Bag on Valve Filling Machine

I. Features

100G bag on valve aerosol filling machine is one of the series using bag on valve technique. As the product aerosol and propellant can be seperated through the bag attached on valve, we solved the problem of filling corrosive meterials.When the corrosive effect is reduced, we cut down the risk of aerosol leakage to a great extend.

During using, its valve shall be opened to make compressed air in the can to force the raw material in the bag out of the can, when raw material is fully ejected, compressed air in the can still retains and then be used for repeated filling.

The BOV aerosol products can be refilled as raw meterials used out, we still has compressed air remained in the can.

The bag on valve filling machine has been widely used in pharmacy, health care, fire fighting and daily chemicals, pesticide, disinfectant, fire extinguishing agent and etc.

II. Composition and parameters

1. Composition:

This unit consists of binary closing machine, vacuumizer, delay

cylinder, work benches, racks and pneumatic components.

2. Parameters

Outline of host (L*W*H) (mm)	970*510*1500
Height of aerosol can (mm)	80~320
Diameter of aerosol can (mm)	Customizable depending on aerosol cans of different size
Closing diameter (mm)	27.5
Closing contact height (mm)	0~10
Capacity (cans/hr)	500-1000
Max. gas consumption (L/min)	600

III. Basic structure and working principle

Many kinds of aerosol are inflammable or explosive when filling containers with them. Therefore, this unit employs a mechanical structure under full gas-pressure transmission, which can avoid electric spark caused when using electricity.

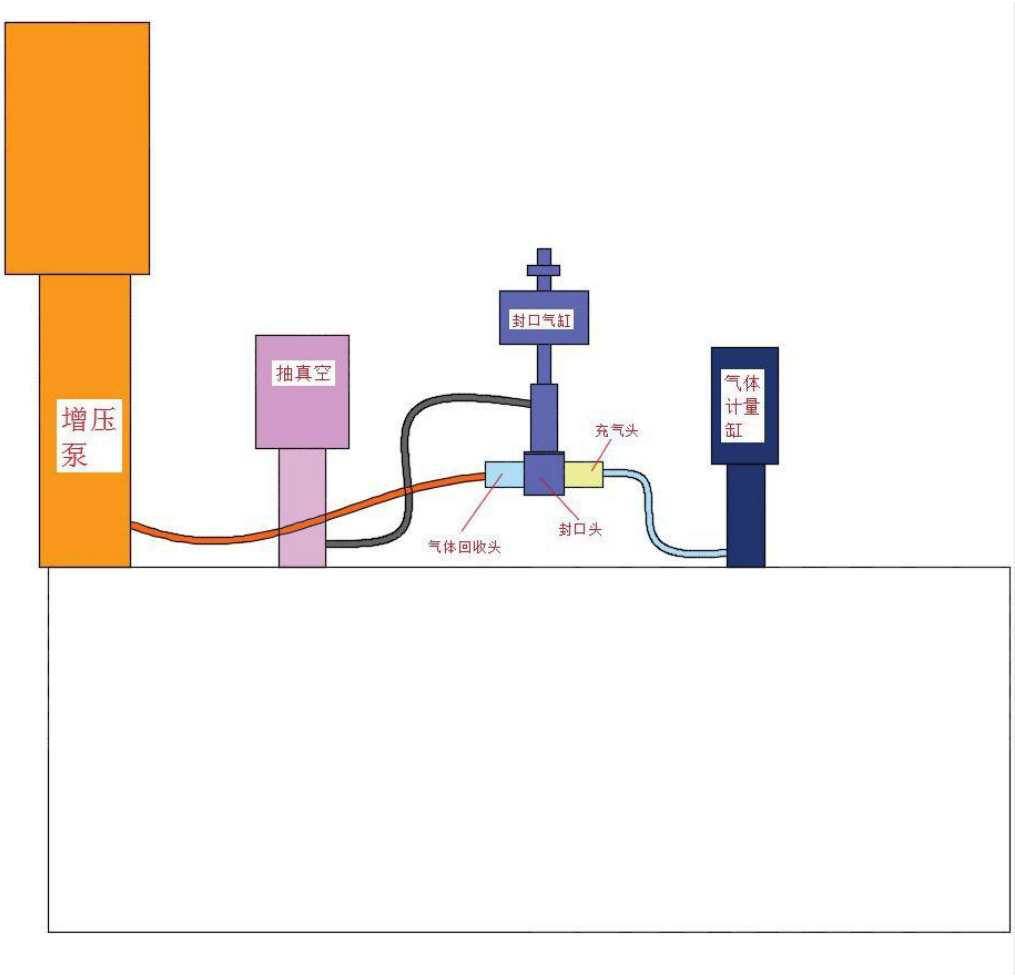
This equipment consists of binary closing machine, vacuum pump, delay cylinder, work benches, racks and pneumatic components.

