

KUMAR PRINTERS PVT. LTD.

ACKNOWLEDGEMENT

At the very outmost, I would like to extend my deep gratitude to Mr. M. K. Bhargava, Managing Director, KUMAR PRINTERS for providing me this opportunity to undergo industrial training at such an esteemed organization.

This is not mere formality, but means to express my heartfelt gratitude. Throughout my endeavor to make this industrial training a success, many people have always provided me copious support. I knowledge from the bottom of my heart those who were solicitous and benevolent enough to guide me through out the period.

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I am deeply grateful to Mr. Arun Srivastava for renevery me all facilities required in plant. I owe sincere thanks to Mr. Rakesh (HR), guide me continuously. I would like to thank my college training and placement officer MR. Pankaj Tiwari (TPO), Mr. Dharminder (Chairman of Department of Printing Technology) for their guidance and timely help.

And last but not the least, I express my sincere thanks to all the technical Staff members of **KUMAR PRINTERS PVT LTD.** and of the department of printing technology, Hisar from whom we received full cooperation.

Sushma Verma

ABOUT KUMAR PRINTERS

Kumar Printing is the premier packaging organization that meets customer's paperboard packaging requirements – With competitively priced innovative solutions implemented by professionals with extensive experience.

Founded in 1964, Kumar has constantly adopted the latest innovations in printing technology, processes and materials. Kumar specializes in multi colour printing and special effects, such as printing on Met. Pet., hot foil stamping, UV coating, pearlescent pigments etc, that help the final product stand out on store shelves.



View of Kumar Printers

Kumar is a member of the All India Federation of Master Printers and also The Indian Institute of Packaging. It is the only Indian member of the Global Packaging Alliance (<http://www.global-packaging-alliance.com/>). This gives Kumar a significant presence on the international packaging map.

MISSION STATEMENT

Operations and Distribution

Kumar works to deliver constancy to the minutest detail. Every month witnesses more than 225 metric tons of paper getting converted to high quality packaging. Additional spare capacity takes care of any exigencies. Kumar maintains adequate service support facilities inspection order to ensure that deadlines are met. Kumar operates an effective distribution network with factories that are located on Major road and rail transport links.

Services & infrastructure

Printing and Packaging

Packaging has become much more than a simple container for product – it has become a fundamental component of brand identity. Through packaging the product is protected and marketed to consumers, and special effects help to both catch the eye and increase brand loyalty.

In addition to quality printing Kumar also provides the facility to add powerful security features into print making it possible to identify the spurious/ counterfeited packs inspection the market.

Kumar is a full-service printing and packaging service provider for the consumer industry, offering all pre-press, press, and post-press services to clients. With wide range of substrate printing capabilities, Kumar delivers a complete packaging solution.

Printing Services are:-

Pre-press: Structural design, sample making, addition of the security features, image correction and manipulation.

Press: Offset printing, inline coating, UV curing, printing of metallic using flexo and screen-printing processes.

Post-press: Foil stamping, embossing, die cutting, automatic screen printing, UV lacquering, aqueous coating.

Special Print Finishing Effects Services:

In addition to standard printing services, Kumar specializes inspection printing effects that cover a broad range of industry segments and include:

- Printing on non-absorbent substrates including metallized foil laminated board and hot stamped board.
- Coating on board using as flexo plate for patterns, monograms and designs using aqueous coating or UV coating.

Portfolio:

As a family owned business, Kumar realizes the value of relationship with customers. Kumar takes the long view of business, often starting with small projects with client then

increasing work as trust is developed between the two parties. Due to this outlook on relationship, as well as excellent processes and quality and control. Kumar has the rare distinction of a 100% client retention rate.

Kumar maintains transparent service offering to clients. Dedicated sales managers keep the clients abreast of the exact status, experienced technical team ensures that there is a constant adherence to agreed specifications.

Some of the Kumar Clients are:

RANBAXY
LABORATORIES LIMITED



Gillette®



Quality:

Kumar is an ISO 9001: 2001 certified company for manufacturing processes. Huge emphasis is place upon Quality Control and on exceeding the client's expectations. Strict documentation policies track all points' inspection the process of product creation, from

raw paper to printing to cutting to application of special effects. These processes and procedures ensure a consistent quality and turnaround time for all products.

Advanced technical tools ensure that all stages of product development meet these stringent quality standards. Among the many specific areas of testing, Kumar is able to perform precision color matching, test paperboard, coatings and varnishes.

