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### Reference Picture:



## **I. Application Note**

This machine can be used to conduct relatively closed packaging for different dimensions of metal coils or coiled unpackaged objects so as to play a role of anti-rust, waterproof, dustproof, anti-damage and anti-aging etc. The packaging material mating with this machine is of compound packaging paper tape or high-quality compound knit packing tape.

## **II. Important Alert**

- I. Abuse will lead to serious result.
- II. Do have the machine grounded.
- III. In the event of urgent failure occurrence, do shut off or cut off power supply, and then carry out relevant troubleshooting operations after safety confirmation.
- IV. Never modify the control program and relevant parameter settings of this machine without authorization.
- V. Never tear off various signs marked on the machine.
- VI. Never open the electrical box when the machine is working.
- VII. In the case of the lifting and lowering of unpackaged object, do ensure safe, steady and orderly operation, and unpackaged object's collision with the machine shall be strictly forbidden.

VIII. Use flexible sling to lift the unpackaged objects.

### **III. Technical Parameter**

<b>Model</b>	<b>FPS-300</b>	<b>FPS-400</b>	<b>FPS-500</b>
Coil OD	600-900mm	800-1000mm	800-1200mm
Coil ID	250-800mm	500-650mm	500-800mm
Coil width	80-300mm	100-400mm	150-500mm
Coil weight	5-80kg	10-100kg	20-200kg
Roller speed	2-4m/min	2-4m/min	2-4m/min
Rotating speed	40-110 r/min	40-90 r/min	40-70 r/min
Wrapping material	LLDPE/PE/Stretch film/PVC/	LLDPE/PE/Stretch film/PVC/	LLDPE/PE/Stretch film/PVC/
Material width	90mm	100mm	120mm
Material OD	80-120mm	80-120mm	120-200mm
Material ID	55mm	55mm	55mm
Power output	App. 1.2kw	App. 1.8kw	App. 2.0kw
Power voltage	380V/50Hz	380V/50Hz	380V/50Hz
Wrapping speed	15-20sec/pcs	15-20sec/pcs	15-20sec/pcs
Overlapping rate	20%-90%	20%-90%	20%-90%

## **IV. Machine Installation**

1. This machine is composed of main engine, corbel, track, trolley, cutter/tape holder, electrical box, etc.
2. Place the main machine on the ground surface horizontally and then assemble the above-mentioned spare parts at proper position. And then install some small auxiliaries.
3. Install relative circuit after the installation of mechanical structure.
4. Prevent against the occurrence of bruise, compression injury, crushing injury, contusion and other accidents during the installation.
5. As the machine has been transported and moved, all flexible parts shall be inspected carefully.
6. The entire installation shall be completed under the condition that the power supply is cut off.
7. The machine shall be mounted on flat and hard ground, where the ground load should be more than 10t/ m<sup>2</sup>.
8. Only trained personnel can be allowed to enter the installation site.
9. Next working procedure can be executed only after all the installation operations are completed.
10. The machine shall be mounted in dry and dust free environment.

## V. Machine operation

### I. Introduction to operating panel and switch function:

**POWER**: The main switch of machine power supply which is used to connect or shut off the machine power supply.

**EMERGENCY STOP**: The control switch which is used to control circuit. Press this switch to shut down the whole machine in the case of emergency.

**MANUAL/AUTO**: The working mode of this machine is classified into manual operating mode and automatic operating mode. “MANUAL” mode is generally used for inspection, adjustment, troubleshooting and specific conditions. In normal operation conditions, “AUTO” mode is adopted.

**WORK STATION-FORWARD**: Switch this button to “FORWARD”, the object goes to the packing position. Notice: only forward the trolley when the ring is stopped and reset.

**WORK STATION-BACK**: Switch this button to “BACK”, withdraw the packaged object from the packing position. Only start the trolley when the ring is stopped and reset.

**ROLLER RUNNING(CLOCKWISE/ANTICLOCKWISE)**: Used to put the roller under clockwise or anticlockwise under running status in “MANUAL” mode. The switch is invalid in “AUTO” mode & it shall be under off status in “AUTO” mode.

**DOWN ROLLER EXTEND**: Stretch the down roller to ensure enough space for in & out of the object. Only operate when the ring、roller、trolley are all in resting status.

**DOWN ROLLER NARROW**: Narrow the down roller to protect the object. Notice: the gap between the down rollers is subject to whether the object can move smoothly when running. Only operate when the ring、roller、trolley are all in resting status.

