Let us take a look a the most important ecological question of our time Why **Paper bags**?

Quite often, our progress, be it industrial, scientific or medical, has been at the cost of the bountiful nature. But the waste that is done immense harm is the simple, yet sinister and ubiquitous plastic bag.

Plastic is made from petroleum. Petroleum is made by the decomposition (breaking down) of ancient plants and animals inside the earth. Petroleum needed to make plastic is considered a non-renewable resource because it is the result of geological processes that take millions of years to complete. When used up, the earth's petroleum reserves will be gone for a long, long time.

It is almost impossible to destroy plastic bags. Plastic bags remain in the soil for centuries, defiling the soil, preventing it from replenishing its nutrients, and rendering to barren.

This ultimately results in fertile land becoming barren and turning into desert. It is estimated that the life expectancy of plastic bags is around 250 years. Imagine the damage and the consequences. Even the branches of trees on to which these bags are blown wither and die or remain stunted. From manufacture to disposal, plastic bags are a major environmental hazard.

**Paper bags** on the other hand, comes from wood, which comes from trees, which grow in the earth's soil. The trees needed to make **paper bags** are considered renewable resources. That means more trees can be planted to take place of trees that are cut down to make paper and other products. Once paper is made, it can be recycled and used to create more paper goods. Bags made from paper are biodegradable and hence highly environment friendly than plastic bags, which pose a threat to the environment

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**Paper Bag / Carry bag Manufacturing**

<table>
<thead>
<tr>
<th><strong>Product Use</strong></th>
<th>Paper Bags to be used for packing items / Paper carry bags used for carrying the goods.</th>
</tr>
</thead>
</table>
| **Size of Bags** | a) Paper bags - 10 cms X 15 cms to 50 X 50 cms (Flat type)  
 b) 8 X 12 X 12 cms to 50 cms X 12 X 50 cms (Gazetted type)  
 c) for paper carry bags, by fixing the Handles, Eyeletting & putting tags in paper bags. (Production 90% automatic & 10% by manual) |
| **Type of Bags** | Plain, Single colour and Double colour, Tri colour, Four colour printed, Flat type & Side gazetted. |
| **Required Machinery** | Fully automatic Heavy & special type paper bag forming machine with the following attachment and accessories:  
a) Double colour/Four colour Flexo Printing unit attachment.  
b) 3 H.P. Motor for main drive  
C) Flat type size forming dies and 12 Nos. Gazetted type size forming dies (Size on at your choice)  
d) Length forming gear wheels  
e) Stereo design rollers and one bag counting unit. |
| Optional | 1) Slitting attachment bag hole punching machine (pedal operated)  
2) Back Hole highlighting machine (pedal operated) |
<p>| <strong>Building / Floor Area</strong> | 800 Sq.ft |
| <strong>Power Required</strong> | 3 H.P. for Machine Unit + 3 HP slitting unit (optional) |
| <strong>Man Power Required</strong> | One Skilled Operator and 6 Nos. helpers (boys/girls) Two sales man |
| <strong>Production (12 HRS)</strong> | 10,000 to 40,000 Nos. depending on GSM/BF and size of bag (higher Production also possible) |
| <strong>Finance Requirement</strong> | For Further details, contact us |</p>
<table>
<thead>
<tr>
<th>Requirement</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ratio of Requirements</td>
<td>All Shops require the paper bags and carry bags in 3:1 ratio.</td>
</tr>
<tr>
<td>Promoters Interest</td>
<td>Understand own marketing capacity and self-confidence.</td>
</tr>
<tr>
<td>General Requirements</td>
<td>a) Cash for Margin Money to avail loan.</td>
</tr>
<tr>
<td></td>
<td>b) Building Minimum 800 sq.ft with 3 h.p (3 Phase) power connection</td>
</tr>
<tr>
<td></td>
<td>(Ordinary AC Sheet building is sufficient)</td>
</tr>
<tr>
<td>Service Rendered</td>
<td>1) Guidance in all level for getting loan.</td>
</tr>
<tr>
<td></td>
<td>2) Project report &amp; Viable report, Feasibility report.</td>
</tr>
<tr>
<td></td>
<td>3) Availability of Raw Materials and addresses.</td>
</tr>
<tr>
<td></td>
<td>4) Machinery supply, Erection / Commissioning and trial run.</td>
</tr>
<tr>
<td></td>
<td>5) Production &amp; Maintenance / Inplant training to you and your staff.</td>
</tr>
<tr>
<td>Registration</td>
<td>SSI Registration / Sales tax Registration and opening of Bank Account</td>
</tr>
<tr>
<td></td>
<td>are to be done by the customer.</td>
</tr>
<tr>
<td>Financial Assistance Available</td>
<td>1) Grant from KVIC.</td>
</tr>
<tr>
<td></td>
<td>2) Interest free loan from NCJD.</td>
</tr>
<tr>
<td></td>
<td>3) Term Loan &amp; Working capital loan from all Banks/SFC.</td>
</tr>
<tr>
<td></td>
<td>4) Under PMEGP Scheme all over india grand available between 15% &amp; 35%</td>
</tr>
<tr>
<td></td>
<td>5) Loan can be avail from the nationalized banks in India with promoter</td>
</tr>
<tr>
<td></td>
<td>margin 5%</td>
</tr>
</tbody>
</table>

1) Optional: (1) Paper Roll Slitting attachment with 3 HP motor.  
2) Tubing attachment to produce Jute, Cloth, Paper in tube form, converted into bags manually. (75% Automatic 25% manual)
Paper Cup Making Machine
Technical Specification

Production per minute: 40 – 50 cups

Raw material: single side PE coated paper

GSM of paper: 170 – 240 GSM

Bottom diameter: 52.2mm

Voltage: 420V/50Hz/3Phase

Power: 5 HP

Dimensions: 9 x 4 x 5 feet

Cup volume: 110ML to 250 ML

Note: Other sizes cup machine can be made on order

Paper Bag Forming Machine
AUTOMATIC HEAVY & SPECIAL TYPE PAPER BAG FORMING MACHINE WITH 4 COLOUR ONLINE PRINTING

Technical Specification:
<table>
<thead>
<tr>
<th>Machine Model</th>
<th>Junior</th>
<th>Senior</th>
<th>Jumbo</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
<td>B</td>
<td>C</td>
</tr>
<tr>
<td>Size of Paper bags</td>
<td>Width 3 cm to 20 cm</td>
<td>Width 10 cm to 50 cm</td>
<td>Width 15 cm to 65 cm</td>
</tr>
<tr>
<td>GSM of paper (range)</td>
<td>44 to 60</td>
<td>44 to 60</td>
<td>44 to 60</td>
</tr>
<tr>
<td>BF of paper (range)</td>
<td>12 to 18</td>
<td>12 to 18</td>
<td>12 to 18</td>
</tr>
<tr>
<td>Paper roll width (maximum)</td>
<td>52 cm</td>
<td>52 cm</td>
<td>52 cm</td>
</tr>
<tr>
<td>Production per hour</td>
<td>10000</td>
<td>10000</td>
<td>10000</td>
</tr>
<tr>
<td>Paper Flexo Printing attachment available (with polymer stereo)</td>
<td>NIL</td>
<td>Single, Double, tri colour or four colour</td>
<td>NIL</td>
</tr>
<tr>
<td>Drive Motor</td>
<td>1 HP</td>
<td>1 HP</td>
<td>1 HP</td>
</tr>
<tr>
<td>Floor Area</td>
<td>5’ X 7’</td>
<td>5’ X 12’</td>
<td>5’ X 12’</td>
</tr>
</tbody>
</table>

