

# Operation Manual



## Vacuum Packing Machine

CAT 370 550

CAT 370 550GF—Gas Flush Version

Revision 9

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## 1. Use and Characteristics

### Use:

This vacuum packing machine possess the advantages of superior function, easy operation, simple maintenance and extensive application. It applies soft packing materials such as complex film or aluminium foil complex film. It can pack solid, liquid or powder and paste grain, food, fruit, seed, fragrant article, medicine, chemical product, electronic product, precision instrument and meter, rare expensive metal etc. in the vacuum or can fill them with inert gas under vacuum conditions. The products packed by the machine are prevented from oxidization, mildew, moth, rot and damp, and can guarantee quality and freshness so as to prolong the food's storage period.

### Characteristics:

1. This machine is easily used. From pressing the cover of the machine to draw out air, heating the sealing, printing the label, cooling, filling with gas and opening the cover of the machine, the whole course is automatically controlled.
2. The regulating ranges of the sealing temperature and time are very wide so that the machine is able to pack various materials.
3. There is an emergency stop button on the control panel. If the packed items are abnormal during drawing air, you can press the emergency stop button to stop the packing procedure.

## 2. Specifications and technical parameters

### Basic technical parameters

Model	Supply voltage	Power	Dimensions of vacuum chamber (L x W x H)	Sealing size & number	Exhaust volume of pump	Connection Gas Pressure
CAT 370 550	220V	900W	400 x 320 x 60mm	400mm x 2	20 m <sup>3</sup> /h	
CAT 370 550GF	220V	900W	400 x 320 x 60mm	400mm x 2	20 m <sup>3</sup> /h	≤0.2PA

## 3. Control panel



### Setting Up the Control Panel—CAT 370 550

1. Open the lid of the machine to access the control panel.

### 3. Control panel layout CAT 370 550 Continued

2. Turn on the power switch located next to the plug; the pilot lights will turn on.
3. Press the "Vacuum" or "Sealing" button and use the "Increase" or "Decrease" buttons to set the time for drawing air and heat-sealing (e.g., "28" for air drawing and "15" for sealing: 28 seconds for drawing air and 1.5 seconds for sealing).
4. Firmly press down the lid of the machine. Once the vacuum pump starts drawing air, the lid will seal shut automatically. Adjust the degree of vacuum by pressing "Increase" to raise and "Decrease" to lower the vacuum level.
5. The air drawing phase will conclude once the set time is reached.
6. After air drawing, the sealing process will begin. Choose the appropriate heat-sealing temperature for material thickness (low, medium, high) by pressing the "Seal Temperature" setting button. Adjust the sealing time by pressing the "Sealing" button and using "Decrease" and "Increase" buttons. Increase the sealing time gradually to avoid overheating and damage to the sealing parts or packaging materials.
7. The sealing process ends once the set sealing time is complete. The atmosphere will enter the vacuum chamber through the solenoid valve, and the cover will open automatically. The machine is now ready for the next packing cycle.

### 3. Control panel layout CAT 370 550GF

1. Open the cover and turn on the power switch located next to the plug; the pilot lights will turn on.



2. Press the "Vacuum" button. The vacuum arrow indicator light will illuminate. Use the "Increase" or "Decrease" buttons to adjust the required vacuum time according to your needs.
3. Press the "Heat Seal" button once. The inflation arrow indicator light will illuminate. Adjust the inflation time using the "Increase" or "Decrease" buttons. Ensure that the vacuum gauge pointer does not drop below 0.06 MPa during inflation to maintain sealing effectiveness.
4. Press the "Heat Seal" button again. The heat seal arrow indicator light will illuminate. Adjust the sealing time with the "Increase" or "Decrease" buttons based on the thickness and material of the vacuum bag.
5. Press both the "Vacuum" and "Heat Seal" buttons simultaneously. The cooling time indicator light will illuminate. Adjust the cooling time using the "Increase" or "Decrease" buttons (generally, 2.5-3.0 seconds is sufficient).

**Note:** The "Heat Seal" button is used for both inflation and sealing adjustments. When in standby mode, pressing the "Heat Seal" button once will illuminate the inflation arrow indicator light, and pressing it a second time will illuminate the heat seal arrow indicator light.