**BASE BOARD UP**: Can elevate the ring. Adjust the height of the ring position according to the package diameter, to ensure the ring can run through the package safely

**BASE BOARD DOWN**: Can lower the ring. Adjust the height of the ring position according to the package diameter, to ensure the ring can run through the package safely

**CUTTER**: It is used to cut the packaging tape manually.

**RING START**: It is usually used as startup button in “AUTO” mode (equivalent to the “Running” in the “Running/Stop” button of HMI). Press the button to make the ring work in “Manual” mode.

**RING STOP**: It is used to stop the machine in “AUTO” mode (equivalent to the “Stop” in the “Running/Stop” button of

HMI). Press the button to make the ring stopped in “MANUAL” mode

**RING DOTTING**: Can make the ring running ( valid in both “Auto” and “Manual” mode.

**RING RESET**: It is used to have the ring and the support rollers reset. (only operated in “MANUAL” mode.)

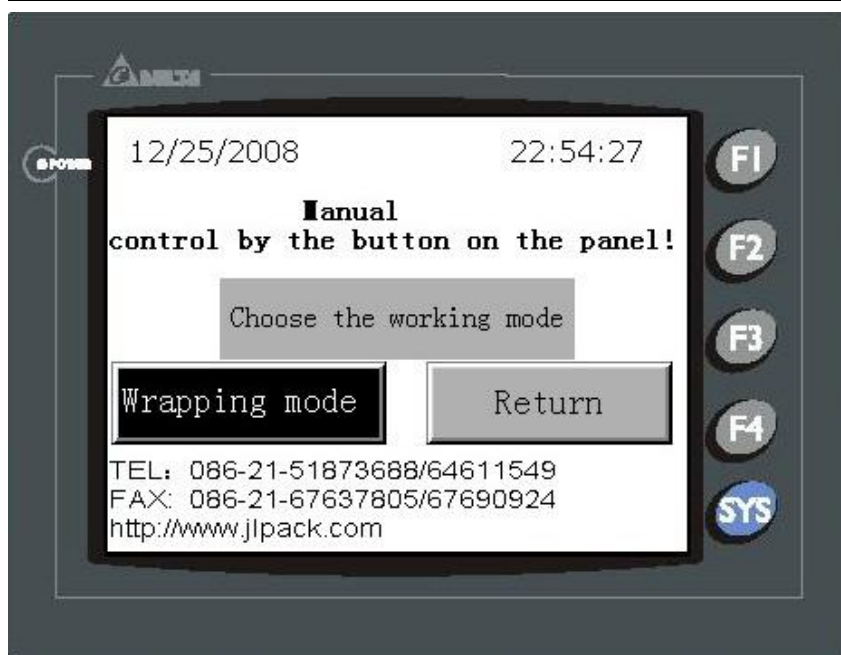
## II. Introduction to Main Content of HMI

The HMI will display the below language page after connecting the power

Choose the relevant language and goes to the next pages.

- 1、 Introduction to the HMI pages in “Manual” mode(the manual/auto switch is in “manual” position)
  - a、 After the “English” button is touched, the following manual main page will display automatically.

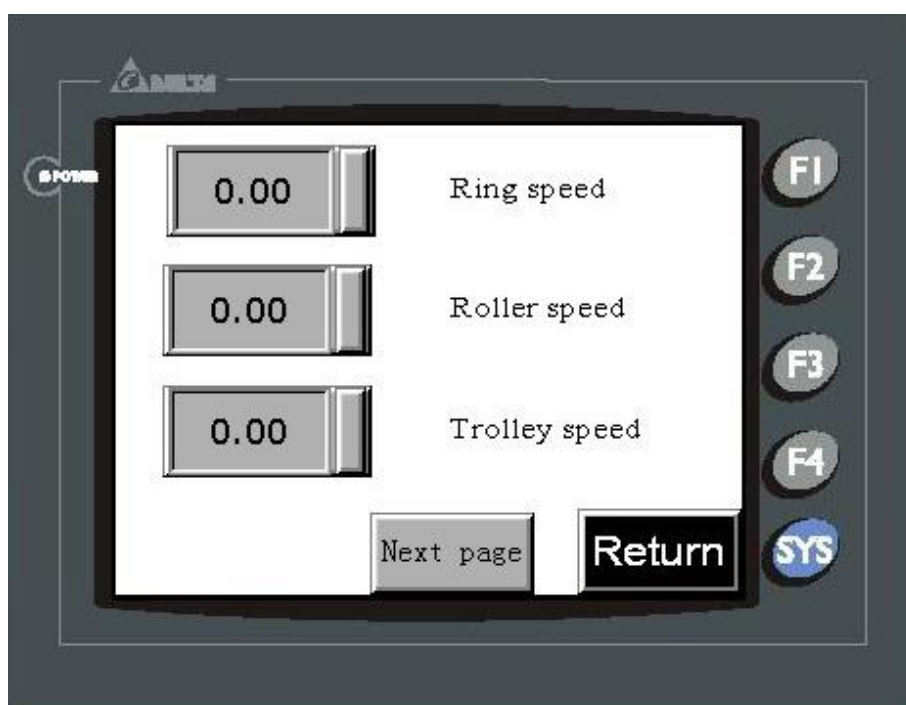
Manual main page (GD-800-P-003)



Note: ● Return to language selection page by touching the “Return” button (GD-800-P-002).

