Automatic Film Wrapper
(Heat shrinking wrapper)

Operation Manual

● Before using the machine, please read this operation manual carefully
● Any technology change will not be informed additionally.
## Content

1. Summary........................................................................................................2
2. Equipment’s compose and working principle..........................................2
3. Technical parameter......................................................................................3
4. Preparation before start the machine.........................................................4
5. Production operation....................................................................................4
6. PLC touch screen and temperature controller’s set and operation............5
7. Equipment installation and maintenance....................................................9
8. Notice for production safety........................................................................10
9. Eliminating methods of familiar malfunction and problems...................10
10. Basic technics time and temperature recommendatory form................10
11. Matched accessoriel machine and material by user.................................13
12. Packing list..................................................................................................14
1 Summary

The automatic film wrapper is the new type wrapper developed by our company according to domestic and abroad similar machines’ advantage. It applies widely for combination packing such as beverage, food, medicine and chemical products, etc. It does not adopt salver and does not need box. It can pack perfectly no matter square, round or ellipse. Ocular effect is good and packing cost is low. The machine adopts novel optimizing design and PLC auto control, Man-machine conversation track. And orientation is exact. The following pack entering state stops bottle lack, bottle collapse, which has advantage of agile adjustment and beautiful appearance. Adjustable heat wind recycling structure applies all heat shrink wrapping(include color printing). Film changing is easy and fast. It has malfunction alarm and complete lock-stopping function and running is reliable, which gives firm assurance for constant quality and long time continuous production.

The machine is made of high quality steel and stainless steel, which has advantage of compact structure, long life-span and low energy consumption. The new type automatic film wrapper with patent is the preferred matching equipment for beverage filling line.

2 Equipment’s compose and working principle

2.1 Equipment’s composing

- Bottle conveying organ: Convey products need to be packed
- Bottle distributing and blocking organ: Convey and control packed material’s journey
- Bottle spacer: Space bottles to be packing and bottles to wait in the following pack.
- Bottle pushing and guiding organ: Push products to shrinking and cutting position.
- Bottle pressing organ: Prevent bottle collapse and assure accomplishment of shrinking and cutting.
- Film length ration conveying organ: Convey wrapping film.
- Film heat shrinking and cutting organ: Envelop and cut film to achieve wrapping.
- High temperature-resistant conveying: Covey finished products placidly and fulfill heat shrinking function under high temperature.
- Finished products carrying device: Finished products stops in short time.
- Chilling device: Chill finished products and be convenient to transfer products to required position without damage.
- Malfunction alarm device: Remind operator of eliminating malfunction in time.
2.2 Working principle

Bottles or boxes needing to be packed, through bottle conveying organ, get to bottle blocking board along route way formed by bottle distributing board. Top photoelectric detecting head sends signal and front bottle conveying machine stops and bottle blocking board stands back to make bottles press and produce stress release. Bottle distributing board descends and bottle partition-pressing board descends to compartmentalize bottles being wrapped and bottles waiting to be wrapped. Bottle pushing organ goes ahead to make bottles together with film to get to shrinking and cutting position along bottle guiding organ, at the same time, push bottles wrapped last time to conveyor of heat shrinking equipment, at this moment, film delivering organ works simultaneously. Then film pressing cylinder acts downwards and pushes film and then heat cutting reamer acts upwards to fulfill cutting function. Bottles pushed to high temperature conveyor go ahead and fulfill heat shrinking function at the same time in heat shrinking equipment, finally cooled with cold wind and shrink, get to finished products carrying device. Above process acts repeatedly to achieve wrapping automation.

Above process actions except conveying organ, all are fulfilled with PLC under effect of compressed air by cylinder.

