



**信成精密**  
XINCHENG PRECISION

# **SUN-100 Chip/Sludge Removal Machine**

## **User Manual**



**Luoyang Xincheng Precision Machinery Co.,Ltd**

## **Introduction**

During the use of CNC machine tools, various metal scraps, powders, sludge, etc., will gradually accumulate in the cutting fluid pool. If it is not cleaned for a long time, the volume of the cutting fluid pool will become smaller, and the cutting fluid will not get cyclic utilization during the processing. If larger impurities are drawn into the pump, it will cause blockage of the pipeline, which will affect the cooling and lubrication of the parts during processing. In severe cases, the pump and parts will be scrapped.

The SUN-100 machine tool use Chip/Sludge removal machine independently developed by our company is suitable for the cleaning of water tanks of various machining centers, CNC machine tools and engineering equipment. It can quickly and easily clean the metal debris, sludge and other impurities in the water tank to make the cutting fluid fully recycled, saving time and cost comparing with manual cleaning.

This machine can be used together with our company's independent product SUN-01 to separate the floating oil on the surface of the cutting fluid, greatly extends the service life of the cutting fluid. Not only reduce the processing cost, but also improve the working environment and guarantee staff health.

## 1.Application Scope

1. Applicable to the cleaning of metal, non-metal scraps, sludge, etc. in the coolant tank of the machine tool;
2. Can be used as a water pump for water, water-based cutting fluid, water-based liquid, non-volatile oily liquid to perform extraction operation.
3. This product is not suitable for corrosive liquids such as strong acids, alkalis and organic solutions.

## 2.Technical Parameters

| Items                   | Parameters               |
|-------------------------|--------------------------|
| Model                   | SUN-100                  |
| Power Source            | Pneumatic                |
| Air Pressure Range      | 0.4-0.7 MPa              |
| Pipe Diameter           | 10mm                     |
| Air Consumption         | 1-1.7m <sup>3</sup> /min |
| Max. suction            | 5m                       |
| Max. flow Rate          | 100L/min                 |
| Filter Storage Capacity | 9L                       |
| Filter Mesh             | Standard 1mm             |
| Max. Particle Dia.      | 10mm                     |
| Viscosity Range         | ≤ 3000 cP (25℃)          |
| Operating Temperature   | 0℃ --60℃                 |
| Overall Dimension       | 800*450*960mm            |
| N.W                     | 67 ± 1Kg                 |

### 3. Working Principle

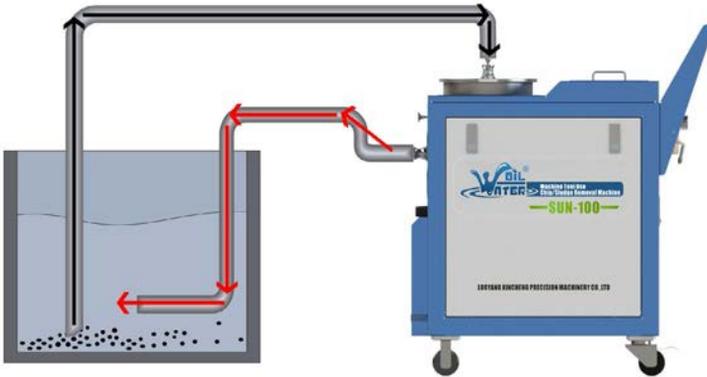


Fig.1 Working Principle

- 1.The machine's main components include inlet and outlet pipe fittings, pressure tank, water pump and cabinet components. The cutting fluid is circulated and filtered to remove impurities by using the machine;
- 2.The mixtures of cutting fluid and metal debris are sucked into the pressure tank through the water inlet of the pump. The cutting fluid is sent back to the cutting fluid pool after filtration through the filter, then recirculate filtration to remove chips and debris. The machine is suitable for machine tools' tank cleaning and dirty treatment.

### 4. Advantages and Characteristics

- 1.Circulation system, no need to stop the machine tool, clean up at any time;
- 2.Humanized structure design, more convenient in installation, use, storage, maintenance;
- 3.Free plug-in, safe and convenient, quick connector, plug and play;
- 4.Original buffer design to reduce the vibration of the outlet pipe;
- 5.Patented pressure relief device, manually adjust the negative pressure range. Pressure barrel can relieve pressure automatically when blockage and over-pressure;
- 6.Switch and the instrument are set in front, easy to operate;
- 7.The barrel body is made of 304 stainless steel material, which has large capacity, strong anti-rust ability and durability;
- 8.Wide range of applications, can clean all kinds of metal, non-metallic debris, sludge and other debris;
- 9.The processing flow is large, and the water absorption per minute can be 100L, quickly clean up.