- b 、 When the “Wrapping mode” in the manual setting page (GD-800-P-003) is touched, the following manual setting page will display automatically.

Manual setting page (GD-800-P-004)







Note: ● “Ring speed” and “Roller speed” not only define the running speed of ring and roller respectively, but also in connection with the overlapping of packaging tape. The two setting parameters can be set by touching. If the ring speed is high and roller speed is low, the packaging tape features a large overlapping range; on the contrary, the overlapping range is small.

- “Trolley speed” defines the traveling speed of trolley.
- The above-mentioned three setting parameters can be exchanged in “Manual” and “Auto” modes.

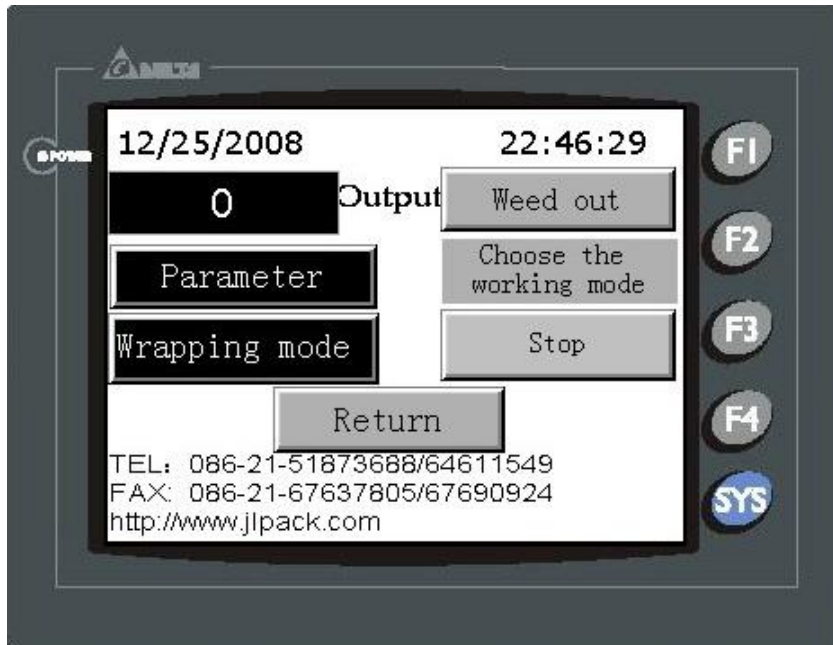
Touch the “Next page” button to access to next page.

- Touch the “Return” button, then return to the manual main page (GD-800-P-003)。

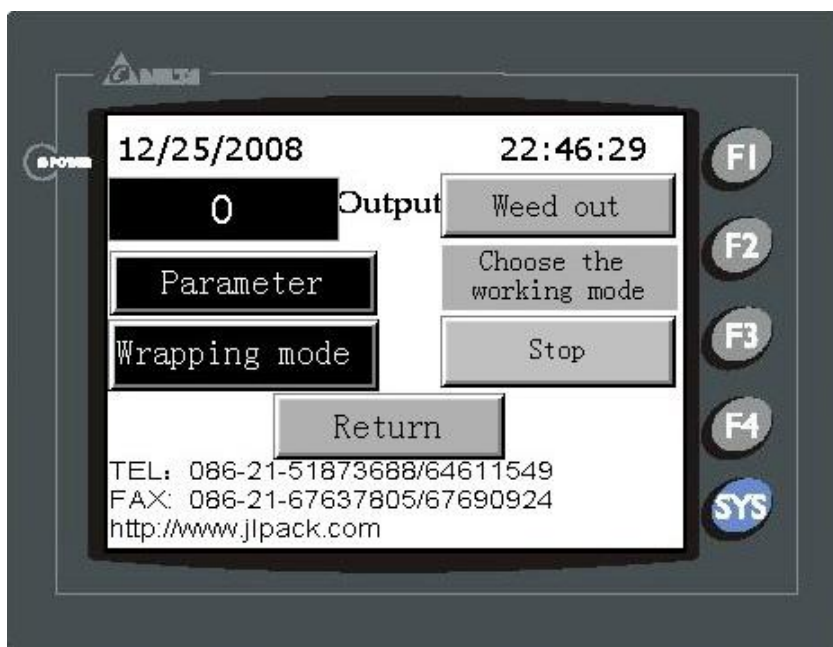
2、 Introduction to major pages of HMI in “AUTOMATIC” mode (i.e. the "MANUAL/AUTO" switch on the operating panel is at “AUTO”

position):

- a. After the “English” button is touched, the following manual main page will display automatically. (GD-800-P-007)



Auto main page (GD-800-P-008)



Remarks: Weed out: It's used to return to zero.