All processes and procedures are under constant review and are modified as necessary to meet new requirements. Kumar also maintains an extremely proactive relationship with the clients, eliciting and responding to customer feedback.

In addition to the ISO 9001: 2000, Kumar is implementing the EHS procedures and will aim for ISO 14001 and OHSAS certification by June 2006.

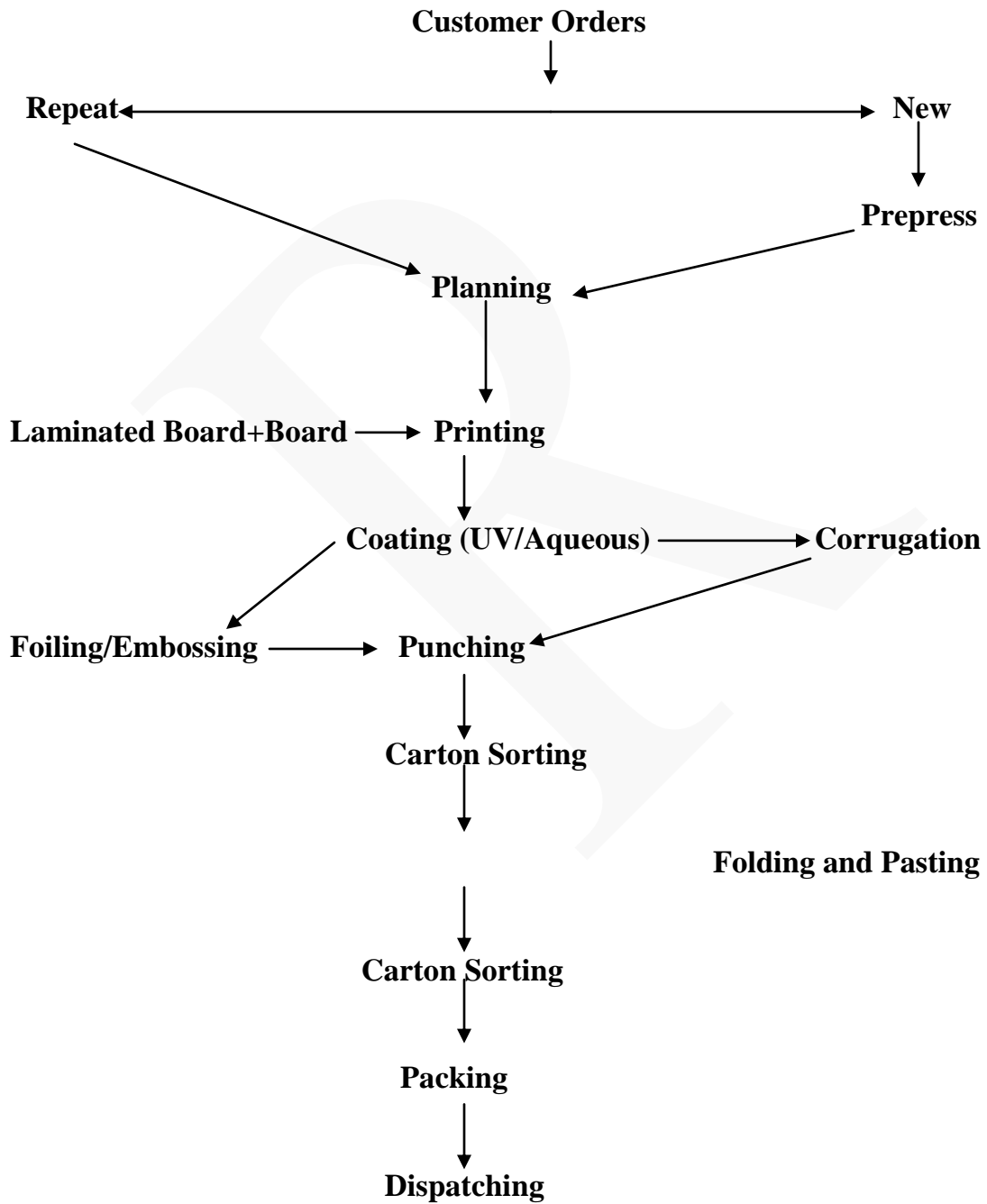
Environment, Health and Safety:

Kumar is conservationist in its outlook on the environment and has developed a clear policy on environment issues. Extremely about impact upon the local environment, Kumar is committed to sustainable development and environmentally sound business practices that can go hand in hand with the organic development of the core business.