#### 4. Before Use

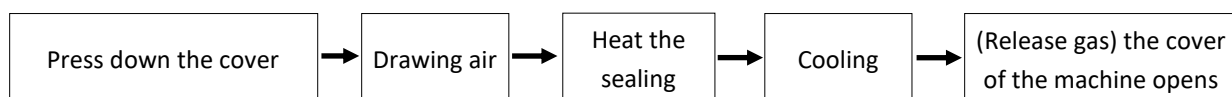
Before operation, you must be well acquainted with the operation and use instructions.

1. You must fill the vacuum pump with NO. 68 Food Grade Oil up to 3/4 height of the oil window before starting the machine. (It is recommended to empty and flush any old oil before adding the NO. 68) At the end of each cycle, the oil level should not be lower than 1/2 height of the oil window. Do not fill with too much oil as to avoid the oil spraying out. The oil pump is located behind the panel in the back of the machine.
2. The machine should be placed horizontally in good ventilation and without corrosive gas and dust.
3. Whether using three-phase four-wire or single-phase power, both should be connected with the protective earth wire separately for safety.
4. Before starting the machine, select the “Seal Temperature”, the sealing time, and the vacuum time to suit your requirements.
5. Plug the machine into power and flip the switch to “ON” and press down the cover of vacuum to start the vacuum pump. If the temperature is low or the lubricating oil in the vacuum pump is thick, then start the vacuum packing machine several times until the lid of the machine is sealed. (Before starting the machine, turn off the “Seal Temperature” setting button to avoid damaging the sealing cloth.)
6. CAT 670 550GF Only—Connect the gas supply to the interface on the left side of the machine. Ensure the gas pressure is  $\leq 0.2$  PA.

If the vacuum pump gives out a lot of noise and the vacuum gage’s pointer does not move, then the vacuum pump’s rotary direction is wrong—the dynamo’s fan should rotate anti-clockwise and the three-phase power should change any two of the three power terminals (single-phase power hasn’t this phenomenon).

#### 5. Operation procedure

1. Plug the machine into power and choose a packing bag to your requirements.
2. Regulate the heat-seal temperature and time, and choose a high or low heat-seal temperature for sealing. Select your “Seal Temperature” and your sealing time. To prevent melting or wrinkling the packaging, and to avoid damaging the Teflon coated fabric (sealing cloth) and other parts, start out with a low temperature and a short sealing time.
3. The vacuum drawing time should correspond to the contents in the packaging and to the value of the vacuum gage. To get the best effect when packaging wet or special products, it is recommended that you prolong the air drawing time after the vacuum degree reaches 0.1Mpa (the longest time is 99 seconds).
4. Place the packing bag in the vacuum chamber, the bag mouth should be placed on the heating frame flatly.
5. After finishing the above, the machine is ready to start. Press down the cover of the machine, and the machine will start automatically.
6. The Vacuum packer will form an airtight seal and draw air for the entered in time.
7. Once the time for the air drawing has ended, the machine will seal the packaging for the entered in time. After the package is sealed, the machine will end the packaging procedure and open the lid, ready for the next item to be packaged.





