Horizontal filling machine

Single/Double head liquid filling machine

(Model:G1WY/G2WY)

Contents

1、Principle, technical parameters and performance

1.1 Working principle: This series of filling machines are semi-automatic piston filling machines. The cylinder drives a piston to suck and eject the material. The one-way valve is used to control the material flow. The magnetic switch is used to control the stroke of the cylinder to adjust the filling amount.

1.2 Technical Parameters:

Technical Parameters	content	Parameters		
	Voltage	220V/50Hz（ ） 110V/60Hz（ ）		
	current	1A		
	power	10W		
	Rated air pressure	0.4-0.6MPa		
	Filling speed	Single head 10-30 bottles per minute Double head 20-60 bottles per minute		
	Filling accuracy	±0.5 % -±1%		
Filling range	Equipment abbreviated model	Filling range (ml)	Optimal filling range (ml)	Model of the machine
	100 型	2-130	10-100	
	300 型	5-320	30-300	
	500 型	10-540	50-500	
	1000 型	80-1100	100-1000	
	3000 型	300-3500	500-3000	
	5000 型	1500-5200	1000-5000	

1.3 Performance: The semi-automatic piston filling machine produced by our company is based on the company's filling machine series, introducing foreign advanced filling machine technology, and carried out a series of transformations and innovations. Its structure is simpler and more reasonable. Higher accuracy, easier cleaning, and easier operation. The contact areas with the material are made of 304 stainless steel, which meets the requirements of GMP. The sealing parts are made of PTFE and silicone materials. They have corrosion resistance, aging resistance, high temperature resistance, and sealing. Good and other advantages, ideal for filling equipment in food, pharmaceutical, chemical, daily chemical, oil, pesticide and other industries。

2、Cautions and factors affected by work

Safety Precautions: This series of filling machine is only suitable for filling liquid, low concentration paste can not be used for other purposes.

To ensure safe production, please read the following precautions carefully:

1. Use a power supply and air source that conforms to the requirements of this machine (see the technical parameters of the machine in this book for details). The stability of the air source must be maintained under continuous working conditions.
2. Before disassembling, washing or repairing this machine, please be sure to turn off the air source and power supply first.
3. The rear half of the machine (near the control buttons) and the lower part of the machine frame are equipped with electrical control components. Under no circumstances should the body be washed directly with water, otherwise there will be danger of electric shock and damage to the electrical control components.
4. After the power switch is turned off, there is still voltage in some circuits in the electrical control of this machine. When repairing the control circuit, please be sure to unplug the power cord.
5. Do not keep your eyes close to the filling head during work, pay attention to personal safety.
6. Do not put your hand on the central axis of the cylinder during the work process, pay attention to pinching your hands.
7. Before using materials for filling, it is best to clean the machine with detergent first, and then clean it with clean water, so as to avoid oil stains or foreign materials and materials mixing, which will lead to waste of materials and damage to the machine.

Cover the hopper of the paste filling machine when it is not working to prevent dust or other debris from entering the hopper, resulting in wasted materials and damage to the machine.

Affected by the following factors at work

1. The factors that affect the filling accuracy are: the stability of the compressed air, the uniformity of the material, the filling speed, etc.

2. The factors that affect the filling speed are: the viscosity of the material, the stroke of the cylinder, the size of the cylinder, the size of the discharge nozzle, the proficiency of the operator, etc.

3. This machine has two methods, foot switch filling and continuous automatic filling; the two filling methods can be switched arbitrarily. It is recommended to use the foot switch for filling at the beginning.

3、Installation and commissioning: liquid filling machine

(Reference diagram)

Filling machine

1、1、Install the three-way control valve (1), install the three-way inlet connector (2), and then connect the feed hose to the connector (the three-way clamp and the hose buckle must be locked);

2、Adjust the height of the filling head (18) according to the height of the items to be filled;

3、 Confirm the position of the movable (4) and fixed (5) magnetic switches on the cylinder (the position of the cylinder magnetic switch (5) is fixed and cannot be moved).