Kumar strives for efficient resource utilization, the minimization of pollution, and recycling wherever possible. Industrial waste is properly treated and disposed off according to the guide lines issued by the governing bodies.

With transparency being a core inspection all aspects of our business, these written environmental policies are open for scrutiny and are under constant review and improvement.

Work Flow of Kumar Printers





PREPRESS DEPARTMENT

PRE-PRESS

Pre-press is the term used inspection printing and publishing industries for the process and procedures that occur between the procurement of a written manuscript and original artwork; and the manufacture of a printing plate image carrier, ready for mounting on a printing press.

In Kumar Printers, mainly printing job is package printing like cartons, leaflets and labels.

Steps used in Prepress Department:

- Job from Client: in form of CD/DVD/FTP/by Mail or may be hard copy.
- Registered received Job
- Making of Die line
- Checking of artwork according to client's specification
- Sending to client for approval

- Received Approved copy from client
- Trapping
- Multi-ups
- Ripping and Film Positive
- Hand over to Plate Making.

INSTRUMENTS USED IN PREPRESS

1. Epson Printer Style Pro 4800
2. 5550 Hp Color Printer
3. 1320 hp black & white printer
4. Scanner
5. Densitometer
6. Planning Table
7. Sample Table
8. Delta Tower
9. Image Setter
10. Apple Mac
11. Barcode Reader

Software used in the Prepress:

Initially the client gives the artwork or rough sketch, of the design with complete job to the company with the hard & soft copy with complete information about dimension & others. After completion on the computer and with some minor alterations, the cutting of the sample with sample maker and with the Epson printer to print for the proofing. Then after completion of the job then the copy send to the client. If the copy is ok, then do the next process of making plates.

1. ARTIOS CAD: This software is the advance version of the auto cad which is used for the mechanical industry. In this there is various design of the carton which is modified from initially. We just change the length and breadth according to our requirement by putting the various values in the computer. In this way a carton according to client is prepared then we make the multi of the die lines and in this software one more facility is given that is, if we make change in all die lines which are printed on a sheet, we change only one die and make change in all the another dies automatically. It is the software which we used only for the structural design

Then we used software like the CorelDraw and illustrator for further designing and trapping. Mainly in Kumar Printer work done on APPLE MACHINTOSH. But CorelDraw is not run on apple Macintosh so adobe acrobat and other software are also used.

2. ART PRO (APPLE): It is also important software which is used in the Kumar Printer's. It does the automatic trapping. Trapping means the overlapping of colors. Always the light color overlaps on the dark color. It is because the dark color suits the atmosphere. If we reverse then the dark color coated over light color then sample is not eye catching so we avoid it.

There are other important software which are used in Kumar printers if the format according to software is requires. These software are:-

- a) Illustrator
- b) Corel draw
- c) Freehand
- d) Acrobat reader

PLATE MAKING DEPARTMENT

Plate Making Section:

- 1) Four Light Table
- 2) Three Printing down frame machines
- 3) Three Plate Punching machine
- 4) PS Plates
- 5) Water shower
- 6) Water Sink
- 7) Small equipment like tapes, cutter etc.
- 8) Astrollen sheet

Material used in Processing Department:

1. Water
2. Developer

3. Fixer
4. Washing Powder
5. Squeeze
6. Tool-kit
7. Cutter

Film Processing:-

1.) Developing Unit: Developer Water 1:3 is used.

2.) Fixing Unit: In this unit mixture of water and fixer is used in ratio 3: 1.

3.) Washing Unit: After film is developed and fixed, it is passed through washing unit to wash away chemicals.

4.) Drying Unit: Dryers are used to dry the positives.
After drying film positive, it is ready for use.

Mainly in the Processing Department the film is developed in the dark room with the help of the machine name (rapid access processor).

PRESS DEPARTMENT



OFFSET PRINTING

INTRODUCTION: The term offset printing is generally associated with lithographic process. But the offset printing can be applied to a variety of printing processes. In offset process the ink is not applied directly from the printing plate to the substrate as it is in gravure, flexography and letterpress. Ink is applied to the printing plate to the “image” (such as text or artwork to be printed) & then transferred to a rubber blanket is then transferred to the substrate (typically paper or paperboard) to produce the printed product.

