Company profile

Tecon Package Machinery Limited is a high-tech equipment manufacturer owned by CNBM Group. We designed the first production line for paper bag 20 years ago, and now we are listed in the world top three in this industry and the only one in China able to design & manufacture the whole production line of bottom sealed paper bag.

Our equipment has served Chinese paper bag industry for 20 years and started running into overseas market for 8 years. Now there are more than 25 Tecon paper bag production lines operating in 13 countries. They are producing paper bags used for packing cement, sugar, milk powder, rice, chemical products, etc.

Paper bag is replacing PE/PP woven bag in most of the countries now and we are facing a fast developing period. We are aiming to provide a full paper bag making solution to all over the world, let the world find cost-effective, high automatization, high production capacity paper bag production line.

Features of our full-automatic paper bag production line:

- Flat & glued bottom with filling valve;
- Different types for cement, chemicals, foods, tea, etc.
- 4-color automatic printing
- 2~4 paper layers, with one extra PE/PP film available
- 35~50 million bags/year
- Servo system control or PLC control available, integrated with Photoelectric & Pneumatic control system, Siemens electrical system
- Full technical service for installation, training and maintenance
- Full solution for factory construction and materials purchase.

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CNBM GROUP (China National Building Material & Equipment Group Corporation) is a state-owned enterprise in building material & equipment industry. It is one of the large-scale groups under Chinese Central Government.

CNBM has a total assets of 4 billion US Dollar; a staff of 40 thousands; 200 affiliated companies; covers the business scope from design, manufacture and sales of wide range building materials & equipment: chemical building materials, cement, composite materials, glass etc. and brick production line, ceramic tile production line, concrete block making machine, paper bag production line etc. CNBM is also engaged in relative scientific research, real estate development, import and export trade, consulting service. And in many of these fields, CNBM is playing the leading role.
Process description

ZT9804 Tuber Machine
Paper Reel Rack

- The machine is equipped with 5 shafted paper reel racks, to ensure 1-5 paper plies available during production.
- Each reel stand is equipped with pneumatic shaft to tightly hold the paper reel.
- Also each unit has its own breaking system to keep a stable tension force on the rolling paper reel.

4-Color Automatic Printing

- High automatization.
- Four colors are optional for our printing machine, to ensure all of your print requirements are met in highest quality.
- Print roller will automatically disengage when the machine stops, preventing the paper sticking to the print roller.
- Longitudinal & Latitudinal lines are carved on the printing roller, very convenient for pasting printing plate.

The printing machine is controlled by PLC and equipped with high quality pneumatic device system.

Deviation Rectifying System and Auxiliary Driving

- This unit is to guide each paper layer and rectify the deviation during operation.
- Air-liquid servo guiding system in this section can restrict the paper running in pre-set range to prevent it from deviation.
- Giving the paper a proper and stable tensile force ensuring no breakage during the following steps.
- The paper is controlled by hydraulic guiding rollers and air sensors to ensure the paper is presented into the next section in the correct position.
- The printed ply of the paper can also be adjusted through this point to ensure a good overprint quality.

Perforating

- This function is to puncture breaking trace on the ends of paper tube for the following tearing-off section.
- This is achieved by using 4 sets of synchronized perforating knifes that perforate each line of paper at the correct position to achieve the correct bag length.
- Each perforating knife is based on its own roller which is driven by its individual gearbox further ensuring greater accuracy to achieve the best results.
- Each knife is equipped with a photoelectric detecting unit to stop the machine if any of the paper line is broken during the production.
Latitudinal Glue Dotting

- This unit is to dot glue on the paper layers to paste ends of paper together after tube is formed, making a smooth bottom-opening on the bottomer machine.
- It is gluing synchronized along with the perforating unit and the paper driving speed to give an accurate gluing application and excellent quality of the finished bags.
- The gluing position can be adjusted according to the changes of bag length.
- The glue position is exactly on the two sides of the tube end.