3 Technical parameters

3.1 Equipment technical parameter

- Power supply: AC 380V/220V 50HZ
- Max consumption power: 22KW
- Actual power: 15KW/h
- Working air pressure: 0.6-0.8 Mpa
- Matched air compressor requirement: exhaust pressure:0.8Mpa, flux: 0.3m³/min
- Film material: PE, PP, PVC, POF
- Wrapping film width: ≤ 600mm
- Wrapping film thickness: 0.03~0.15mm
- Material in feeding conveyor level height: 900+50mm
- Dimension: L6090×L2680×W2030(mm)
- Weight: 1200kg
3.2 Products packing technical parameter

- Maximum packing size: L400×W300×H390mm
- Minimum packing size: L210×W140×H100mm
- Heat cutting reamer length: 700mm
- Shrinking temperature: 260°C adjust optionally.
- Shrinking temperature: 0-6S
- Heat cutting temperature: 150-200°C
- Maximum capacity: 720 cases/h

Common bottle quantity per case (round or square)
- 4 lines 4×6 4×5 4×4 bottle diameter: Φ40-Φ73mm
- 3 lines 3×4 3×3 3×5 bottle diameter: Φ73-Φ98mm
- 2 lines 2×3 2×4 bottle diameter: Φ98-Φ140mm
- 1 lines 1×2 1×1 bottle diameter: Φ140-Φ300mm

This machine is amplified to apply bottles quantity (round or square)
- 5 lines 5×5 5×6 5×8 bottle diameter: Φ46-Φ56mm
- 6 lines 6×6 6×8 6×10 bottle diameter: Φ35-Φ46mm
- 8 lines 8×8 8×10 8×12 bottle diameter: Φ25-Φ35mm

3.3 Technics flow chart
4 Preparation before start the machine

1. Check whether power voltage is normal and turn on the switch.
2. Check compressed air supplying equipment (0.6Mpa).
3. Film for wrapping fill its shoes according to requirement.
4. Heat shrinking temperature reaches set temperature, generally constant temperature for 5 minutes, and set heat shrinking time in PLC screen.
5. Heat shrinking machine’s temperature reaches set temperature.
6. There is no junk on bottle conveyor and bottle pushing line’s plane.
7. Conveyor and film forwarding direction is exact.
8. Release emergency stop button.

5 Production operation

5.1 Start the machine for the first time

5.1.1 Select “manual” on PLC touch screen.
5.1.2 Manual operation make bottle guiding board stop at retractile position(Bottle pressing board is at downward position).
5.1.3 Furl film well and lay it on silica gel board. Press the two ends left and right with fingers but it should be 25mm away from the center of silica gel board.
5.1.4 On PLC menu(4), press “shrinking and cutting” key to make film pressing cylinder act downward and heat shrinking and cutting reamer cylinder act upward for 1-2 seconds and then release it. The reamer gets reposition automatically.
5.1.5 Check whether film stick firmly and edge is cut off. If it does not conform to requirement, repeat again and adjust stop time simultaneously until conforming to requirement.
5.1.6 Adjust to “manual” position on PLC touch screen.
Note: 1. This step needs to do when changing film.
     2. If film has been stuck, this operation can be omitted.

5.2 Start the machine for automatic production

5.2.1 Adjust technics time on PLC screen and stop at “automatic” position.
5.2.2 Start heat shrinking machine’s high temperature conveyor and chilling wind motor.
5.2.3 Start bottle conveying machine to make it run in host control box.
5.2.4 On touch screen menu (5), press “start” button and the machine goes into automatic production state.
5.2.5 After starting the machine, observe whether former programs conform to requirements. If having deficiency, stop the machine immediately and adjust
technics temperature and time until satisfaction.

5.3 Stop the machine
User should press “emergency stop” button under following situations to stop the machine:

a. The machine has malfunction.

b. Bottles turn over on working plane.

Under following situations, after shrinking and cutting action and before bottle pushing action, press “emergency stop” button to stop the machine.

a. Replace film

b. Stop production when duty is over.

c. When temperature needs to rise because heat shrinking is not firm, or temperature is too high and needs to drop.

d. Alarm phonates. For example, alarm phonates because bottles turn over on bottle distributing plane. Operator can pick up the bottles and does not need to stop the machine.

Note1. The cylinder is at “0” position when stopping the machine every time.

Note2. Bottle lack is not allowed on working plane before bottle pushing board. (No bottle is ok)

Note3. After replacing film, make film heat shrinking part tight to avoid influencing normal production.