Offset Printing is widely used printing technique where the inked image is transferred (or offset) from a plate to a rubber blanket, then to the printing surface. When used in combination with the lithographic process, which is based on the repulsion of oil & water, the offset technique employs a flat (Plano surface) image carrier on which the image to be printed obtained ink from ink rollers while the non printing area attracts a film of water, keeping the non-printing areas ink-free.

PRINCIPLE: An offset image is produced by transferring the image from an inked printing plate onto a rubber blanket, then transferring the image from the blanket to the paper.

Transferring the image from a blanket to the paper rather than transferring directly from plate to paper, has several advantages. Paper has an abrasive on printing plates. If the paper were allowed to come in contact with the printing plate throughout the press run, the plate would soon be too worn to print properly. Having the plate contact a rubber blanket, instead of the printing paper, lengthens the life of the plate.

OFFSET PRESS OPERATION: The offset presses are composed of four basic units: Feeder, Registration, Printing and Delivery.

FEEDER UNIT: One method of classifying presses is lay the form of the material sent through the feeder system. The main work of feeder unit is to feed the substrate. The feeder unit for a sheet fed offset press must separate the top sheet of paper from the infeed pile, pick it up & deliver it to the registration unit. This process must be done consistently for each sheet in the pile, only one sheet can be fed at a time, and each must reach the registration unit at a precise moment to be registered & sent to the printing unit.

Different Parts of Feeder Unit

- a) Air Blower
- b) Sucker - Lifting Sucker
 - Forwarding Sucker
- c) Brushes
- d) Pile Board
- e) Wheels
- f) Conveyor Belt

REGISTRATION UNIT: Registration is process of controlling & directing the sheet as it enters the Printing unit. The goal of registration is to ensure absolute consistency of image position on every sheet printed. When one color is to be printed over another on a single sheet, the image will not fit unless registration of all sheets is held throughout the press run. Registration is the alignment of the printing plates as they apply their respective color portion of the image that is being printed. If the plates do not line up perfectly the image will appear out of focus. In the printing the registration marks that are present on each plate are positioned correctly with the help of front lays & side lays. The front lays stops the paper for a very-very little time so that a single sheet enters in the printing unit at a time. If the registration is not correct then it will be corrected by adjusting the side lays.

- With the help of side lays we can adjust the registration upto 1.5mm.
- If the mis-registration is more than 1.5mm than it will be corrected by the adjustment of plate. By tightening the plate we can adjust the registration up to 4mm.

PRINTING UNIT: The printing unit places a water solution & ink on the plate, transfers the image on the paper & delivers the paper to the delivery unit. The printing unit must be adjusted so that the proper amount of ink & water solution is deposited on the printing plate and so that the image is transferred evenly, accurately and consistently to the printing paper. Every offset printing unit is made up of three parts.

- The cylinder system
- The dampening system
- The inking system

Cylinder system configuration: The cylinder system for any offset lithographic press has three functional groups, a plate cylinder, a blanket cylinder & an impression cylinder. The function of plate cylinder is to hold the plate & revolve it into contact with the blanket cylinder during the printing process. The plate cylinder has some form of stamping system that holds the plate squarely & firmly in place. Ink & water 'form roller' contact the plate while it is attached to the plate cylinder, thereby causing the image areas to be inked. The plate image is transferred to the blanket cylinder, & the image is reversed. The press sheet is then passed between the blanket & impression cylinder, where the image is offset back to right reading. The impression cylinder applies the necessary pressure against the blanket & paper to transfer the image from the blanket to the paper.

Inking unit: The goal of inking unit is to place a uniform layer of ink across every dimension of printing plate.

Inking Unit Configuration:-

- a) Ink fountain & fountain rollers
- b) Ink distributor rollers
- c) Ink form rollers

The ink fountain stores a quantity of ink in a reservoir & feeds small quantities of ink to the rest of inking system from the fountain roller. The ink distributor rollers receive ink & work it into a semi-liquid state that is uniformly delivered to the ink from rollers. A thin layer of ink is then transferred to the image portion of the plate by the ink form roller.

Dampening Unit: The plates function on the principle of water & ink receptive areas. In order for ink to adhere only to the image areas on the plate, a layer of moisture must be placed over the non-image areas before the plate is inked. The dampening system accomplishes this by moistening the plate consistently throughout the press run. Like inking systems, the dampening system also contain some form of fountain, a fountain roller, a doctor roller, distributor rollers & one or more form rollers.