## 5. Structure Description



Fig.2 Structure Description

## 6. Installation Instructions

1. Fix the handgrip using the supplied M8 screw on the back side of the chassis.
2. Connect the supplied wire hose without the joint end to the flat end of the stainless steel tube, and tighten it with clamp; wrap the joint with the black electrical tape supplied to avoid operation Injuring the arm;
3. The quick connector at the other end of the wire hose is connected to the water inlet and the water outlet respectively; (The longer one is the inlet pipe and the shorter one is the outlet pipe)
4. Insert the end of the intake pipe without the connector into the left side of the gas source processor inlet tee, and the air pipe. Fixed in a single-sided slot inside of the handgrip;
5. Connect the supplied high-pressure air gun to the spring tube and hang it on the armrest side;
6. Insert the other end of the spring tube into the lower side of the air inlet tee to secure it.



Fig.3 Installation



Fig.4 Installation

## 7.Operating Instructions

1. Connect the inlet and outlet pipes together with the supplied double-hole pipe clamp before use. And make the end of the outlet pipe shorter than the end of inlet pipe.
2. Adjust the pressure regulator knobs at the front and the back to make the pressure between the normal range 0.4-0.7Mpa. Turn on the hand pull switch and the pump works.
3. Put the inlet and outlet pipes into the cutting fluid pool. Hold them with both hands and stir the cutting fluid while sucking.
4. Adjusting the pressure regulating valve knob can change the water absorption rate of the pump to suit different working conditions.
5. After a period of time, the pressure drum is filled with impurities. At this time, the negative pressure gauge indicates that the value exceeds the warning value. (The pointer is in the red range). If the negative pressure in the pressure drum is too large, the pressure relief device will automatically relieve pressure (need to be pre-set). Please stop and clean the filter drum in time.
6. When the filter drum is full, please take out the inlet and outlet pipes and let it empty suck for some time to facilitate dehydration. Turn off the hand pull switch, open the pressure drum buckle, remove the drum cover, and take out the inner filter drum to clean the impurities.
7. After cleaning, put the filter drum in place and lock the cover.



Fig.5 Operating Instructions

## 8.Cautions

1. Add specialized lubricant to the air lubricator of the air source processor before use.
2. Before locking the drum cover, pay attention to check whether all the cover seals are in the slot.
3. When not in use for a long time, please empty the liquid in the equipment and put the inlet and outlet pipes in the fixing seat.
4. When it is lower than 0 °C, please empty the liquid in the pump after use.
5. Keep the air source pressure within the normal range. Too high or too low pressure will affect the pump operation.
6. Pay attention to the negative pressure gauge during use. Do not overload the machine for a long time. Clean the impurities in the filter drum in time.
7. If the filter drum is inadvertently damaged, please repair and replace it in time to avoid damage to the pump caused by impurities suction.
8. When the new machine is running, if no water suction, please add the appropriate amount of applicable liquid into the pressure drum to exhaust the air inside the pump.
9. Each time when cleaning the filter drum, pay attention to clean the impurities around the flange gasket to prevent impurities from falling into the drum and enter the pump. Before placing the filter drum, please check whether the filter screen at the bottom of the drum is in place;
10. It is strictly forbidden to run the machine without the filter drum. During use please completely immerse the inlet pipe into the liquid.

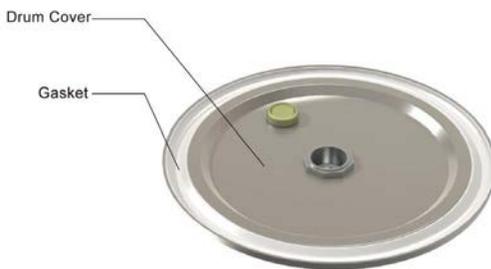


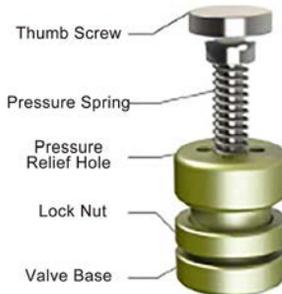
Fig.6 Notice

## Attachment 1. Aire Treatment Instruction



1. When adjusting the pressure, please pull up the pressure adjustment knob and then turn it. Press the rotary knob to position. Turn clockwise to increase the outlet pressure and counterclockwise to lower the outlet pressure.
2. Adding lubricating oil to the lubricator can lubricate the diaphragm pump and valve components to extend the service life of the machine. Please use ISO VG 32 or the same grade oil. Please do not add more than 80% of the volume.

