independent intellectual property rights. It is a new update of international advanced technology.

DRA Series Dual Power Rotary Auger is composed by double rotary heads, advanced electrical control system and tools set including casing tube, drilling auger and DTH hammer. SEMW rig is designed for multi-functional construction, especially for high efficient drilling in complex stratum condition with gravel and hard rock. The drilling rig provides high pile quality, high vertical precision and less mud contamination. SEMW rig solved the technical problems in large diameter pile foundation drilling in rock, overcame the environmental pollution of the bentonite. It is one kind of environment-friendly piling machinery with new technology, which not only complies with the national policy for the energy saving and emission reduction, but also has good economic and international market promotion prospects.

### 适用桩型

#### APPLICABLE PILES

钻孔灌注桩、咬合桩、钢管桩、钢管复合桩、压灌桩、CFG、CFA桩、中掘压入管桩、废旧桩基础清除处理等。

board pile, occlusive pile, steel-pipe pile, steel pipe composite pile, pumping board pile, CFG pile, CFA drilling, internal drill pressing pipe pile, treatment for discarded pile foundation etc.

### 适用地层

#### APPLICABLE PILES

各种土层、砂层、卵砾石层、漂孤石层、各种岩层等

Applicable stratum: All kinds of soil layers, sand seam, gravel layer, boulder layer and all rock layers etc.

### 适用桩径孔径

#### BORE DIAMETER

Φ650mm、Φ680mm、Φ1000mm、  
Φ1200mm

### 技术特点

#### FEATURES

##### 1 采用变频电机，调速方便，性能稳定

Frequency conversion motor, speed adjustment is convenient, performance is stable

- 上、下动力头均选用变频电机，满足施工过程中对钻杆调速的要求。并且电机是针对钻孔机而设计的专用电机，具有高起动转矩和高过载能力，机械强度高，性能稳定，能承受施工作业中可能遇到的振动与冲击，适应在各种地质条件下工作，保证施工顺利进行。
- The upper and lower power units adopts variable frequency motor to meet the requirement of speed regulation of drill pipe during construction. The motor is special designed for drilling machines. It has high starting torque, high overload capacity, high mechanical strength, stable performance, and can withstand vibration and impact that may be encountered in construction. It is suitable for working under various geological conditions to ensure smooth construction.

## 2 上、下动力头独立运转，受力平衡，施工效率高

The upper and lower power units operate independently, the force is balanced and the construction efficiency is high.

- 上、下动力头各自驱动内部钻杆和外部套管，上、下动力头同轴逆向旋转，使扭转反力互相平衡。套管随钻杆的的钻进而同步反向跟进，达到护壁的目的，避免钻孔坍塌，并保证钻孔的垂直度。上、下动力头带动两种钻具同时施工，输土速度快，大大提高钻机效率。
- The upper and lower power units respectively drive the inner drill pipe and outer casing pipe. The casing will follow the drilling of the drill pipe in the reverse direction to achieve the purpose of wall protection, avoid the collapse of the drill hole, and ensure the perpendicularity of the drill hole. The upper and lower power units drive both drilling tools to be constructed at the same time, and the rate of soil transportation is fast, greatly improving the efficiency of the drill rig.

## 3 一机多用，满足多种施工工法要求

Multi-purpose, meet the requirements of a variety of construction methods

- 上动力头的钻杆可与多种执行机构连接，达到多种施工方式的选择要求，并能作为植桩钻机使用，实现一机多用，满足未来对钻机个性化、多样化的发展需求。
- The drill pipe of the upper power unit head can be connected with a variety of actuators to meet the selection requirements of various construction methods, and can be used as a piling drill to realize multi-use, meeting the personalized and diversified development needs of the drill in the future.

