



4 Stages Automatic Ultrasonic Cleaner With Robot Arm For Cleaning Tubes

Our Product Introduction

Basic Information

- Place of Origin: Shenzhen, China
- Brand Name: Sky men
- Certification: RoHS, CE, FCC, SGS
- Model Number: JTM-4144SD
- Minimum Order Quantity: 1
- Price: 53,000USD
- Packaging Details: Wooden case
- Delivery Time: 50 working days after deposit
- Payment Terms: T/T
- Supply Ability: 50 pcs per month



Product Specification

- Chamber Size: 1450X1200X200mm
- Robot Arm Quantity: 1pc
- Washing Beat: 15 45min
- Machine Dimension: 10200x3400x2200mm
- Material Of All The Tank: AISI 304
- Power Of The Cleaning Machine: ≈52kW
- Highlight: **AISI 304 Automatic Ultrasonic Cleaner, Tubes Automatic Ultrasonic Cleaner, 4 Stages Sky men Ultrasonic Cleaner**



Product Description

I. Project overview

1,Project name: 4 stages automatic ultrasonic cleaning machine

2,Project requirements: Based on the product information and cleaning technical requirements provided by customers, on the basis of meeting the technical agreement and production requirements, we will provide customers with mature, reliable, stable and excellent performance of automatic cleaning equipment to meet the use requirements, and provide customers with complete after-sales service and use technical guidance. In this project, Party B (the Seller) shall be responsible for the equipment design, manufacturing, commissioning, quality and after-sales service, and the project construction shall be completed according to the agreement reached with the customer before the sale.

II. Equipment details

1,Equipment overview:

1.1 The fully automatic cleaning machine model JTM-4144SD is a high-intelligence and high-precision cleaning equipment designed and manufactured for customer products; it mainly uses ultrasonic cleaning, to clean, rinse and dry customer products; So that the cleanliness of the customer's products can meet the requirements of use, The equipment has 3 cleaning chamber, 1 drying chamber loading and unloading table. The equipment is completed automatically, without the need for personnel to be on duty, and manual intervention can also be carried out as needed.

1.2 The model is JTM-4144SD automatic cleaning machine mainly by:

1 ultrasonic occurrence system (including generators, transducers),

2 holding system (cleaning tank),

3 heating system,

4 filtration circulation system,

5 liquid level control system,

6 Induction positioning system

7 PLC control system,

8 Robot arm system.

9 High pressure water spraying system

10 Hot drying system

Among them,

1 The physical shock generated by the ultrasonic occurrence system is the most important way of cleaning;

3 The heating system is to sensing the heating temperature by high precision temperature probe to realize the start-stop control of the heating device;

4 The filtration circulation system is to effectively filter the large particle stains in the cleaning liquid to achieve the maximum utilization of the cleaning solution;

5 The level control system is a real-time induction of the amount of cleaning solution in the tank to realize the amount control of cleaning solution;

6 Induction positioning system helps mechanical grip precision positioning to improve grasp accuracy and effectiveness;

7 PLC control system is the start and stop and cleaning process, And according to the actual situation of the cleaning process for preparation or manual intervention;

8 The robot arm system is an effective way to carry and smoothly transport products into the next cleaning process

9 Semi-enclosed stainless steel spray pipe equipped with an umbrella nozzle, to achieve high pressure water spray coverage, spraying pipe can move in tank automatically

10 Hot air drying, 120°C hot air, dry the parts in shorter time.



2,Basic parameters of equipment

2.1 Workpiece information	The maximum workpiece size is 1000x50mm (Length*diameter)
2.2 Chamber size	1450X1200X200mm
2.5 Power of the cleaning machine	≈52kW
2.6 Robot arm quantity	1pc
2.7 Washing beat	15 45min
2.8 Machine dimension	About 10200x3400x2200mm,The actual size prevail

2.9 Power demand for equipment	380V±10%/50Hz,3 phase
2.11 Material of all the tank	AISI 304
2.11 Remote control	Software problem that cause performance problem should be done by remote on device by Skymen engineer
2.13 HMI and keys language	English

3,Working process:

3.1 To be washed products:stainless steel.

3.2 Cleaning process:

Loading

→ 1 Ultrasonic cleaning for 10 minutes (cleaning media: Water + detergent)

→ 2 High pressure water spraying for 10 Minutes(cleaning media: Water)

→ 3 Ultrasonic rinsing for 10 minutes (cleaning media: Water)

→ 4 Circulation hot air drying for 15 minutes

Unloading

(The cleaning time can be adjusted according to the actual cleaning effect)

3.3 Cleaning agent type:Organic solvents, water

3.4 Description of the cleaning process configuration:

No.	cleaning liquid	Cleaning method	ultrasonic	auxiliary facilities	recycle filtering	heating power
1	Water+ detergent	ultrasonic cleaning	40kHz/3.6kW	Storage tank 1	5μm	12kW
2	Water	High pressure water spraying	/	Storage tank 2	/	12kW
3	Water	ultrasonic rinsing	40kHz/3.6kW	/	/	12kW
4	/	Hot air drying	/	3kW vacuum pump	/	12kW

Allocation description of cleaning system

4.1 Ultrasonic cleaning

No.	1st tank	
Structure	Tank size	1450X1200X200mm
	Tank capacity	348 liters
	Tank material	AISI304,thickness 2mm
Ultrasonic system	Transducer	72pcs ultrasonic transducer, the total ultrasonic power is 3.6kW, and the power is continuously adjustable
	Generator	Imported IGBT sweep control board with uniform ultrasonic output, output power with photoelectric display and current display
Filtration system	Storage tank	.Tank volume is 20L, equipped with a lid; .Set the liquid level control in the box, if no liquid, will automatically turn off the circulating pump and sound and light alarm; .Set the discharge valve and set the discharge mode according to the requirements
	circulating pump	Adopt centrifugal water pump
	Filter Precision	5μm filter
	Tube coupling	Connect AISI 304 pipe with Y type valve with pressure gauge (0~0.8Mpa) showing the operating status of the circulating pump
heating system	temperature control	Digital display, temperature control range RT-90°C
	heating power	Place a 12kW stainless steel heating pipe inside the tank