Longitudinal Glue Brushing

- Longitudinal glue brushing is done after latitudinal gluing to ensure a high quality bags.
- It is gluing synchronized along with the whole machine to give an accurate gluing position.
- Glue flow is controlled automatically, to ensure a constant supply of glue.
- The gluing position can be adjusted according to the changes of bag size.

Tube Forming

- After glued, paper layers travel to tube forming platform.
- Under the applications of tube forming rollers and folding bars, the paper layers are stuck together and tubes are formed finally.
- With the rollers and roller supports, the tube is formed with no air bubble in it.

Main Driving and Tube Tearing-off

- It is the main driver for the whole process in tube making.
- The tube line is separated here into single tubes by the application of speed difference between rollers.
- The separation point is right at the perforated breaking line.
- When the bag length is changed, here can be adjusted accordingly in gear box.
- Photoelectric detector is equipped for operation trouble.

Counting and delivering

- The finished tubes now are delivered into counting section to preset the quantity of tubes.
- Photoelectric control and pneumatic driving device are equipped here to ensure accurate counting and timely delivering.
- The tubes will be pushed out in bundle of 20~40 ones.
- This unit has also been ergonomically built to ensure that there is no repetitive strain injury to operators.
Technical parameter

ZT9804 Tuber Machine

Operating condition

- **Working hour**: 22 hours/day
- **Design temperature**: 0~40℃
- **Design humidity**: MAX. 95%

- **Number required**: 1 unit
- **Model name**: ZT9804

Performance

- **Speed**: 120~140 tubes/min
  (Depends on paper quality, number of ply and operators’ skill.)
- **Tube length**: 560~1050 mm
- **Tube width**: 350~620 mm
- **Space between tape steps**: 20 mm
- **Tube Cut Length**: 640~1005 mm
- **Number of ply**: 2~4 paper + 1 PP/PE
  (Please specify if you need paper bag with PP film)
- **Diameter of print roller**: ø144~ø314 mm
- **Printing width**: 1300 mm (MAX)
- **Paper reel width**: 860~1260 mm
- **Paper reel diameter**: Max. 1, 300 mm
- **Air consumption**: 1,100L/min
- **Main drive motor**: 30kw
- **Size of whole set**: 35.3m×2.4m×2.7m (L×W×H)
- **Total weight**: 34 T
HD4913 Bottomer Machine
### High-speed Feeding & Auto-Arranging
- By using rotary vacuum feeding unit, this machine can run at high production speed to meet volume requirement.
- With the various frequency motor, proper speed can be adjusted according to the paper materials, to ensure a best condition for quality and avoid material waste.
- The tubes will be arranged automatically to place them in right position for the following processes.
- The performance of feeding is most important to maintain high quality products and our feeding unit adopts the best engineering to ensure easy operation and high stability.

### Perforating & Forming Bottom Line on the Tube
- Perforating air-vent holes in the tube end.
- Meanwhile a trace line is formed where is the position to make bottom for the final bags.
- The roller here can be adjusted easily according to different bag size.

### Tube Transporting
- This unit provides the main power for delivering tubes during the bottom sealing process.
- The four delivery belts on two sides (red ones in the picture) are very important in this unit. They have much high requirements on precision, in order to run in synchronization and ensure the bags excellently sealed.
- Photoelectric detecting device is equipped to stop the machine when bag blocking happens
- The belts can be lifted by pneumatic cylinder, so blocked bags can be picked-out easily.

### Bottom Opening
- This unit opens the tubes by mean of vacuum suction pipes.
- Then rotary horn inserts opened tube to continue the fully opening.
- Main delivery, suction device and horn are running in synchronization.
- High quality material is used in all of our machines to ensure a long production life.
Valve Scrip Pasting

- Our machine is fully automatic in pasting valve scrip to the bags, including guiding, cutting, and gluing.
- This unit is runs synchronously with the whole line, ensuring pasting the valve scrip on the correct position.
- The valve scrip can be picked up automatically if the bag bottom is not fully opened.
- Both the scrip and bag bottom will be glued automatically controlled by electrical system.