Note4. When stopping the machine, heating should also be stopped immediately, but heat shrinking machine’s conveyor and cooling wind motor continue working for 20 minutes and then stop them. Then turn off the power supply.

5.4 Restart the machine

a. Release “emergency stop” button and press “malfunction reposition” key.

b. Press “start” key to restart the production.
6  PLC touch screen and temperature controller’s set and operation

6.1  PLC touch screen’s set and operation

6.2  After electrified, touch screen shows following Menu(1).

   MB400-I Auto Film Wrapper

   IMC PACKAGING MACHINES

   Touch any place on the menu to enter Menu (2)

   Back
   Set
   Automatic
   Manual

   IMC Packaging Machines

   Touch “set” key to enter technical parameter set Menu (3)

   Touch “automatic” key to enter automatic production Menu (4)
Touch “manual” key to enter manual operation Menu (5)

Touch “back” key to back Menu (1)

- If touch “set” key, thus enter following Menu(3)

Time set by our company.

① When inputting error data or wanting to change the data, user can press “ESC” key to back to original data.

② When user does not want or need to cancel or after the original data, user can press “CLR” key to clear it and make it become 0.

③ The digital key and “ENT” key are used for setting new data. First press digital key and then press “ENT” key to complete new data input. The new data is the technics parameters carried afterwards.

After completing data set, pressing “back” key can back to Menu (2).

- If press “manual” key on Menu (2), following Menu (4) appears.
Above is manual control for single action of electromagnetic valves, film delivering motor and heating for shrinking and cutting.

① “Shrinking and cutting” key: It is a short recycling operation from pressing film to finishing shrinking and cutting, which is used for sticking when installing and discharging film before automatic production.

② “Point” and “backward” key: “Point” is point-moving work, “backward” is to complete this action one time. Pressing it one time is to backward and pressing it again is to forward.

③ “Close” key: Pressing it one time is to open and pressing it again is to close.

“Back” key: Press this key and menu backs to Menu(2).

⑥
① If press “automatic” key on Menu (2), following Menu(5) appears.

<table>
<thead>
<tr>
<th>Period</th>
<th>Timing</th>
<th>Sec.</th>
<th>Malfunction Reposition</th>
<th>Back</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timing</td>
<td>000.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Packs Count</td>
<td>0000000000000</td>
<td>Count Clear</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Bottle pushing is not back to original position. Malfunction! Please check malfunction displaying

Conveying Open

① “Start” is automatic production key.
② “Stop” is automatic production stopping key.
③ “Conveying open” and “Conveying close” are opening and closing key for former conveyor and heating cutting reamer.

Press it one time is Open(Close), press it again is Close(Open). Under automatic state, conveyor is at “Open” position.

Note:

a. Before automatic production starts, heat must be at “Open” position and temperature-controlling meter should reach set temperature, and then automatic production can be done, otherwise heat shrinking and cutting will lose.

b. When doing automatic production, turn on the frequency inverter switch of downstream conveyor of host control box manually and make it run. Then Press “start” key and automatic production starts.

c. Conveyor speed adjustments are done manually on frequency inverter.

④ Period timing “000.0” seconds: It is the time of every packing recycle. The second recycle times from “0”.

⑤ Packs count “000000000” packs: It is the accumulative total capacity of this machine.

⑥ “Count clear” key: Press this key and the packing capacity re-counts from “0”.

⑦ “Malfunction reposition” key: When the machine conks and alarms, should eliminate it immediately. After malfunction is eliminated, press this key, and then press “start” key, and the machine enters normal automatic production again.

⑧ “back” key: Press this key and the menu backs to Menu(2).
If bottle pushing does not back to original position, malfunction points will be displayed automatically.

ii  Temperature controller set operation:
Press SET key, select the digital to be set on AT button. When the digital glints, use “▲▼” button to increase or reduce it until reaching requirements, and the temperature set finishes.

