

## Automatic Case Maker



**ZHENGRUN**

品质铸造 正润品牌

## I . About the Automatic Case Maker

At present, most factories employ manual and semi-mechanic modes to manufacture cases, which need large quantity labor force, requiring more personnel for the human resource management for such activities. Particularly most of the employees are of poor quality, lowly educated. As a result it has given much burden on the shoulders of the managers and employers. But right then no products can substitute such manual work. Some machines are specially designed for making book covers. And the imported ones cost much. Our full automatic book cover maker has filled such gap. It has higher production capacity, needs only a few workers. The products made with it are beautiful in outlook and higher precision. Therefore it is widely used to making hard book covers, clips, table calendars, wall calendars, etc.

### Introduction:

Zhongde Group Zhengrun Machinery Co., Ltd. established in July 1997 at Pingyang Zhenglou Industrial Area. It has standard factory 22,000 square meters, 200 employees, and has become the best manufacturer for rigid box and case maker machinery equipped with most advanced CNC tooling machines in China. We have rights of self-managed import and export. Our company has been admitted to ISO9001 Quality Management System Certificate. The products have been admitted to Europe CE Certificate. Our products have been exported to Europe, America, South Africa, the Middle East and the Southeast Asia, more than fifty countries and regions. There are an agency networks all over the world.

For many years' development, our company is devoted itself to developing and researching new products and offering quality products to customers from home and abroad. It always abides by the enterprise idea '**Quality Builds Zhengrun Brand**'. We are spare no effort to manufacturing quality products and prospering the enterprise.



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## II. System Compositions

Product name: Automatic Case Maker(alias: Book Cover Machine or Automatic Covering Machine)

Model: AFM450A、AFM540A、AFM600A

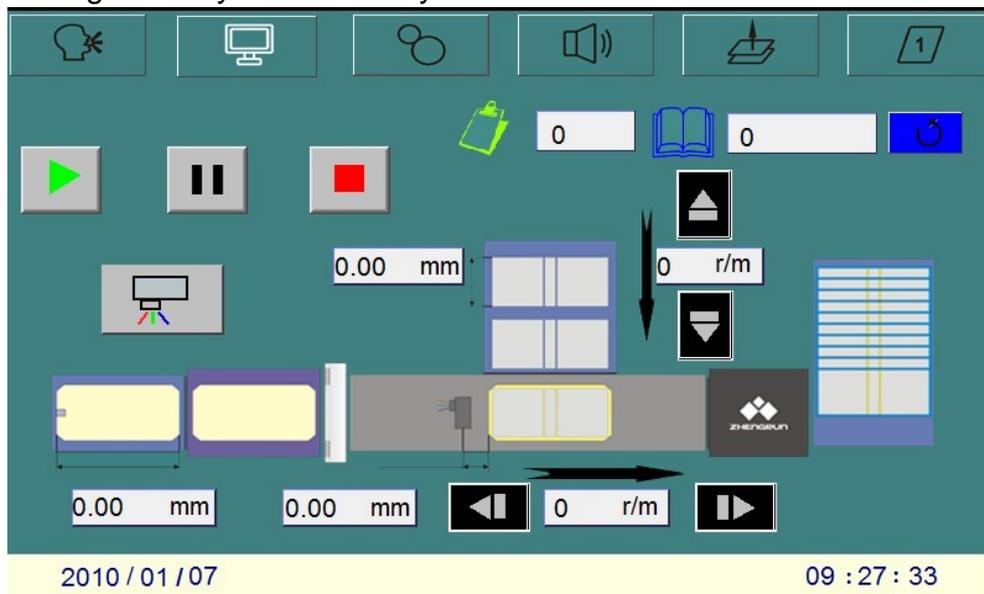


### 1. Main Accessories

- ◆ PLC System: Japanese OMRON PLC, color touch screen 10.4 inch
- ◆ Transmission System: imported precise screw and guide transmission
- ◆ Electric Components: French Schneider
- ◆ Pneumatic Components: Japanese SMC
- ◆ Photoelectric Components: Japanese SUNX
- ◆ Ultrasonic double paper checker: Japanese KATO
- ◆ Conveyer Belt: Swiss Habasit
- ◆ Servo Motor: Japanese YASKAWA
- ◆ Reducing Motor: Taiwan Chengbang
- ◆ Bearing: imported NSK
- ◆ Gluing cylinder: chromed Stainless steel (New processes)
- ◆ Other parts: ORION vacuum pump

## 2. Basic Functions:

- (1) Automatically delivery and gluing for paper
- (2) Automatically delivering, positioning and spotting for cardboards.
- (3) Four-side folding and forming in one time (with automatic angle trimmer)
- (4) The whole machine adopts open-type construction in design. All motions can be seen clearly. The troubles can be easily remedied.
- (5) With friendly Human-Machine operation interface, all troubles will be displayed on the computer.
- (6) Plexiglass cover is designed according to the European CE Standards, featuring in safety and humanity.