Bottom Pasting

- This unit glues the bottoms evenly under the control of PLC.
- If the bottom is not fully opened, the unit will avoid gluing these bags.
- For a smooth bottom sealing, this mechanism will also press two bottom traces by two sets of wheels.

Bottom Sealing & Bottom Reversing

- After the bottoms are glued, this section will seal the bottoms by pressing plate.
- Tuning over the bottom by 90° to keep the bottom and bag in the same plane is for the purpose of easy delivering and piling up.
- Repressing the bottoms to firm the bottom pasting.

Bag Counting and Delivering

- The finished bags are presented to the counting collector where the number of a batch can be adjusted to the clients’ requirements.
- The counter is using a photoelectric cell to ensure the correct number in each batch.

The whole machine is under PLC and photoelectricity & air control. Siemens electrical system and high precise mechanical parts are equipped to ensure excellent performance and long working life. Servo system is available for option.
TECON PACKAGE MACHINERY LTD--CNBM GROUP

Technical parameter

**HD4913 Bottom Machine**

**Operating condition**

- **Working hour**: 22 hours/day
- **Design temperature**: 0~40℃
- **Design humidity**: MAX. 95%
- **Number required**: 1 unit
- **Model name**: HD4913

**Performance**

- **Speed**: 100~120 bags/min
  (Depends on paper quality, number of ply and operators’ skill.)
- **Bag length**: 500~800mm
- **Bag width**: 350~620 mm
- **Bottom width**: 90~130mm
- **Bottom open width**: 200~380mm
- **Distance between bottom centers**: 420~780mm
- **Valve sheet length**: 120~240mm
- **Valve sheet width**: 120~170mm
- **Valve Sheet Length Width (L * W)**: (100~250) * (120~170) adjustable
- **Main drive motor**: 33kw
- **Total weight**: 20T
- **Size of whole set**: 22m×1.8m×1.8m (L×W×H)
- **Valve sheet reel diameter**: Max.1,300mm
## Composing of the production line

### ZT9804 Tuber Machine

<table>
<thead>
<tr>
<th>Name</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-color printing machine</td>
<td>1</td>
</tr>
<tr>
<td>Paper reel stands</td>
<td>5</td>
</tr>
<tr>
<td>Paper web guider</td>
<td>1</td>
</tr>
<tr>
<td>Automatic paper rectifier</td>
<td>1</td>
</tr>
<tr>
<td>Auxiliary paper driver</td>
<td>1</td>
</tr>
<tr>
<td>Perforation machine</td>
<td>1</td>
</tr>
<tr>
<td>Latitudinal gluing machine</td>
<td>1</td>
</tr>
<tr>
<td>Longitude gluing machine</td>
<td>1</td>
</tr>
<tr>
<td>Tubes forming unit</td>
<td>1</td>
</tr>
<tr>
<td>Driving tearing-off</td>
<td>1</td>
</tr>
<tr>
<td>Delivery &amp; counting line</td>
<td>1</td>
</tr>
<tr>
<td>Electric control system</td>
<td>1</td>
</tr>
<tr>
<td>Air compressor</td>
<td>1</td>
</tr>
</tbody>
</table>

### HD4913 Bottomer Machine

<table>
<thead>
<tr>
<th>Name</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>High speed feeder machine</td>
<td>1</td>
</tr>
<tr>
<td>Perforation machine</td>
<td>1</td>
</tr>
<tr>
<td>Tube opening unit</td>
<td>1</td>
</tr>
<tr>
<td>Automatic gluing machine</td>
<td>1</td>
</tr>
<tr>
<td>Scrip sealing machine</td>
<td>1</td>
</tr>
<tr>
<td>Bag bottom turning unit</td>
<td>1</td>
</tr>
<tr>
<td>Counting and delivery line</td>
<td>1</td>
</tr>
<tr>
<td>Automatic delivering out unit</td>
<td>1</td>
</tr>
<tr>
<td>Piling up platform</td>
<td>1</td>
</tr>
<tr>
<td>Electric control unit</td>
<td>1</td>
</tr>
<tr>
<td>Vacuum-pump</td>
<td>1</td>
</tr>
</tbody>
</table>

