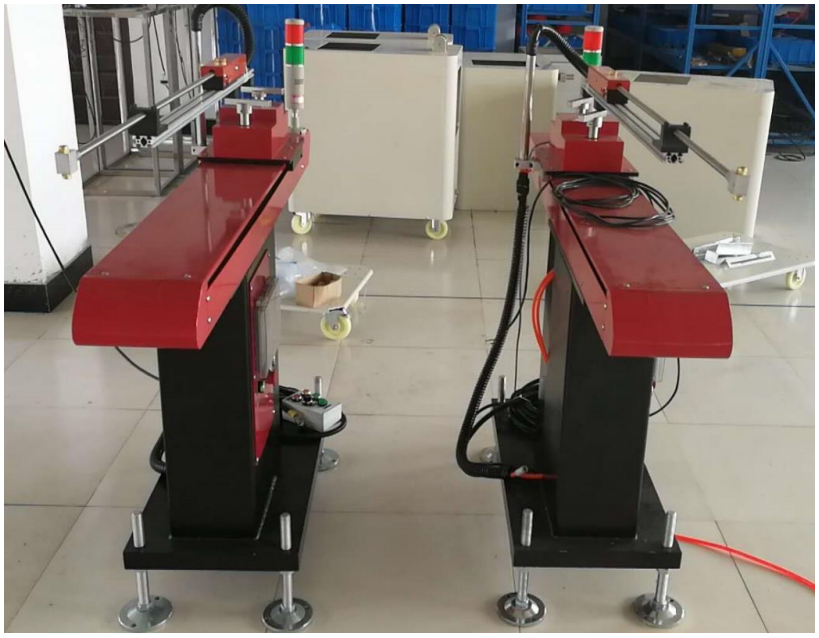
Automatic Graphite Spraying Manipulator



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Ningbo Smart Smith Engineering Technology Co., LTD ("SSET")

Our company initiated by a number of senior experts in the industry, set up with the joint master of the forging industry chain and auxiliary machinery manufacturers jointly, our team of experts are leaders in their respective fields, and production bases also have more than 20 years of production and service experience.

The company combines the advantages of all parties and integrates resources in the industrial chain to become the best forging equipment manufacturer in China and also a solution integrator in the field of metal forming. With practical Chinese equipment and accurate solutions to create better efficiency for our customers around the world.

The services we provide:

1. Propose solutions according to customer requirements, provide customized production line;
2. Automatic transformation of existing old forging press production equipment and production line;
3. Forging and heat treatment process technical consultation;
4. Production and sales of forging and auxiliary equipment;
5. Production and sales of related die and equipment parts.

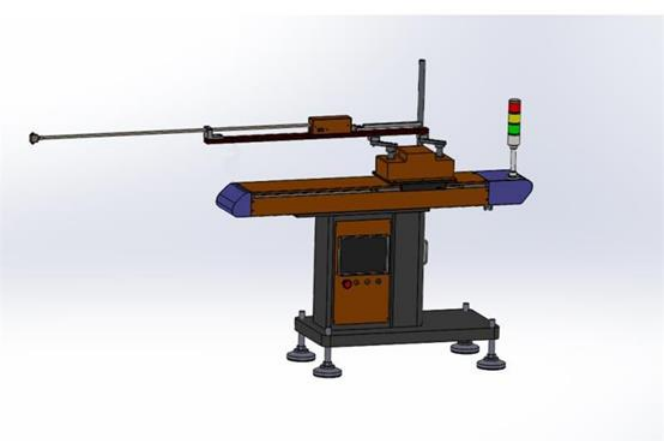
As one of the few domestic suppliers who can provide the automation solutions for complete set of forging equipment, we have a strong technical team and a large number of mature solutions that actually operate in the factory. Therefore, while providing a wide range of solutions for customers to choose from, similar examples of production lines are also available for guests to visit.

SSET provides 7X24 hours of technical advisory services to solve customer problems in a timely manner. All issues will be initially responded within 48 hours.

SSET follows the rules of international trade, observe contract, heavy commitment. We are committed to establish long-term and win-win situation cooperation with our customers, and are ready to share the progress of our latest technology. We are also willing to cooperate with research institutes and corporations of companies in various countries to make friends with all over the world with our trade cooperation as a link.