Working mode: The current working mode

Stop: Can make the machine stop. It's equivalent to the RING STOP button of the operation panel.

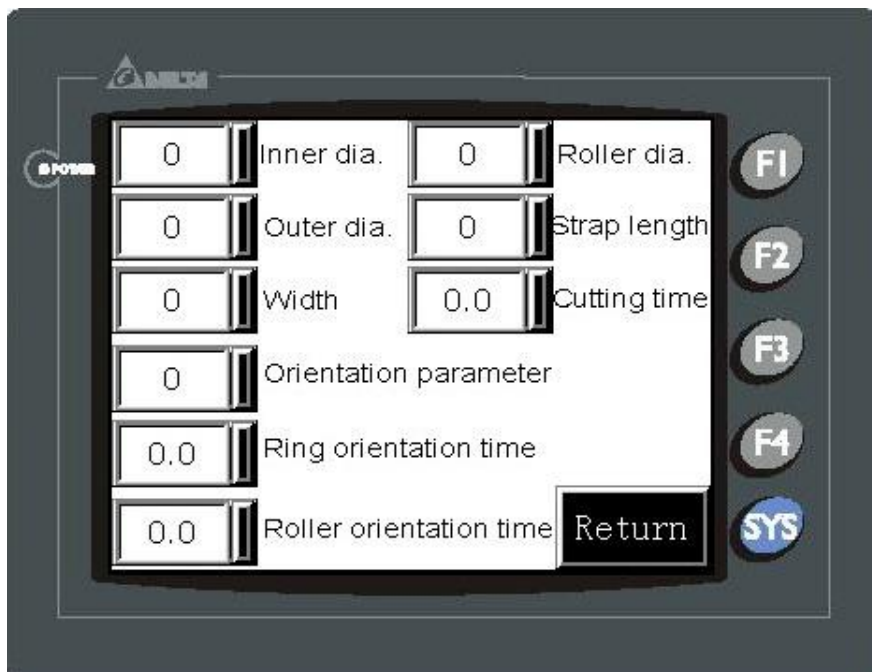
RUNNING: the startup button in "auto " mode It's equivalent to the RING RUNNING button of the operation panel.

● Touch: " Return " to Return to language selection page (GD-800-P-002)

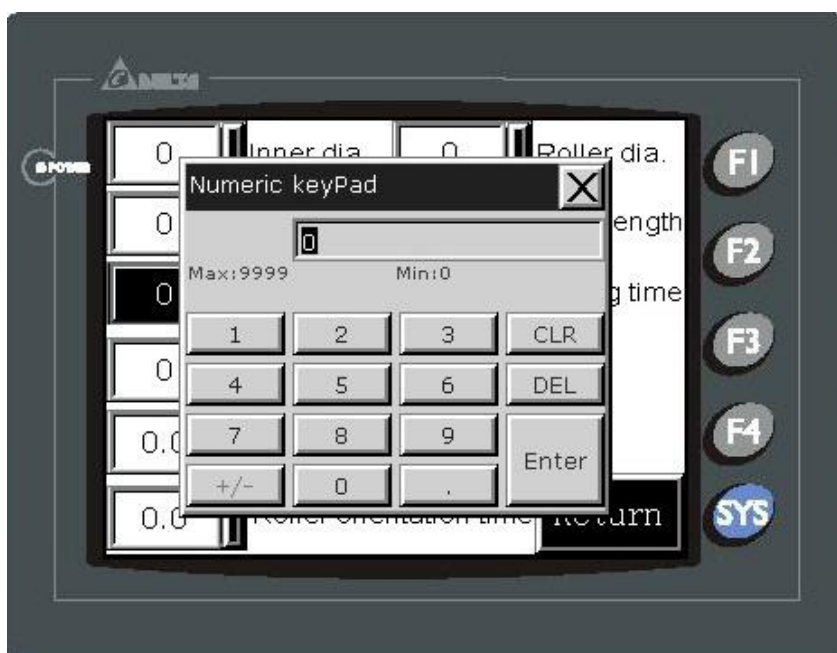
● The introduction for "Parameter", "Wrapping mode" as following:

b、 Touch "Parameter" in AUTO main page ( GD-800-P-007, following pages will displaying automatically.