4、 Insert the feed hose (3) into the storage bucket or connect to the storage bucket. (Before using the material filling, it is best to first clean the machine with cleaning detergent, and then clean it with water, so as to avoid oil contamination or foreign matter and material mixing, resulting in wasted materials and damage to the machine);

5、 Plug in the power cord (6) and turn on the power switch . (No such step for explosion-proof filling machine);

6、 Connect the inlet air pipe to the air source and quickly pass (8) to the air source, turn on the air source switch (9), push the air source switch is on, and pull out the air source switch is off. The pressure can be adjusted by pulling out the upper part of the pressure regulating filter (29) and fixing the pressure according to the carry;

7、Switch the working mode of the selection switch (10) to "electric";

8、Electric foot switch until material flows out of the filling head;

9、Rotate the filling machine speed adjustment throttle (12) and the filling interval adjustment throttle (13) to adjust the appropriate pumping speed to adjust the throttle (12) slowly (do not make the filling There are materials or bubbles flushing out of the bottle during the process).

10、According to your filling needs, adjust the position of the movable magnetic switch (4) on the cylinder through the hand wheel (14) on the right side of the filling machine to determine the required filling amount. After the filling amount is determined, the movable magnetic switch (4) on the cylinder is locked and the filling is officially started. (The farther the moving magnetic switch (4) and the fixed magnetic switch (5) are from each other, the larger the filling volume, and the smaller the filling volume);

11、After skilled operation, you can switch the working mode to "Auto".

4、Filling machine speed, accuracy and adjustment

Filling speed and adjustment

The filling speed is determined by the following 5 factors:

1、Suction speed: Depending on the viscosity of the product, the length of the liquid suction tube (3).

2、Filling speed: It depends on the size of the replaceable nozzle (19) of the filling head, and the filling speed is fast if the diameter is large;

3、Bubble speed of the product: The filling speed of the product with high foam should be slowed down;

4、How much is the filling amount: the slower the filling amount is;

5、Filling accuracy: the higher the accuracy requirement, the slower the filling speed;

The adjustment operation is as follows: loosen the lock nut of the filling speed adjustment throttle (12) and the filling interval adjustment throttle (13);

1、Twist the handle of the filling speed adjustment throttle (12) clockwise to slow down the forward speed of the cylinder and slow down the loading speed;

2、Turn the handle of the throttle (12) counterclockwise to adjust the speed of the throttle valve (12).

3、Turn the handle of the throttle (13) clockwise to adjust the filling interval clockwise to slow down the cylinder's backward speed and the suction speed.

4、Turn the handle of the throttle (13) counterclockwise to adjust the filling interval to widen the speed of the cylinder and speed up the suction speed.

Filling accuracy and adjustment

Liquid filling machine

1、 The filling error of the liquid filling machine is mainly caused by the filling volume, filling speed, three-way control valve (1) opening and closing valve speed, filling head (18) opening and closing valve speed, and cylinder piston (23) Or the silicone O-ring (24) on the piston and the air in the feeding hose;

2、The switching speed of the three-way control valve (1) and the filling head (18) is related to the viscosity of the product. The higher the viscosity, the slower the valve opens and closes;

3、 Adjust the three-way control valve (1) The switching speed of the valve mainly adjusts the spring pressure in the valve. As the spring pressure increases, the valve opens and closes faster. Adjust the spring pressure in the three-way control valve (1) and the experience of the operator to determine the filling measurement;

4、The opening and closing speeds of the two three-way valves (1) of the double-head liquid filling machine are not necessarily the same. It is determined according to the experience of the on-site production and operators;

5、The speed of the upper and lower valve switches of the two filling heads (18) of the double-head liquid filling machine mainly adjusts the two throttle valves (21) on the thin cylinder (20) on the filling head;

6、The speed of the upper and lower valve opening and closing of the two slap filling head (18) of the double-head liquid filling machine is not necessarily the same, which is determined according to the experience of the field production and operator;

7、The filling accuracy mainly depends on the wear of the cylinder piston (23) or the silicone O-ring (24) on the piston, as well as the wear of all the O-rings and all flat seals on it;

8、Minimize the air in the feeding leather tube as much as possible.

5、Point and automatic operation

The jog and automatic selection switch (10) is mainly set for debugging or measurement. Whenever the new machine is commissioned, or the product is changed, or the filling volume is changed, or the equipment is cleaned, it is recommended to use the jog gear to debug. When the commissioning is completed and the product filling volume is normal, the automatic gear works. You can switch between jog and automatic without shutting down.

6、Use of emergency stop switch

The safety switch is also called emergency stop switch (25). In normal work, the safety switch is turned off. When the material is lost due to improper operation, the safety switch can be pressed to avoid material waste and keep the workshop clean.

7、Daily maintenance1.

1、In order to keep the fuse tube frame (27) smooth and clean, do not scrape its surface with sharp or hard sharp tools. If there is any stain, wipe it with alcohol;

2、The cylinder (26) has been lubricated at the factory. Do not disassemble the cylinder or add any lubricant.

