Single-Head Paste/Liquid Filling Machine

Model: G1WGD-500

Operational Manual

SEMI-AUTOMATIC PISTON FILLING MACHINE

Operational Manual

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1. Principle and Property

a) **Principle:** G1WGD series filling machines are of semi-auto piston type. The material in the hopper is sucked into the machine and pumped out by an air cylinder. The move direction of the air cylinder is controlled by a single valve. The filling volume is depended on the stroke of the air cylinder, which is controlled by a magnetic switch.

b) **Property:** G1WGD series single-head paste/liquid filling machines have a simple structure and a high accuracy and is very easy to operate. The main part is 304L stainless steel (316 stainless steel is also for option). The pneumatic parts are of the brand of FESTO, SMC and SHAKO. The sealing parts are made of PTFE or silicone. G1WGD series single-head paste/liquid filling machine is an ideal filling machine for food, pharmaceutical, chemical, cosmetic, oil, pesticide etc.

2. Specifications

Technical Parameters

Items	Parameters	
	S.A.E.	Metric
Air Requirements	58 - 87 PSI	0.4 - 0.6MPa
Filling Speed	0-50Bottles/Min	
Filling Accuracy	≤±0.2%	
Prewired	110±5V, 60Hz	
Power	0.053HP	40W

Filling Results

Model	Filling Range		Preferred Filling Range		The model and number of your machine (√)
	mL	oz	mL	oz	
100	5 - 130	0.17 – 4.4	10 - 100	0.34 - 3.4	
280	10 - 330	0.34 – 11.3	20 - 280	0.68 – 9.6	
500	30 - 550	1.0 – 18.8	50 - 500	1.7 - 17	√
1000	50 - 1000	1.7 – 34	100 - 1000	3.4 - 34	
2000	280 - 2100	9.6 – 71.7	300-2000	10.2 - 68.3	
2800	350 - 3100	11.9 – 105.9	500 - 2800	17 – 95.7	
5000	800 - 5300	27.3 - 181	1000 - 5000	34 – 170.8	

3. Safety Operations

The machine is suitable for filling pasty or liquid substances in foodstuffs, daily-used chemicals and other chemical industries, and cannot be used for other purposes.

To ensure productive safety, pay attention to the following:

a) Power supply is 110±5V, 60Hz and air source is 58 - 87PSI (0.4 - 0.6MPa)
b) Do cut off power supply and air source before disassembling and washing the machine.
c) Electrical control elements are in the rear part (close to the control button) of the machine. Do not wash the outside of the machine with water at any case, otherwise there will be a risk of electric shock or damage to the electrical control components.
d) Ensure the machine is well grounded to prevent electric shock.
e) Ensure the power cable is unplugged when do the troubleshooting of the control circuit. Because there is still some voltage exist in electric circuit after turning off the power switch.

4. Instructions

In the process of operation, the machine is affected by the following factors:

a) Filling accuracy: Compressed air stability, material uniformity and filling speed.
b) Filling speed: Material viscosity, cylinder stroke, cylinder for material size, filling nozzle size and operational skill.
c) The machine has two filling modes——the pedal switch filling and the continuous automatic filling, and these two modes can be switched as desired. To keep the workshop neat and clean, it is recommended to choose the pedal switch filling first, then switch to the auto mode when the operation becomes skillful.

5. Installation and Adjustment

a) Mount *Hopper* (Fig.1-13) on the top of *Valve Body* (Fig.1- 11) and then lock the connecting part with anchor ears.
b) Lock the connecting part with the anchor ears.
c) Confirm the signal valve position (by the hand wheel adjustment)
d) Turn on *Power Switch* (Fig.3-24).

e) Open *Air Source* (Fig.1-2) (a sliding valve).

f) Put the working mode to *Selection Switch* (Fig.1-5) to “pedal”.

g) Jog the pedal switch till the material flows out of *Filling Nozzle* (Fig.1-12).

h) Adjust *Throttle valve 1* (Fig.2) and *Throttle valve 2* (Fig.2) to obtain a proper pumping speed and filling speed. To improve working efficiency, you can quicken the pumping speed and slow down the filling speed. But if the filling speed is too fast, the filling material or gas bubble may rush out of the bottle and affect filling quality.

i) Measure the filling amount and adjust the filling amount to the set value.

j) Take down the values on the counter and the filling amount you set for convenience of the next setting. Then begin formal filling.

k) After the operation becomes skillful, switch the working mode to “Auto”.