Note:
Production quality and quantity depends on quality of paper, GSM, BF and size of bags. Specification are subject to change without notice due to R&D program. For Straight cutting special cutting unit attachment can be attached in Senior and Jumbo Models.
Paper Roll to Roll Flexo Printing Machines

**Technical Specification**

**Production Capacity** : 6000 / hr  
**Floor Space** : 10 X 15 ft  
**Power** : DC Motor  
**Workers Required** : 2 to 5

Paper Slitter Rewinder

**Technical Specification**

- **Floor Space** : 10' X 10' to 15' X 15'  
- **Power** : DC Motor  
- **Workers Required** : 2  
- **Width** : 24", 36", 48"

- Length counting and auto stopper available  
- Surface rewinding system.

- Any size of Tailor made machines can be manufactured as per requirement.
Paper Bag Making Machine is Made of rigid and Robust Construction to Avoid Vibration. All Paper are Arranged in Most Accessible Way Thus Making Operation and Adjustment Very Simple and Quick So That Even an Unskilled Labour Can Easily Operate the Machine Successfully. The Change of Size is Very Easy And Can be Done in Few Minutes Time. The Machine is Supplied with One Size Plate and One size Gears to Manufacture One Size of Paper Bag. Different Size Plates & Size Gear For Flat And Stachel Bags Are Available At Extra Cost. Mill Reels Upto 34” Dia and 34” Width Can be Accommodated of the Machine. The Width of the Paper Reel to be Fed on the Machine Can be Calculated as Under.

Flat Bags Twice the Bag Width Plus 2 CM for Centre Seam.

Satchel Bags Twice the Bags Width Plus 4 Time Depth of the Gusset Plus 2 CM For Centre Seam.

Bag Formation: The Required Size of the Bag us Obtained by Fixing The Exact Size Plate For Flat or Satchel to the Size Plate Holder And the Length to the Tube Is Obtained by Changing the Size Gear Wheel, Each Tooth of Which , Represents One Centimeter in Length, The Tube After Being Cut by the Beater Into Exact Size As Per the Size Gear is Carried Forward By Means Of Conveyor Rollers to the Delivery Cylinder the Delivery Cylinder As the Bottom Fold Is Made is the Bag it is Pasted and the Bag is Carried by the Folding Cylinder to the Delivery Table Where it is Released and Delivered in a Vertical Stack.

Printing Attachment: Our Two or Four Colour Flexo Printer Can Be Coupled With the Paper Bag Making Machine.

<table>
<thead>
<tr>
<th>Specifications of Paper Bag Making Machine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
</tr>
<tr>
<td>Max. Size of Bag</td>
</tr>
<tr>
<td>Min.Size of Bag</td>
</tr>
<tr>
<td>Capacity per 8Hr.</td>
</tr>
<tr>
<td>Flexo Printing</td>
</tr>
</tbody>
</table>
Paper Bag Making Machines

Modern Paper Bag Making Machines for manufacture of Flat and Satchel Paper Bags from kraft paper, vegetable parchment, poster, glassine and other papers of similar nature. These automatic paper bag making machines have been designed incorporating latest improvements and are available for manufacture of different ranges of paper bags for packing of foodstuffs, confectionery, readymade garments, tobacco and snuff, ice cream and many other items.

These paper bag making machines are of excellent construction, all parts arranged in a most accessible way, making operation and adjustments simple and easy. These automatic paper bag machines work on the beater principle i.e. the tubed web is separated into the required tube length by a rotary beater against a serrated plate. These paper bag making machines are also supplied with flexographic printing (aniline printing) attachment for the production of the printed bags in huge quantities.

These paper bag making machines consist of the following units:

- Unwind Unit for paper Reels, with side adjustment, and Tension Control arrangement with hand brake.
- Pasting Units of side seam and bottom.
- Bag Cutting Device.
- Pressure Rubber Rings on the steel rolls as it fed to delivery drum.
- Rotary Drum Delivery with delivery board to stock bags.

Technical Features
Machines are of rigid and robust construction to avoid vibration.
Heavy duty and high speed machines with automatic roller driven system, Ball Bearing type.
All parts arranged in a most accessible way, making operation and adjustments simple and quick.
Very little wear and tear though machines are for enormous output.
Change of Size is easy and can be done in just about 15-20 minutes.
Lengths of bags by change of gears, changeable centimeter to centimeter.
Machine is supplied with one size plate and gear for manufacture of one size of bag, as
standard accessories. Further size plate for flat and satchel bags, and gears can be
supplied at extra charge.

Optional Equipment at Extra Cost
Counting Unit can be provided to count the number of bags made.
Two colour Flexographic (Aniline) Printing Attachment, printing by rubber stereotypes,
rubber stereotypes to be affixed by rubber pasting solution or by double adhesive tape.
Printing attachment is supplied with on size of printing cylinder.
Printing attachment also can be supplied with lengthways slitting device with three
slitting knives.

Adjustment of sizes of Bags:
Adjustment of sizes of Bags is affected in width by only changing the flat bag plate or
satchel bag plate. The required length of tube is obtained by interchanging gear wheels on
which one tooth represents one centimeter in length. The length of tube is equivalent to
the length of bag plus 2 to 3 cm. for the bottom fold.
Width of Paper Reel:
Width of paper reel be fed, is according to the width of the bag, and is obtained as under:
Flat Bags: Twice the bag width plus 2-3 cm. for the length seam.
Satchel Bags: Twice the bag width plus four time the depth of gusset, plus 2-3 cm. for
the length seam. The length of bag or tube does not influence the width of reel

