

Automatic Rigid Box Maker

RB240



zhengrun
Since 1997

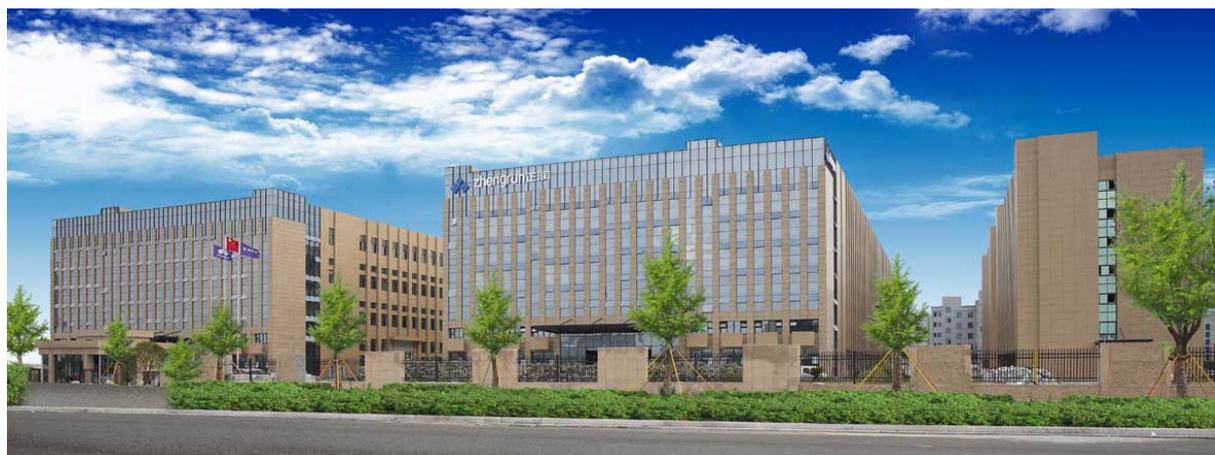
品质铸造 正润品牌

About ZHENGRUN:

Zhejiang Zhengrun Machinery Co., Ltd., established in 1997, is the first domestic brand to start the business of packaging equipment. The company is mainly engaged in the R&D, design, production and sales of the case maker and rigid box machinery.

The company has the modern standard factory buildings covering 66,000m², as well as a highly professional R&D and production team and the world's leading super-large production and processing center. Zhengrun's packaging equipment can be applied to the rigid box packaging of many brands in multiple fields, such as electronics, cosmetics, jewelry, wine, garment and shoes, moon cake and tea, desk calendars, notebooks. The company has the right to import and export, and has gained the certificate of ISO9001 quality management system with all products gained the European CE. The products and services now cover more than 80 countries and regions.

Since its inception, the company always adheres to the business development concept of considering that "Quality builds Zhengrun brand". The company passes on the artisan spirit, pursues higher quality and aims to establish a stronger brand, so as to become the world's representative "Made in China" brand in printing and packaging industry.



I . Instruction

RB240 Automatic Rigid Box Maker is the professional equipment for making small size rigid boxes. It employs PLC, HD camera positioning system, HMI to automatically finish feeding and gluing paper, conveying cardboard, forming and pasting four corners, positioning and wrapping box in one time, instead of manual production, greatly improving the production efficiency and box quality. It is applicable to make rigid boxes for cell phones, jewelry, cosmetics, gifts etc.

II . System Compositions

Product name: Automatic rigid box maker

Model: **RB240**



1. Main Accessories

- ◆ PLC System: Japanese OMORN PLC
- ◆ Transmission System: Taiwan Yintai
- ◆ Electric Components: French SCHNEIDER
- ◆ Photoelectric Components: Japanese OMRON
- ◆ Pneumatic Components: Japanese SMC,
- ◆ Converter: Japanese OMRON
- ◆ Servo system: Japanese OMRON
- ◆ Touch screen: Japanese OMRON
- ◆ Conveyer Belt: Swiss HABASIT
- ◆ Main Motor: Italian MGM
- ◆ Bearing: Japanese NSK