Parameter setting page (GD-800-P-009)



## Parameter setting page (GD-800-P-010)



Note:

- Inner diameter of unpackaged object: Input in actual size, with its unit as “mm”.
- Outer diameter of unpackaged object: Input in actual size, with its unit as “mm”.
- Width of unpackaged object: Input in actual size, with its unit as “mm”.
- Orientation parameter: -99~99. “PLC” can automatically calculate the length of required packaging tape, but the calculated value is a little different from the actual required one due to the dimension of unpackaged object and the extension of packaging tape and etc. And thus it is a variable value.
- Ring orientation time: : 1-20. Based on the automatic calculation of “PLC”, ring running time can be appropriately prolonged to ensure the packaging tapes stored on the tape storage wheel are used up
- Roller orientation time: : 1-20. Based on the automatic calculation of

“PLC”, roller running time can be appropriately prolonged to adjust the stopping position of the ends of packaging tape.

Roller diameter: set at factory.

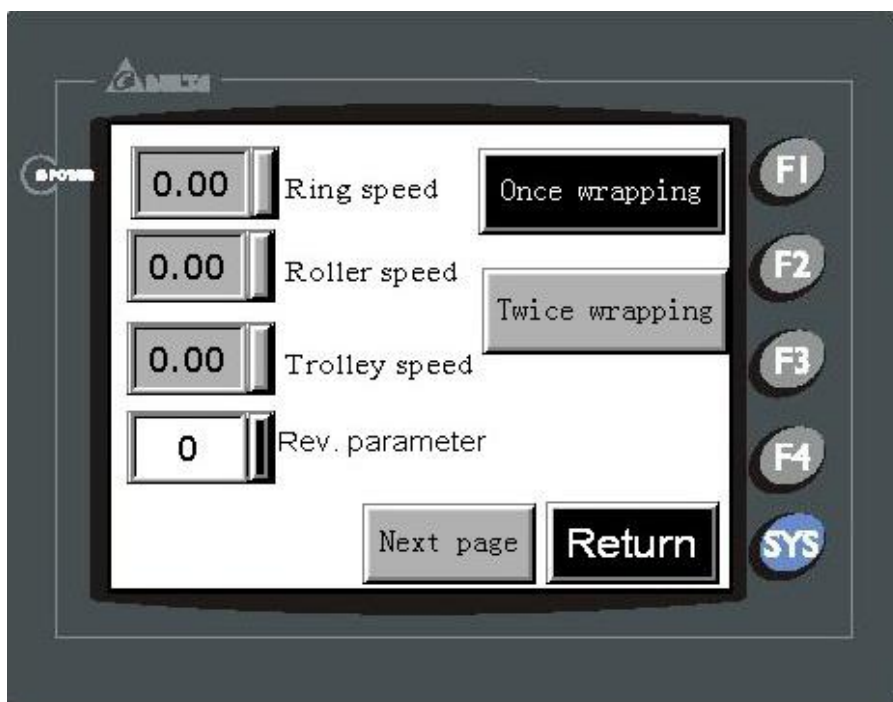
- Belt length: set at factory.

Cutting time: 0.1-3 It means the time of cutting operation from the beginning to the end.

Touch the “Return” button to return to the automatic main page (Gd-800-P-007).

C. When the “Wrapping mode” in the automatic main page(GD-800-P-007) is touched, the following wrapping mode setting page will display automatically.

Wrapping mode setting page (GD-800-P-011)



Wrapping mode setting page (GD-800-P-012)



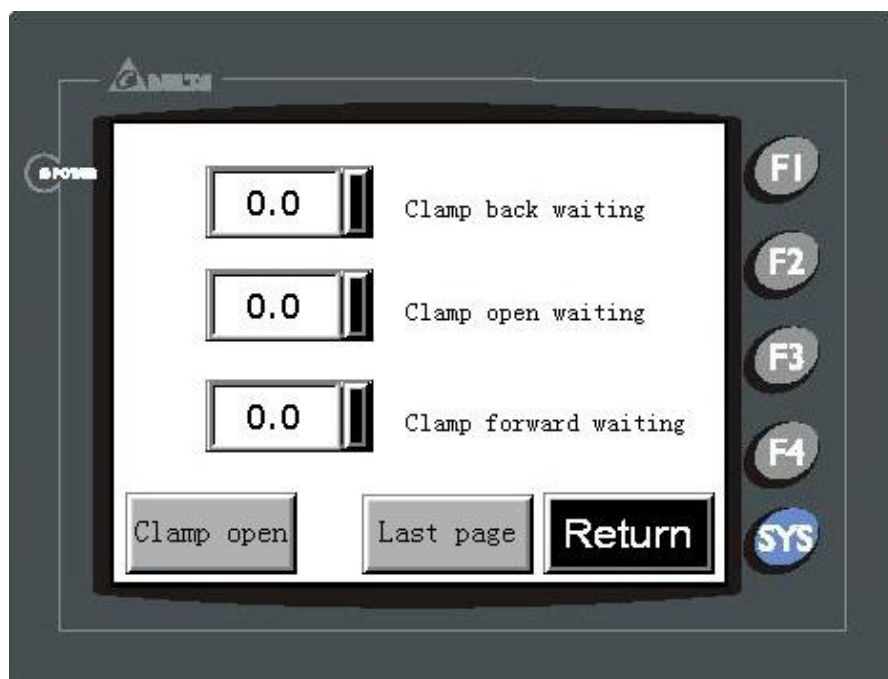
Wrapping mode setting page (GD-800-P-013)



