



T A B L E T P R E S S E S

FACF AUTOMATIC CAPSULE FILLER SERIES USER MANUAL

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LFA Machines Oxford LTD

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CONTENTS

Page 1. **Introduction**

Page 2. **Installation**

Page 2. **Operation**

Page 2. Connecting the power supply

Page 2. Select Mode

Page 2. Emergency Button

Page 2. Door Cut-off

Page 2. Motor Speed

Page 2. Powder Feed

Page 3. Changing the mould

Page 3. Operating Adjustments

Page 4. Adjusting the retaining spring

Page 4. Adjusting the vacuum divider

Page 5. Adjusting the powder scraper gap

Page 5. Adjusting the height of the filling rod

Page 6. **Adjusting the drug powder height sensing device**

Page 8. **Adjusting the capsule locking mechanism**

Page 8. **Adjusting the capsule ejection device**

Page 8. **Adjusting the safety clutch**

Page 9. **Adjusting the capsule ejection device**

Page 9. **Adjusting the air pressure**

Page 10. **Maintenance**

Page 10. **Lubrication**

Page 11. **Electrical Diagrams**

CAUTION.

Please read these operating instructions carefully before installation, starting up and repair. Inappropriate operation not recommended in the instructions may damage the machine or cause personal injury.

Introduction

The FACF Series automatic capsule filling machines apply advanced engineering to fill large volumes of capsules with exceptional accuracy and speed. They are characterised by thoughtful design and high quality construction giving unprecedented operator safety and outstanding reliability. Simple controls and an LCD display panel allow for fast operator training, while low maintenance requirements allow for reduced downtime. Together with their high efficiency and accurate dosing this results in reduced cost-per-unit filled and offers an important competitive advantage.

These machines can fill any size hard plastic capsule from 00# to 5#, using powder, grain or pellets.

NOTE: Please read these instructions carefully before first use.

Installation

Install on a level, stable platform able to withstand the machine's weight. If installed on the upper levels of a building, the floor must be able to withstand a force of not less than 1000kg/m². The legs should be wrapped with rubber vibration reduction pieces.

Before use, check that the machine turns smoothly by hand, and lubricate the machine according to the instructions below. Clean the machine thoroughly with alcohol.

NOTE: Check that the main motor rotates clockwise, and that the vacuum motor is rotating in the correct direction. If not, adjust the wiring by swapping over the powers supply wires.

Operation

Connecting the power supply

Check the machine and turn the main motor a couple of times. Then turn on the main power switch, QS. An indicator light will confirm power, and the frequency converter will indicate it is ready.

Note:

Indicator lights

M1 Rotating Motor

M2 Vacuum Pump

M3 Dust Collector

M4 Feeding Motor

Select Mode

The machine can run in Automatic or Manual Mode. Manual is normally used to test the machine, and overrides the opening and closing of the side door or the powder supply sensors. The machine starts in Automatic Mode by default. Operating the Select button will change this to Manual.

Emergency Button

To stop the machine immediately, activate the emergency switch. The machine will lock itself and the computer circuit board will enter standby. To restart, press the large "OFF" button to reset the computer circuit board. Before turning the machine on again, remember to first unlock the emergency switch's auto-lock.

Door Cut-off

The machine cannot operate in Automatic Mode when any one of the four doors is open.

Motor Speed

Press the "^" button to increase speed, and the "v" button to decrease.

Powder Feed

A capacitive sensor and the feeder motor control the powder feeder mechanism. The main motor will stop automatically when powder in the feeder is running out.

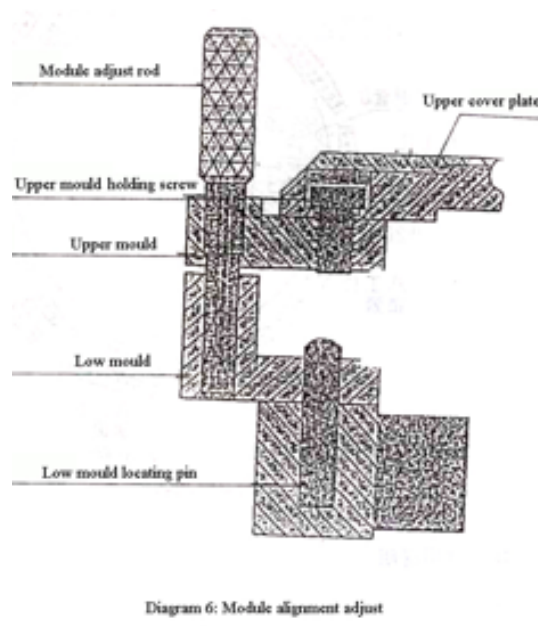
A delay mechanism sets how long the machine keeps running when it detects that the powder compartment is running low. The delay can be adjusted by pressing the "^" "v" button. To avoid empty capsules, the delay should not be allowed to continue after the powder has been used up.