**TECHNICAL DATA**

<table>
<thead>
<tr>
<th>Model</th>
<th>Range of Bags in cm</th>
<th>Max. output per minute</th>
<th>Max. Reel Width cm.</th>
<th>Max. Reel dia. cm.</th>
<th>Core dia. dia. cm.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deluxe Flat</td>
<td>Minimum 10 x 18 10 x 18</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Satchel</td>
<td>Maximum 42 x 60 cm 36 x 50 cm</td>
<td>70-125</td>
<td>95</td>
<td>68.5</td>
<td>7-7.6</td>
</tr>
<tr>
<td>Medium Flat</td>
<td>5 x 18 7.5 x 18 28 x 50 cm 20 x 42 cm</td>
<td>70-150</td>
<td>58</td>
<td>68.5</td>
<td>-do-</td>
</tr>
<tr>
<td>Satchel</td>
<td>5 x 10 7.5 x 14 26 x 36 cm 18 x 27 cm</td>
<td>120-180</td>
<td>55</td>
<td>68.5</td>
<td>-do-</td>
</tr>
<tr>
<td>Standard Flat</td>
<td>5 x 10 6.5 x 12 15 x 22 cm 10 x 16 cm</td>
<td>100-150</td>
<td>55</td>
<td>60</td>
<td>-do-</td>
</tr>
<tr>
<td>Model</td>
<td>Motor Required</td>
<td>Floor Space Required</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---------</td>
<td>----------------</td>
<td>----------------------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>with printing H. P.</td>
<td>without printing H. P.</td>
<td>Net weight Approx. Kgs.</td>
<td>Without printing length cm. x width cm</td>
<td>with printing length cm. x width cm</td>
</tr>
<tr>
<td>Deluxe</td>
<td>3</td>
<td>2</td>
<td>2500</td>
<td>427 x 244</td>
<td>579 x 244</td>
</tr>
<tr>
<td>Medium</td>
<td>3</td>
<td>2</td>
<td>2000</td>
<td>366 x 183</td>
<td>471 x 183</td>
</tr>
<tr>
<td>Standard</td>
<td>3</td>
<td>2</td>
<td>1500</td>
<td>366 x 183</td>
<td>471 x 183</td>
</tr>
<tr>
<td>Baby</td>
<td>3</td>
<td>2</td>
<td>800</td>
<td>305 x 152</td>
<td>427 x 152</td>
</tr>
</tbody>
</table>

The cost of the paper cups

- If you want to making paper cups, you maybe want to know the cost of paper cups. In our opinion, it is difficult to tell you the actual cost for each cups.
- The cost of the cups are decided by the following items:
  1. the paper cups size are different (4-200oz),
  2. the paper material size are different (180gsm-----500gsm),
  3. the printing on the cups

- Here is one way calculating the cost
  1. You can get 100 same size paper cups, then weight the 100 cups weight (for example the 100 cups weight is 500g. One cup weight is 5g.)
  2. Paper material price: one-side PE coated paper, for example, 1300USD/ton,
  3. One ton paper can produce the cups pieces:
     (For cutting square paper to cup-fan-wall and cutting the bottom, will waste about 15% per ton.)
     1 ton = 100 00 00 g,
     1000000x0.85/5=170000 pieces,
     so 100 cups cost is about : 1300/1700=0.76 dollars.
  4. This way don't add the cost of pre printing, pre cutting, the workers' salary, and other cost.

The other way to calculate the paper cups' cost

- A), you should get the drawing design of the cup-fan-wall, like the following:
- B): array the cups-fan-wall sheet to the square sheet paper (the size is limited by the cutting machine), like following:
C): What kind of paper material size you choose? (180gsm to 350gsm): example select 200gsm paper

D): Get the square sheet paper wight: \( W1 \times L1 \times 200\text{gsm} = w \text{ g} \)
this means \( w \text{ g} \) square sheet paper can produce 20 cup-fan-wall (the above image)

E): Get the bottom weight: See the image
B4 means a little shorter than B3 (normal B3=5mm for cups, 10mm for bowls, 12mm for buckets) then one piece of bottom size are: width = B + B4 + (4-6), Long = B + B4 + (4-6)
the bottom weight = width x long x 200g (paper weight) = m g (cutting one bottom should use m g paper)

- F:) one paper should use the paper weight: w/20 + m g (we name it cw g)
- G:) one ton paper can produce paper cups: 1000000g/cw pieces, (we name it amount)
- H:) get the price of the paper: like 1300 USD/ton
- I:) one cups cost is about: 1300/amount

Note: this cost also don't calculate the printing, the cutting, and other cost.

The whole line from Paper to Paper cups / paper bowls / paper buckets
the process from paper to finished cups (bowls/bucket)

1): Rolling paper
(finished by paper supplier)

2): PE coated paper
(Finished by paper supplier)

3): PE coated paper (one-side or two-side)
(finished by paper supplier)

4): Pre printing (can be finished by paper supplier or printing company or done yourself)
The technological figure of Paper Cup (Bowl/Bucket) Making machines

Sealing the paper cup body, cutting the paper cups bottom and sealing
Technological Process For Making Paper Cups

1. The general structure of paper cup (bowl) shaping machine is composed of five parts. They are the first stage, the medium stage, the second stage, the third stage, and its outer shell.
2. The first stage: mainly finishes transmission of the paper cup's side-wall paper, shaping side-wall and transferring them to the medium stage after shaped.
3. The medium stage: mainly finishes transmission of the cup-bottom paper, shaping cup-bottom, joining the shaped side-wall and cup-bottom, automatic transmission and discharging of the shaped cup, and curling the shaped cup's edge.
4. The third stage: mainly includes 45 angle separating, preheating, curing bottom, rouletting, curling rim and so on, which are the important parts in finishing paper cup.
5. The fourth stage: mainly includes motor, reduction gear and so on. A frequency converter is used to finish adjusting its speed and providing power.
Model YQZB-16 Automatic Paper Cup Former
YQZB-16 Automatic paper cup machine is a type of environmental protection machine, which use paper to take place of plastic has been one of trends of social development nowadays. The paper cups are widely used in many fields. YQZB-16 automatic paper cup machine is a type of multiple stations automatic mechanical equipment. It is used to making one-side (single) PE coated paper cups. Note: If you want to make two-side (double) PE coated paper cups, we recommend you use the YQZB-16A double-sheet
ultrasonic paper cup making machine.

- **Main specifications:**
  Micro-controlled transducer
  Step-less speed adjustment
  Automatic control adopts optically controlled non contact switch
  Automatic cup-fan-wall body feeding, sealing.
  Automatic cup bottom feeding, punching, edge curling, knurling,
  Automatic cup top edge curling,
  Automatic cups counter

- **Other specifications:**
  Paper cups body side sealing by heater,
  Paper cups bottom sealing by hot air station,
  Full automatic
  Easy change molds produce different cups(demand the cups with the same bottom diameter, the same coning)
  Easy operating by operator
  Easy maintenance with minimum cost
  Cheap operating cost and low investment
  No additional equipments needed for this cup machine.
  One-side (single) side PE coated paper cups use for hot drinks and some cold drinks, examples: Hot water cups, hot coffee cups, some beverage cups, ice-cream cups etc.
  One-side PE coated paper cups are not suitable for some certain cold drinks, like coke
  When a certain cold drinks is put in this type cups, the paper become softened and the water will leak out.
  We recommend you use double PE coated paper cups for the cold drinks and some special beverage.

- **Note:** We can manufacture special sizes of paper cup making machines according to customers' specifications of paper cups.