Note:

- Once wrapping: the packaging is completed at one time.
- Twice wrapping: the packaging is completed at twice. When the diameter and width of the unpackaged object is large, the tape storage on the ring cannot store enough packaging tapes at one time, so the “Twice Wrapping” mode shall be selected to package the object at twice.

- only touch corresponding button and press “Enter” when selecting “Once Wrapping” or “Twice Wrapping”. Refer to Figure GD-800-P-012
- “Trolley Speed”: It defines the traveling speed of trolley.
- Ring speed and roller speed: They are not only referred to as the running speed of ring and roller respectively, but are also in connection with the overlapping of packaging tape. If the ring speed is high and roller speed is low, the packaging tape features a large overlapping range; on the contrary, the overlapping range is small. Touching “Ring Speed”, “Roller Speed” or “Trolley Speed” can modify corresponding parameter. Refer to Figure GD-800-P-011/GD-800-P-013.
- When the “Next page” in “Wrapping mode” setting page is touched, the following wrapping mode setting page will display automatically (GD-800-P-014) .



- Touch the “Return” button to return to the automatic home page (GD-800-P-007) .

### III. OPERATIONS:

1. Connect to external power supply and air supply as per requirement.
2. Rotate the “POWER” switch clockwise to connect to the power supply of the machine.
3. Rotate the “EMERGENCY STOP” switch clockwise. At this time, the indicator lamp on the top of electrical box is “on”.
4. Select required operating language on the HMI.
5. Turn the “MANUAL/AUTO” switch on the operating panel to “AUTO” position, and then the machine will work in automatic mode. Operate HMI, select and set the options one by one and make confirmation.
6. Use flexible sling to safely hoist the unpackaged object to the central position of machine roller. Prevent the unpackaged object from colliding with the work station and down protective roller during this process.
7. Operate the “DOWN ROLLER NARROW” to make unpack object protected. Note: During the process of down roller adjustment, the unpackaged object shall be under hanging status, otherwise the adjustment operation cannot be accomplished due to the obstruction of the unpackaged object and even the roller mechanism will be damaged.
8. To Confirm whether the ring is reset or not. If it is not reset, operate the “RING RESET” button to reset it. Note: Before operating the



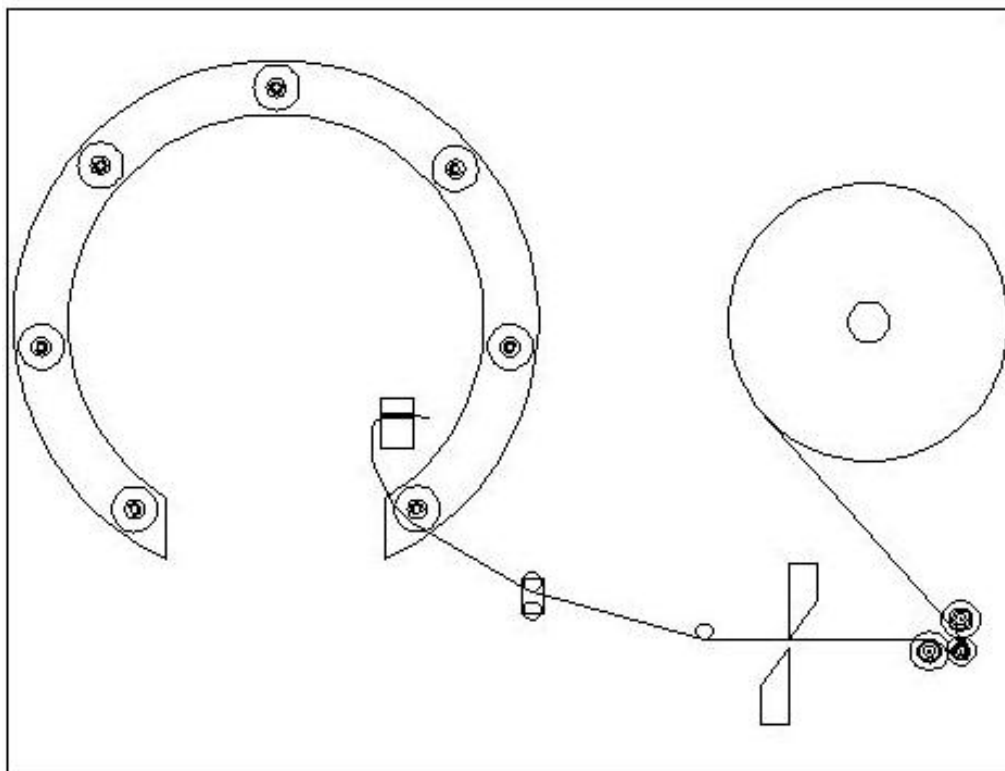
“RING RESET” button, turn the “MANUAL/AUTO” switch to “MANUAL” position. After the completion of ring reset, return to “AUTO” mode.