3、Stainless steel tee (1), material tank (22), filling head (18), O-ring, seal ring, etc. can be easily removed and washed.

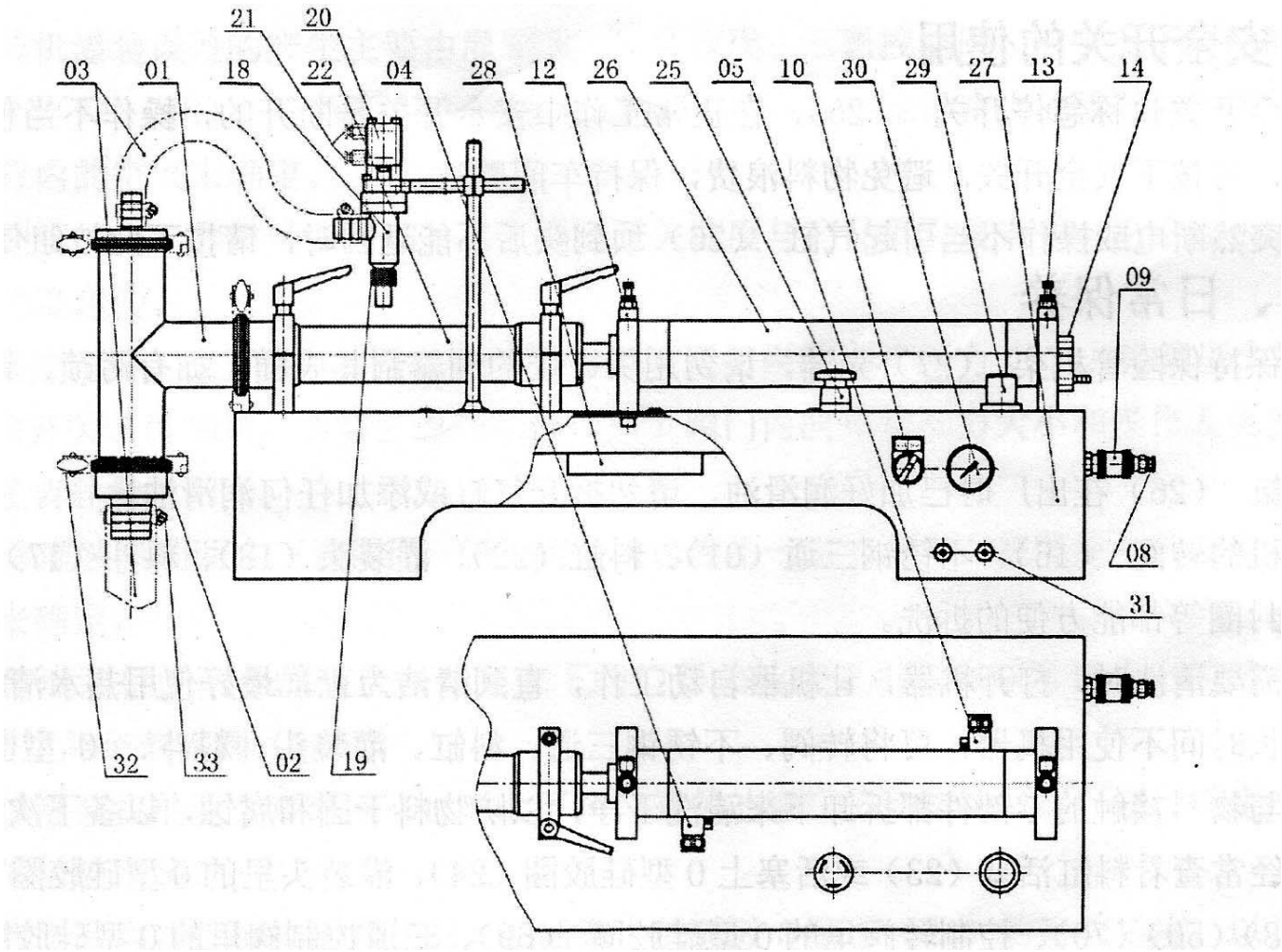
4、When cleaning is needed, turn on the machine and let the machine work automatically until cleaning. It is best to use hot water for cleaning.

5、If the machine is not used for a long time, the stainless steel tee, material tank, filling head, O-ring, sealing ring and other parts in contact with the material can be removed and cleaned to prevent the material from drying and corrosion. For future use.