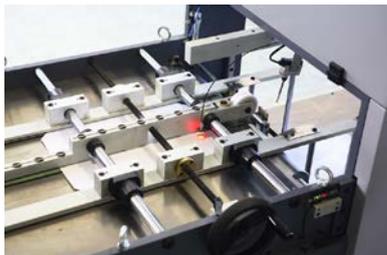


**Friendly Operation Interface**

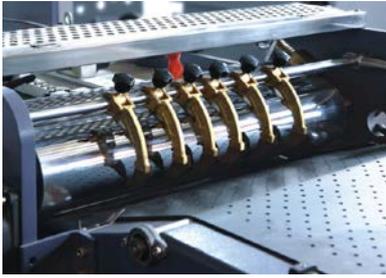
## 3. Functions and Characteristics

### (1) Paper Gluing Unit:

- ◆ Full-pneumatic feeder: simple construction, convenient operation, novel design, controlled by PLC, motion correctly. (this is the first innovation at home and it is our patented product.)
- ◆ It adopts ultrasonic double-paper detector device for the paper conveyor
- ◆ Paper rectifier ensures that the paper won't deviate after being glued



- ◆ Gluing cylinder is made of finely-grinded and chromium-plated stainless steel. It is equipped with line-touched type copper doctors, more durable.



- ◆ Gel tank can automatically glue in circulation, mix and constantly heat and filter.
- ◆ With fast-shift valve, it will take only 3-5 minutes for the user to clean the gluing cylinder.

### (2) Cardboard Conveying Unit

- ◆ It adopts a bottom drawing unit for the cardboard conveyer, which can add cardboard at any time without stopping machine.



- ◆ While it lacks cardboard during conveying, there is an auto detector.(The machine will stop can alarm while lacking one or several pieces of cardboards in conveying)

### (3) Positioning-spotting unit

- ◆ It adopts servo motor to drive the cardboard conveyer and high-precision photoelectric cells to position the cardboards.
- ◆ The power-full vacuum suction fan under the conveyer belt can have the paper sucked stably onto the conveyer belt.
- ◆ Cardboard conveying employs servo motor to transmission



- ◆ The PLC control on-line motion

- ◆ The pre-press cylinder on the conveyer belt can ensure that the cardboard and paper are spotted before their sides are folded.

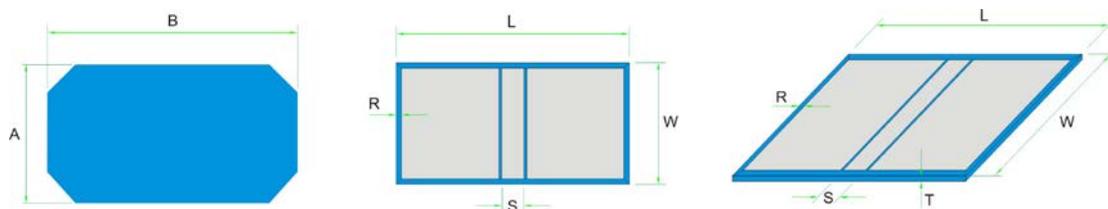
(4) Four-side folding unit

- ◆ It adopts a film base belt to fold the left and right sides.
- ◆ The trimmer will give you a sound folding result.



- ◆ It adopts a pneumatic man-hand trimmer to trim the angles.
- ◆ It adopts a to-and-fro conveyer for the front and back sides and a man-hand holder to fold.
- ◆ It adopts a non-glue Teflon cylinder for press multi-layers.