9. Turn the “WORK STATION” switch to “Forward” to slowly hoist the unpackaged object to the packaging position. (Notice: do extend the up roller before changing the object to bigger one, to avoid collision of the up roller and big object when trolley forwards.)
10. The extension and narrowing of down protective rollers can be so controlled that the unpackaged object can be smoothly passed over in the case of machine operation, neither too loose, nor too tight.
11. Operate the “RING DOTTING” button to have ring running slowly. Ensure the ring can position at the center or smoothly thread through the inner diameter of unpackaged object. If the deviation is too much, the “BASE BOARD UP” or “BASE BOARD DOWN” button can be operated to adjust the horizontal level of ring.
12. Press the “RING START” button to have the machine run in automatic manner until one complete packaging is finished.
13. Use adhesive tape or other method to fix the ends of packaging tape.
14. Operate the “WORK STATION” switch to “BACK” position to have the packaged object exited from the packaging position. (Notice: when wrapping small object, please raise up the base board where the photo electricity cannot detect the trolley, to avoid the trolley crashing with

the board when reverse back).

15. Operate the “DOWN ROLLER EXTEND” button to open the down protective roller.
16. Use sling to take the packaged object away safely.
17. Start next new packaging operation according to the above-mentioned operating process.

Tape-threading Schematic (GD-800-CD-01):