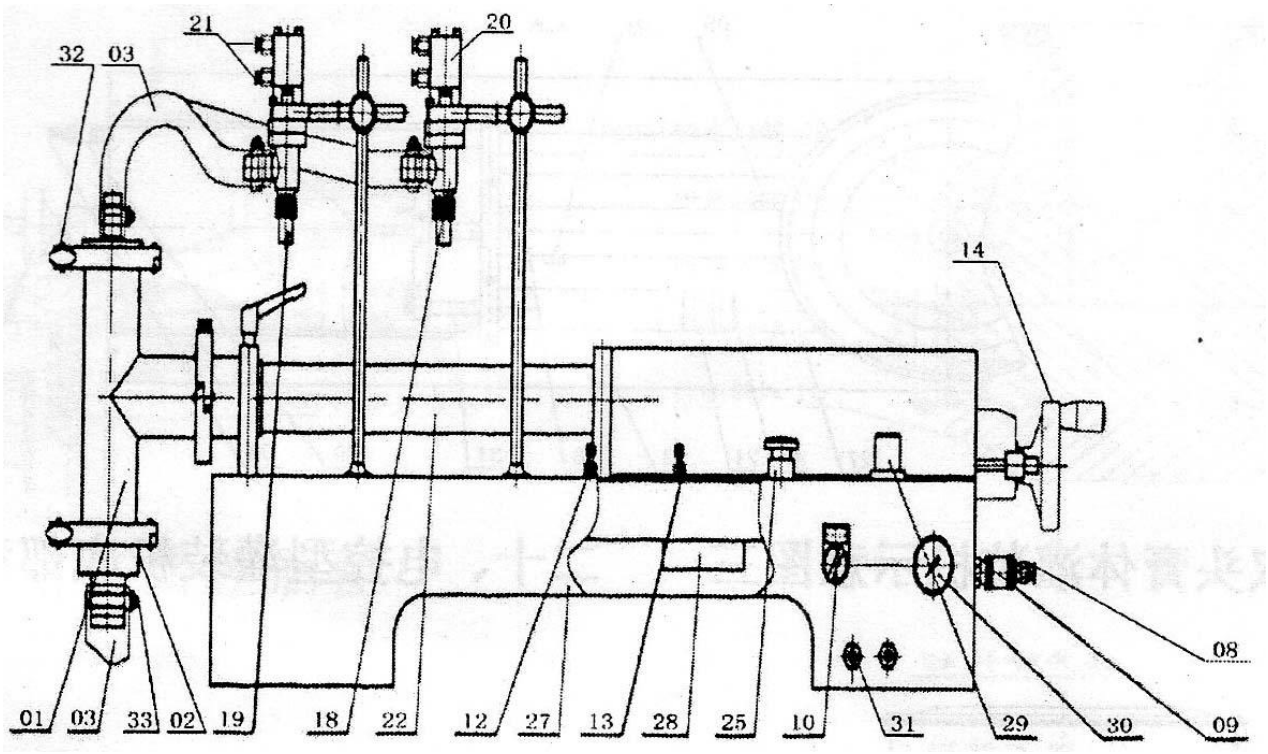
8、Filling machine schematic part name

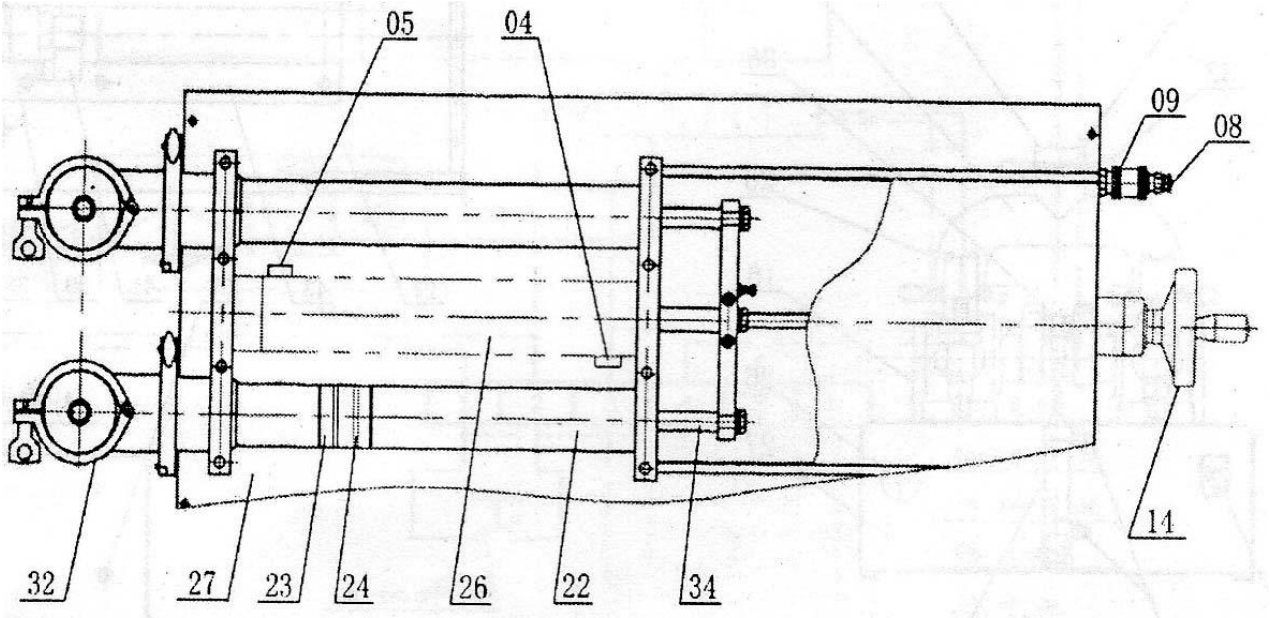
(1) Three-way control valve (2) Feed port connector (3) Leather tube (4) Movable magnetic switch (5) Fixed magnetic switch (6) Power cord (7) Power switch (8) Air source quick-install straight-through socket (9) Air source switch (10) Select switch (12) Canned speed adjustment throttle (13) Canned interval adjustment throttle (14) Handwheel (18) Canned head (19) Replaceable nozzle (20) Thin cylinder (21) Thin cylinder throttle valve (22) Material cylinder (23) Material cylinder piston (24) Piston O-type silicone seal (25) Emergency stop switch (26) Cylinder (27) Frame (28) Two Five-way solenoid valve (29) pressure regulator filter (30) barometer (31) foot switch connection line (32) clamp (33) leather tube buckle (34) piston rod

9、SIngle head filling machine diagram



Double head filling machine diagram





10、Common faults and troubleshooting

Failure phenomenon	Failure analysis	Troubleshooting
Cylinder does not work	1. Confirm that the barometer (30) shows whether the air pressure meets the requirements and whether the air source has entered the machine;	This machine can only be used with air pressure, please refer to the technical parameters of this machine before connecting the air source
	2. Check whether the power switch (7) is on.	Turn on the power switch (not available in explosion-proof filling machines)
	3. Check if the air source switch (9) is on.	Turn on the air source switch
	4. Confirm the position of the fixed magnetic switch (5)	The rear magnetic switch must be fixed at the rear of the cylinder so that the cylinder can work and cannot be moved