## Attachment 2. Depressuring Device Instruction



1. When the machine is working, press the thumb screw to manually release the negative pressure of the pressure drum.
2. Adjust the pressure value of the pressure spring by adjusting the thumb screw to adjust the negative pressure value of the pressure relief device.
3. Turn the screw clockwise to increase the negative pressure, and counterclockwise to decrease the negative pressure. The best adjustment position is the pressure relief device begins to relieve pressure when the negative pressure gauge pointer indicates to the red area.

## Pressure Gauge Instructions



Negative pressure gauge: The negative pressure gauge on the front panel of the chassis indicates the negative pressure value of the pressure tank, and the pointer is in the green area.

~-0.05Mpa is the normal use range;

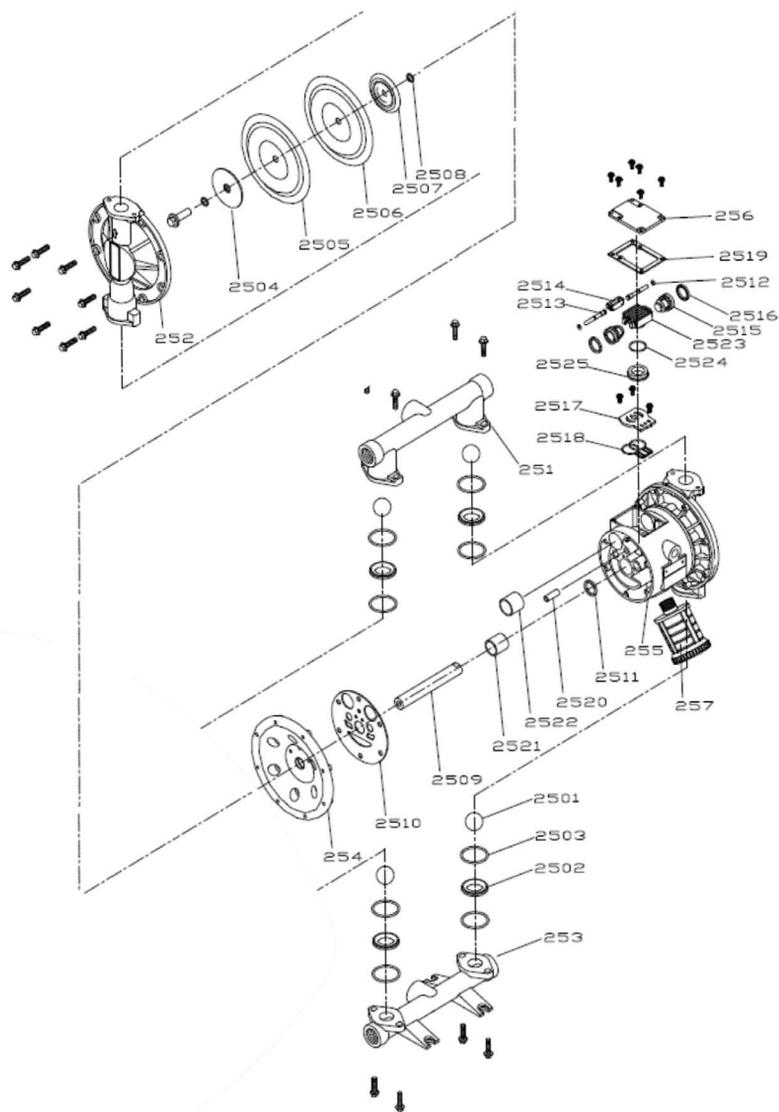
When the pointer range is in the red area, the negative pressure in the pressure tank is too large, pls stop the machine and clean up the impurities immediately.



Pressure gauge: The pressure gauge on the front panel of the chassis indicates the pressure of the pipeline gas, and the pointer is in the green area.

0.4~0.7Mpa is the normal use range.