This unit employs the under-hood filling approach. When the valve is closed, compressed air is fed into cans and they are filled with injection under the valve pressure.

Closing and aeration: Turn on the switch, press the foot valve slightly, the lifting cylinder of the closing machine descends, and the closing claw holds down the valve cover. Meanwhile, the vacuum pump starts work so that the lifting cylinder ascends to the limit after the valve cover is adsorbed by the closing claw. At this time, the bag valve is separated from the can mouth and compressed air begins to be fed from the gap between the bag valve and the can mouth. The fill of compressed air is controlled by the delay cylinder. After aeration, closing is finished by the closing cylinder.

Filling: Turn on the switch, press the foot valve slightly, the double pneumatic operated directional valve of the liquid metering cylinder changes direction, the liquid filler pushes down the aerosol can with the help of the micro cylinder and the nozzle opens automatically. Meanwhile, the upper chamber in the power cylinder of the liquid metering cylinder takes gas in, the lower chamber exhausts, and the piston in the power cylinder moves the liquid cylinder piston downwards, so that the liquid in the metering cylinder is injected via the liquid filler into the closed aerosol can. At this moment, the piston of the power cylinder is pushed down to trigger the signal valve, the gas pressure output from it acts on the double pneumatic operated directional valve of the liquid metering cylinder to make it change direction, so that the micro cylinder of the

liquid filler moves opposite to the direction of incoming and outgoing gas of the power cylinder, so that the liquid filler and metering cylinder return home, and the metering cylinder returns home, takes in liquid of the same amount from the cylinder and waits for the next filling. The height of the locating piston of the metering cylinder can be adjusted by rotating the knob on the top of the metering cylinder in order to change the size of fill by changing the travel of the metering cylinder piston.



增压泵：Booster pump

抽真空：Vacuumizing
封口气缸：Closing cylinder 气体回
收头：Gas recycler 封口头：
Closing end 充气头：Aerating end
气体计量缸：Gas metering cylinder

As shown in the diagram, the vacuum pump vacuumizes cans and then finishes aeration and closing. The overflowed gas is recycled into the booster pump.

IV. Debugging and operation

Closing and aerating machine

1. Debugging

(1) Adjust height of the bed-plate of the host: First remove the sealing block from outside of the closing end, and press the top of the closing machine to make the closing cylinder descend to the end. At this time, the bottom of the closing cylinder holds down the copper-colored pin on the closing signal valve. Then put a to-be-fed aerosol can at the can location just under the closing end (Note: It is better that the aerosol can has been closed in order to ensure accurate location). Loosen the screw on the lead

screw behind the bed-plate and the locating screw of bed-plate and column. Rotate the column lifting handle to adjust the height of the bed-plate so that the closing end descends just to hold down the valve of the aerosol valve. Then tighten the screw on the lead screw behind the bed-plate and the locating screw of bed-plate and column. Finally, remount the sealing block outside of the closing end (Note: The length of four lead screws on the sealing block shall be equal in order to ensure the block moves coaxially with the closing end.

(2) Adjust the closing diameter: The closing diameter may be adjusted, if needed, by adjusting the closing diameter adjuster on the top of the closing machine and screwing off the nut on the adjuster. Up-adjustment (by anticlockwise rotation) can increase closing diameter, while down-adjustment (by clockwise rotation) can decrease closing diameter (Note: There is a maximal value of closing diameter when adjusted. The closing diameter never increases if beyond the maximal value. It is inappropriate for the claw support to stretch out the closing claw; otherwise, the valve may be damaged). After adjustment, screw down the nut.

2. Operation

(1) Turn on the front hand slide valve both of the gas supply of the host and of the propellant reducing valve, and then put a can with a bag valve

in place at the can location under the closing end. Turn on the switch, press the foot valve slightly and the filling machine begins closing and filling. After that, remove the can.

(2) If an accident happens during operation, e.g. the closing machine is pressed down but not returns home due to inaccurate can location, etc., press the RESET button.