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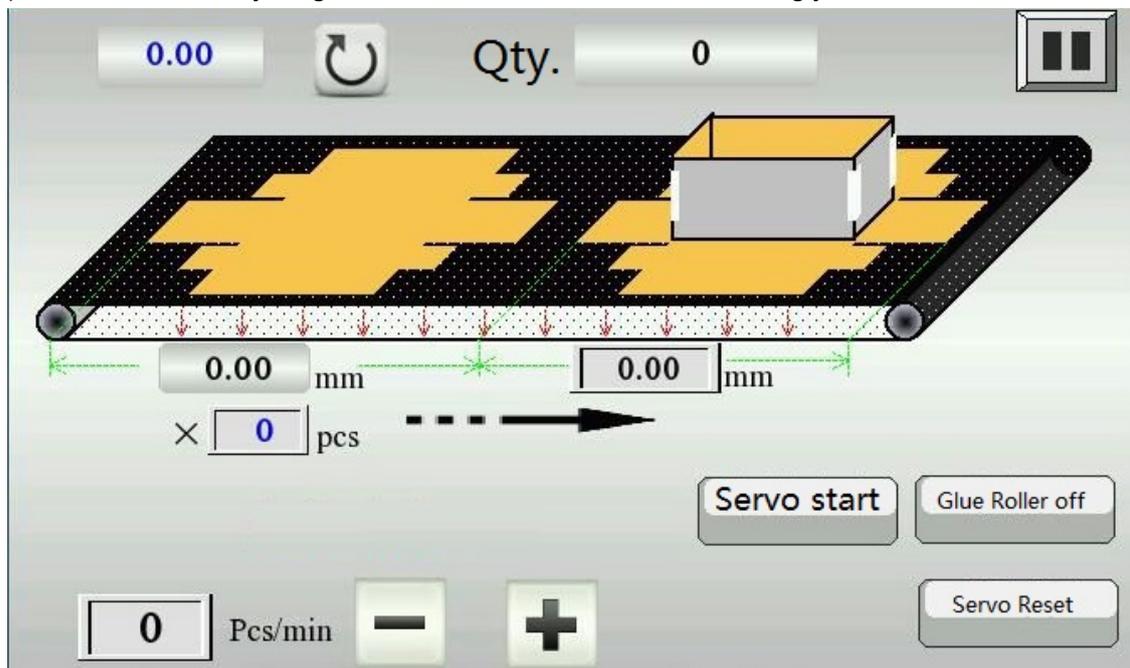
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- ◆ Vacuum pump: Germany BECKER
- ◆ Gluing system: chromed Stainless steel roller, copper gear pump

2. Basic Functions:

- (1) Servo paper feeder
- (2) Automatic circulation, mixing and gluing system of hot-melting glue.
- (3) Hot-melting paper tape is automatic conveying, cutting, and pasting the cardboard box corners in one process.
- (4) The vacuum suction fan under the conveyor belt can keep the glued paper from deviating.
- (5) The glued paper and cardboard box employs HD camera rectifying, servo conveying and positioning.
- (6) The box gripper can automatically collect and deliver the box to the wrapper.
- (7) The wrapper can continually delivery boxes, wrap, fold ears and paper sides and form the box in one process.
- (8) The whole machine employs PLC, HD camera positioning system and HMI to form boxes in one time.
- (9) It can automatically diagnose the troubles and alarm accordingly.



Friendly HMI

3. Functions and Characteristics

The automatic rigid box maker is composed of Gluer (the paper feeding&gluing unit), Former (four-corner pasting unit), Spotter (the positioning unit) and Wrapper (the box wrapping unit), which are controlled through a PLC in a linkage mode.

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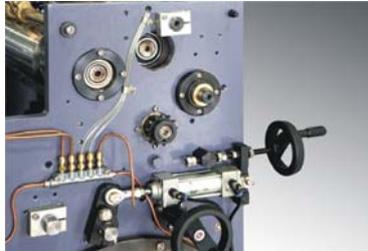
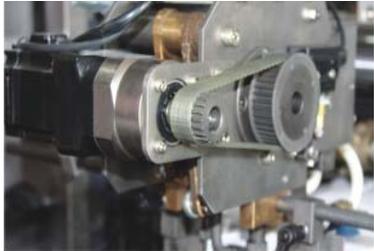
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(1) Gluer (the paper feeding&gluing unit)

- ◆ New designed servo controlled paper feeder adopts post-sucking pre-pushing type to convey paper which efficiently avoids two pieces of papers entering into the machine.



- ◆ The concentrated oil system fully ensures each parts lubricating and the steady running.
- ◆ The glue tank is of consistent temperature, automatically mixing, filtering and gluing in a circulation. It has fast shift valves which can helps user to clean the gluing rollers quickly in 3-5 minutes.