7 Equipment installation and maintenance

7.1 Installation

7.1.1 First push film wrapping machine to position from idler wheel, then install bottle conveying machine’s bracket and insert one end into film wrapping machine. Adjust bottle conveying machine plane and film wrapping machine’s working plane and keep them the same level. Then install bottle distributing guiding board and bar according to requirement and adjust distance between. User can move bottles forward and backward in the distance between. Then install and adjust four photoelectric detecting points’ position and height.(Note: There are two kinds of inserting directions for bottle conveying machine, and user can select freely when ordering the machine). If connecting with filling line, move the machine unitarily to connect with the line.

7.1.2 Push heat wrapper idler wheel to back of film wrapping machine, and adjust it to straight line basically.

7.1.3 Lower four screws fixing bottom feet below film wrapping and make the equipment rise and make idler wheel leave ground about 5-40mm, or according to filling line’s height, adjust the working plane flat basically, then turn off the bottom feet’s nut.

7.1.4 Adjust bottle conveying machine’s support pole bottom foot and make its upper plane inline and vertical to film wrapping machine left and right.

7.1.5 Position goods carrying rack behind heat wrapper, and adjust height and level the same as conveyor plane, finally turn off nuts of bottom feet.(Note: goods carrying rack is chosen by customer).

7.1.6 There is a wire aperture in side of host control box. Connect the controlling wires and position it at side of film wrapping machine next to bottle conveying machine.

7.1.7 Put through power supply and compressed air. Choose manual position on touch screen. Check every action without loading and check whether motor turning
direction is right.

7.1.8 Finally select “automatic” position on touch screen. Without loading, press green “automatic” button. At this moment, bottle conveying machine begins to work, then cover four photoelectric detecting points for 1-2 seconds with hand at the same time (when bottle board protrudes, withdraw the board immediately). Then equipment enters automatic working procedure. Note: only when bottle conveying machine works, user can cover photoelectric switch. Every covering is one period. At this moment, all installation and testing of equipment finish.

7.2 Maintenance

7.2.1 The equipment must have reliable grounding, especially important in moisture environment.

7.2.2 Before starting the machine every time, should erase and clear garbage on working plane.

7.2.3 Do not knock at equipment surface.

7.2.4 Check air oily water separator termly and empty in time.

7.2.5 Check motor every 5 months and add suitable lube. (the motor needn’t adding lube exclusion)

7.2.6 If finding dust and dunghill in photoelectric switch, clean it with soft cloth in time.

7.2.7 Clear sundries and plastic residua in heat shrinking part in time lest influence heat-shrinking effect.

7.2.8 Check whether active parts’ screws are lax termly. Add butter to transmission chain termly.

8 Notice for production safety

8.1 This machine adopts power supply 50HZ/380V three-phase five-wire, and shell grounding wire.

8.2 User should use electrical outlet and wires equivalent to the machine’s total power.

8.3 The container for liquid cannot leak lest result equipment malfunction, creep age and short circuit.

8.4 Do not use the machine in high moisture and dusty environment.

8.5 During production, do not put hand into running part of the machine to avoid injury.

8.6 After cutting reamer is heated, do not touch it by hand to avoid scald.

8.7 Do not start the machine if air-supplying pressure is not enough.

8.8 When closing the machine, power and air supply should be closed.
8.9 When examining and repairing the machine or eliminating malfunction, should close power supply in principle.

8.10 If finding abnormal situations, should stop the machine in time, simultaneously find maintenance man to eliminate malfunction to avoid sharpening the accident.
### Eliminating methods of familiar malfunction and problem.