## Pneumatic Diaphragm Pump Description



## Pneumatic Diaphragm Pump Parts List

| <b>No.</b> | <b>Item</b>           | <b>No.</b> | <b>Item</b>                       |
|------------|-----------------------|------------|-----------------------------------|
| 251        | Upper Cover           | 2510       | Air Valve Gasket                  |
| 252        | Column                | 2511       | Center Axle V-ring                |
| 253        | Lower Cover           | 2512       | Reversing Needle O-ring           |
| 254        | Interior Splint       | 2513       | Reversing Needle                  |
| 255        | Air Valve Body        | 2514       | Reversing Switch                  |
| 256        | Air Valve Cap         | 2515       | Piston                            |
| 257        | Muffler               | 2516       | Piston V-ring                     |
| 2501       | Valve Ball            | 2517       | Stainless Gas-guide Block         |
| 2502       | Valve Ball Seat       | 2518       | Gas-guide Block Gasket            |
| 2503       | Ball Seat O-ring      | 2519       | Air Valve Cap Gasket              |
| 2504       | Exterior Shield Block | 2520       | Reversing Needle Sleeve           |
| 2505       | PTFE Diaphragm        | 2521       | Center Axle Sleeve                |
| 2506       | Rubber Diaphragm      | 2522       | Piston Sleeve                     |
| 2507       | Interior Shield Block | 2523       | Gas-guide Switch<br>Aluminum Part |
| 2508       | Shield Block O-ring   | 2524       | Gas-guide O-ring                  |
| 2509       | Center Axle           | 2525       | Gas-guide Plastic Part            |

## 5. Troubleshooting

| Troubles   | Reason analysis   | Troubleshooting  |
|--|---|--|
| The pump does not work after starting the machine      | 1.The intake tube is not connected well;<br>2.The pressure regulating valve is too low;<br>3.The external air source pressure is too low;   | 1.Check the intake tube;<br>2.Adjust the pressure of the air supply processor and regulating valve to the normal range;<br>3.Increase the pressure of the external air source;<br>Contact the manufacturer   |
| The pump does not suck water or has insufficient flow  | 1.The air source processor or the pressure regulating valve is damaged, or in insufficient pressure.<br>2.The external air source pressure is too low;<br>3.Pipeline blockage;<br>4.Air leaks in the air pipe and valve;<br>5.Pump trouble; | 1.Replace the air source processor or pressure regulating valve;<br>2.Increase the pressure of the external air source;<br>3.Check the pipeline to clean up debris;<br>4.Check whether the air pipe and valve are leaking, repair and replace in time;<br>5.Contact manufacturer<br>6.Add suitable liquid to the pressure tank when first use. |
| Inlet water absorption discontinuity                   | 1.The water inlet pipe is blocked;<br>2.The filter bucket has too much adhesion impurities and the water filtration is not smooth;<br>3.The pump is damaged;  | 1.Check the water inlet pipe and remove the quick joints to clean up the debris;<br>2.Clean the filter bucket in time;<br>3.Contact Manufacturer to repair.  |
| The pipeline is cleaned but still cannot absorb water. | 1.The pressure relief device leaks;<br>2.The lid seal strip is leaking;   | 1.Check pressure relief device to return to the original position;<br>2.Manually adjust the pressure spring so that the pointer of the negative pressure gauge is in the green upper area;<br>3.Clean the iron filings around the sealing strip and reset the sealing strip.   |
| Water leakage  | 1.The joint of the pipe is loose;<br>2.The plug connector gasket is damaged;  | 1.Check and lock the pipe clamps at each joint;<br>2.Check if the union joint of the diaphragm pump inlet and outlet is loose;<br>3.Replace the fast-inserting joint gasket.   |

## Customer Service

With company spirit “High Quality, Excellent Service, Striving for Development” and company concept “Quality Product, Competitive Price, Considerate Service”, we promise you responsibly and publicly:

### **Warranty Terms:**

- 1.Our product will have to go through a thorough quality exam process to ensure that our devices won't have any glitch before delivery.
- 2.The warranty period is usually around one year and within this time frame, if there are any technical problems, we would repair them for free including the new parts that needed for the repair.
- 3.The purchasing date is the invoice date (if the customer has no invoice, it depends on the delivery date).
- 4.If the models we have stopped producing, we only do the function repairing.

### **No warranty Scope:**

- 1.The fault caused by improper use.
- 2.The damage caused by improper storage or natural disaster.
- 3.Consumable parts such as water pipes, water pump diaphragms and check-valve balls, ball seats and reversing valve components are not guaranteed.
- 4.Without the consent of our company, the customer disassemble, repair and modify the product.

### **After-sale Service:**

- 1.Service Purpose: serve customers, satisfy customers, satisfaction of attitude, perfection of technology.
- 2.Service Goal: Win customers' satisfaction by service and quality.

**Note:** The final explanation right is owned by our company.

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**Quality Products Move the World**

**Luoyang Xincheng Precision Machinery Co.,Ltd**

Item: Chip/Sludge Removal Machine

Model: SUN-100

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