III. Technical Parameter:

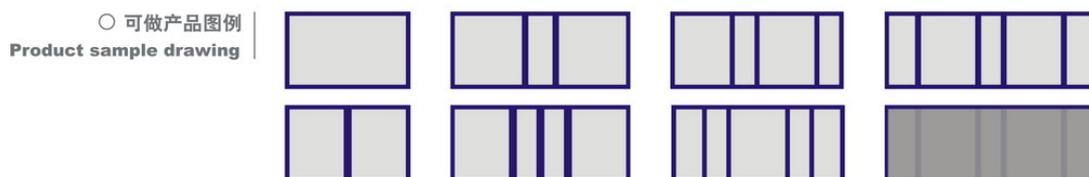
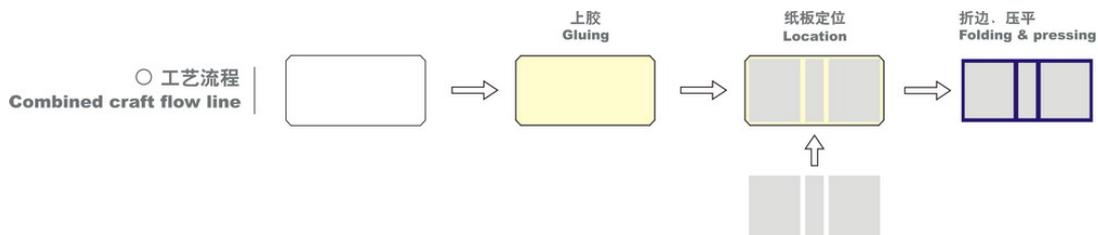


The corresponding relation between the specifications:

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

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

Production flow:



注：其他可做样式，不再一一例举。本机可做产品均为左右对称的产品。

Automatic maker	case	FD-AFM450A	FD-AFM540A	FD-AFM600A
1	Paper size(AxB)	MIN: 130x230mm MAX: 480x830mm	MIN: 130x230mm MAX: 570x1030mm	MIN: 230x280mm MAX: 630x1030mm
2	Paper thickness	100~200g/m <sup>2</sup>	100~200g/m <sup>2</sup>	100~200g/m <sup>2</sup>
3	Cardboard thickness(T)	1~3mm	1~3mm	1~3mm
4	Finished product size(WxL)	MIN: 100x200mm MAX: 450x800mm	MIN: 100x200mm MAX: 540x1000mm	MIN: 200x250mm MAX: 600x1000mm
5	Spine(S)	10mm	10mm	10mm
6	Folded paper size(R)	10~18mm	10~18mm	10~18mm
7	Max quantity of cardboard	6pieces	6pieces	6pieces
8	Precision	±0.50mm	±0.50mm	±0.50mm
9	Production speed	≅ 25sheets/min	≅ 22sheets/min	≅ 22sheets/min
10	Motor power	5kw/380v 3phase	5kw/380v 3phase	5kw/380v 3phase
11	Heater power	6kw	6kw	6kw
12	Machine weight	3200kg	3500kg	3900kg

Note:

- ◆ The max and mini sizes of the covers are subjected to those of the paper and the quality of the paper
- ◆ The production capacity is 25 cover per minute. But the speed of the machine depends on the sizes of the covers
- ◆ Cardboard stacking height: 220mm
- ◆ Paper stacking height: 280mm
- ◆ Gel tack volume: 60L
- ◆ Work shift time for a skillful operator from one product to another: 30minutes

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 300kg/m<sup>2</sup>). Around the machine should keep enough space for operation and maintenance.