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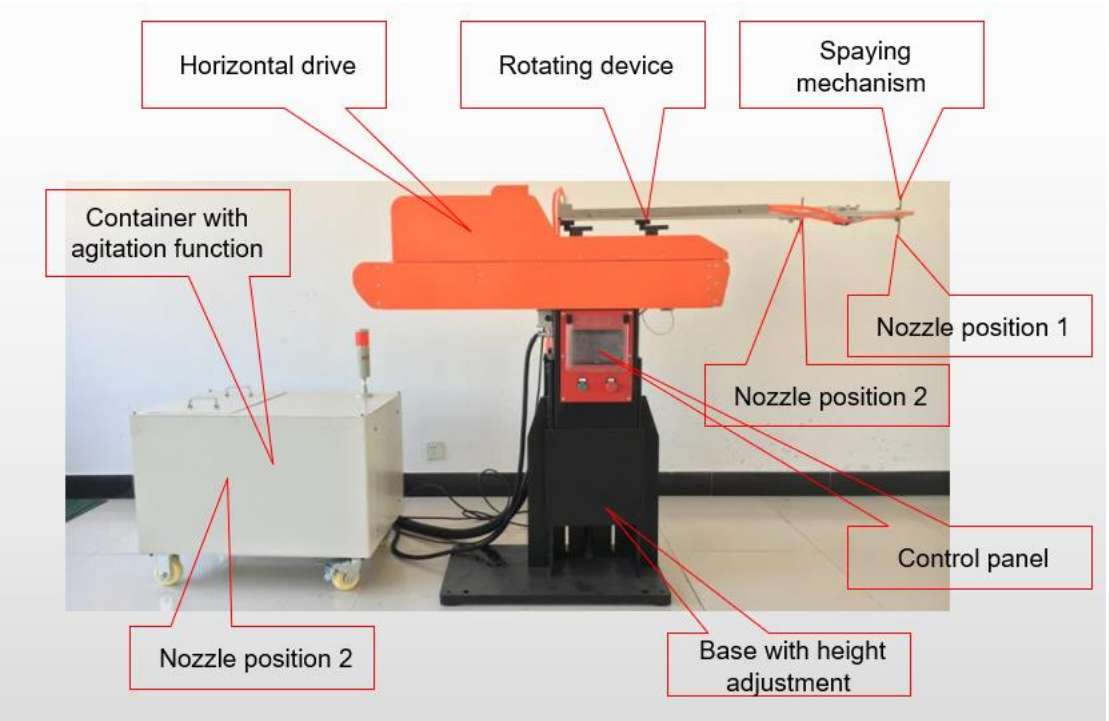
Automatic Graphite Spraying Manipulator



Advantage

- High cost-effective.
- Stable operation under bad forging condition.
- Adjustable independent nozzles, suitable for most simple forging positions.
- Servo drive, stable and adjustable performance.
- Easy operation, fast installation.

Product Description:

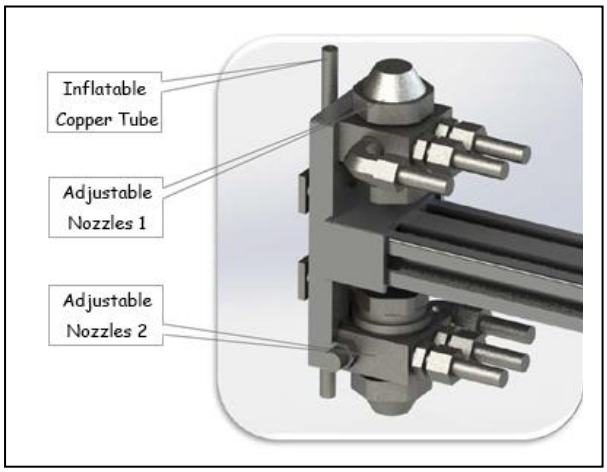


Automatic graphite spraying manipulator, the arrangement of nozzle is single position and double position optional, rotating mechanism adopts two-point parallel rotation design, has the functions of blowing oxide scale and spraying demoulding agent/graphite. The horizontal drive of this machine is driven by servo motor, the front and back stroke and up and down adjustment height can be customized according to your needs.