## 4 智能化控制系统稳定、可靠，操作便捷

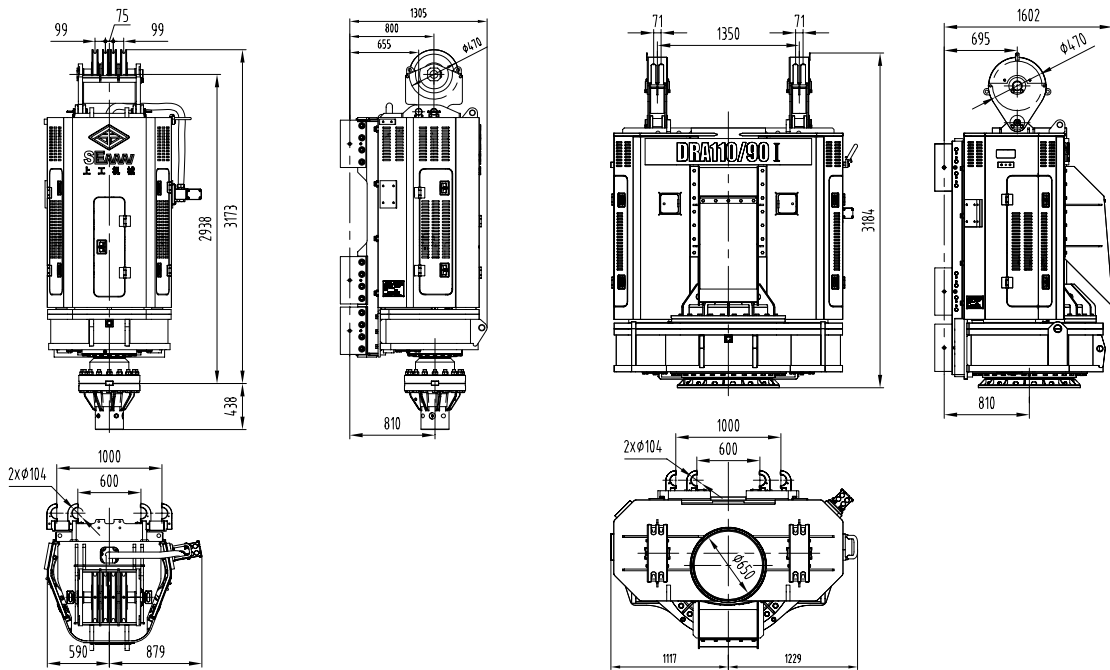
The intelligent control system is stable, reliable and convenient to operate

- 通过配套上工机械的桩架设备，采用稳定的智能控制系统，便捷的操作手柄和按键快速实现动力头的升降及钻具的调速，并通过人机界面显示当前工作状态，有效降低操作人员的工作强度。
- By supporting the pile-frame equipment of SEMW, the stable intelligent control system is adopted, and the convenient operating handle and keys are used to quickly realize the lifting of the power head and the speed adjustment of the drill, and the current working status is displayed through the man-machine interface, effectively reduce the working intensity of the operator.