<table>
<thead>
<tr>
<th>Main technical data of YQZB-16 paper cup making machine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper Cup Size[Capacity] : 4~16 OZ  (Change molds produce different cups' size)</td>
</tr>
<tr>
<td>Paper cup top diameter: Min 45mm ~ Max 85mm</td>
</tr>
<tr>
<td>Paper cup bottom diameter: Min 35mm ~ Max 62mm</td>
</tr>
<tr>
<td>Paper cup height: Min 35mm ~ Max 125mm</td>
</tr>
<tr>
<td>Paper weight : 180~380gsm (g per meter)</td>
</tr>
<tr>
<td>Paper material: One-side PE coated Paper</td>
</tr>
<tr>
<td>Speed of making paper cups: 45~50 pcs per minute</td>
</tr>
<tr>
<td>Limite of temperature: 0~400 °</td>
</tr>
<tr>
<td>Electric heater power: 2.55kw</td>
</tr>
<tr>
<td>Main motor power: 1.5kw</td>
</tr>
<tr>
<td>Rolling motor power: 0.55kw</td>
</tr>
<tr>
<td>Power source : 380V 50Hz or 220V 50Hz or other suitable for your power</td>
</tr>
<tr>
<td>Whole machine weight: 1500kg</td>
</tr>
<tr>
<td>Appearance size:(long-width-height): 2650x1200x1500mm</td>
</tr>
<tr>
<td>Package box size:(long-width-height): 2700x1400x1700mm</td>
</tr>
</tbody>
</table>

The process of making paper cups in this machine
- Working principles / procedures:
  1. Square paper pieces be printed (use offset printer) and cut (use die-cutting machine) in advance, becomes cup-fan-wall-papers to make cup body.
  2. Paper sender delivers the cup-fan-wall-papers to molds, sealing the body.
  3. The cup bottom paper (reel) automatic feed to the bottom cut parts, be cut into round pieces and sent to molds with the sealed cup body.
  4. Pre heating the cup bottom, bottom heating, curling the top edge.
  5. Sealing the bottom with body.
  6. Knurling the cup bottom.
  7. Discharging finished cups automatically from molds. Sending to collector and be collected and piled and counted automatically.

- Standard configuration:
  One complete set of shaping machine.
  One set of mold.
  Additional parts: Operation manual (English and Chinese), Repair CD (English), Normal tools, and the vulnerable parts.

Paper cups making form our paper cup machines (or special paper cup machinery)
Model YQZB-16A
Double-sheet Ultrasonic Paper Cup Make-up Machine
YQZB-16 Double-sheet Ultrasonic Cup Make-up Former

YQZB-16A 超声波双面膜自动纸杯机
YQZB-16A double-sheet ultrasonic paper cup making machine supplement the YQZB-16 automatic paper cup machine's limit. YQZB-16A double-sheet ultrasonic paper cup making machine have been designed to making two-side PE coated paper cups.
In order to sealing the double coated paper cup body, we install the ultrasonic parts instead heater to seal the paper cup-fan-wall body. For the double PE coated paper mean the two side of the paper are coated, when a heater applied on the outside surface of the paper cups, the PE film will be burnt and become yellowish or blackish color and make the paper cups shape in ugly.
Of course the ultrasonic paper cup machine can seal one side PE coated paper cups also, dont need to change anything.

- **Main specifications:**
  - Micro-controlled transducer,
  - Automatic control adopts optically controlled non contact switch,
  - Automatic cup-fan-wall body feeding, sealing,
  - Automatic cup bottom feeding, punching, edge curling, knurling,
  - Automatic cup top edge curling, Automatic cups counter,

- **Other specifications,**
  - Paper cups body side sealing by ultrasonic,
  - Paper cups bottom sealing by hot air station,
  - Full automatic,
  - Easy change molds produce different cups (demand the cups with the same bottom diameter, the same coning)
  - Easy operating by operator,
  - Easy maintenance with minimum cost,
  - Cheap operating cost and low investment,
  - Additional equipments needed for this cup machine.(air compressor),
  - Two-side PE coated paper cups use for hot drinks and cold drinks and other special use, examples: Hot water cups, Hot coffee cups, Beverage cups, Coke cups, Ice-cream cups, coca-cola cups, Cold drink cups etc.

- **Note:** We can manufacture special sizes of paper cup making machines according to customers' specifications of paper cups.

### Main technical data of YQZB-16A paper cup making machine

<table>
<thead>
<tr>
<th>Specification</th>
<th>Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper Cup Size[Capacity]</td>
<td>4~16 OZ (Change molds produce different cups' size)</td>
</tr>
<tr>
<td>Paper cup top diameter:</td>
<td>Min 45mm ~Max 85mm</td>
</tr>
<tr>
<td>Paper cup bottom diameter:</td>
<td>Min 35mm ~Max 62mm</td>
</tr>
<tr>
<td>Paper cup height:</td>
<td>Min 35mm ~Max 125mm</td>
</tr>
<tr>
<td>Paper weight:</td>
<td>180<del>350gsm (g per meter) (Recommend 220</del>280gsm)</td>
</tr>
<tr>
<td>Paper material:</td>
<td>Two-side PE coated Paper</td>
</tr>
<tr>
<td>Speed of making paper cups:</td>
<td>35~40 pcs per minute</td>
</tr>
<tr>
<td>Limited of temperature:</td>
<td>0~400 degree</td>
</tr>
<tr>
<td>Electric heater power:</td>
<td>2.55kw</td>
</tr>
<tr>
<td>Main motor power:</td>
<td>1.5kw</td>
</tr>
<tr>
<td>Rolling motor power:</td>
<td>0.55kw</td>
</tr>
<tr>
<td>Power source:</td>
<td>380V 50Hz or 220V 50Hz or other suitable for your power</td>
</tr>
<tr>
<td>Whole machine weight:</td>
<td>1550kg</td>
</tr>
<tr>
<td>Appearance size:(long-width-height)</td>
<td>2650x1200x1550mm</td>
</tr>
<tr>
<td>Package box size:(long-width-height)</td>
<td>2700x1400x1900mm</td>
</tr>
</tbody>
</table>

The process of making paper cups in this machine
• Working principles / procedures:
  1. Square paper pieces be printed (use offset printer) and cut (use die-cutting machine) in advance, becomes cup-fan-wall-papers to make cup body.
  2. Paper sender delivers the cup-fan-wall-papers to molds, sealing the body.
  3. The cup bottom paper (reel) automatic feed to the bottom cut parts, be cut into round pieces and sent to molds with the sealed cup body.
  4. Pre heating the cup bottom, bottom heating, curling the top edge.
  5. Sealing the bottom with body.
  6. Knurling the cup bottom.
  7. Discharging finished cups automatically from molds. Sending to collector and be collected and piled and counted automatically.