- ◆ Chromatic-plated stainless steel glue rollers are applicable to different glues, featuring in durability.
- ◆ The copper scraper line-touched to the glue roller, durable.



- ◆ Optional device: glue viscosity meter, timely control the glue viscosity.

(2) Former (the four-corner pasting unit)

- ◆ Non-stop bottom-drawn cardboard feeder.

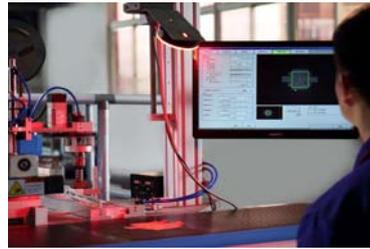


- ◆ The hot-melting paper tape is automatically conveying, cutting and pasting four-corner.
- ◆ Auto conveyer belt is connected to the Former and Spotter.

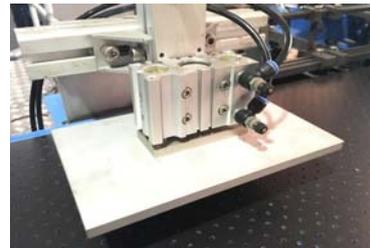


(3) Spotter (the positioning unit)

- ◆ The vacuum suction fan keeps the glued paper from deviating.
- ◆ HD camera positioning device is faster response and more accurate.



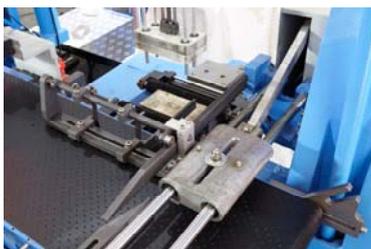
- ◆ All icons control panel is easy to understand and operate.



- ◆ Box pre-press device, fix the paper and box tightly and remove the bubbles.

(4) Wrapper (the wrapping unit)

- ◆ Computerized box gripper moves the box from the conveyor belt to the Wrapper automatically.

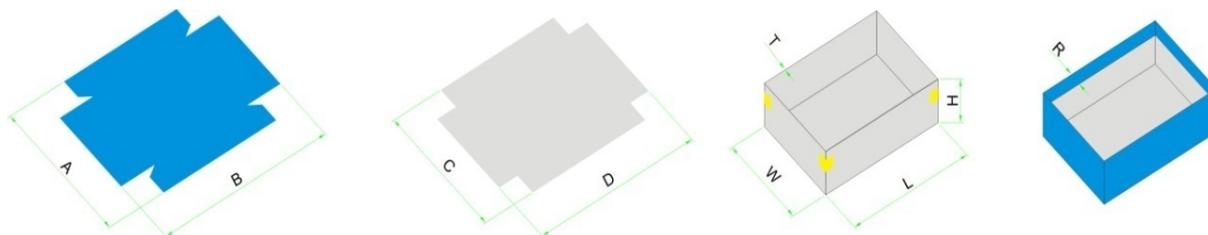


- ◆ Adopt durable 38CrMoAl alloy steel disc cams.
- ◆ Continually feed boxes, wrap sides, fold ears and fold-in paper in one time.



- ◆ Adopt air blowing to move out the box from Wrapper.

III. Technical Parameter:



The corresponding relation between the specifications:

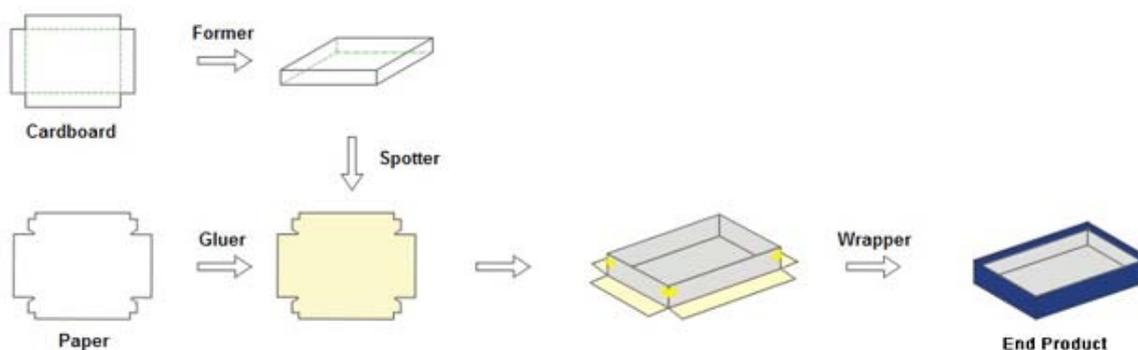
$$W+2H-4T \leq C(\text{Max})$$

$$L+2H-4T \leq D(\text{Max})$$

$$A(\text{Min}) \leq W+2H+2T+2R \leq A(\text{Max})$$

$$B(\text{Min}) \leq L+2H+2T+2R \leq B(\text{Max})$$

Production flow:



| RB240 Automatic rigid box maker | | | |
|---------------------------------|------------------------------------|-------------------------|-------|
| 1 | Paper size(A×B) | Amin | 45mm |
| | | Amax | 305mm |
| | | Bmin | 110mm |
| | | Bmax | 450mm |
| 2 | Paper thickness | 100-200g/m ² | |
| 3 | Cardboard thickness(T) | 0.8~3mm | |
| 4 | Finished product(box) size (W×L×H) | Wmin | 35mm |
| | | Wmax | 160mm |
| | | Lmin | 45mm |
| | | Lmax | 240mm |
| | | Hmin | 12mm |
| | | Hmax | 80mm |
| 5 | Folded paper size (R) | Rmin | 10mm |
| | | Rmax | 25mm |
| 6 | Precision | ±0.20mm | |
| 7 | Production speed | ≦ 32sheets/min | |
| 8 | Motor power | 13.9kw/380v 3phase | |
| 9 | Air supply | 10L/min 0.6Mpa | |
| 10 | Machine weight | 4000kg | |
| 11 | Machine dimension | L4500×W4000×H3000mm | |

Note:

- ◆ The box Max.&Min. sizes are subjected to paper size and quality.
- ◆ The speed of the machine depends on the sizes of the boxes

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- ◆ Hot melting glue paper tape max. diameter: 350mm, inside diameter: 50mm
- ◆ Paper stacking height: 300mm (Max)
- ◆ Glue tank volume: 28L

Samples:

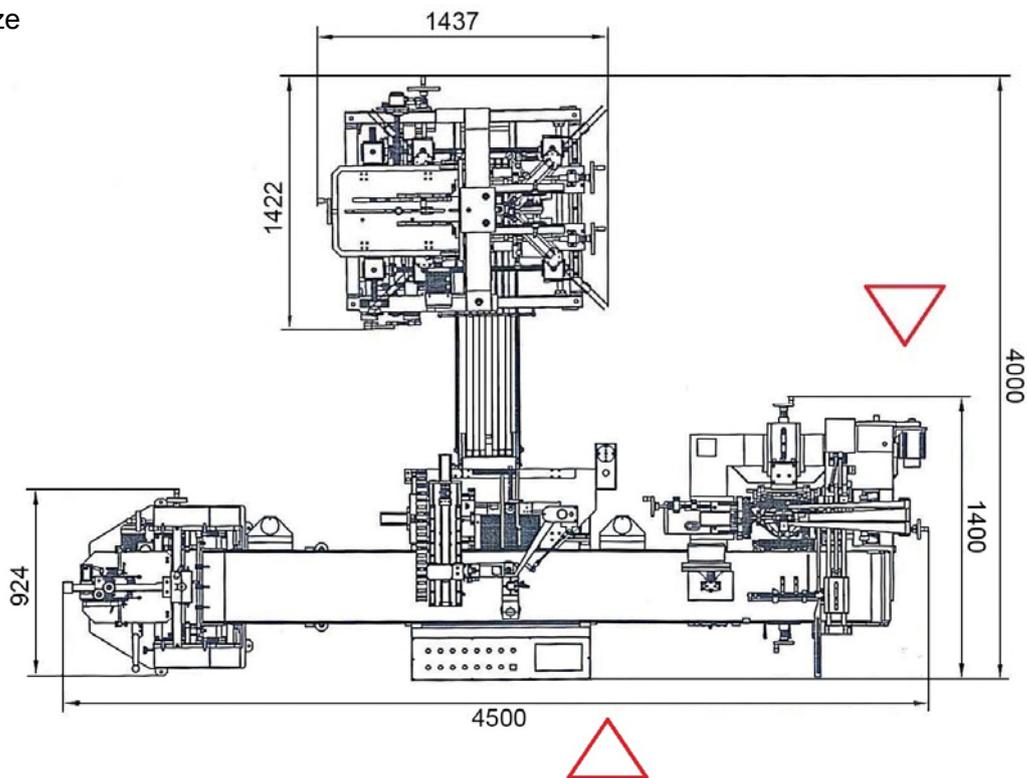


IV. Important Observations for purchasing

1. Requirements for Ground

The machine should be mounted on the flat and firm ground which can ensure it has enough capacity of load (about 500kg/m²). Around the machine should keep enough space for operation and maintenance.