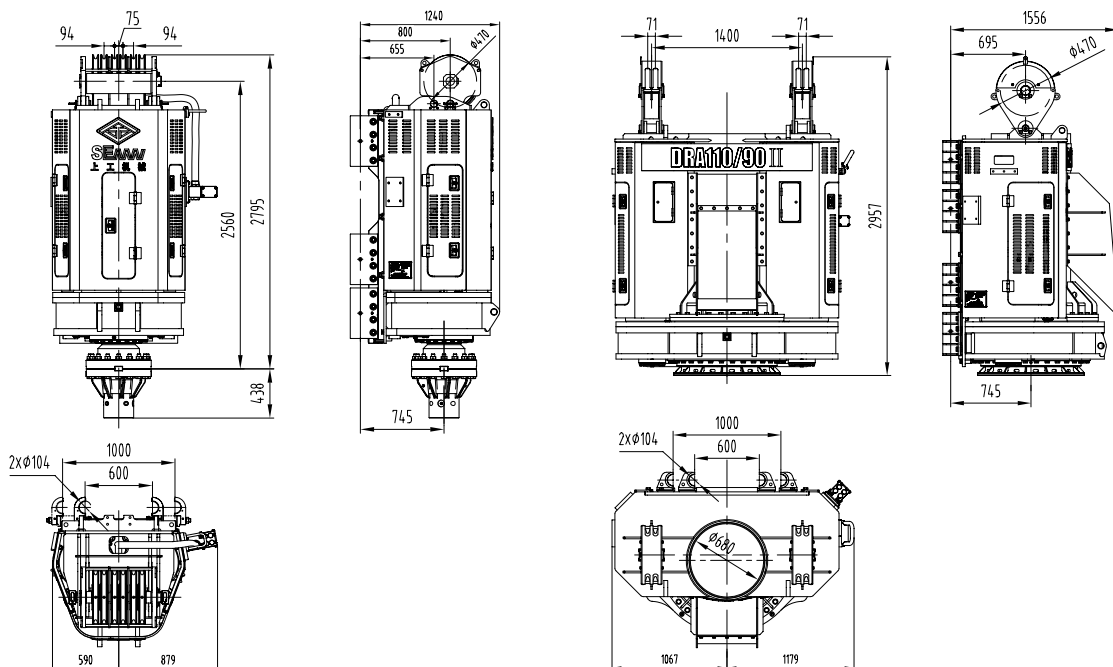
## DRA110/90 I



上动力头  
Upper Power Unit

下动力头  
Lower power Unit

## DRA110/90 II



上动力头  
Upper Power Unit

下动力头  
Lower power Unit

## 产品技术参数

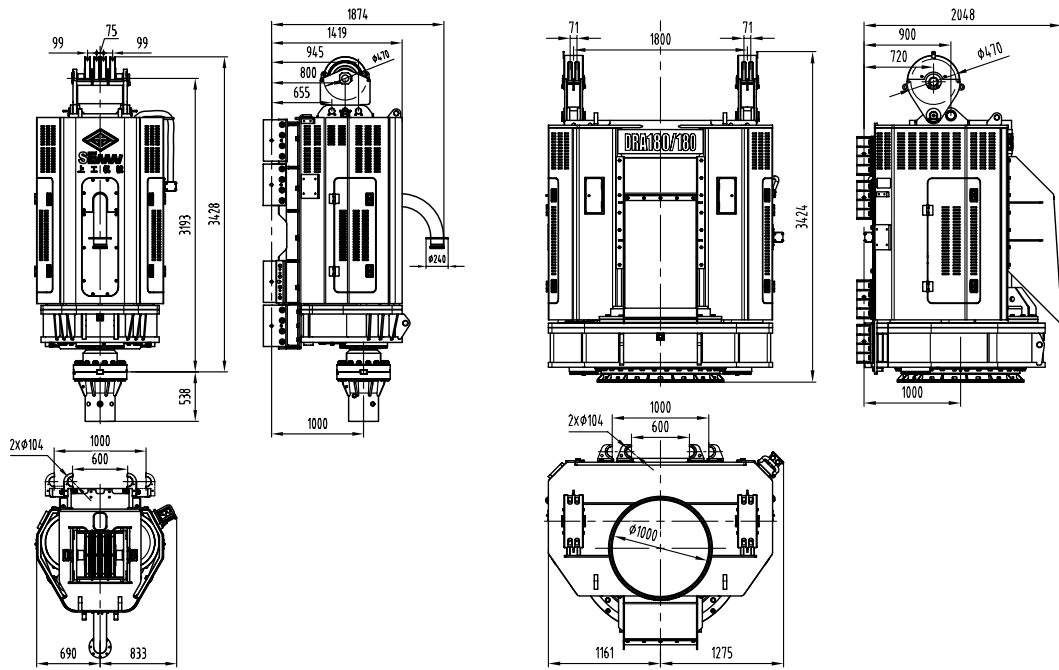
## SPECIFICATIONS

项目 Item		单位 Unit	DRA110/90 I	DRA110/90 II	DRA180/180	DRA220/220
最大成桩直径 Max. pile diameter		mm	Φ650	Φ680	Φ1000	Φ1200
最大钻孔深度 Max. bore diameter		m	35	35	45	47
钻杆基本长度 Drill pipe length		m	5、9	5、9	2、6、10	2、6、10
上动力头 Upper Power Unit	电机额定功率 motor rated power	kW	45 × 2 (6P变频 Frequency)	45 × 2 (6P)	90 × 2 (8P变频 Frequency)	110 × 2 (8P变频 Frequency)
	钻杆额定转速 Rated drill pipe speed	r/min	17 (0~22)	17	9.95 (0~19.9)	9.15 (0~18.3)
	钻杆额定扭矩 Rated drill pipe torque	KN.m	50.6	50.6	172.7	229.59
	滑轮个数 unit sheaves	个	4	4	4	4
	导轨中心到滑轮中心距离 Center distance between guide and sheave	mm	655、800	655、800	655、800、945	655、800、945
	重量 unit weight	t	约 ( About ) 7.2	约 ( About ) 5.9	约 ( About ) 9.1	约 ( About ) 9.5