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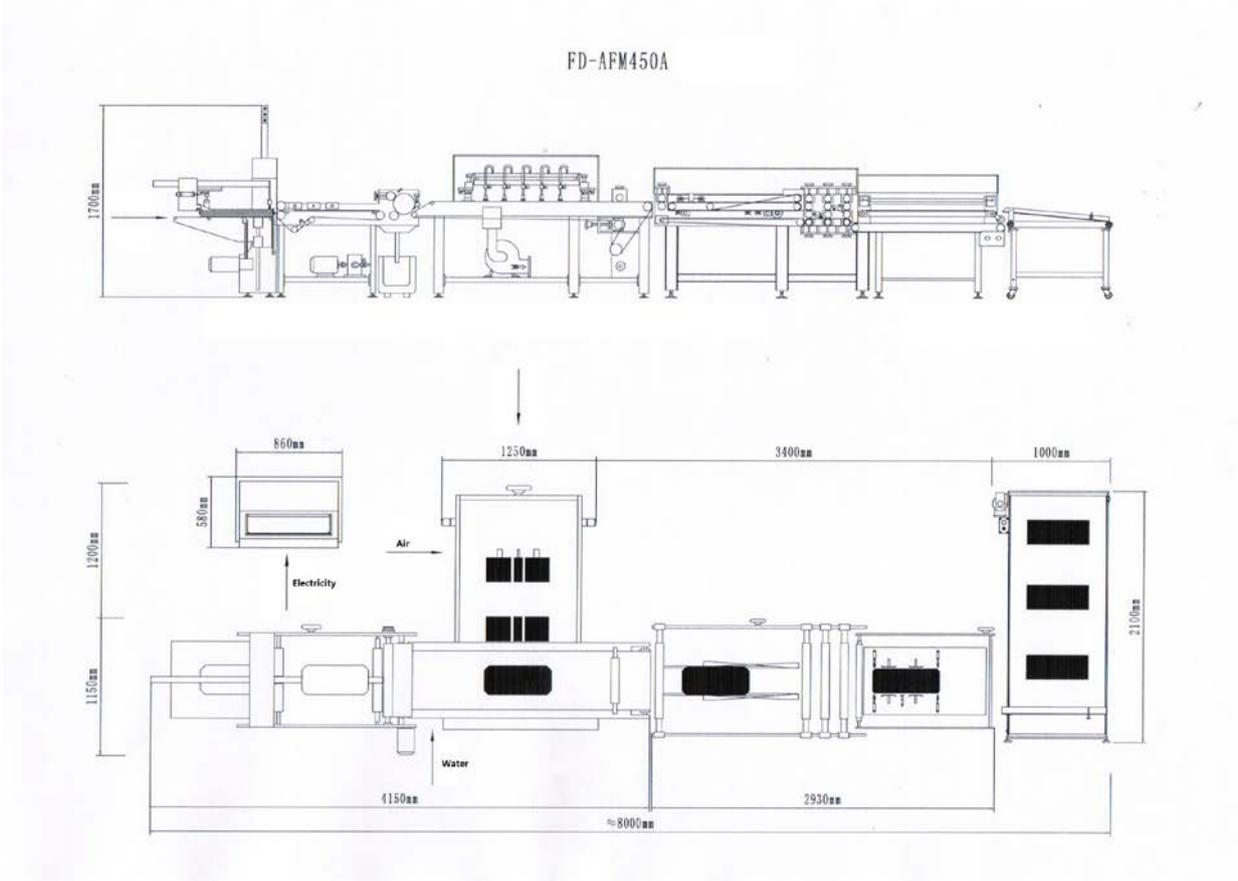
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## 2. Machine dimension



## 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: About 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 nest 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 paper laminating should be electro-statically processed in double-side.
- ◆ The cardboard cutting precision should be controlled under  $\pm 0.30\text{mm}$  (Recommendation: using cardboard cutter KL1300 and shine cutter ZX450 )

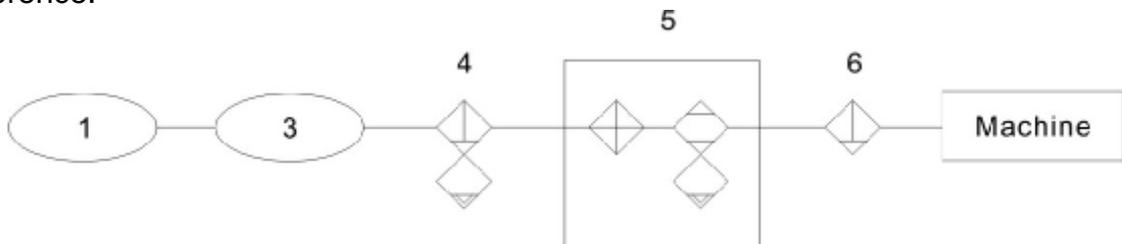


**Cardboard cutter**



**Spine cutter**

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.(Generally, attach the 10mm width tape beneath the sensor, suggest tape color: white)
6. The power supply: 3 phase, 380V/50Hz, sometimes, it can be 220V/50Hz 415V/Hz according to 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 (Air compressor power: 11kw, air flow rate: 1.5m<sup>3</sup>/minute).
- ◆ The function of the air tank (volume 1m<sup>3</sup>, pressure: 0.8MPa):
  - 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 hard, skillful technicians capable of operating and maintaining machines should be assigned to operate the machine.
9. Auxiliary materials
- Glue: animal glue (jelly gel, Shili gel), specification: high speed fast dry style