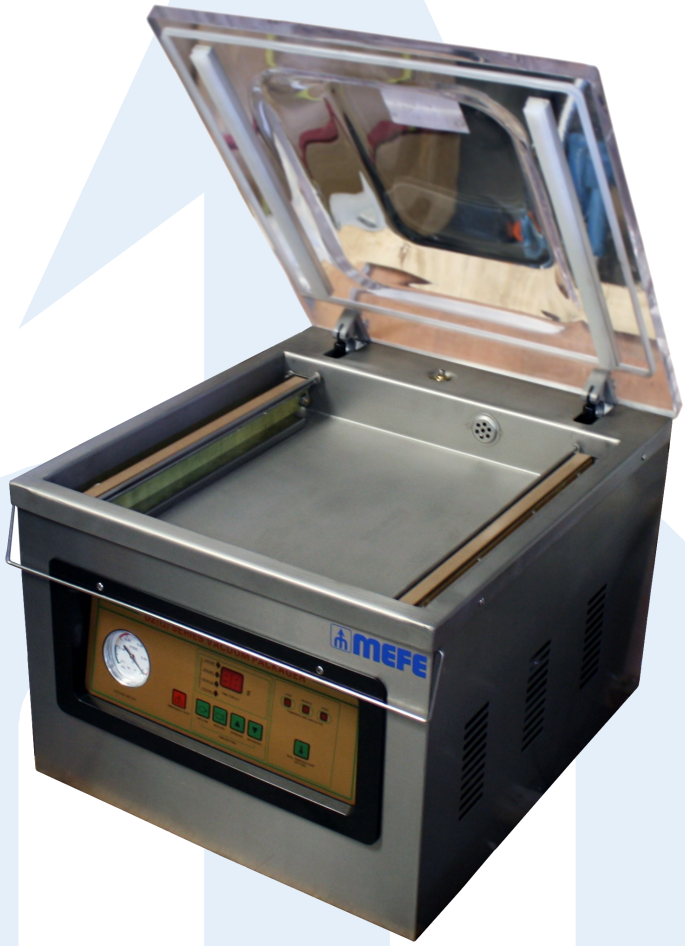
MANUAL

Vacuum Packing Machine



CAT 370 DZ400

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MEFE
MITCHELL ENGINEERING
FOOD EQUIPMENT PTY LTD

MANUAL

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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	Overall dimensions (L x W x H)
CAT 370 DZ400	220V	900W	440 x 425 x 60mm	400mm x2	20 m^3/h	540 x 500 x 395mm

3. Control panel layout

The control panel should be set firstly before starting the machine:

1. Turn on the power switch and the pilot lamp lights. Turn the dials of drawing air and heat-seal to corresponding numbers (for instance: if 2 8 for drawing air and 1 5 for sealing, then the time of drawing air is 28 seconds and that of sealing air is 1.5 seconds).
2. Press down the cover of the machine and once the vacuum pump starts to draw air then the cover of the machine will be absorbed automatically. The dial can control the time of drawing air by regulating the degree of the vacuum according to the packing requirement. Pressing '+' will increase the degree of vacuum and pressing '-' will reduce the degree of vacuum.
3. Once air drawing has reached the set time, the course of air drawing will end.
4. After the completion of air drawing, enter into the procedure of sealing. There are heat-seal time and temperature regulating buttons on the control panel for materials with variating thickness. Regulate the dial, press '+' to raise the temperature and press '-' to reduce the temperature. The sealing temperature should be raised slowly in order to prevent the heat-seal temperature from becoming too high and burning the sealing parts.
5. Sealing ends once it is has reached the set heat-seal temperature. The atmosphere will enter into the vacuum room through the solenoid valve, until the cover of the machine opens automatically. The whole procedure finishes, then the next packing cycle is prepared.