<table>
<thead>
<tr>
<th>Familiar malfunction</th>
<th>Reason</th>
<th>Eliminating methods</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Machine does not work</strong></td>
<td>Power supply intermits; wire is cut; photoelectric switch excursion is too big; there are down bottles on working plane and bottles can not be conveyed to bottle blocking board.</td>
<td>Put through power supply and the wire; adjust photoelectric switch; check whether bottle distributing board becomes distortion and proofread it in time.</td>
</tr>
<tr>
<td><strong>Heat shrinking is not good and packing is not beautiful</strong></td>
<td>Temperature is too high or too low; thermocouple touching is not good or wire is broken.</td>
<td>Adjust temperature; eliminate thermocouple problem or replace it.</td>
</tr>
<tr>
<td><strong>Heat cutting reamer sticks film</strong></td>
<td>Heat reamer Teflon is damaged</td>
<td>Re-paint Teflon to the reamer</td>
</tr>
<tr>
<td><strong>Temperature can not rise</strong></td>
<td>Thermocouple touching is not good or wire is broken; heating board is damaged.</td>
<td>Elimiante thermocouple problem or replace it.</td>
</tr>
<tr>
<td><strong>High temperature conveyor does not convey bottles.</strong></td>
<td>Conveyor is pulled long.</td>
<td>Adjust retral tightening wheel</td>
</tr>
<tr>
<td><strong>Bottles often fall down when conveying bottles.</strong></td>
<td>The height difference of bottle conveying plane and film wrapping machine plane is too big.</td>
<td>Adjust bottle conveying machine’s height.</td>
</tr>
<tr>
<td><strong>Bottles fall down when pushing bottles.</strong></td>
<td>Bottles pushing speed is too fast or bottle-pushing alleyway is not slippery.</td>
<td>Reduce bottle pushing speed or polish the plane with 00 sand papers.</td>
</tr>
<tr>
<td><strong>Conveying speed becomes low suddenly.</strong></td>
<td>The motor lack of phase</td>
<td>Check and eliminate it.</td>
</tr>
<tr>
<td><strong>Shrinking effect is not good</strong></td>
<td>Temperature is too low, conveying speed is too fast.</td>
<td>Adjust temperature and speed.</td>
</tr>
</tbody>
</table>
10 Basic technics time and temperature recommendatory form

<table>
<thead>
<tr>
<th>Technics</th>
<th>Heat shrinking temperature</th>
<th>Heat shrinking time</th>
<th>Heat shrinking temperature</th>
<th>High temperature conveyor speed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parameter</td>
<td>150~190°C</td>
<td>1.0~3.0 S</td>
<td>160~220°C</td>
<td>About 30HZ</td>
</tr>
</tbody>
</table>

11 Matched accessoril machine and material by user

a. Air compressor: exhaust pressure 0.8Mpa Flux: 0.25m³/min
b. Heat shrinking film: thickness: 0.03-0.15mm; width: about 500mm (depends on packing quantity); scroll core inner diameter ⌀76mm; spread film≤10mm; film scroll outer diameter ≤400mm.
Electrical Drawings and electrical cabinet layout

The automatic packer operation front-panel map

Control the cabinet electricity component installs sketch map

Connect the line carries a som row
### Packing list

<table>
<thead>
<tr>
<th>No</th>
<th>Name</th>
<th>Model</th>
<th>Quantity</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Auto film wrapping Machine Bottle conveying machine(2&quot;)</td>
<td>MB-400-</td>
<td></td>
<td>-01</td>
</tr>
<tr>
<td>2</td>
<td>Heat shrinking wrapper Host control Box</td>
<td>MB-400-</td>
<td></td>
<td>-02</td>
</tr>
<tr>
<td>3</td>
<td>Bottle Conveying machine rack</td>
<td>MB-400-H</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Operation manual</td>
<td>MB-400-</td>
<td></td>
<td>-05</td>
</tr>
<tr>
<td>5</td>
<td>Operation Manual of Frequency conversion motor speed</td>
<td>MB-400-</td>
<td></td>
<td>-02-34</td>
</tr>
<tr>
<td>6</td>
<td>Controller Operation manual of temperature controller -8 tri-through straight</td>
<td></td>
<td>1</td>
<td>Include certificate of quality and guarantee card</td>
</tr>
<tr>
<td>7</td>
<td>Joint Alterable diameter tie-in -8-6</td>
<td>F100-G Series</td>
<td>1</td>
<td>Provided by manufacturer</td>
</tr>
<tr>
<td>8</td>
<td>Crop, cross 8’ adjustable spanner Inner hexangular spanner</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
<td></td>
<td>2 for each</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td></td>
<td></td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td></td>
<td></td>
<td>1 for each</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td></td>
<td></td>
<td>1set</td>
<td></td>
</tr>
</tbody>
</table>