• Standard configuration:
  One complete set of shaping machine.
  One set of mold.
  Additional parts: Operational manual (English and Chinese), Repair CD (English), Normal tools, and the vulnerable parts.

Model YQZW-50 Automatic Paper Bowl Former
Our Products conform to Quality Manage System Stand: ISO9001---2000

YQZW-50 Automatic Paper Bowl Former is a machine designed to making bigger paper cups (from 16 oz to 60 oz) which can not manufactured on the YQZB-16 cup making machine.

YQZW-50 Automatic paper bowl making machine is also a type of multiple stations automatic mechanical equipment, it is used to produce one-side PE coated paper bowls (a bigger paper cups).

YQZW-50 type paper bowl form machine is an ideal production equipment for the large capacity and big dia cases like soup bowls and convenient noodles bowls and so on.

Note: If you want to make two-side (double) PE coated paper bowls, we recommend you use the YQZW-50A double-sheet ultrasonic paper bowl making machine.

- **Main specifications:**
  - Micro-controlled transducer,
  - Step-less speed adjustment,
  - Automatic control adopts optically controlled non contact switch,
  - Automatic Bowl-fan-wall body feeding, sealing.
  - Automatic Bowl bottom feeding, punching, edge curling, knurling,
  - Automatic Bowl top edge curling,
  - Automatic bowls counter,
**Other specifications:**
- Paper bowls body side sealing by heater,
- Paper bowls bottom sealing by hot air station,
  Full automatic
- Easy change molds produce different bowls (demand the cups with the same bottom diameter, the same coning)
- Easy operating by operator
- Easy maintenance with minimum cost
- Cheap operating cost and low investment
- Additional equipments needed for this bowl machine, (air compressor)
- One side PE coated paper bowls use as big capacity for soup bowls, noodle bowls, handy container and other field.

**Note:** We can manufacture special sizes of paper cup making machines according to customers' specifications of paper cups.

Main technical data of YQZW-50 paper bowl making machine

<table>
<thead>
<tr>
<th>Paper bowl Size[Capacity]</th>
<th>16〜60 OZ  (Change molds produce different cups' size)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper bowl top diameter:</td>
<td>Min 85mm 〜 Max 150mm</td>
</tr>
<tr>
<td>Paper bowl bottom diameter:</td>
<td>Min 65mm 〜 Max 126mm</td>
</tr>
<tr>
<td>Paper bowl height:</td>
<td>Min 35mm 〜 Max 125mm</td>
</tr>
<tr>
<td>Paper weight:</td>
<td>150〜380gsm (g per meter) (Recommend 200〜280gsm)</td>
</tr>
<tr>
<td>Paper material:</td>
<td>One-side PE coated Paper</td>
</tr>
<tr>
<td>Speed of making paper cups:</td>
<td>35〜40 pcs per minute</td>
</tr>
<tr>
<td>Limite of temperature:</td>
<td>0〜400 °</td>
</tr>
<tr>
<td>Electric heater power:</td>
<td>2.7kw</td>
</tr>
<tr>
<td>Main motor power:</td>
<td>2.2kw</td>
</tr>
<tr>
<td>Rolling motor power:</td>
<td>1.1kw</td>
</tr>
<tr>
<td>Power source:</td>
<td>380V 50Hz or 220V 50Hz or other suitable for your power</td>
</tr>
<tr>
<td>Whole machine weight:</td>
<td>1800kg</td>
</tr>
<tr>
<td>Appreance size:(long-width-height):</td>
<td>2950x1600x1550mm</td>
</tr>
<tr>
<td>Package box size:(long-width-height):</td>
<td>3000x1700x1750mm</td>
</tr>
</tbody>
</table>

The process of making paper bowls is same to paper cup forming machine's
SMALL-SCALE PAPER BAG
MANUFACTURING PROCESS

Illustrated by
VITA Volunteer George R. Clark

This process is for the manufacture of small, box-shaped paper bags (our specific process turns out one and three quarters kilo bags, but a similar process is possible for other sizes as well.) It is designed to make 500 bags per day with a labor force of 3 to 5 people.

This method uses labor as much as possible, and simple machinery where necessary to provide speed. The machinery is completely hand operated, and consists of a device for folding the bag tube and simple aids in hand-folding the bag bottoms.

Please send testing results, comments, suggestions, and requests for further information to:

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VOLUNTEERS IN TECHNICAL ASSISTANCE

VITA Technical Bulletins offer do-it-yourself technology information on a wide variety of subjects.

The Bulletins are idea generators intended not so much to provide a definitive answer as to guide the user's thinking and planning. Premises are sound and testing results are provided, if available.

Evaluations and comments based on each user's experience are requested. Results are incorporated into subsequent editions, thus providing additional guidelines for adaptation and use in a greater variety of conditions.

SMALL-SCALE PAPER BAG MANUFACTURING
This simple process for manufacturing paper bags requires the construction of several simple pieces of equipment. These are made mostly of wood, with some pieces of spring steel and iron or mild steel strips. Construction requires basic carpentry skill and simple tools.

TOOLS AND MATERIALS

Tools
- fine-toothed saw (for cutting small pieces of wood)
- hack-saw
- vise (for bending metal and sawing)
- hammer
- both wood and metal files
- pliers
- small hardened drills
- screwdriver

Materials
- wood (including: smooth planks, fine grained wood that can be cut into very small blocks)
- soft spring steel
- wood screws, nails, washers
- mild steel or iron strips (approximately 1.25cm x .3cm)
- a small cutting board or equivalent
- thick scissors
- a supply of white glue and a dispenser
- a supply of paper bag paper in a roll cut to the proper width

HOW TO CONSTRUCT PAPER BAG MAKING EQUIPMENT

The most complex equipment is the BAG FOLDING MACHINE, which is
used to convert a roll of paper into a bag-shaped tube by means of a continuous folding process. Others are a GLUING AID and a BOTTOM FOLDING AID. See drawings for details.

Please note: All dimensions are in centimeters.
Dimensions not shown in the drawings are optional.

Bag Folding Machine

The base of this mechanism is a long smooth plank, approximately 254 cm in length. A convenient width is approximately 20 cm.

A rack (Component 1) to hold a roll of paper is fastened at one
end of the base so that the paper is held with the center of the roll at the beginning of the base. The rack is made so that the roll will be exactly centered on the base, and not free to move from side to side.

Further along the base is a shoe (Component 2) that gradually
Component 2 - Shoe

Material: wood

Assemble with nails or screws and glue.

Attach wire tension guides on either side of shoe as shown.

Slopes downward so that it almost touches the base about 30cm from the center of the roll (measured along the base). The shoe is designed to bring the paper down to the base, and to fold up the sides of the paper. To aid in this folding, guides made of steel wire on each side of the shoe almost press against the side of the shoe where the shoe comes closest to the plank.