## VI. Troubleshooting

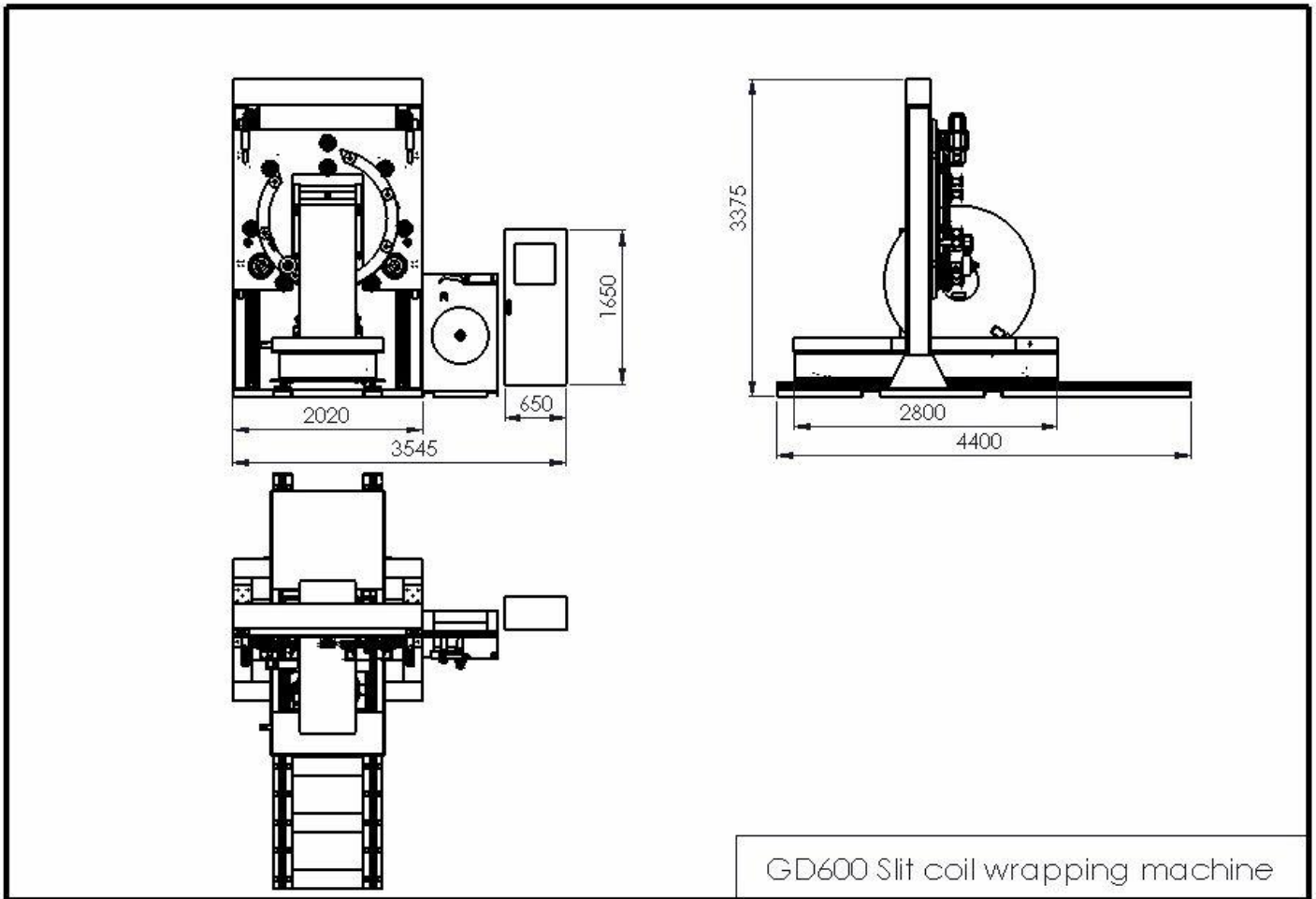
Problem	Possible cause & solution
I. The complete machine doesn't work.	<ol style="list-style-type: none"> <li>1. Check external power supply and power switch.</li> <li>2. Check whether the air switch in the electrical box is connected.</li> <li>3. Check whether various communication lines in the machine are normal.</li> </ol>
II. The ring doesn't rotate or rotates abnormally.	<ol style="list-style-type: none"> <li>1. Check the wear of friction wheel. If it is seriously worn, new friction wheel shall be replaced.</li> <li>2. Adjust the friction wheel.</li> <li>3. Check whether any packaging tape or garbage is clipped into the friction pulley track.</li> <li>4. The motor features over-current, and frequency converter is protected automatically.</li> </ol>
III. Packaging tape is too loose or tight.	<ol style="list-style-type: none"> <li>1. Adjust the force of tension belt.</li> </ol>
IV. The ring and roller don't work.	<ol style="list-style-type: none"> <li>1. Check power supply.</li> <li>2. Check whether the parameter values of "ring speed" and "roller speed" in the wrapping mode setting page (GD-600-P-011) are properly set.</li> <li>3. Check whether the alarm indicator lamp on the top of electrical box flashes. If the alarm lamp flashes, the failure prompt on HMI shall be viewed in time.</li> </ol>

<p>V. The machine shuts down suddenly, alarm lamp flashes and HMI pops up relevant information</p>	<p>1. Check corresponding motor and connecting wire according to the prompt of HMI.</p>
<p>VI. Packaging tape is misaligned or multi-folded.</p>	<p>1. Check whether the feeding route of packaging tape is on one straight line.                  2. Check whether the tape storing wheel on the ring is damaged.                  3. Check correcting sheet.                  4. Check whether the force of tension belt is appropriate.                  5. The pressure of the pressure mechanism of packaging tape is too high. 6. As too many tapes are stored on the tape storing wheel, “twice wrapping” shall be needed.                  7. High-quality packaging tape shall be replaced.</p>
<p>VII. The overlapping degree of packaging tape cannot be adjusted.</p>	<p>1. Check whether the parameter values of “ring speed” and “roller speed” are in consistent with the value displayed on the frequency converter in electrical box. If inconsistent, please check the communication line between the HMI and frequency converter.</p>
<p>VIII. The tape is cut improperly or not cut at all.</p>	<p>1. Check the operating mode of the machine.                  2. Check whether various set parameters of HMI are normal.                  3. Check whether the “wrapping mode setting page (GS-600-P-011)” is under “twice wrapping” status.                  4. Check whether the encoder is operating normally</p>

IX. the trolley cannot go forward or back	<ol style="list-style-type: none"><li>1. The ring didn't turn to the reset state to conduct ring reset.</li><li>2. Proximity switch of ring positioning hasn't detected the induction block. Can adjust the speed 2 frequency of ring convertor or adjust the Acceleration and deceleration time of ring convertor.</li></ol>
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## Maintain

1. Adding antifreeze solutions for the motors when the temperature below 0 cent degree
2. Check and screw down the friction wheel every 2 months.
3. Check up the machine in regularly, cleaning the waste packing material near by the machine.
4. Adding lubricant for the chain per half year.
5. Cleaning the dust in control box regularly.



## FPS-300/400/500 Vertical wrapping machine

