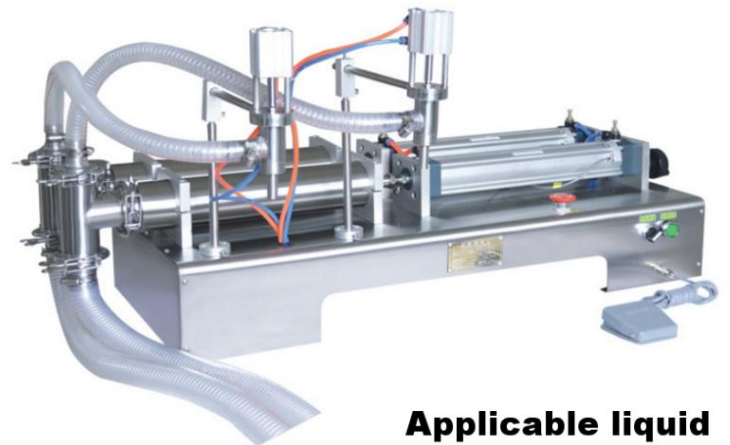




Semi-automatic filling machine description

Applicable Paste



Applicable liquid



A. PRODUCT INTRODUCTION

The full name of the semi-automatic filling machine is the full-pneumatic semi-automatic piston filling machine. It is redesigned on the basis of referring to similar foreign products, and some additional functions have been added, so that the product can be used in operation, accuracy error, filling volume adjustment, and equipment cleaning. , maintenance and other aspects are more simple and convenient. The fully pneumatic filling machine designed on this basis uses pneumatic components to replace the electrical control circuit, and is especially suitable for use in environments with explosion-proof requirements.



B. DETAILED INTRODUCTION

1. working principle

The working principle of the full-pneumatic semi-automatic piston filling machine is: through the forward and backward movement of the cylinder, the piston in the material cylinder is driven to reciprocate, so that negative pressure is generated in the front cavity of the material cylinder. When the cylinder moves forward and pulls the piston backward, the front chamber of the material cylinder generates negative pressure, and the material in the feeding barrel is pressed into the feeding pipe by the atmospheric pressure, and enters the feeding pipe through the one-way valve for feeding and discharging. When the cylinder moves backward, it pushes the piston forward, squeezing the material. The material enters the discharge hose through the discharge one-way valve, and finally enters the empty bottle to be filled through the filling head (the filling head is closed when feeding, and opened when discharging) to complete one filling. The piston filling machine is a single simple action of a machine for each filling, so it has high filling accuracy and stability for each regular container.



2. Features

1. All use compressed air as control, so it is especially suitable for use in environments with explosion-proof requirements, with high safety;
2. There will be no static electricity, hemp phenomenon, and no need to ground;
3. Due to the use of hard positioning, the filling accuracy is high, and the accuracy can be controlled within 0.3% (based on the maximum filling volume);
4. In the case of emergency stop, just turn off the pneumatic switch, the piston will automatically retreat to the initial position, and the filling will stop.

C. OPERATION POINTS

Before starting the machine, it is necessary to check whether each part of the machinery is normal, so as to avoid mechanical failure or personal injury accident. Check content and operation:

1. Whether the front and rear CLAMPING handles are clamped;
2. Whether the three-end clamps of the feeding and discharging tee are clamped;
3. Whether the cross clamps and filling heads of the horizontal bars and vertical bars are clamped;
4. Connect to the air source, the pressure is less than $8\text{kg}/\text{c m}^2$, and the on-board pressure is $4\text{-}5\text{kg}/\text{c m}^2$;
5. Turn on the gas source switch.

Note: It is strictly forbidden to work without material for a long time.



2. Adjustment of filling volume

The adjustment of the filling volume is determined by the user according to the volume (ml) or weight (g) of the filling material required. Due to the difference in the specific gravity of the material, the data in the filling counter is different. By adjusting the program-controlled switch, it can be adjusted to the filling volume and accuracy required by the user.

The specific operations are as follows:

1. Coarse adjustment: adjust the adjustment screw of the process air control switch, move the position of the adjustment screw to the left and right, and properly adjust the adjustment screw of the return air control switch to reach a satisfactory position.
2. The measuring cup or bottle is aligned with the filling head (Note: the material tank must be full, otherwise the filling volume will not be accurate), please check whether the measuring cup is accurate, or use an electronic scale to weigh the bottle. ;
3. If there is an error, use the handwheel to move the return switch, move forward, and reduce the load, and vice versa;
4. Repeatedly adjust the return program control switch until fine-tuned to the required loading and accuracy.



1. Adjustment of filling speed

The filling speed is determined by the following 6 factors:

1. The speed of suction depends on the viscosity of the product and the length of the suction tube;
2. The filling speed depends on the diameter of the filling head, the larger the diameter, the faster the speed;
3. The degree of foaming of the product, the filling speed of high-foaming products should be slowed down;
4. How much is loaded, the speed is slower if the amount is more;
5. The precision of the filling volume, if the precision is high, the speed should be slowed down;
6. Front and rear speed regulating valves adjust and control the air flow rate.

The specific operations of the front and rear speed control valves are as follows:

1. Loosen the front and rear speed regulating valve nuts;
2. Turn the handle of the front one-way throttle valve clockwise, the forward speed of the cylinder will slow down, and the charging speed will also slow down;
3. Rotate the handle of the front one-way throttle valve counterclockwise, the forward speed of the cylinder is accelerated, and the charging speed is also accelerated;
4. After turning the one-way throttle handle clockwise, the forward speed of the cylinder is slowed down, and the charging speed is also slowed down;
5. Rotate the front and rear throttle valve handle counterclockwise, the forward speed of the cylinder is accelerated, and the charging speed is also accelerated;



3. Adjustment of filling accuracy

The generation of filling errors is mainly determined by the filling volume, filling speed, and switching speed of the upper and lower check valves.

The switching speed of the upper and lower check valves is related to the viscosity of the product. The higher the viscosity, the slower the valve switching speed.

Adjusting the opening and closing speed of the valve mainly adjusts the spring pressure of the valve. When the spring pressure increases, the opening and closing speed of the valve increases.

The large effect of the spring pressure of the adjustment valve is determined by the filling metering and the experience of the operator.



D. COMMON FAULTS AND TROUBLESHOOTING

Fault	Solution
Pistons cannot move back and forth	Check if the air pressure is on
	Check that the air pressure valve is open
	Check whether the air source switch is turned on, and whether it is pressed to open the air-controlled safety valve
	Check whether the air pressure reaches 4-5kg/c m ²
	Check that the check valve is installed correctly
	Check piston head o-rings for stickiness, piston clogged
	Check whether the front and rear air control switches on the cylinder are damaged
Filling is not accurate	Check that you have enough material in your hopper or supply bucket
	For high-viscosity products, the speed should be slow, and whether the seal of each part leaks
Material overflows from the tank	Check whether the material cylinder is loose and whether the program control switch is loose
	Check and replace piston o-rings
	If the material is very thin, use two o-rings



Fault	Solution
Cannot absorb material	Check that the valve is installed correctly and tighten
	Check if the feed pipe is installed correctly and fasten it tightly
	Make sure the suction tube is not against the bottom of the bucket
material overflow bottle	Check whether the program-controlled switch is damaged or displaced
	Whether the filling head is aligned with the bottle mouth
	Check whether the throttle valve of the cylinder is adjusted properly, resulting in too fast discharge