Approximately 15cm from the bottom edge of the shoe is a guide (Component 3) made of iron stock. The main purpose of the guide...
Component 3 - Paper Guide

Material: 1.25cm x .3cm mild steel; larger widths may be used
Two pieces--fasten together with 2 #6 screws x 32 screws and nuts
Clearance from base: .2cm

is to keep the bottom of the paper as flat as possible against
the base. The guide is the exact width of the distance between
the two first folds that were made by the shoe. It keeps the
paper from drifting from side to side. This guide also is
fastened
so that it does not quite touch the base.

About 50cm further along the base are two more guides (Component
4A),

43p06a.gif (486x486)
Component 4A and 4B - Guides

Material: steel, 4 pieces
Mount to base with washers or other spacers for clearance.

one on each side of the base. These are horizontally placed pieces of metal that extend in from the position of the first fold to the position where the second fold is to be placed.

A block of wood (Component 5) is positioned between these two

43p06c.gif (486x486)
guides. This block makes the second two folds by means of a small piece of iron stock screwed to the bottom of the far end. The block of wood itself tends to keep the paper apart so that the two second folds will not be too close together. The block is prevented from moving with the paper by a piece of wood that extends downward.

About 68cm further along the base are two guides (Component 6)
Component 6 - Paper Guide

Material: steel, 2 pieces, 2.5cm x .15cm x 17cm

that hook under the two second folds and hold these flaps of paper approximately 1cm above the base. Their purpose is to keep the flaps from slipping under the next guide, another block of wood.

This second block of wood (Component 7) is positioned with a
Component 7 - Guide Block

Materials: wood, with spring steel as shown

2.5cm space between it and the previous guides. This block is identical to the other in every way except that it has no piece of iron. This block is simply a guiding device, not a folding device. It is held down by a piece of spring-steel.

The next guide (Component 8), positioned directly in front of
this block of wood, prevents the block from being pulled along with the paper. This guide is similar to the one positioned after the shoe. It is the width of the bag, and it sits on top of the two folds, but under the top layer of paper, which is about to be folded down. The guide serves the purposes of keeping the paper flat against the base, and of making sure that the top two folds which are about to be made are not too close together.

Centered about 2.5cm from the center of this guide are two more horizontally placed metal guides (Component 4B) whose purpose it
is to make the final two folds, and to assure that these folds
are not too far apart. These guides are the same as Component 4A

Component 4A and 4B - Guides

Material: steel, 4 pieces
Mount to base with washers or other spacers for clearance.
except that they do not extend inward quite as far.

Gluing Aid

This device consists of a foot square wood base, to which wooden position guides (for the paper bag) are fastened. Also to the base, a template arm is fastened by a hinge mechanism, so that it can swing down to place the template on the center of the seam to be glued together.

Another hinged arm, with a weight, is fastened to the base directly opposite to the first arm. The weight is positioned so that it will come down on the glued seam in the center of the bag.

<GLUING AID>

43p08.gif (600x600)
Make gluing aid weight and template pivot arms of wood as shown. Fasten with small nails or screws and glue.

<FIGURE 1>

43p09a.gif (486x600)
Cut glue template out of sheet metal. Fasten to template pivot arm with small headed nails.

<FIGURE 2>

43p09b.gif (600x600)
Bottom Folding Aid

The third device is the bottom folding aid. This device consists of a wood base with an aligning block along one side and a sheet metal spring to hold the bag in place.

<BOTTOM FOLDING AID>
HOW TO OPERATE

The first step in the operation is to place the properly cut roll of paper in the machine so that the paper will come off the bottom of the roll. The paper should be correctly folded for a couple of feet (as if it had come out of the machine) so that the paper can be fed into the machine. The paper should be fed over and under the guides as appropriate. To feed the paper under the spring-loaded blocks, lift the blocks to put less friction on the paper.

Paper bag lengths of paper are made by standing at the end of the machine, grasping the end of the paper, pulling to the indicated length, and cutting the length off with the cutting edges.

<FIGURE 3>
The tube is then placed in the tube gluing aid so that the seam can be glued. One flap of the paper is raised, and the other left flat. The temperate arm is lowered, and the glue is applied in the template slot by the glue dispenser. The template arm is raised, the raised flap of paper is dropped, and the weighted arm lowered to press the glued seam. The glue will set in about 15 seconds or less.

The glued tube is then placed in the bottom folding aid with the glued seam facing downward. The tube is placed under the metal strip with one end placed against the guide line. The tube is then folded up on both sides of the metal strip so that there will be two crisp, straight, parallel creases.

Bag Folding Sequence

Folds in a bag tube:

<FIGURE 4>
Bottom folds: Parallel folds to begin making bottom. (Bags placed with seam down. Both folds are upward.)

<FIGURE 5>
The bag is left flat on a table, except for everything right of the inner fold, which is bent left.

<FIGURE 6>

43p13a.gif (353x353)

The bag is opened up, and formed into a box shape.

<FIGURE 7>

43p13b.gif (353x353)
The four 2.5cm-deep cuts are made here:

<FIGURE 8>

43p13c.gif (437x437)
The sides, top, and bottom are folded in.

<FIGURE 9>

43p14a.gif (486x486)
Flaps are folded along dotted line (which already exists as a fold), outer flap first, then inner flap. The bag is then pressed under a weight. The bag is now complete.

The bag can now be opened.

<FIGURE 10>

43p14b.gif (353x353)
Alternate Gluing Methods

An alternative to the tube gluing aid is to glue the tube section by section as it is pulled out of the tubing machine and cut off to the proper length. The template on the mechanism may have a tendency to clog, making it somewhat difficult to apply glue to the bag by this means.

There are other simple ways to apply glue to paper besides with a dispenser. A brush can be used that is manually dipped in a pot of glue and spread on the paper. The advantage to this system is that it is neater, and the glue can be applied evenly and thinly. The main disadvantage is that the brush tends to dry out and may be difficult to clean.

HOW TO ADJUST AND MAINTAIN

The only mechanism that needs careful maintenance is the tubing machine.

Some possible problems:

1) The guides must not touch the base where the paper is to slip under. If they do, the paper will bind and perhaps tear.

2) The spring must apply enough pressure so that the blocks of wood will stay in position, and not be pushed up when the paper is drawn through the machine. But the spring cannot be too tight, or the friction on the paper will be too great.

3) All guides that keep the paper from moving from side to
side or which cause the paper to be folded must be the proper width and perfectly aligned. Otherwise, the folds will not be smooth.

4) There must be no sharp edges rubbing on the paper (except on trailing edges). The paper will tear if these edges are sharp.

Other than the above, the tolerances are not critical, and any problems can be easily corrected by simple adjustments.

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Paper

From Wikipedia, the free encyclopedia
For other uses, see Paper (disambiguation).

A stack of manila paper

Wikimedia Commons has media related to: Paper

Paper is a thin material mainly used for writing upon, printing upon, drawing or for packaging. It is produced by pressing together moist fibers, typically cellulose pulp derived from wood, rags or grasses, and drying them into flexible sheets.