**Remark:** An individual machine for *automatic valve scrip cutting* will be needed for the production. We can provide this machine according to your request, and the cost is separate from the whole production line. This machine is able to produce scrip to meet requirements of 3 bag production lines.
**Technical support & service**

**Installation, commissioning & training:**

For installation, our company will send working team to install the machine.
1) We dispatch working team to supervise installation and commissioning. The buyer’s skillful technical persons, labor force, auxiliary equipment, necessary tools and materials should be available for the installation and commissioning.
2) We provide training during and after the commissioning at the buyer’s site.
3) We also provide training at the seller’s site.
4) Generally the installation and commissioning will be completed in 30 days.
5) The buyer is in charge of the cost of transportation and accommodation of our working team and pay 50 USD/day for each person.

**Warranty:**

12 months from the acceptance at the buyer’s site. Hardware will be replaced for free during warranty period excluding the damages under mistaken operation and maintenance.

**Spare parts:**

1) We provide spare parts for commissioning and buyers should prepare spare parts for their normal production.
2) After expiry of warranty period, we provide spare parts only at basic cost.
3) Generally 10,000~15,000USD per year for spare parts.

**Plant construction:**

We will provide full solution for the buyer’s plant construction according to the buyer’s requirements.

The whole production line will be tested at the seller’s site, and only can be delivered after successful commissioning and accepted by the buyer.
**Auxiliary equipment and Manpower**

1. Scrip automatic cutting machine
2. Bundler machine
3. 2T Crane (used to carry paper reels onto the machine, one unit for one production line)
4. 2T Forklift with a clamp to carry stock paper reels
5. 2T Forklift pulling trolley (used to carry finished tubes and bags, prepared by buyer’s self, one unit for one production line)

Besides these, there is no need for any other auxiliary equipment.

All of the above auxiliary machine are available at our side as your requirements, but not included in the main machine quotation.

**Manpower:**

8~12 operating persons each shift for one production line

One mechanical engineer

One electrician

**Remark:**

The paper material and glue used in commissioning should be prepared by the buyer.
Economic benefit analysis

Accounted as 2 plies of 105g/m² paper bag, and based on Chinese cost index.

1. Cost of the paper:

   If the bag dimension is 620mm x 520mm x 120mm, then the dimension of each ply paper is:

   - Length: 620mm (bag length)
   - 120mm (bottom width)
   - 20mm (folding part)
   - Total: 760mm

   - Width: 520mm*2 (two sides) + 20mm (folding)
   - Total: 1060mm

   The weight of each bag is: 1.060m (W) x 0.76 m (L) x 105 g/m² = 84.59 g/m²

   1 Ton paper can produce bag: 1000000 ÷ 84.59 ÷ 2 (ply) = 5911 bags

   Then the cost for each bag is: 743.2USD ÷ 5911 = 0.126USD/bag.

2. Electricity charge, ink, glue, salary and others,

   Total: about USD0.011/bag.

3. The cost for machine's depreciation, factory rent, repair charge, managing charge, and etc.

   Total: about USD0.011/bag

3. Duty is not countered

4. Profit:

   - Unit cost: USD0.148/bag
   - Market unit price: USD0.176/bag
   - Unit profit: USD0.03/bag

   Annual total amount:

   USD0.176 x 40,000,000 bags = USD7,040,000

   Annual profit: USD0.028 x 40,000,000 bags = USD1,120,000