(3) In the course of operation, take a close look at the pressure gages on the operator panel of the host. The left-side one shows the pressure of compressed air that has been adjusted by the gas supply reducing valve of the host. It is aligned with the indication on the pressure gage of the gas supply triple of the host, usually 0.4-0.7MPa; the other one shows the pressure of compressed air that is fed into the bag can, usually approximately 0.6MPa. If the pressure is abnormal, stop operation and find out the cause in order to avoid inaccurate measurement or equipment shutdown. NEVER exceed the rated pressure during operation.

Liquid filling machine

1. Debugging

(1) Adjust height of the bed-plate of the host. First turn on the hand slide valve in front of the gas supply to the host so that this unit is in the reset state. Put at the locating screw under the filling end an aerosol can that has been closed, screw off the fastening screw of bed-plate and

column, and adjust bed-plate height, so that the filling nozzle is about 1cm over the nozzle of the aerosol can valve. Finally, screw down the fastening screw of bed-plate and column. (Note: When adjusting the bed-plate height, ensure the filling end is pressed down during filling, the filling nozzle can completely hold down the valve element of the aerosol can and the filling nozzle can compress upwards to push open the valve in the filling end, so that filling can be made. Otherwise, filling is impossible when the valve in the filling end is not pushed open.

(2) Adjust the locating screw of aerosol can. After bed-plate height is adjusted, turn off the hand slide valve in front of the gas supply. At this time, the filling end can move up and down. Put under the filling end an aerosol can that has been closed, press the filling end manually to hold down the aerosol can, keep the aerosol can where it is located, screw off the nut on the locating screw, adjust the stretched length of the adjusting screw to make it just against the can wall, and then tighten the nut.

(3) Adjust volume. The height of the locating piston of the metering cylinder can be adjusted by rotating the knob on the top of the metering cylinder in order to change the size of fill by changing the travel of the metering cylinder piston. (Note: Before adjustment, it is a must to turn off the hand slide valve in front of the gas supply to the host and wait until the compressed air in the equipment is emptied. Otherwise, the knob can't

be rotated. First, adjust the volume to an approximate level for trial filling and then adjust the volume according to the fill until it is up to the level as needed. It is a good idea to adjust volume from minimum to maximum. If adjustment is from maximum to minimum with a large span, it is likely that the knob can't be rotated continuously after a distance adjusted. In this case, push the filling nozzle of the filling end upwards a bit to discharge a little liquid or remove the copper part of the filling end to discharge the liquid in the cylinder and then continue to adjust it.)