Paper is a versatile material with many uses. Whilst the most common is for writing and printing upon, it is also widely used as a packaging material, in many cleaning products, in a number of industrial and construction processes, and even as a food ingredient – particularly in Asian cultures.

Paper, and the pulp papermaking process, was developed in China during the early 2nd century AD by the Han court eunuch Cai Lun, although the earliest archaeological fragments of paper derive from the 2nd century BC.[ii]

Contents

[hide]
History

Main article: History of paper
Further information: Papyrus, Science and technology of the Han Dynasty, and List of Chinese inventions

Hemp wrapping paper, China, circa 100 BCE.

The word "paper" is etymologically derived from papyros, Ancient Greek for the Cyperus papyrus plant. Papyrus is a thick, paper-like material produced from the pith of the Cyperus papyrus plant which was used in ancient Egypt and other Mediterranean cultures for writing long before the development of paper in China.[2] Papyrus however is a "lamination of natural plants, while paper is manufactured from fibres whose properties have been changed by maceration or disintegration.[3] The oldest known archaeological fragments of the immediate precursor to modern paper date to 2nd century BC China. Papermaking is considered one of the Four Great Inventions of Ancient China, and the pulp papermaking process is ascribed to Cai Lun, a 2nd century AD Han court eunuch.[4]
With paper an effective substitute for silk in many applications, China could export silk in greater quantity, contributing to a Golden Age.

Paper spread from China through the Islamic world to medieval Europe in the 13th century, where the first water-powered paper mills were built. In the 19th century, industrial manufacture greatly lowered its cost, enabling mass exchange of information and contributing to significant cultural shifts. In 1844, Canadian inventor Charles Fenerty and German F.G. Keller independently developed processes for pulping wood fibers. This ended the nearly 2000-year exclusive use of pulped rags. [citation needed]

**Papermaking**

Main article: [Papermaking](#)

**Chemical pulping**

Main articles: [Kraft process](#), [Sulfite process](#), and [Soda pulping](#)

The purpose of a chemical pulping process is to break down the chemical structure of lignin and render it soluble in the cooking liquor, so that it may be washed from the cellulose fibers. Because lignin holds the plant cells together, chemical pulping frees the fibers and makes pulp. The pulp can also be bleached to produce white paper for printing, painting and writing. Chemical pulps tend to cost more than mechanical pulps, largely due to the low yield, 40–50% of the original wood. Since the process preserves fibre length, however, chemical pulps tend to make stronger paper. Another advantage of chemical pulping is that the majority of the heat and electricity needed to run the process is produced by burning the lignin removed during pulping.

The microscopic structure of paper: [Micrograph](#) of paper autofluorescing under ultraviolet illumination. The individual fibres in this sample are around 10 µm in diameter.
Paper made from chemical pulps are also known as wood-free papers. Not to be confused with tree-free paper.

The Kraft process is the most commonly practiced strategy for pulp manufacturing and produces especially strong, unbleached papers that can be used directly for bags and boxes but are often processed further, e.g. to make corrugated cardboard.

**Mechanical pulping**

There are two major mechanical pulps, thermo mechanical pulp (TMP) and groundwood pulp (GW). In the TMP process, wood is chipped and then fed into large steam-heated refiners where the chips are squeezed and made into fibres between two steel discs. In the groundwood process, debarked logs are fed into grinders where they are pressed against rotating stones and made into fibres. Mechanical pulping does not remove the lignin, so the yield is very high, >95%, but also causes paper made from this pulp to yellow and become brittle over time. Mechanical pulps have rather short fibre lengths and produce weak paper. Although large amounts of electrical energy are required to produce mechanical pulp, it costs less than chemical pulp.

**Deinked pulp**

Main article: deinking

Paper recycling processes can use either chemical or mechanical pulp. By mixing with water and applying mechanical action the hydrogen bonds in the paper can be broken and fibres separated again. Most recycled paper contains a proportion of virgin fibre in the interests of quality. Generally deinked pulp is of the same quality or lower than the collected paper it was made from.

There are three main classifications of recycled fibre:

- Mill Broke or Internal Mill Waste — this incorporates any substandard or grade-change paper made within the paper mill which then goes back into the manufacturing system to be re-pulped back into paper. Such out-of-specification paper is not sold and is therefore often not classified as genuine reclaimed recycled fibre. However, most paper mills have been recycling their own waste fibre for many years, long before recycling become popular.
- Preconsumer Waste — this is offcuts and processing waste, such as guillotine trims and envelope blank waste. This waste is generated outside the paper mill and could potentially go to landfill, and is a genuine recycled fibre source. Also includes de-inked preconsumer (recycled material that has been printed but did not reach its intended end use, such as waste from printers and unsold publications).
- Postconsumer waste — this is fibre from paper which has been used for its intended end use and would include office waste, magazine papers and newsprint. As the vast majority of this paper has been printed (either digitally or by more
conventional means such as lithography or rotogravure), it will either be recycled as printed paper or go through a deinking process first.

Recycled papers can be made from 100% recycled materials or blended with virgin pulp. They are (generally) not as strong nor as bright as papers made from virgin pulp.

**Additives**

Besides the fibres, pulps may contain fillers such as chalk or china clay, which improve the characteristics of the paper for printing or writing. Additives for sizing purposes may be mixed into the pulp and/or applied to the paper web later in the manufacturing process. The purpose of sizing is to establish the correct level of surface absorbency to suit the ink or paint.

**Producing paper**

Main articles: Papermachine and handmade paper

See also: Air-laid paper

The pulp is feed to a paper machine where it is formed as a paper web and the water is removed from it by pressing and drying.

Pressing the sheet removes the water by force. Once the water is forced from the sheet, felt (not to be confused with the traditional felt) is used to collect the water. When making paper by hand, a blotter sheet is used.

Drying involves using air and or heat to remove water from the paper sheet. In the earliest days of papermaking this was done by hanging the paper sheets like laundry. In more modern times, various forms of heated drying mechanisms are used. On the paper machine, the most common is the steam-heated can dryer. These dryers can heat to temperatures above 200 °F (93 °C) and are used in long sequences of more than 40 cans. The heat produced by these can easily dry the paper to less than 6% moisture.

**Finishing**

The paper may then undergo sizing to alter its physical properties for use in various applications.

Paper at this point is uncoated. Coated paper has a thin layer of material such as calcium carbonate or china clay applied to one or both sides in order to create a surface more suitable for high-resolution halftone screens. (Uncoated papers are rarely suitable for screens above 150 lpi.) Coated or uncoated papers may have their surfaces polished by calendering. Coated papers are divided into matte, semi-matte or silk, and gloss. Gloss papers give the highest optical density in the printed image.

The paper is then fed onto reels if it is to be used on web printing presses, or cut into sheets for other printing processes or other purposes. The fibres in the paper basically run
in the machine direction. Sheets are usually cut "long-grain", i.e. with the grain parallel to the longer dimension of the sheet.