6. Maintenance

a) The machine body is made of stainless steel. Do not scrape its surface with any sharp or hard objects. Alcohol can be used for washing its surface stains.

b) Cylinder has been added lubricants at the factory, do not disassemble the cylinder or add any lubricating oil.

c) The valve body, rotary valves, charging basket, U-shaped three-way joint and cylinder for material can be disassembled for cleaning.

7. Filling Speed

The filling speed is decided by the following 5 factors:

a) Sucking speed. Which is decided by the material viscosity and the rotary valve size. (A standard rotary valve is provided on the machine.)

b) Filling nozzle size. Larger nozzle size will make the filling speed faster.

c) Product foaming speed. The filling speed of high foaming product should be slowed down.

d) Filling amount. Bigger filling amount will make the filling speed slower.

e) Filling accuracy. Higher filling accuracy will make the filling speed slower.

The filling speed can be adjusted by turning the nuts of *Throttle valve 1* and *Throttle valve 2* (Fig.2)

a) Turn *Throttle valve 1* (Fig.2) handle clockwise to slow down the cylinder forward travel speed and the charging speed.

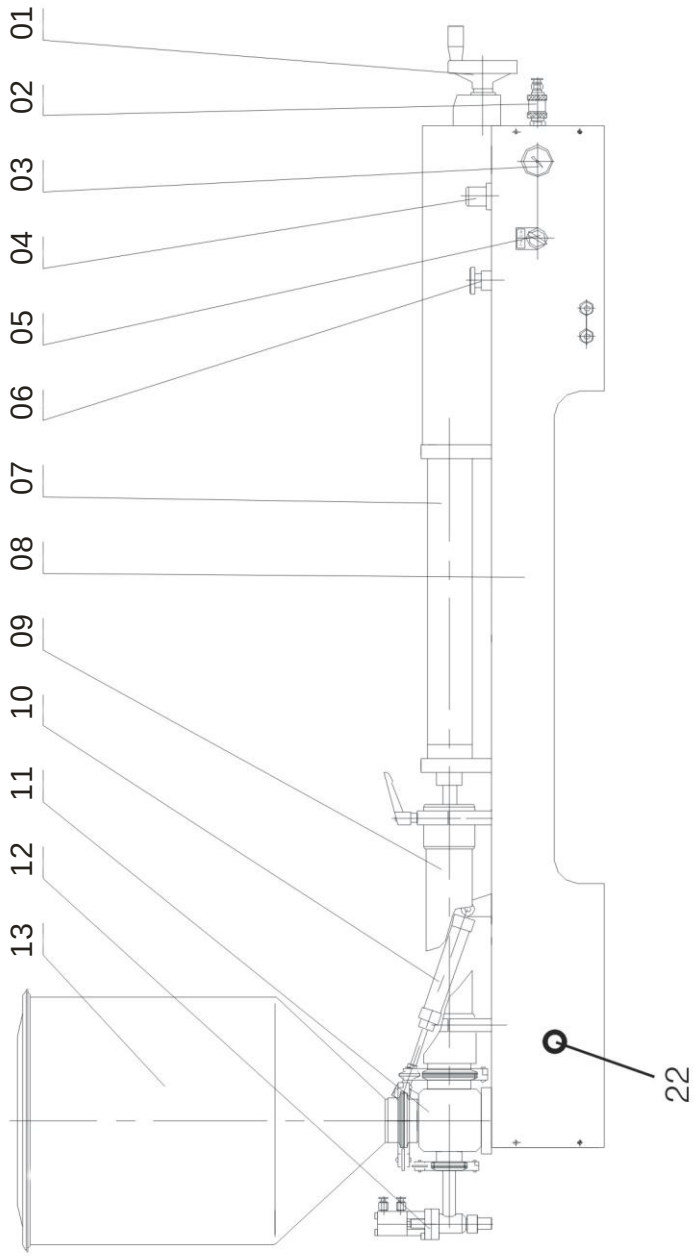
b) Turn *Throttle valve 1* (Fig.2) handle counterclockwise to speed up the cylinder forward travel speed and the charging speed.