下动力头 Lower power Unit	电机额定功率 motor rated power	kW	55 × 2 (8P)	55 × 2 (8P)	90 × 2 (8P)	110 × 2 (8P)
	套筒额定转速 Bush rated speed	r/min	8	6.9	4.68	3.79
	套筒额定扭矩 Bush rated torque	KN.m	131.3	152.2	367.2	554.2
	滑轮个数 unit sheaves	个	4	4	4	4
	导轨中心到滑轮中心距离 Center distance between guide and sheave	mm	695	695	720、900	720、900
	重量 unit weight	t	约 ( About ) 9.7	约 ( About ) 8.8	约 ( About ) 12.4	约 ( About ) 13.5
导轨中心到钻杆中心距离 Distance of Rod Center to Guide Center		mm	810	745	1000	1000
导轨中心距 Center distance between guides		mm	600、1000	600、1000	600、1000	600、1000
钢丝绳直径 Diameter of wire rope		mm	Φ20	Φ20	Φ22	Φ22
配用浆、气管接头尺寸 Joint for cement and air hose			Rc11/2	Rc2	Φ125mm	Φ125mm
配套桩架 Supporting piling rig			不低于SPR115 Not less than SPR115	不低于SPR115 Not less than SPR115	不低于SPR165 Not less than SPR165	不低于SPR165 Not less than SPR165

技术参数的更改恕不另行通知

Specifications are subjected to change without prior notice.