Changing the mould

The filling specification can be changed by changing the mould. This involves replacing the upper and lower mould, capsule delivery plate, horizontal fork, vertical fork, adjustment piece, filling rod and dosage measuring compartment.

Remove the upper cover of the rotor, and remove the two halves of the mould by unscrewing and removing the bolts. Put the new mould piece into the T-shaft and secure it between the two locating poles. Each mould must be located accurately by inserting a mould-testing rod into the holes on the left and right outer surface of the mould. Then fasten the screws tightly. Check the testing rod can rotate freely in the holes of the upper and lower mould halves.

Note: The testing rod must be moved before rotating the rotor.

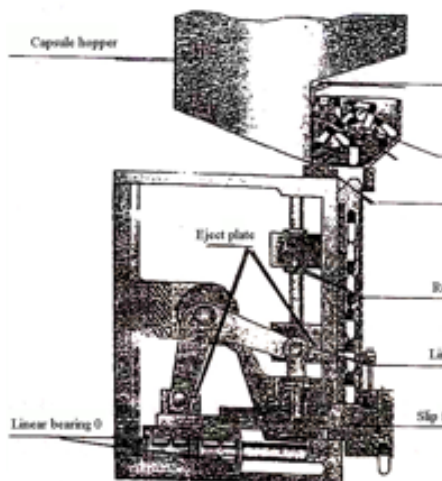


Operating Adjustments

Adjusting the capsule raw material hopper

The fender-board installed on the hopper controls the depth of the material outlet. To adjust it, loosen the screws of the door.

NOTE: The depth of the hopper should be around half the height of the outlet.



Operating Adjustments

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NOTE: The depth of the hopper should be around half the height of the outlet.

Adjusting the retaining spring

The retaining spring opens and closes when a capsule emerges from the capsule feeding plate. To adjust, loosen the screws of the positioning block, then move the positioning plate so that the capsule is captured as shown in the diagram.

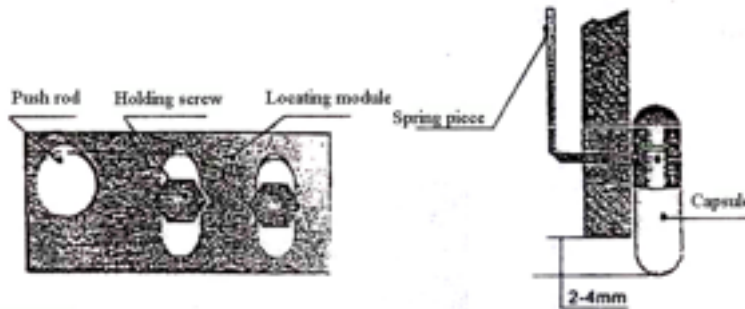


Diagram 14: Locating module

Diagram 15: Spring piece

Adjusting the vacuum divider

When the machine is running the vacuum divider/separator should be in tight contact with the mould plate. If not, adjust it by moving the main motor shaft. The vacuum divider should be raised to the top and the screws on both sides of the machine surface lower bar loosened. Adjust, test, then tighten the screws.

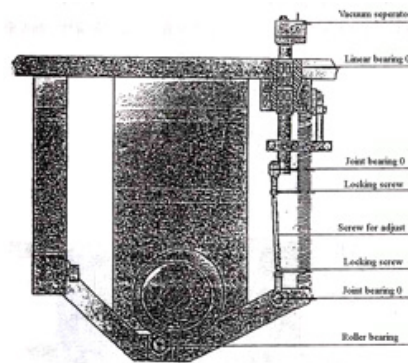


Diagram 16: The height adjust of the vacuum separator

Adjusting the gap between the dosage tray and the sealed ring

The gap between the dosage tray and the sealed ring should be 0.03—0.08mm. If powder is leaking, decrease the gap by loosening the screws and rotating anticlockwise. Then tighten the screws.