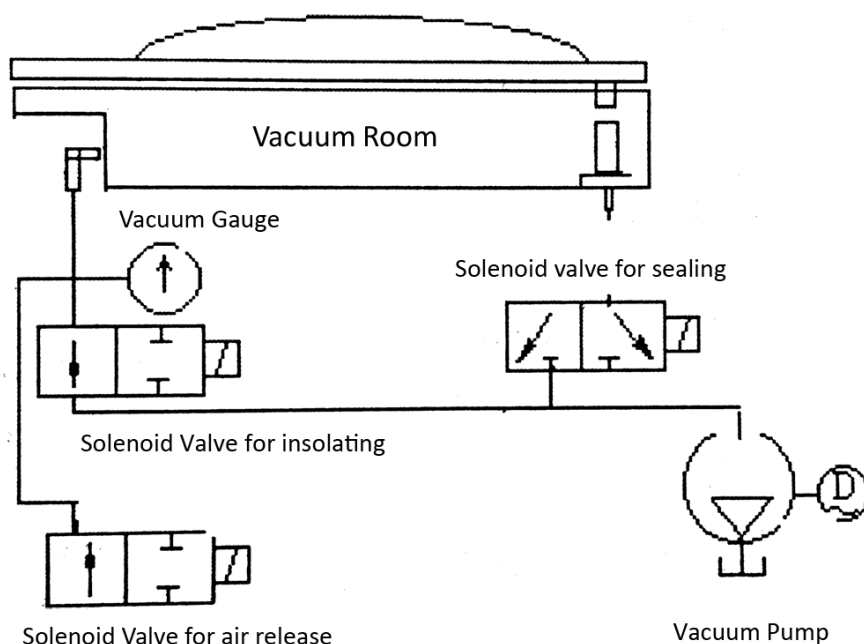
## 6. Other matters

1. One surface of the silicone rubber strip is cross hatch plane and the other surface can be for installing particle and printing label.
2. During work, press the emergency stop button if it is necessary to stop the machine urgently, then the cover of the machine will open automatically.
3. If you are not using the machine, the power (power switch outside of the machine) should be turned off.
4. The external power wire's sectional area should be bigger than the inside wire's sectional area.
5. If elevation above sea level is much higher in the location, than the environmental pressure will be much lower and so the value of the vacuum pressure gage will correspond lower (see table).

Elevation (m) *above sea level*	Atmosphere pressure (kPa)	Degree of vacuum (Mpa)
0	101.33	0.101
200	98.95	0.099
400	96.61	0.097
600	94.32	0.094
800	92.07	0.092
1000	89.47	0.090
2000	79.49	0.079
3000	70.11	0.070
4000	62.31	0.062

If working for over 10 hours a day, or in summer, the vacuum pump will adopt the measure of cooling forcefully out of the machine In order to keep good working state of the vacuum pump.

**Air Drawing (vacuum) system diagram:**



## 7. Breakdown analysis and removal

### 7-1 Breakdown and removal of vacuum system

Breakdown	Reason	Solving method
Vacuum pump can't draw air up to vacuum.	Pump won't start	See Table 7-3 in detail
	The cover of the vacuum room won't close	Press forcefully
	Vacuum time relay is damaged	Replace
	Valve from pump to vacuum room isn't turned on	See Table 7-2 in detail
Vacuum room can't reach the maximum vacuum degree	Pump can't reach the max. vacuum degree	See Table 7-3 in detail
	Pipe is leaking	Replace
	Pipe joint is loose	Tighten
	Small gas cell leaks	
	Seal ring of vacuum room is broken or scraped	Replace
	Upper plane of vacuum room isn't flat	Properly adjust
	Solenoid valve leaks, for instance there is air in the valve of main pipe or the charging valve.	See Table 7-2 in detail
	Time of air drawing is not enough	Prolong
Vacuum room's cover can't be opened so that air can't enter into working room.	Air-bleed solenoid valve isn't turned on	See Table 7-2 in detail
Vacuum room's vacuum degree is normal but air always remain in the bag.	Bad reset of hot seal and too short distance	Repair to reset flexibility

### 7-2 Breakdown and removal of solenoid vacuum valve

Breakdown	Reason	Solving method
The sealing is bad	Dirt is enclosed in sealing area	Remove
	Sealing surface is damaged	Repair or replace
	Rubber fittings for sealing are damaged	Replace
Starting and stopping are inflexible or incapable	Wire contact is poor	
	Fuse is burned out	Replace
	Silicon commutation diode is punctured	Replace
	Winding is burned out	Replace
	Armature elevating part has dirt	Replace
	Rusty or broken spring caused block	Replace
	Voltage is too low	