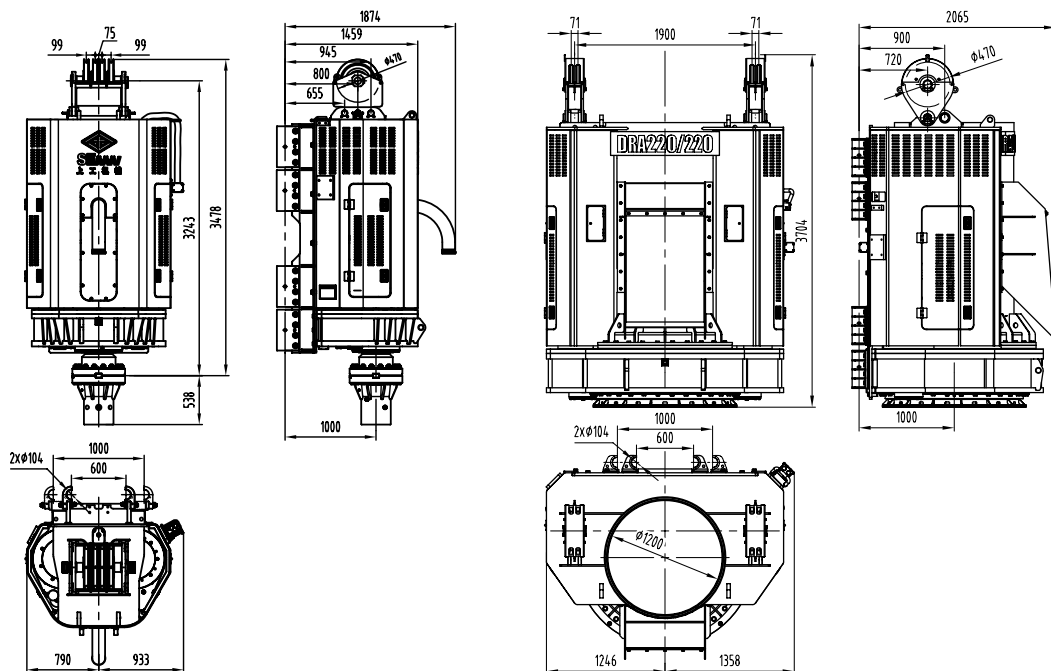
DRA180/180



上动力头  
Upper Power Unit

下动力头  
Lower power Unit

DRA220/220

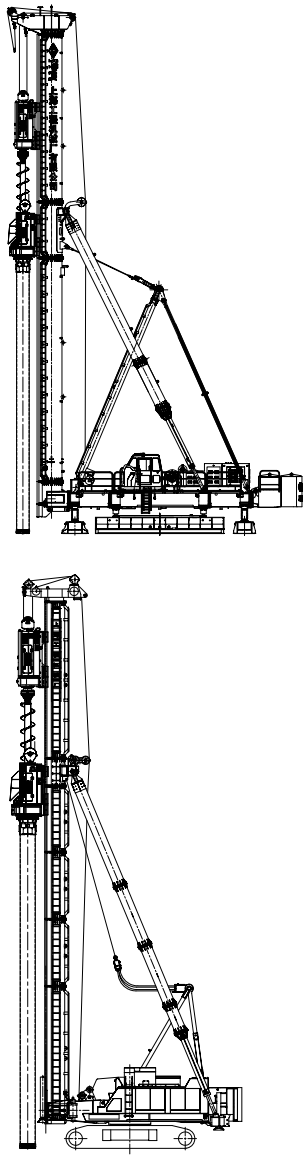


上动力头  
Upper Power Unit

下动力头  
Lower power Unit

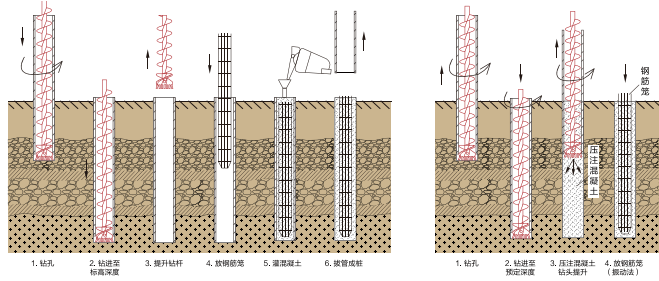
## 整体外形图

### DIMENSION DRAWING

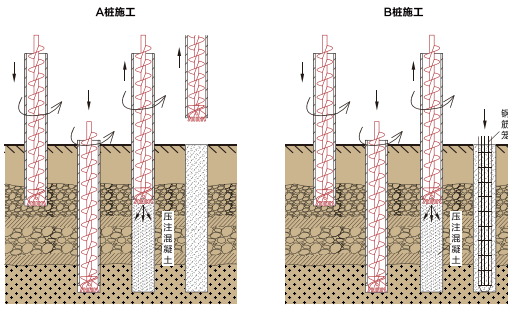


## 施工工艺流程图

### CONSTRUCTION

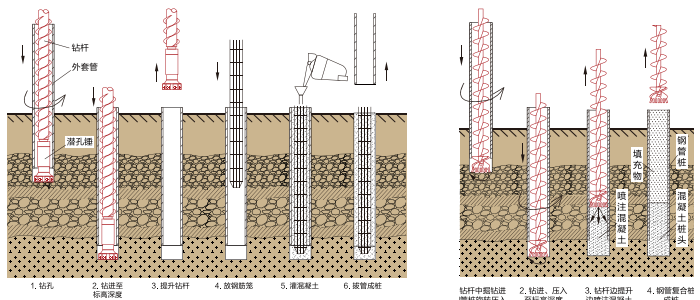


#### 螺旋钻进+套管护筒钻孔灌注施工 Auger drill bit+ Outer casing



A+B咬合桩

#### 咬合桩施工 Secant pile construction



#### 潜孔锤入岩施工 DTH hammer for rock drilling

#### 钢管复合桩中掘法施工 Steel-pipe pile construction-internal Drill and Embedded Pile Construction

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