If the sealed ring is too high, rotate clockwise to lower it.

There is graduation measure on the knob; one measure moves the sealed ring by 0.015mm.

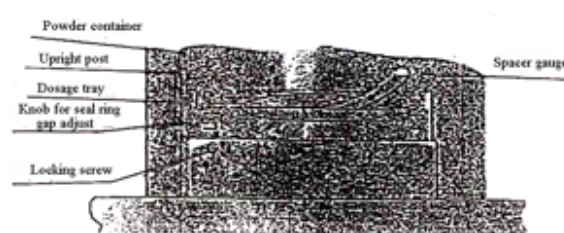


Diagram 17: Gap adjust for seal ring and dosage tray

Adjusting the powder scraper gap

The ideal gap is 0.05—0.1mm. To adjust, loosen the locking nut, rotate the screw to adjust the position of the scraper, use a feeler to determine the gap then fasten the locking nut.

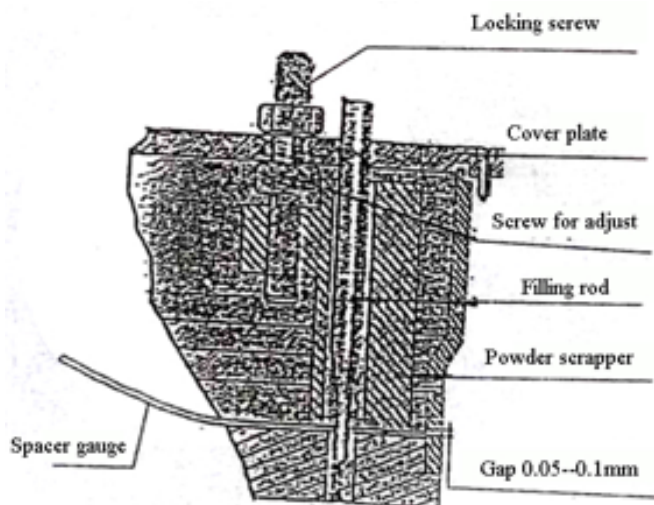


Diagram 18: Gap of the powder scraper and dosage tray

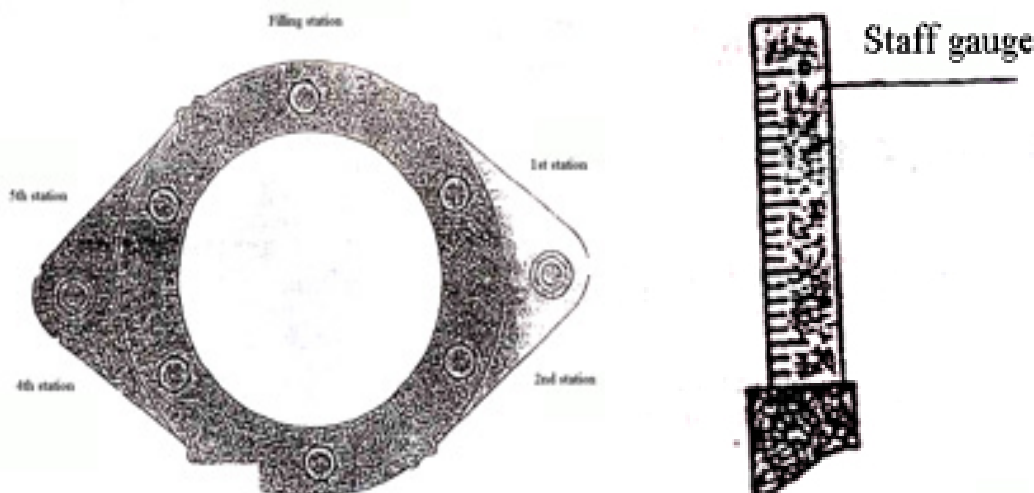
Adjusting the height of the filling rod

Adjusting the height of the filling rod maintains accurate dosage of powder. The table below shows the correct depth it should be inserted into the dosage tray.

NOTE: Do not insert the rod too deep.