All paper produced by paper machines as the Fourdrinier machine are wove paper, i.e. the wire mesh that transports the web leaves a pattern that has the same density along the paper grain and across the grain. Textured finishes, watermarks and wire patterns imitating hand-made laid paper can be created by the use of appropriate rollers in the later stages of the machine.

Wove paper does not exhibit "laidlines", which are small regular lines left behind on paper when it was handmade in a mould made from rows of metal wires or bamboo. Laidlines are very close together. They run perpendicular to the "chainlines", which are further apart. Handmade paper similarly exhibits "deckle edges", or rough and feathery borders.[8]

Applications

Paper can be produced with a wide variety of properties, depending on its intended use.[9]

- For representing value: paper money, bank note, cheque, security (see Security paper), voucher and ticket
- For storing information: book, notebook, magazine, newspaper, art, zine, letter
- For personal use: diary, note to remind oneself, etc.; for temporary personal use: scratch paper
- For communication: between individuals and/or groups of people.
- For packaging: corrugated box, paper bag, envelope, wrapping tissue, Charta emporetica and wallpaper
- For cleaning: toilet paper, handkerchiefs, paper towels, facial tissue and cat litter
- For construction: papier-mâché, origami, paper planes, quilling, Paper honeycomb, used as a core material in composite materials, paper engineering, construction paper and paper clothing
- For other uses: emery paper, sandpaper, blotting paper, litmus paper, universal indicator paper, paper chromatography, electrical insulation paper (see also dielectrics and permittivity) and filter paper

Types, thickness and weight

![Paper samples with different colors and textures]

The thickness of paper is often measured by caliper, which is typically given in thousandths of an inch. Paper may be between 0.07 millimetres (0.0028 in) and 0.18 millimetres (0.0071 in) thick.

Paper is often characterized by weight. In the United States, the weight assigned to a paper is the weight of a ream, 500 sheets, of varying "basic sizes", before the paper is cut into the size it is sold to end customers. For example, a ream of 20 lb, 8.5 × 11 in (216 × 279 mm) paper weighs 5 pounds, because it has been cut from a larger sheet into four pieces. In the United States, printing paper is generally 20 lb, 24 lb, or 32 lb at most. Cover stock is generally 68 lb, and 110 lb or more is considered card stock.

In Europe, and other regions using the ISO 216 paper sizing system, the weight is expressed in grammes per square metre (g/m² or usually just g) of the paper. Printing paper is generally between 60 g and 120 g. Anything heavier than 160 g is considered card. The weight of a ream therefore depends on the dimensions of the paper and its thickness.

Most commercial paper sold in North America is cut to standard paper sizes based on customary units and is defined by the length and width of a sheet of paper.

The ISO 216 system used in most other countries is based on the surface area of a sheet of paper, not on a sheet's width and length. It was first adopted in Germany in 1922 and generally spread as nations adopted the metric system. The largest standard size paper is A0 (A zero), measuring one square meter (approx. 1189x841 mm). Two sheets of A1, placed upright side by side fit exactly into one sheet of A0 laid on its side. Similarly, two sheets of A2 fit into one sheet of A1 and so forth. Common sizes used in the office and the home are A4 and A3 (A3 is the size of two A4 sheets).

The density of paper ranges from 250 kg/m³ (16 lb/cu ft) for tissue paper to 1,500 kg/m³ (94 lb/cu ft) for some speciality paper. Printing paper is about 800 kg/m³ (50 lb/cu ft).

Paper may be classified into seven categories:

- Printing papers of wide variety.
- Wrapping papers for the protection of goods and merchandise. This includes wax and kraft papers.
- Writing paper suitable for stationary requirements. This includes ledger, bank, and bond paper.
- Blotting papers containing little or no size.
- Drawing papers usually with rough surfaces used by artists and designers, including cartridge paper.
Handmade papers including most decorative papers, Ingres papers, Japanese paper and tissues, all characterized by lack of grain direction.

Specialty papers including cigarette paper, toilet tissue, and other industrial papers.

Some paper types include:

- Bank paper
- Banana paper
- Bond paper
- Book paper
- Coated paper: glossy and matte surface
- Construction paper/sugar paper
- Cotton paper
- Electronic paper
- Fish paper (vulcanized fibres for electrical insulation)
- Inkjet paper
- Kraft paper
- Laid paper
- Leather paper
- Mummy paper
- Sandpaper
- Tyvek paper
- Wallpaper
- Washi
- Waterproof paper
- Wax paper
- Wove paper
- Xuan paper

Paper stability

Much of the early paper made from wood pulp contained significant amounts of alum, a variety of aluminium sulfate salts that are significantly acidic. Alum was added to paper to assist in sizing the paper, making it somewhat water resistant so that inks did not "run" or spread uncontrollably. The early papermakers did not realize that the alum they added liberally to cure almost every problem encountered in making their product would eventually be detrimental. The cellulose fibres which make up paper are hydrolyzed by acid, and the presence of alum would eventually degrade the fibres until the paper disintegrated in a process which has come to be known as "slow fire". Documents written on rag paper were significantly more stable. The use of non-acidic additives to make paper is becoming more prevalent and the stability of these papers is less of an issue.

Paper made from mechanical pulp contains significant amounts of lignin, a major component in wood. In the presence of light and oxygen lignin reacts to give yellow materials, which is why newsprint and other mechanical paper yellows with age. Paper made from bleached kraft or sulfite pulps does not contain significant amounts of lignin and is therefore better suited for books, documents and other applications where whiteness of the paper is essential.

It is important to note that just because a paper is made of wood pulp, does not necessarily mean it is any less durable than a rag paper. The factor that determines the ageing behavior of a paper is how it was manufactured, not the original source of the fibres. Furthermore, tests sponsored by the Library of Congress prove that all paper is at risk of acid decay, because cellulose itself produces formic, acetic, lactic and oxalic acids.
Mechanical pulping yields almost a tonne of pulp per tonne of dry wood used (which is why mechanical pulps are sometimes referred to as "high yield" pulps), which is about twice as much as chemical pulping. Consequently, paper made with mechanical pulps is often cheaper than that made with bleached chemical pulps. Mass-market paperback books and newspapers use these mechanical papers. Book publishers tend to use acid-free paper, made from fully bleached chemical pulps for hardback and trade paperback books.

The future of paper

Some manufacturers have started using a new, significantly more environmentally friendly alternative to expanded plastic packaging made out of paper, known commercially as paperfoam. The packaging has very similar mechanical properties to some expanded plastic packaging, but is biodegradable and can also be recycled with ordinary paper.\[19\]

With increasing environmental concerns about synthetic coatings (such as PFOA) and the higher prices of hydrocarbon based petrochemicals, there is a focus on zein (corn protein) as a coating for paper in high grease applications such as popcorn bags.\[20\]

Also, synthetics such as Tyvek and Teslin have been introduced as printing media as a more durable material than paper.

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