4. Before Use

1. Before operation, you must be well acquainted with the operation and use instructions.
2. You must fill the vacuum pump with HFV-32 high-speed vacuum pump oil or N32 oil up to 3/4 height of the oil window before starting the machine. When rotating, the oil level should not be lower than 1/2 height of the oil window. Do not fill with too much oil to avoid the oil spraying out.
3. The machine should be placed horizontally in good ventilation without corrosive gas and dust.
4. Whether using three-phase four-wire or single-phase power, both should be connected with the protective earth wire separately for safety.
5. Before starting the machine, you should regulate the heat-seal "temperature" choice switch and the "heat-seal" time regulator to a suitable position.
6. Opening the cover button of the machine will make the cover of the machine open automatically, then the machine will start to work.
7. Plug the machine into power 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 cover of the machine is absorbed. (Before starting the machine, turn off the temperature choice switch first to avoid damaging the sealing cloth. After the cover is pressed down and automatically absorbed, the temperature choice function can be recovered). 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 the vacuum packing bag according to requirements.
2. Regulate the heat-seal temperature and time, and choose a high-and-low-gear heat-seal voltage for sealing. The choice of heat-seal time should be slowly from low to high, and it's the best that the sealing is just sealed, not melted and not wrinkled. The amplitude modulation should not be too wide to prevent the temperature from going up too high to avoid burning the Teflon coating fabric (sealing cloth) and other parts.
3. The time of drawing air should be according to the requirements of packing and the value of vacuum gage. When packing wet or other special products, it is required to prolong the drawing time properly after the vacuum degree reaches 0.1Mpa in order to get the best effect (the longest time is 99 seconds), take into consideration according to the practical condition.
4. Put the packing bag into the vacuum chamber, the bag mouth should be placed on the heating frame flatly and pressed with a batten steel wire.
5. After finishing the above, the machine is ready to start work. Press down the cover of the machine, the switch will start automatically, at the same time it will:

a. The dynamo of vacuum pump gets the electricity to work

b. The cover of machine is closed to form an airtight system. The pump's drawing from working room is released, the system produces sub-atmospheric pressure and the relay controlling the drawing time starts to time.

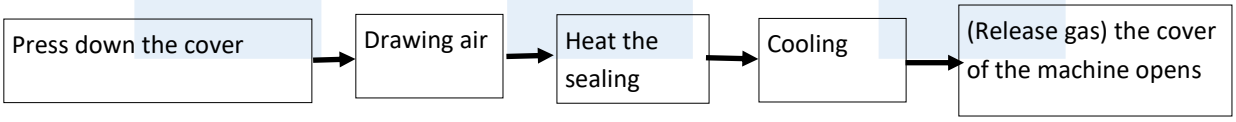
6. When it comes to the set time (or vacuum degree), the time relay gives out a signal, at the same time:

a. The power of the vacuum pump is cut off, the pump stops working and the check valve (or insolating solenoid valve) closes to keep the system's vacuum degree.

b. The time relay is heated to get electricity and put through the heating circuit, the nickel chrome tape gets hot and seals.

c. Solenoid valve for sealing works, the passage between the valve and external space is connected, the atmosphere gets into the gas cell, the gas cell expands to make the heating frame press the bag mouth to seal and stamp date.

7. Once the time relay's work is finished, the circuit of air relief from the solenoid valve is put through, then the solenoid valve gets the electricity, the valve opens and the atmosphere enters into the chamber. The heat-top resets gradually. When the air pressure in the working room and the environmental air pressure are in balance, the cover of the vacuum will open automatically, the limit switch resets and the packing procedure is finished.



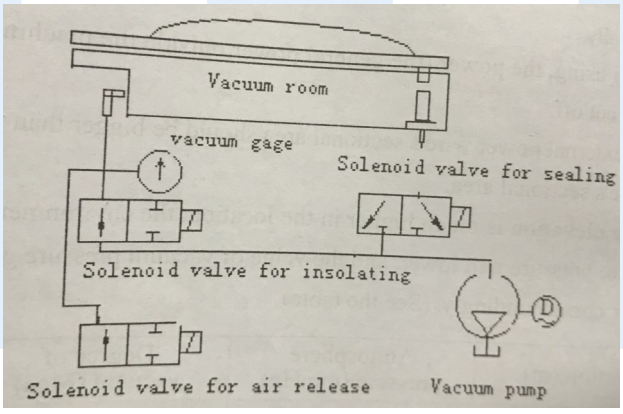
6. Other matters

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 (general power outside of the machine) should be cut 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	101.3	0.101
200	98.95	0.099
400	96.6	0.097
600	94.3	0.094
800	92.1	0.092
1000	89.5	0.090
2000	79.5	0.079
3000	70.1	0.070
4000	62.3	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 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	

7-3 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 tarting 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

7-4 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. Guarantee Card

User's Name				
User's Address				
Tel.				
Postcode				
Seller		Mitchell Engineering Food Equipment Pty Ltd		
Product model		CAT 370 DZ400		
Purchase date			**Invoice No.**	
Repair record	**Date**	**Breakdown**	**Repair condition**	**Repairer**

Note: This guarantee card must be sealed by the selling unit.

There are the following guarantees from the date of purchasing our product:

1. The user must read the installation and operation manual before operation
2. Within the warranty period, any damages caused by the user's operating, using and maintaining the machine not in accordance with the use instructions or privately removing or replacing fittings are not included in the warranty.
3. Warranty period: 1 year from the date of purchase

- Please check that the product model is correct according to invoice and warranty. If any unconformity, please contact us for correction. Please keep the invoice and guarantee card. Invalid if altered privately.