Station	1	2	3	4	5
Depth into dosage tray	9	5	3	2	0.5

To raise the filler rod, loosen the nut and rotate anticlockwise. To lower the rod, rotate clockwise. Tighten the nut.



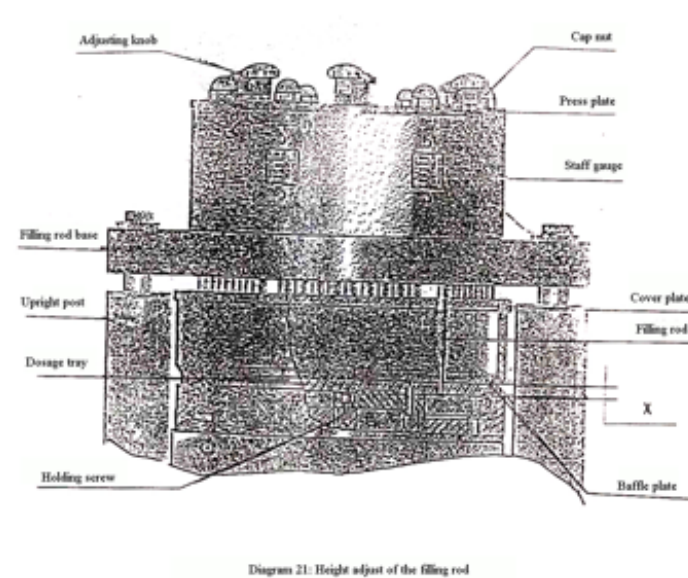


Diagram 21: Height adjust of the filling rod

Adjusting the drug powder height sensing device

A capacitive sensor controls the feeding motor. This may need adjusting when using powder of different fineness or viscosity.

Loosen the screws, adjust and tighten. The distance between the sensor and powder should be 2—8 mm.

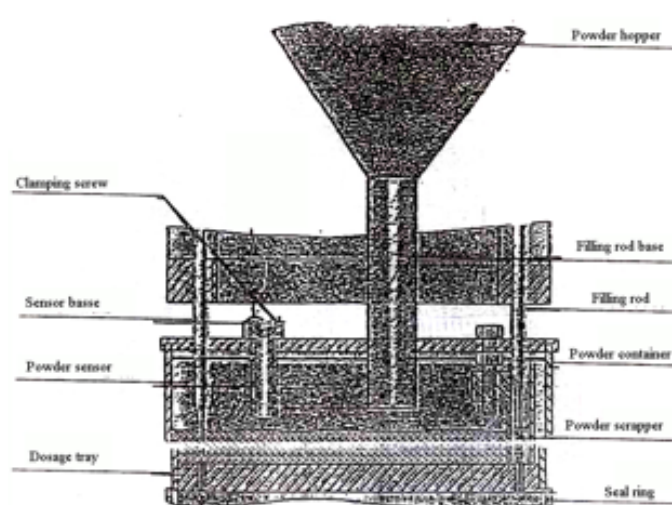


Diagram 22: Adjusting of the powder height sensor

Adjusting the process for removing defective capsules

At the 6th processing station, the pushing rod together with suction eliminate capsules that have not been separated. The pushing rod's height and the suction mechanism's height may need adjusting when using different sized capsules.

For the suction, loosen the top screw, adjust up or down, then tighten it. If the suction mechanism is too low, it will absorb the open cap of the capsule in the upper mould.

For the pushing rod, loosen the locking nut of the pull rod key point bearing on both sides, then rotate the pushing rod. Then fasten the locking nut.

Note: The pushing rod should not touch the upper or lower mould.