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The specific structure is as follows:

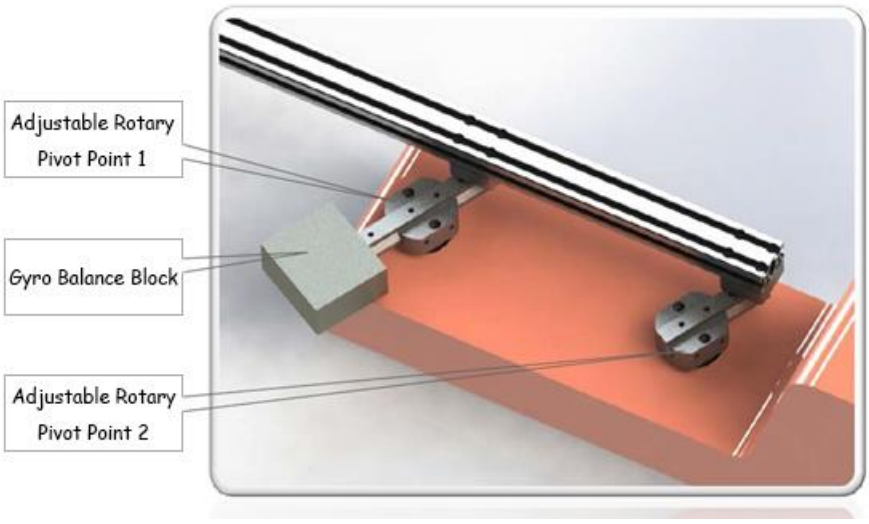
1. Spaying mechanism



- Adopt high reliability industrial special nozzles, adjust the flow of water to produce ideal atomization spray without changing air pressure and liquid pressure.
- Built-in valve can effectively prevent dropping at the end; nozzle parts can be exchanged, easy to disassemble and assemble.

2. Rotating device

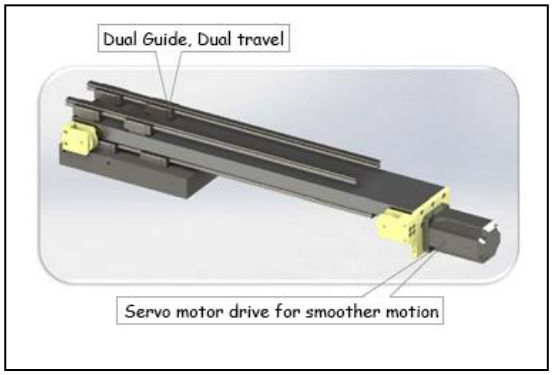
- Adopt two-point parallel rotation design, pneumatic motor drive.
- The air distribution valve can adjust the rotating speed and the rotating radius conveniently by adjusting the air pressure.
- At the end of each rotation, it can stop at a fixed position.
- Equipped with counterweight, the device is stable in rotation and uniform in speed.



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3. Horizontal drive

- Double guide rails design is adopted. the linear guide rails and screw pair be selected as Hiwin Taiwan, which is stable, reliable, and long life.
- Servo motor drive, fast speed, high accuracy, convenient travel settings.
- The lead screw pair is equipped with lubricating device.



4. Container with agitation function

- The capacity of water container is 10 liters and that of graphite agent container is 30 liters. All of them are made of 304 stainless steel, which is reliable and durable.
- Container with level gauge, alarm instructions when the liquid level is insufficient.
- The box body is rust-proof and sprayed with multi-layer paint, which is beautiful and strong.
- Universal wheel is installed under the container for easy movement.
- The mixing mode is pneumatic motor, the mixing blade is double-layer structure. Pump built-in, to avoid leakage, with protective measures.
- Convenient and reliable connection of various joints (gas, liquid, cable).
- Fluid circuit switching solenoid valve is controlled by PLC. Soft switching of demoulding agent and water circuit can be set on touch screen.

5. Control system

- PLC centralized control to achieve the following actions: oxygen scale blowing, graphite spraying, rotary motor control, mixing container control, servo motion control, alarm processing, automatic online interface, safety control etc.
- The touch screen can flexibly set various working parameters and view various states. The touch screen is English version optional, which includes the following contents:

☞ Time parameters of oxygen scale blowing.
☞ Time parameters of spraying release agent (graphite emulsion).
☞ The parameters of Servo positioning.
☞ Servo speed parameter setting.
☞ Function switching of Single machine mode or online mode.
☞ Nozzle function prohibition (switch of single station and double station).
☞ Indication of manipulator work status.
☞ Indication of Alarm information.

- The remoted control box is equipped with manual spraying action control, emergency stop button, etc., and connected with the host through aviation plug cable.
- The mixing container and the main engine are connected by aviation plug cable.

- All external cable connection interface and automatic on-line interface have clearly identified and described in the manual.