The dampening fountain roller sits in a pool of fountain solution stored in the dampening. As the press runs, the dampening fountain roller turns, picking up fountain solution from the fountain & holding it on its surface. A doctor roller jogs back & forth touching the fountain roller, where it picks up fountain solution then touching a dampening distributor roller. The distributor roller takes the fountain solution from the doctor roller to the dampening from rollers, where it is transferred to the plates.

DELIVERY UNIT: The delivery unit takes the papers from the printing unit & places it on an outfeed table. As the sheet leaves the printing unit, it is dropped into a delivery pile. As the sheet leaves the printing unit, a set of mechanical fingers (grippers) grab the leading edges of the sheet & pulls it out of the printing system. The gripper bar is attached to a continuous chain that moves the printed sheet to a paper pile releases it & moves the gripper back & receive another sheet. The chain moves at a same rate and in synchronization with the feeder, registration & printing units.

SPECIFICATION OF DIFFERENT PRINTING MACHINES:

1)DOMINANT 712 SINGLE COLOR OFFSET M/C

Plate Size :Minimum	:	18*23"
Maximum	:	20*24.5"
Capacity	:	Capable of printing up to 9000 sheets per hr but capacity Utilized is 50% i.e. works at 4000 sheets per hr.
Blanket Size	:	18*23"
Suckers : Lifting Suckers –		2
Forwarding Suckers –		2
Air Blowers	:	2
Blanket Thickness	:	2mm
Plate Thickness	:	1mm
Maker	:	ADAST (CZECHOSLOVAKIA)
Ink keys	:	30

2) PRINTORAM 164 SINGLE COLOR OFFSET M/C

MAKER: SPEEDOGRAPHICS (INDIAN)

3) HEIDELBERG TWO COLOR M/C

M/C Size	:	24*34"
Paper Size	:	320*350mm
Pressure Plate	:	Plate-Blanket-Impression 0 - 0 - 0.1
Plate Size	:	830*700mm
Suckers	:	4
Lifting Sucker	:	2
Forwarding Sucker:	2	
Brushes	:	2
Capacity:	Capable of printing up to 10000 sheets per hr but works at 6500-7000 sheets per hr.	
Make	:	HEIDELBERG (GERMANY)
Quantity	:	1
Blanket Thickness	:	1.9mm
Plate Thickness	:	0.28mm
Thickness of Packing Sheet:		0.02mm
Ink Quality	:	High quality ink of SICPA COMPANY

4) FIVE COLOR OFFSET M/C

Maker	:	MAN ROLAND (GERMANY)
Quantity	:	1
Capacity	:	Capable of printing up to 12000 sheets per hr but the capacity utilized is 80%.
M/C Size	:	20.5"*29.5"
Blanket Thickness	:	1.95mm

Plate Thickness	:	0.3mm
Total No. of Rollers in 1 unit:		13
Dryer Temperature	:	Depends upon the type of board used.
Packing Sheet Thickness:		0.32mm
Dryer System	:	IR Dryer System
Cassette System	:	Cassette is used to store the job. 2 jobs are stored in 1 cassette.
Diameter of Plate & Blanket:		8.66"
Diameter of Impression Cylinder:		17.32"
Feeder Height	:	49.06mm
Delivery Height	:	40.94mm

SIX COLOR OFFSET M/C WITH INLINE COATING:

Maker	:	HEIDELBERG(SPEEDMASTERCD102)
Blanket Thickness	:	1.95mm
Packing Sheet Thickness:		0.4mm
Under Cut	:	2.35mm (1.95+0.4=2.35mm)
Distance b/w one ink key to its consecutive key is 32.5mm		
Pressure	:	Plate-Blanket-Impression 0 - 0 - 0.1
Dryer System	:	1) Hot Air System 2) IR Dryer System
Relative Humidity	:	60%
M/C Size	:	1040*720mm
Plate thickness	:	0.27mm
Plate Cylinder Undercut:		0.15mm
Blanket Cylinder Diameter:		270mm



Suckers: 1) Lifting	: 4
2) Forwarding	: 2
Air Blower	: 2
Diameter of rollers	: 62mm-80mm
Alcohol %age	: 11.2% in fountain solution.
Water Temperature	: 8.5C



POSTPRESS DEPARTMENT

Post Press department

Mainly this department comes after the printing section or the sheet fed department. In this department various operations take place after the job of the printing. The various operations like the creasing, coating, cutting, foiling and the binding comes under this department. Firstly we will describe the various machines in the Kumar printers for the coating purposes. It is because after printing of the sheets, printed sheets comes directly comes under this section, where various coating according to our requirement takes place.