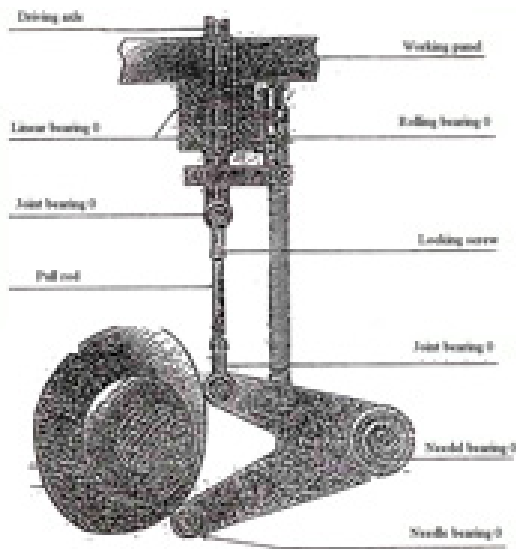


Diagram 14: Driving mechanism of rejection push rod

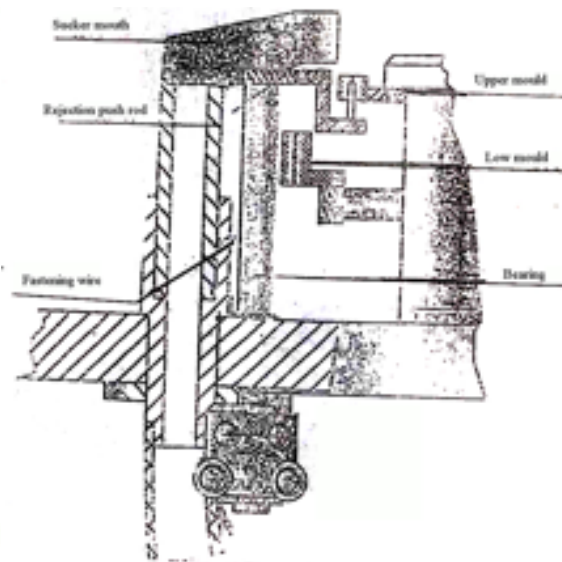


Diagram 23: Inferior capsule rejection mechanism

Adjusting the capsule locking mechanism

Changing capsule size may require this adjustment.

The gap between the pressure plate and the capsule's highest point inside the mould should be 0.2—0.3mm. This gap can be adjusted by different thickness boards. To adjust the height of the push rod, place sealed capsules into the mould and move the rod to the highest position where it just touches the capsule.

If filling problems occur, the device should be realigned carefully and the nuts tightened.

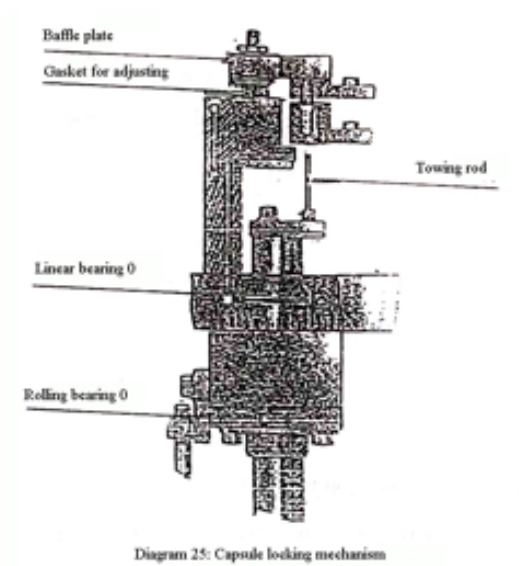


Diagram 25: Capsule locking mechanism

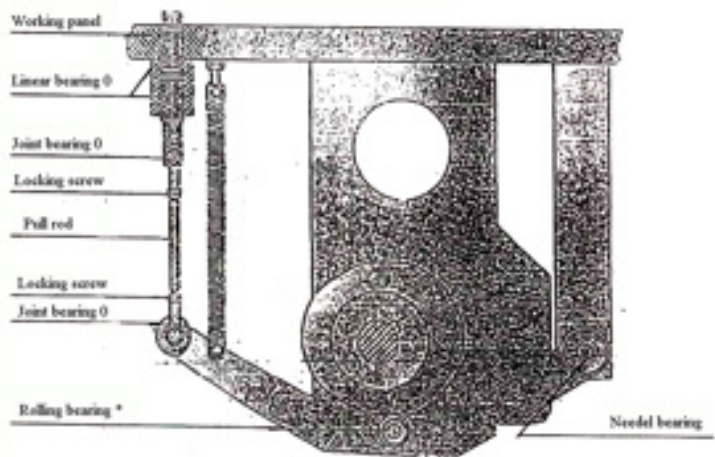


Diagram 26: Driving mechanism of capsule locking

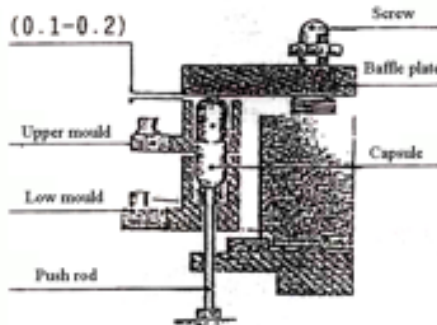


Diagram 27: Gap between baffle plate and capsule

Adjusting the capsule ejection device

The capsule ejecting plate can change its angle and height. Loosen only one side of the screw, then adjust it. Check capsules eject smoothly, then fasten the screws.