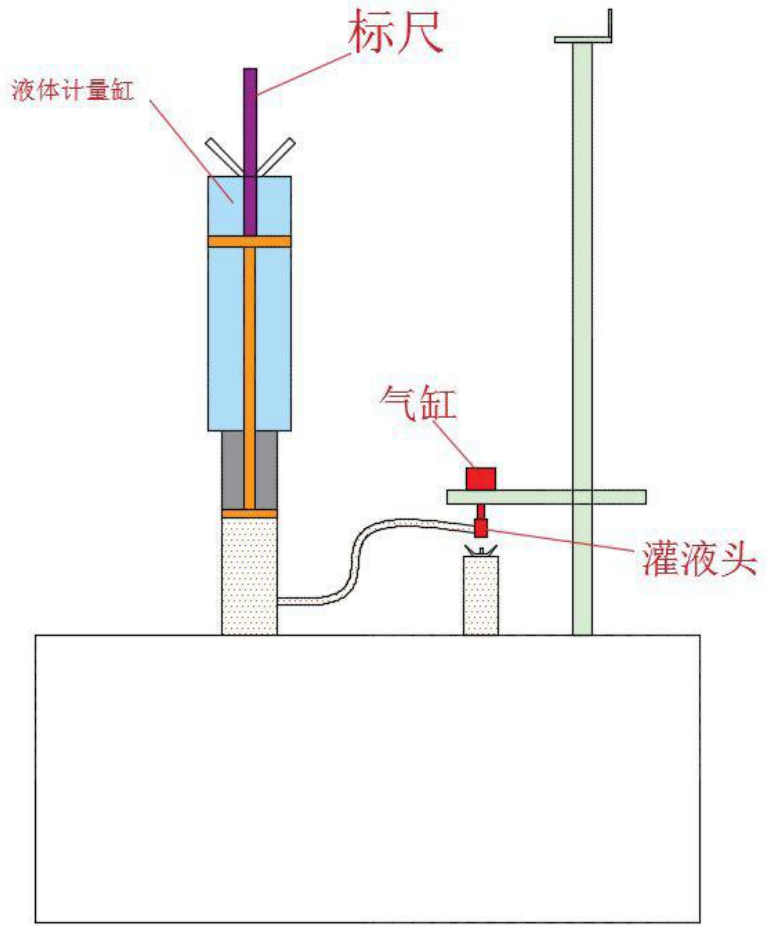
2. Operation

First, put the to-be-fed aerosol can at the can locating screw under the filling end, turn on the switch, press the foot valve and the filling machine starts work. Remove the can after filling. (Note: It is OK to press the foot valve slightly. Never press it heavily or keep on pressing it. DO take or remove the cylinder gently. Otherwise, can location may be inaccurate.)

(1) If an accident happens during operation, press the RESET button and the equipment will return to the reset state.

(2) In the course of operation, take a close look at the pressure gages in the front of the host. The 0-2.5MPa gage shows the pressure of compressed air that has been adjusted by the gas supply reducing valve of

the host. It is aligned with the indication on the pressure gage of the gas supply triple of the host, usually 0.4-0.5MPa; the 0-4MPa one is standby.