The various coatings are:

- 1) Varnishing
- 2) Priming
- 3) U.V coating
- 4) Mat coating water based
- 5) Mat coating UV based
- 6) Flexo UV
- 7) Blister coating

There are 3 coating machines in the Kumar printers. These coating machines consist of the various rollers with the heater and some are UV based according to the requirement. The speed of the coating machine is around 4000 copies per hour. The coating took when the printed job comes in the coating machine through the infeed and then with the help of the rollers the coating takes place.

Varnishing: It is the very important coating in which the coating of the some colorless ink that is varnishes which is used for the coating purpose. The layer of the varnish over the printed job makes the coating on the job. This coating is not so much shiny and done more than 50% of the job. But it gives good moisture protection. The cost of the varnishing is similar to half of the cost of an additional printing of the job.

Primer Coating: It is also done with the help of the all the 3 coating machines. It is because in this coating we do the priming over the surface. It also not so many shiny but it gives the platform for the various other coatings like the U.V coating which takes place over the primer coating. It is because it makes the surface much more glassy and shiny.

Aqueous Coating: It consists of approximately 40-50% solid and other being the water. It is most often applied through a dedicated online coating system which is fitted to printing machines regularly requiring this facility, such as used by carton and sheet-fed label printers. Occasionally aqueous coating is also applied

through the dampening unit. It gives good hard surface with high glass and when required and is fast drying with no yellowing of the printed result as is often experience with varnish. There is a risk, however, of sheet stretch or shrinkage with lower gram mage paper, due to the high water contents.

UV Coating: It gives the best finish in term of high glassy result and is more expensive than ordinary varnish or aqueous coating. Instead of using specially formulated U.V. ink, the printer can complete the printing by using ordinary ink; this can be followed by the use of an inline U.V coating system or a separate off line unit to apply the U.V varnish. The result is high glass finish comparable to plastic lamination.

MAT Coating: It is similar to the other process of coating, but in this the coating does not takes place on whole job but on the selected place where the coating is necessary. So due to this facility it is a popular coating of today life.

Blister Coating: It is new type of a popular coating. The surface is not so glassy but it is necessary where the plastic blister is stick on the surface. This coating helps the blister to stick on the surface in which the materials like blades, razor, battery etc. are stored.

Die-Cutting Machines: In the Kumar printers there are two mechanical working die punching machine are doing embossing and the die punching. The size of the punching machine is 19*25 inches having the horse power 2.2K.V. These machines are made in India only. In this machine platen is the main part of the machine on which the block is formed. The chase is connected to the female part of the machine. The block is adjusted in the chase and when machine starts it moves the forward and backward motion of the chase then the desired embossing and the die punching takes place when the male and female part of the machine comes closer to each other. There are three other machines which are the advanced version of the manually die punching machine.

1) Automatic Die-punching Machine: The machine is used for the die-punching and embossing only.

Name of the Company	:	BOBST
Name of the Machine	:	SPERIA 106E

It is manufactured in Brazil. The working on this machine is totally automatic and the speed is also very fast. Its speed is around 5000 sheets per hour. In this machine also we adjust the die which we formed with the help of crease line we make the accurate cutting and creasing. We initially adjust the machine then the speed is very fast so it works where the work on the job for a long time.

2) Automatic die-punching machine:

Name of the Machine	:	XSERIES PROMA
Speed of the Machine	:	6000 sheets per hour

It is the advanced version of the Speria 106E. Its speed is faster then the Speria and it also used for embossing, die-punching and foiling. This machine is fully automatic and the speed is also high. During the foiling, the foil roller is adjusted in between the machine and the foil roller rolls according to the speed of the foiling on the job.

3) Automatic die-punching machine:

Name of the Machine	:	BOBST die-punching machine.
Speed of the Machine is	:	4000-5000 sheets per hour

Basically it is used for embossing and the punching purpose. It also fully automatically and used for large scale job.

Folding and pasting

The printing, coating, creasing and cutting of the job takes place. The worker knows that from where it folds and from where it paste. So in this section we do the required folding and the pasting of the job according to the client. Mainly when we do the folding and pasting we should take special care of one thing that is the grain direction. The creasing is done perpendicular to the grain direction due to which it folds and pasting is done with the machine. If we do the creasing in the direction of the grain it does not fold and the carton is not formed in the desired shape.