c) Turn *Throttle valve 2* (Fig.2) handle clockwise to slow down the cylinder withdrawal speed and the material-sucking speed.

d) Turn *Throttle valve 2* (Fig.2) handle counterclockwise to speed up the cylinder withdrawal speed and the material-sucking speed.

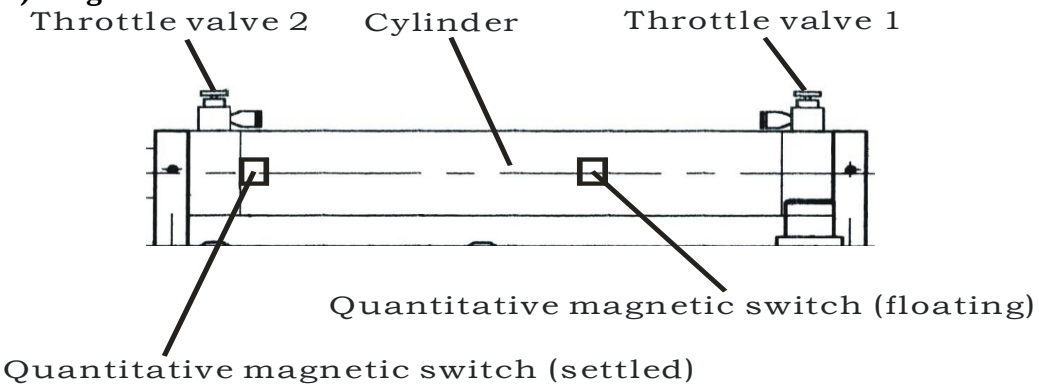
8. Fig. 1, 2, 3

a) Fig. 1

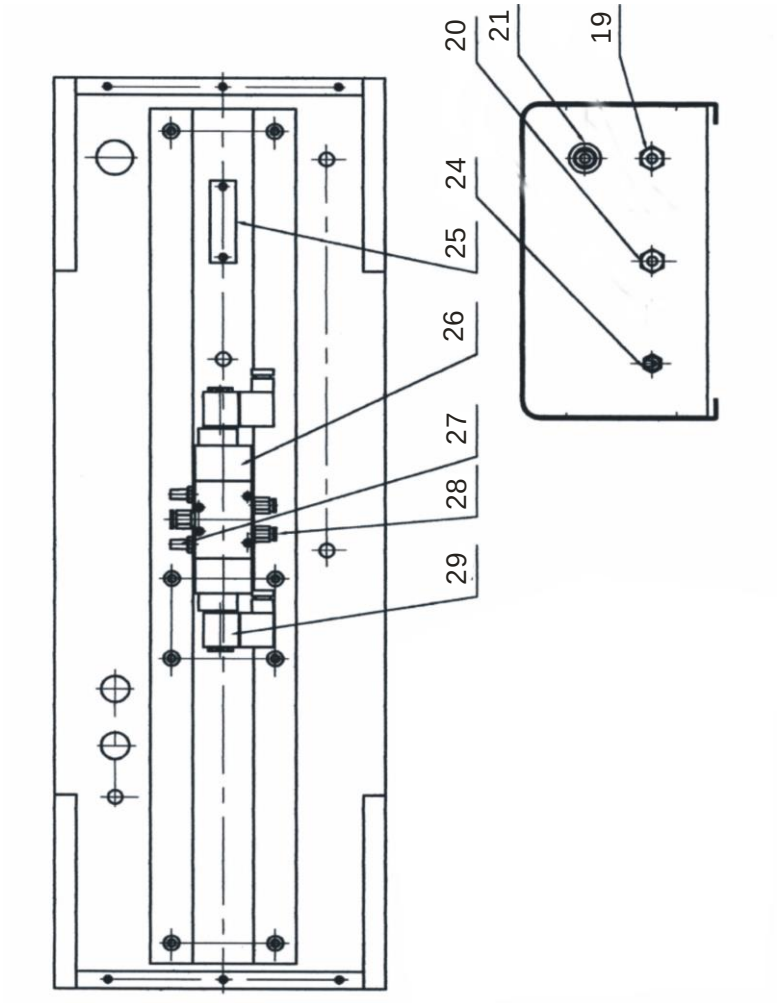


1 - Hand Wheel; 2 - Air Source Switch; 3 - Plate-type Manometer; 4 - Regulating Filter;
5 - Selection Switch; 6 - Reset Switch; 7 – Air Cylinder; 8 - Machine Body;
9 - Cylinder for Material; 10 - Mini-cylinder; 11 - Valve Body; 12 - Filing Nozzle; 13 - Hopper