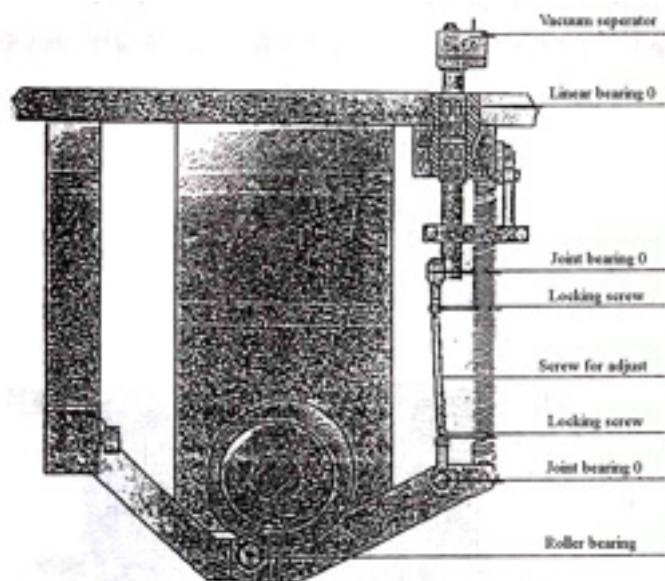


Diagram 16: The height adjust of the vacuum separator

Adjusting the safety clutch

The safety clutch protects the main motor decelerator. After extended usage the clutch may slip, especially when the machine is over loaded. If this occurs, tightening the nut of the clutch slightly will help.

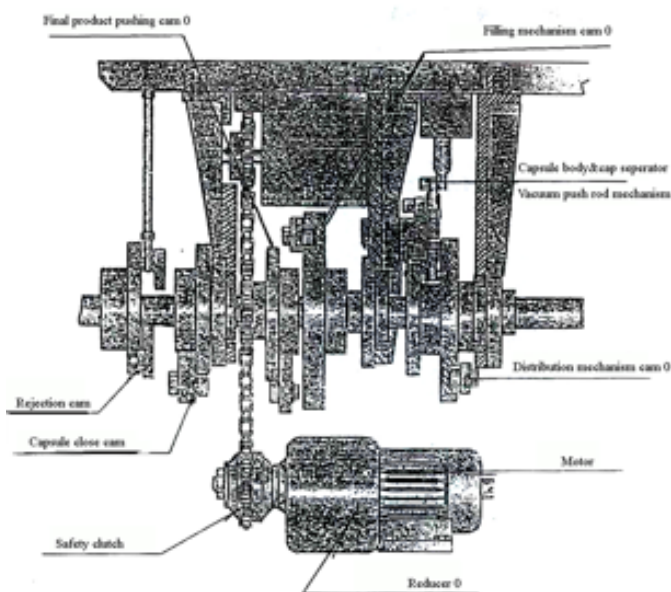
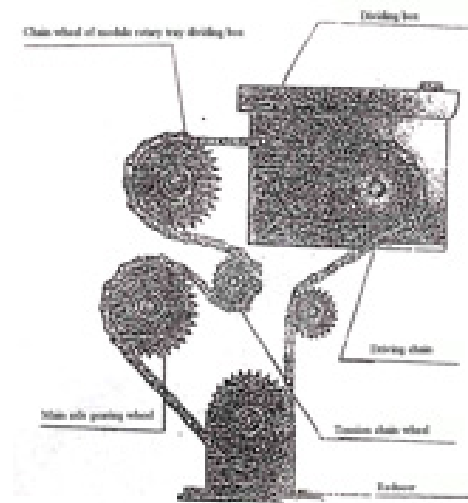


Diagram 30: Gearing mechanism

Adjusting the capsule ejection device

The capsule ejecting plate can change its angle and height. Loosen only one side of the screw, then adjust it. Check capsules eject smoothly, then fasten the screws.