	5. Confirm whether the emergency stop switch (25) is pressed.	Turn the emergency stop switch to return it to its original position
	6. Confirm the insurance management (11)	If the fuse is broken, replace it with a new one.
	7. Confirm whether the cylinder piston (23) is stuck.	Replacing the piston
	8. Confirm whether the O-ring silicone ring (24) of the cylinder piston is sticky, which will cause the piston to jam.	Replace O-shaped silicone ring
	9. Check if the position of the movable magnetic switch (4) exceeds the maximum filling amount	Turn the active magnetic switch back
	10. Check if the active magnetic is intact	If damaged, replace it with a new one
Inaccurate or unfilled filling	1. Check if the movable magnetic switch (4) is loose.	The front magnetic switch is locked after each adjustment of the filling volume
	2. Confirm whether the canned speed throttle (12) and the canned interval throttle (13) are closed.	Throttle valve cannot be closed
	3. Check if the filling speed is too fast	Adjust the canning speed by adjusting the throttle valve (12) to reduce the canning speed
	4. Confirm if there is any foreign matter in the quick-install three-way control valve (1) or control rotary valve (16)	If necessary

Failure phenomenon	Failure analysis	Troubleshooting
	5.Make sure that all clamps, hose clamps, air pipe joints, etc. are properly sealed.	Everything must be locked and sealed so that no air leaks can occur. If the flat silicone seal of the clamp is damaged, it needs to be updated
	6. Check if the air pressure is stable	When the air pressure cannot be high or low, it must be consistent
	7.Confirm whether there is enough material in the storage bucket or hopper	Materials cannot be more or less, must be consistent