b) Fig 2

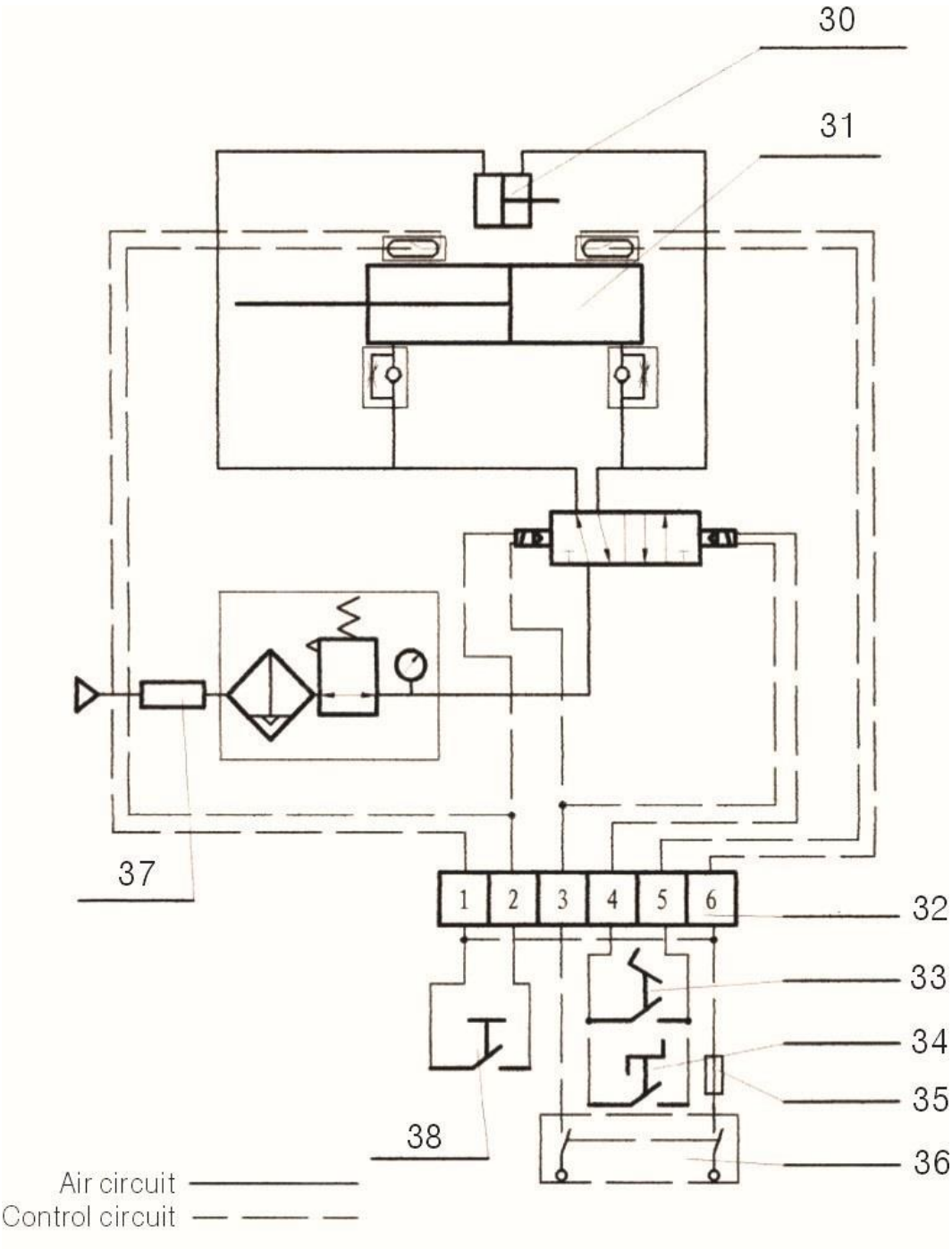


c) Fig. 3



19 - Cable Connector; 20 - Fuse Holder; 21 - Air Source Switch;
22 - Cable Connector (connected to pedal switch); 23 - Crawl Switch（choose）;
24 - Power Switch; 25 – Terminals; 26 - Solenoid (two-position five- way);
27 – Silencer; 28 - Straight Way Valve; 29 - Coil

9. Air Circuit Control Fig.



30 - Cylinder for Material Filling Nozzle; 31 - Cylinder for Material Pushing; 32 – Terminal;
3 - Pedal Switch; 34 - Selection Switch; 35 – Fuse; 36 - Master Switch;
37 - Air Source Switch; 8 - Reset Switch

10. Troubleshooting

Failures	Causes	Elimination
Piston cannot move.	Air supply abnormal.	Make it normal.
	Air Source Switch (Fig1.-02) not turned on.	Turn on the air source switch.
	The signal valve operational position is improper.	Confirm the correct position.
	The pressure of compressed air is too low.	Make the pressure up to the requirement.
	Piston jammed.	Repair it.
	Material viscosity not proper (The machine is only for pasty and liquid packing)	Change the filling material of proper viscosity.
The piston is pushed to the top and cannot return.	The signal valve operational position is improper.	Adjust the valve position by pressing *Reset Button* (Fig1.-06).
Filling amount inaccurate or no material fed.	Signal valve position is moved.	Make the valve position correct
	Material pumping speed of the cylinder too fast.	Reduce the pumping speed. (Only apply to the material with high viscosity)
	One-way valve clogged.	Repair it.
	Material in the charging basket not enough.	Replenish the material.
	Leakage at pipe joints.	Make the joints well sealed.
Material leaks out from the rear of the cylinder for material.	Sealing ring on the piston broken.	Replace it.
	Piston and piston rod loosed.	Fasten them.

11.Packing List

No.	Items		QTY	Specifications	Remarks
1	Main Machine		1	G1WGD1000	
2	Hopper		1	9.25gal (35L)	
3	Technical Document	Instructions	1		
4		Packing List	1		
5		Receiving Apron	1		
6		Product Certificate	1		
7	Accessory	Ring	1	O or XY	Depending on size
8		3-way valve ring	1	Depending on size	
9	Tool	Inner Hexagonal Spanner	1	6 sets	
10		Screw Driver “+”	1	Ordinary	
11		Screw Driver “-”	1	Ordinary	