Check chains smoothly, tighten when necessary, and oil lubricate all

Diagram 31: Gearing chain illustration

Adjusting the air pressure

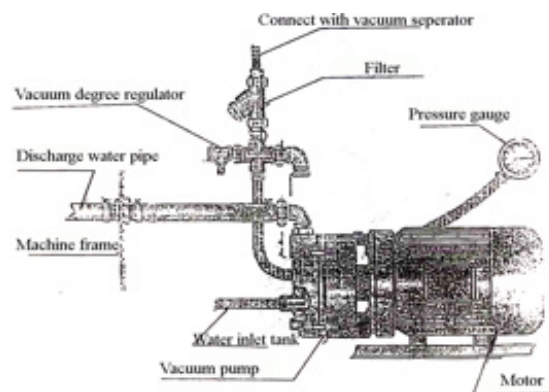


Diagram 32: Vacuum system

The pressure of the vacuum is kept at -0.02 — 0.06 MPa to guarantee the capsules are not damaged. If the pressure is too high open it to adjust the valve. If it is too low shut off the valve.

Maintenance

Check the machine thoroughly on a regular basis for signs of wear, and replace any worn or damaged parts immediately before further use.

Cleaning

Regularly clean all parts that come in contact with powder. Also clean when changing drug used, or after a long period without using the machine.

Regularly remove grease from the power transmission at the bottom of the machine, so that the movement of the mechanism is clearly visible.

Keep the vacuum system filter clean.

Check the bearings regularly and clean when required. Then lubricate.

Lubrication

NOTE Establish a regular lubrication schedule. Proper lubrication is essential to prolonging the service life of the machine.

The surface of the cam should be greased weekly.

Each of the bearings at the bottom of the machine should be greased weekly. For sealed bearings, grease droplets can be used.

The power transmission chain should be checked and lubricated with grease once a week.

The oil in the main decelerator and the material feeder decelerator should be checked once a month. It should be changed every six months.

The oil in the 10th station graduation box should be checked and topped up every month. It should be changed every six months.