2. Size



3. Ambient Conditions

- ◆ Temperature: the ambient temperature should be kept around 18-24°C(The air-conditioner should be equipped in summer.)
- ◆ Humidity: The humidity should be controlled around 50%-60%.
- ◆ Lighting: above 300LUX that can ensure the photoelectric components can work regularly.
- ◆ To be away from oil gas, chemicals, acidic, alkali, explosive and inflammable substances.
- ◆ To keep the machine from vibrating and shaking and being next to the electric apparatus with high-frequency electromagnetic field.
- ◆ To keep it from being directly exposed to the sun.
- ◆ To keep it from being blown directly by the fan.



4. Requirements for Materials

- ◆ Paper and cardboards should be kept flat all the time. The humidity of cardboards should be kept around 9%-13%
- ◆ The laminated paper should be electro-statically processed in double-side.

5. The color of the glued paper is similar to or same to that of the conveyor belt (black), and another color of glued tape should be stuck on the conveyor belt.

6. The power supply: 3 phase 380V/50Hz (sometimes, it can be 220V/50Hz、415V/Hz according to

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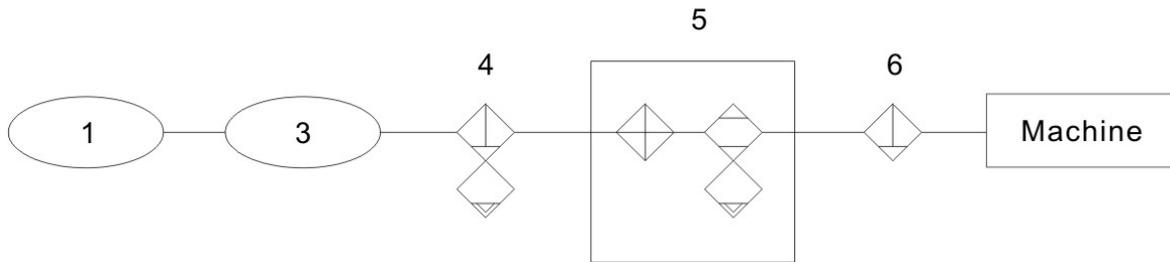
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the actual conditions in different countries).

7. The air supply: 5-8 atmospheres (atmosphere pressure), 10L/min. The poor quality of air will mainly resulted in troubles for the machines. It will seriously reduce the reliability and life of the pneumatic system, which will result in lager loss or damage that may terribly exceed the costs and maintenance of such system. Therefore it must be technically allocated with a good quality air supply system and their elements. The followings are the air purifying methods only for reference:



| | | | |
|---|---------------------|---|-----------------------|
| 1 | Air compressor | | |
| 3 | Air tank | 4 | Major pipeline filter |
| 5 | Coolant style drier | 6 | Oil mist separator |

- ◆ The air compressor is a non-standard component for this machine. This machine is not provided with an air compressor. It is bought by the customers independently.
 - ◆ The function of the air tank:
 - a. To partly cool the air with higher temperature coming out from the air compressor through the air tank.
 - b. To stabilize the pressure that the actuator elements in the back uses for the pneumatic elements.
 - ◆ The major pipeline filter is to remove the oil distain, water and dust, etc. in the compressed air in order to improve the work efficiency of the drier in the next process and to prolong the life of the precision filter and drier in the back.
 - ◆ Coolant style drier is to filter and separate the water or moisture in the compressed air processed by the cooler, the oil-water separator, air tank and major pipe filter after the compressed air has been removed.
 - ◆ The oil mist separator is to filter and separate the water or moisture in the compressed air processed by the drier.
8. Persons: for the sake of the safety of the operator and the machine, and fully taking advantage of the performance of the machine and reducing troubles and prolonging its life, 2-3 persons, skillful technicians capable of operating and maintaining machines should be assigned to operate the machine.

9. Auxiliary materials

- ◆ The hot melting glue tape specification: Width 22mm, Thickness 81g/m², Outer diameter: 350mm(Max), Inner diameter 50mm, Length 300m/Circle, Melting point: 150-180°C
- ◆ Glue: animal glue(jelly gel, Shili gel), specification: high speed fast dry style