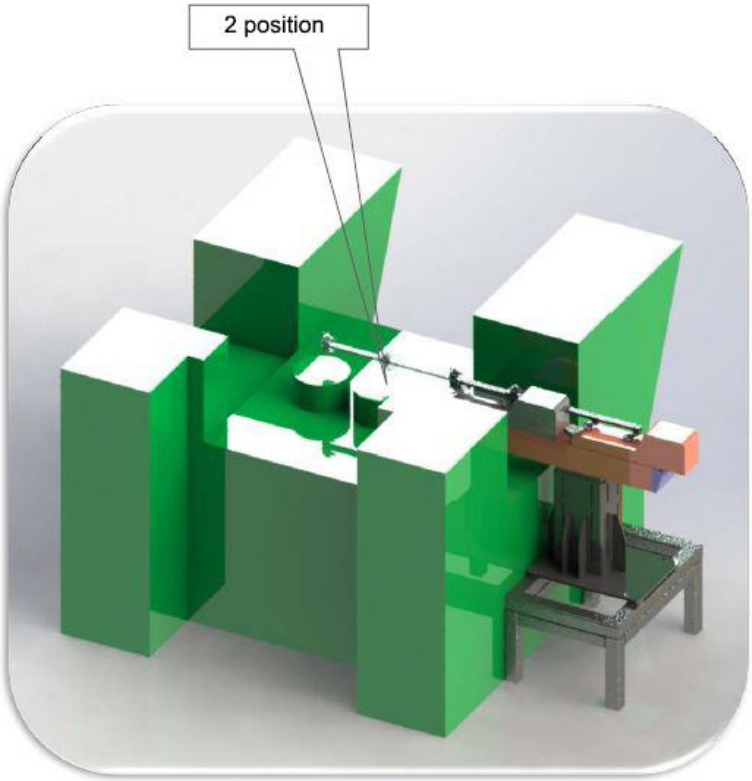


The main parameters:

Graphite Spraying Manipulator Parameters		
1	Storke of Arm	800mm
2	Height Adjustment	400mm
3	Mechanism of manipulator	Horizontal drive mechanism
4	Drive motor	Servo motor, pneumatic motor
5	Repeatability accuracy	±0.50mm
6	Feeding mode	Agitator vessel, diaphragm pump
7	Positioning mode	Servo motor
8	Programming interface	English touch screen
9	Controller	DELTA servo or Panasonic
10	Power Supply	415V AC/50HZ
11	Gas Pressure	5.0～7.0Kg/CM2
12	Installation mode	Mechanism independent installation, electrical and machine tool online

Outsourcing parts

Details of Outsourcing parts			
Serial number	Description	Manufacturer	Remarks
1	Guide Screw	HIWIN TAIWAN	
2	Rail	HIWIN TAIWAN	
3	Solenoid valve	AirTAC TAIWAN	
4	Diaphragm pump	LOBSTER TAIWAN	
5	Isolation transformer	Xiben electromechanical	415V on primary side
6	Servo and servo driver	Panasonic	400w
7	PLC	Panasonic	
8	Touch screen	Panasonic	
9	Low voltage electrical apparatus	Schneider	Including relay
10	Button switch	Schneider	



Scope of supply

Scope of supply			
Serial number	**Description**	**Qty**	**Remarks**
1	Manipulator body	1	Including base, horizontal movement unit, rotating unit, Spraying unit, valve blocks and other parts.
2	Agitator vessel	1	SST304
3	Bracket of manipulor	1	
4	Main system control	1	Including PLC, control low voltage electrical appliances
5	Isolation transformer	1	Input side 415V
6	Remote control box	1	
7	Touch screen parameter setting operation box	1	English version
8	Control cable of control box	8m	
9	All connecting air pipes		
10	Operation manual	1	Chinese/ English
11	Electrical schematic diagram	1	Chinese/ English
12	Maintenance Manual	1	Chinese/ English
13	Specification of third party main components	1set	PLC, servo, diaphragm pump, etc.
14	PLC and touch screen program	1set	
15	Spare nozzle	2pcs	Consistent with standard nozzle model
16	Quick connector for gas pipe connection	1set	direct connection、One is divided into two,etc.
17	Other standard wearing spare parts	1set	
18	Spare universal wheel for container	2pcs	
19	Equipment label	1set	SmartSmith
20	Equipment packing list	1	

Note: Due to the continuous improvement and development of our products, the structure and parameters of our products are subject to change without notice. The specific technical parameters are subject to documents provided with equipment. If you have any questions, please contact our technical support.

Reference information:

- Related videos:

1. Graphite spraying manipulator for hot forging process – 1
   https://www.youtube.com/watch?v=5eGOaMvuv5I

2. Graphite spraying manipulator for hot forging process – 2

https://www.youtube.com/watch?v=MMcKoXx86J8

- Related picture:



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If there is any conflict between the instructions and the contents of the company's product samples, this manual is just for reference, please contact us for help.

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