## 7. Breakdown analysis and removal Continued

### 7-3 Breakdown and removal of single stage rotary sheet vacuum pump

Breakdown	Reason	Solving method
Pump can't reach the stipulated max. vacuum	Lubricant oil goes bad	Re-measure max. vacuum after replacing oil
	Oil in tank isn't enough	Add oil to the stipulated oil level
	Oil pipe leaks	Replace or reassemble oil pipe
	Sealing of aspiring pipe is poor	Check on the sealing condition of pipe and connecting position for getting rid of leakage
	Air-in valve sheet is jammed	Check up if the air-in valve's action is flexible
	Oil sealing leaks	Replace the oil sealing
	Vane is distorted and the slide isn't smooth	Replace vane
	Worn-and-torn inside	Repair the worn position or re-adjust
Pump can't start	Insufficient voltage or burned fuse	Check on voltage on fuse
	Pump or motor is jammed	Remove fan cover, try to turn the motor with a hand, then find out the reason of jamming
Pump's starting current or work current is too high	Pump oil is too full or the brand is wrong	Check on oil level and brand
	Lower temperature is causing too high viscosity of lubricating oil	Replace with oil of lower viscosity. Start after preheating oil when environmental temperature is lower than 5°C
	Exhaustion filter is blocked	Clean or change filter
The temperature is too high when pump runs	Pump oil is too full or too little	Check on and adjust oil level
	Heat radiation is poor	Clean the radiating fins of pump and motor to improve the ventilation situation
Pump is jammed when running	Running under wrong direction for a long time	Correct the turning direction and do an overall check-up of pump at the same time
	Friction surface is lacking of oil	Dredge oil pipe and check up gap to find out the reason of lacking oil
Abnormal noise when the pump runs	Driving parts are seriously worn or loose	Find out the trouble position and repair in time
Air vent smokes or vents oil drop	Pump oil is too full	Discharge redundant oil
	The installation position of exhaust filter isn't correct or the material breaks	Reassemble or change the exhaust filter
	Exhaust filter is blocked	Clean or change filter



## 7. Breakdown analysis and removal Continued

### 7-4 Breakdown and removal of heat seal device

Breakdown	Reason	Solving method
Incapable of sealing	Heat-seal choice switch isn't turned up to the suitable position	
	Heat-seal fuse is burned badly	Replace
	Electrothermal belt is broken	Replace
	Electrothermal belt is in short circuit	
	Sealing contractor has broken down	
	Solenoid valve of small gas cell doesn't act	See Table 7-2
	Heat-seal strip is jammed and can't move	
The lines at the sealing of the package is not even	Electrothermal belt is loose	Tighten belt
The sealing of package is not flat	Heat-seal pressure isn't enough	
	The cooling time is too short	Prolong time
The sealing isn't firm	The sealing isn't clean	
	The sealing time isn't suitable	
	Heat-seal voltage is selected unsuitably	
	The voltage of network changes	
	Heat-seal pressure isn't enough: (1) Too long aeration time makes the pressure in vacuum room too high	Adjust See Table 7-2
	(2) Heat-seal strip is jammed or can't move flexibly. (3) The valve of small gas cell can't be turned on flexibly. (4) Small gas cell or its pipeline leaks. The coating fibre of Teflon is coked or broken.	Replace
	The packing quality is bad	
The package explodes when air is drawn up to vacuum.	Bad reset of heat-seal strip and short distance cause non-smooth air exhaust so as to produce pressure in package.	Make the reset flexible through repair

Note:

- 1) These instructions are only for reference. If any unconformity, please contact the technical department of our company.
- 2) There are no additional instructions for special different mechanisms in the above-mentioned models.
- 3) There is no additional notification for improved design

## 8. Spare Parts List

Part number	Description	Quantity
370-500-68	Vacuum Pump Oil /5lit	5 litres
370 DZ400 1001	Circuit board Main PC Board	1
370 DZ400 1002	Heat Sealing Bar complete	2
370 DZ400 1003	Lid Seal strip / length	1
370 DZ400 1004	Code Silicone Strip	1
370 DZ400 1005	High Temperature Cloth	1
370 DZ400 1006	Airbag	1
370 DZ400 1007	Lid	1
370 DZ400 1008	Switch with Cable	1
370 DZ400 1009	Solenoid Valve	1

## 9. Parts Breakdown

No.	Parts List	Quantity
1	Stainless steel panel	1
2	Vacuum pump	1
3	Electromagnetic Valve	2
4	Filter	1
5	Outer Covering	1
6	Control panel	1
7	Sealing Transformer	1
8	Working Transformer	1
9	Relay	1
10	Breaker	1
11	Inflatable Solenoid Valve	1
12	Power Switch	1
13	Inflatable Controller	1
14	Fan	1
15	Vacuum Cover	1