4.2 High pressure water spraying

No.	3rd tank	
Structure	Tank size	1450X1200X200mm
	Tank capacity	348 liters
	Tank material	AISI304,thickness 2mm
spray rinsing system	Spray device	Semi-enclosed stainless steel spray pipe equipped with an umbrella nozzle, to achieve spray coverage, pipe can move in tank automatically
	Storage tank	.Tank volume is 20L, equipped with a lid; .Set the liquid level control in the box, if no liquid, will automatically turn off the circulating pump and sound and light alarm; .Set the discharge valve and set the discharge mode according to the requirements .1.5kw heating power to heat up the spraying water
	circulating pump	Adopt centrifugal water pump
	Filter Precision	5μm filter
	Tube coupling	Connect AISI 304 pipe with Y type valve with pressure gauge (0~0.8Mpa) showing the operating status of the circulating pump

4.3 Ultrasonic rinsing

No.	2nd tank	
Structure	Tank size	1450X1200X200mm
	Tank capacity	348 liters
	Tank material	AISI304,thickness 2mm
Ultrasonic system	Transducer	72pcs ultrasonic transducer, the total ultrasonic power is 3.6kW, and the power is continuously adjustable
	Generator	Imported IGBT sweep control board with uniform ultrasonic output, output power with photoelectric display and current display
heating system	temperature control	Digital display, temperature control range RT-90°C
	heating power	Place a 12kW stainless steel heating pipe inside the tank

4.4 Hot air preheating

No.	4th tank	
Structure	Tank size	1450X1200X200mm
	Tank capacity	348 liters
	Tank material	AISI304,thickness 2mm
Wind cutting system	Quantity	1 set
	Principle	Give 120°C hot air to the tank, dry workpiece and the tank body, to speed up the drying
	Auxiliary	high efficiency particle air filter

5,Main mechanical structure

5.1 Robot arm

Quantity	1 set	
structure	The structure of the robot arm is a single-arm beam type, which is stable in operation, accurate in positioning, large in bearing capacity, strong in flexibility and fast in lifting.	
electrical control	►The robotic arm is controlled by a programmable controller and proximity and induction switches to automatically complete the cleaning process; the cleaning rhythm is adjustable, and the operation process is variable frequency speed regulation, which can achieve soft landing and accurate positioning ►Established with a washing basket protection device, when there is a basket in the tank, the robotic arm shall not place any more baskets	
	Lifting	Gear motor, power: 3/4HP, speed: 0-7 m/min (parameters are designed on demand)
Motor parameters	Moving	Servo motor, power: 1HP, speed: 0-7 m/min (parameters are designed on demand)
Can achieve Function	►Manual operation; ►Fully automatic operation; ►Automatic reset system; ►Pause and emergency stop; ►The man-machine interface modifies the program; ►The man-machine interface adjusts the process parameters; ►Can remotely monitor and control equipment operation; ►HMI fault alarm display.	
load bearing	Max. 100kg	

5.2 Machine frame chassis and door panel

quantity	1 set	
structure	The frame and chassis of the entire equipment are made of stainless steel The front and rear and left and right sides of the equipment are equipped with decorative door panels, which are mainly composed of brushed stainless steel and acrylic panels. The surface is matte and beautiful. The water distribution tank is set on the rack, and the foot cup is set at the bottom	

5.3 Air release

quantity	1set	
material	Stainless steel, PVC engineering plastics	
installation site	A suction cover can be set up above the organic solvent and water-soluble solvent cleaning tank, which can be connected to the customer exhaust system, and the air valve can be adjustable	

5.4 Basket

quantity	6pcs
material	AISI 304

5.5 Electric control system

quantity	1 set	
material	Stainless steel board	
structure	►The electric control cabinet is located on the left side of the first tank and is assembled with the cleaning system; install the touch screen of the operation panel and display the working status of the whole machine simultaneously ►The buzzer and the equipment shall have three-color working indicator lamp, abnormal situation prompt sound and light alarm; ►PLC, relay, air switch, transformer and other main order control circuit is configured in the cabinet; ►The line layout is neat and clear, with a clear line number.	

III. Spare part List

Spare parts	Brand	Remark
Transducer	Sky men	
Generator	Sky men	
Water pump	CNP	
Cylinder	Air TAC	
Geared Motor	Delta	
Servo Motor	Delta	
Vacuum pump	Sterling	
Cooling fan	AIRMATE	
Heater	JIUKOU	
PLC	Delta	
Touch screen	Delta	
Digital temperature controller	Omron	
Solenoid value	Air TAC	
Level switch	Sky men	
Photoelectric switch	Omron	
Capacitive approach switch	Omron	
Pneumatic Value	Flowserve Value	
Y-Value	Sky men	
Power switch	Delta	
Relay	Schneider	
Linear Guide Rail	PMI	
Frame/Shell	Jinshuncheng	
Tank	Jinshuncheng	

IV. Documents and spare parts shipped with machine

1, Relevant technical documents

Name	language	quantity	Remarks
Manual	English	1	
circuit diagram	English	1	
piping diagram	English	1	
Water/electric installation diagram	English	1	
Daily Maintenance Instructions	English	1	

2, Spare parts

Name	Quantity
Filter elements	20pcs
water pump	1pc
heating pipe	4pcs



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