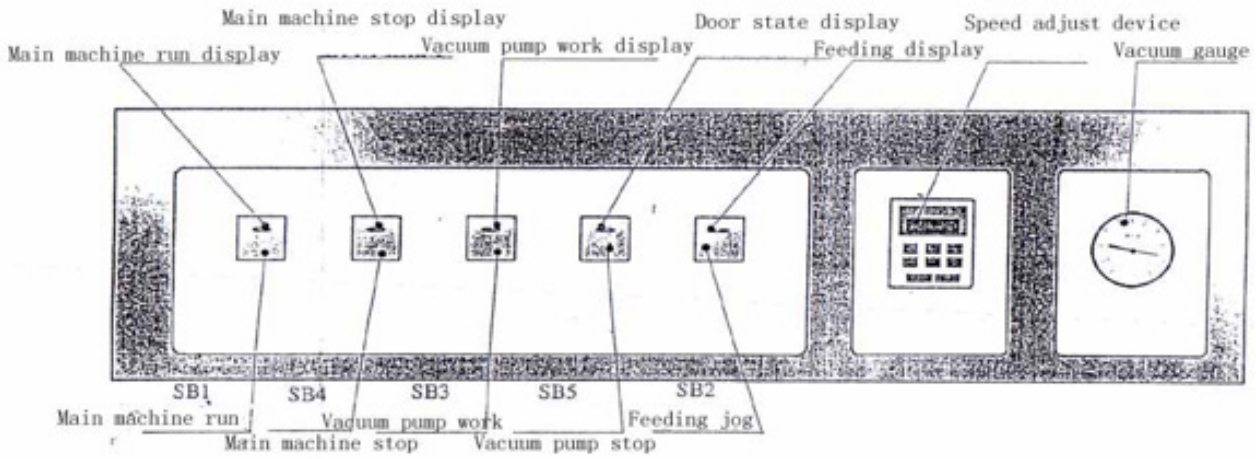
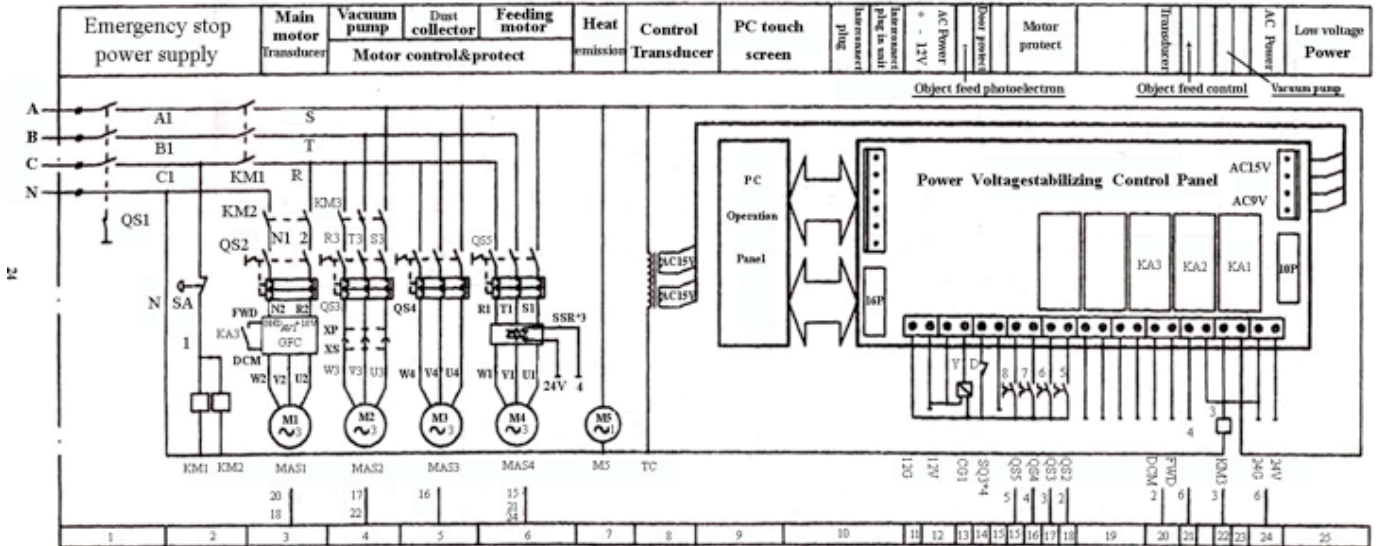
Remove the cover of the rotary plate weekly and add oil to the movable copper sleeve, the bearing of the T shaft, and the guide lever. Every 1000 working-hours these should be completely cleaned, and the T shaft and seal ring lubricated.

NOTE: The rotating plate and the dividing container under the dosage tray should only be opened and maintenance carried out under the supervision of professional technicians.

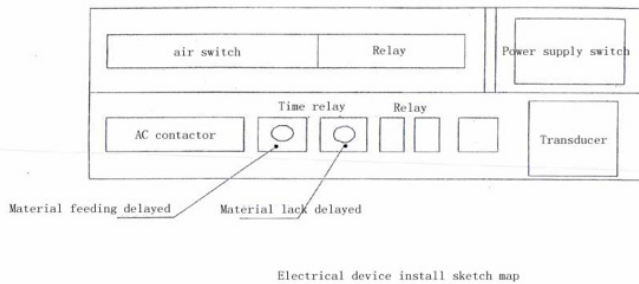
Lubricating Grease Used and Area of Application

Name	Type	Part to be greased
Machine lubricate	N4B GB-443-84	Chain, roller bearing, directional parts
Lubricate No. 2	Z12 SY1412-75	Cam, roller bearing, chain
Lubricate No. 0	ZLD SY1412-75	Dividing box, decelerator

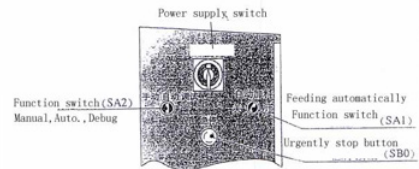
FACF Series Electrical Diagram



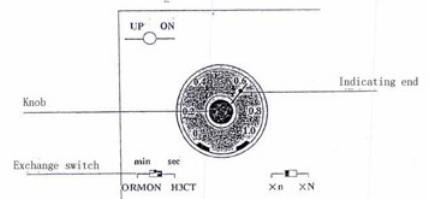
Electrical device box panel sketch map



Electrical device install sketch map



Function switch disposal sketch map



Time relay sketch map