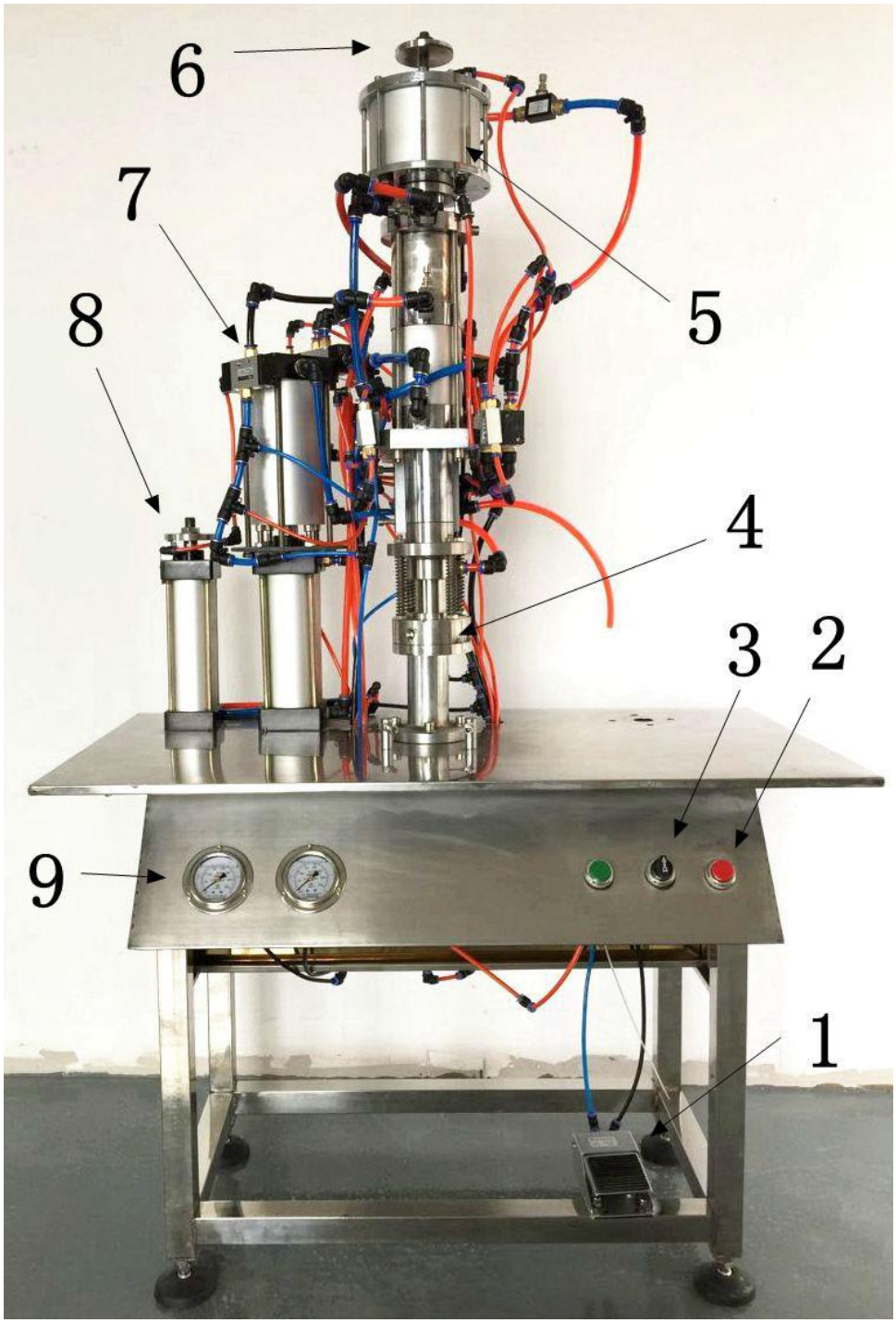
液体计量缸：Liquid metering cylinder

标尺：Scale 气

缸：Cylinder

灌液头：Filling end

As shown in the diagram, volume can be detected from the scale. The fill can be adjusted by the handle. The liquid metering cylinder presses liquid into cans through the filling end.



1. Foot valve; 2. Reset switch; 3. Knob switch; 4. Closing and aerating end; 5. Binary closing machine; 6. Closing diameter adjuster; 7. Vacuum pump; 8. Delay cylinder; 9. Pressure gage

Aerosol Filling Machine

website: www.aerosolfill.com

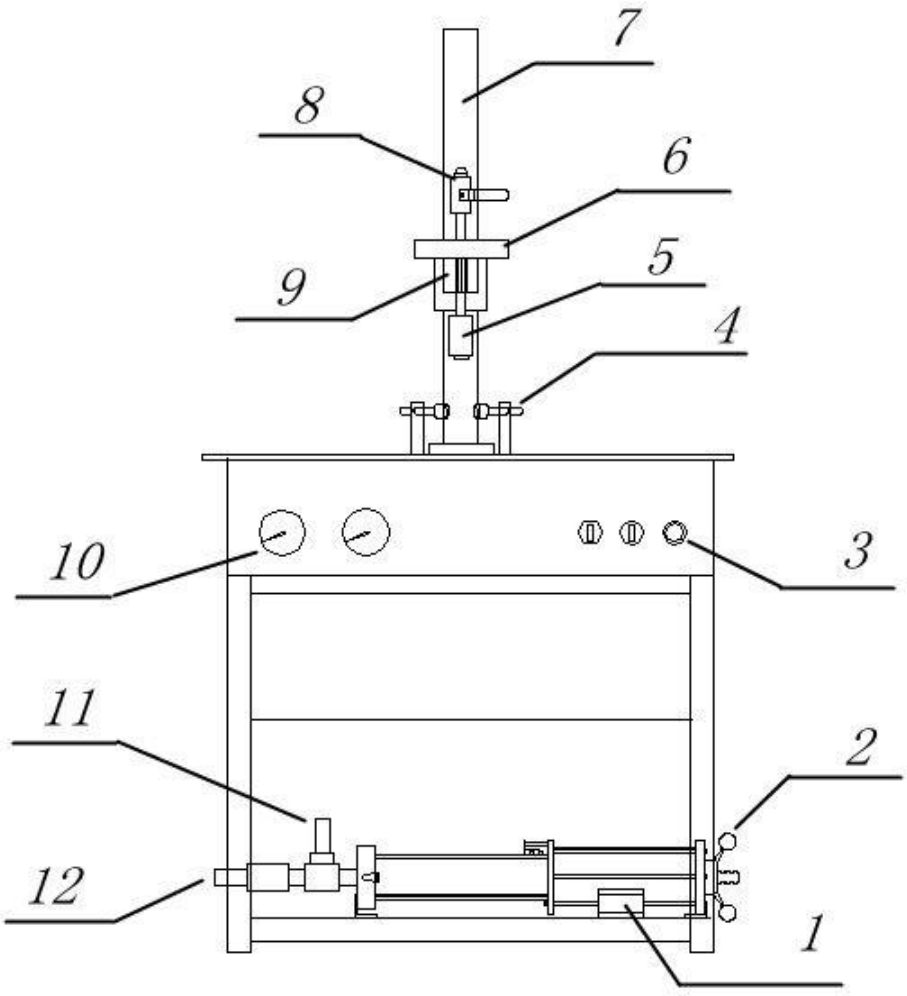


Fig. 1: Structure diagram

1. Foot valve; 2. Metering adjuster; 3. Reset switch; 4. Filling locating screw; 5. Filling end; 6. Bed-plate; 7. Column; 8. Ball

valve; 9. Micro cylinder of filling end; 10. Pressure gage; 11. Outlet of metering cylinder; 12. Inlet of metering cylinder