There are two folding and pasting machines in which firstly the machine fold the carton into the desired shape then the pasting takes place. Both the machines is of the same company: BOBST

1st Machine

Name of the First Machine : **AMAZON 70**
Speed of the Machine : **300 carton per hr.**

This Machine is used for the lock bottom and the adjustable.

2nd Machine

Name of Machine : **MEDIA 100**

The cost of this machine is more than the Amazon 70. It is advance version and its speed is more but the working is same as of the Amazon 70.

In the folding and pasting machines, the folding of carton is adjusted manually in the machine according to the requirement of the job. When we adjust the whole machine section, in which the folding takes place according to the requirement of the client. During the pasting the adhesive is controlled with the help of optical light sensor in the machine. When one carton passes the optical light fall then a drop of adhesive put on the flap of the carton then the folding takes place in such a way that the lock bottom and other type of pasting takes place according to the requirement.

In Kumar Printers the small scale jobs of folding and pasting are done manually.

There are 3 other folding machines which are used for the folding of the paper whether it is small or big in size. These machines are not used for the folding of the carton.

The first two folding machines are same and they fold the pages in 8-10 folds. In these machines the adhesive is used which is controlled by optical light.

Folding of small pages: 15000

Folding of large pages: 5000-6000

3rd Machine

Name of the Third Machine: MBO VIJOK

This machine folds around 15-20 folds of the page and it is used for the folding of small and large pages. Its maximum speed is according to the size of the paper. It is fully automatic machine manufactured in Germany.

QUALITY CONTROL

Quality Control department

Quality:

Degree to which a set of inherent characteristics full-fills the requirement i.e. completely fulfill the hope and need of customers and easy in use and we can say that for an unit quality is that can be able to completely fulfill the customers need and hopes.

It is the department which keeps the control of quality as an each step of each department for good quality results. Its works starts with raw material inspection, inspection during printing, coating, die-punching, pasting and up to dispatch section.

Procedure for Quality Control:

Incoming Inspection:

1. All the incoming raw materials are checked as per the incoming sampling plan. During inspection, material found not as per the required specification, is properly identified and is kept separately.

Incoming Process Inspection:

2. During the process, the semi finished materials are checked as per the quality plan and check list are filled up at all stages except printing. Check list inspection printing department is filled up by the printing supervisor.
3. Inspection case the non-conformity is detected during the process, non-conformity report is generated. Non-conformed material is identified by suitable tag with reason and kept into the defined area. The nature of non-conformity is discussed and suitable action taken for disposal within ten working days.
4. The records of non-conforming material are maintained.
5. These non-conformities are analyzed and categorized as per the type of quality defect. Suitable corrective actions are taken as per the procedures of corrective action.

Finished Goods Inspection:

6. The final product is checked against the requirement of the customer and as per the finished goods sampling plan.
7. The status of the material are identified by suitable tags e.g. under test, approved, rejected, hold, job details.

Equipments and Instruments used in Quality Control:

Computer: To keep records.

Printers: To print out various reports and certificates and other official records.

Light-Table: Light table used for checking defects.

Electronic Weighing Balance: It is used for weighing up to 3100gms and used inspection calculating G.S.M.

Temperature Controller Oven: For heating Purposes used inspection testing water content inspection boards.

Sealing Machine: For sealing blister on the blister coated board and check their stickiness.

Bursting Strength Tester: For measuring bursting strength of the specimen.

Rub-Resistance Tester: For measurement of rub-resistance for printing and coating.

Materials and Tools used inspection Quality Control:

- Scissor
- Hammer
- Eye-glass
- Cutter
- Stationary Items

Records kept inspection Quality Department:

- Art Work: As From the Customer
- Job Card: Specification Sheet
- Shade Card
- Inspection report of each department
- Certificate of Analysis
- Slips for ordering raw material
- Record of samples
- Register record

RAW MATERIAL TESTING

- 01) BOARD
- 02) INK
- 03) FILM FOR LAMINATION
- 04) LAMINATION ADHESIVE
- 05) PASTING ADHESIVE
- 06) VARNISH AQUOUS
- 07) VARNISH UV
- 08) DIES
- 09) CLD
- 10) HOT STAMPING FOIL

Board

- SIZE
- GSM
- CALIPER
- GRAIN DIRECTION
- SCRATCH MARK
- BURSTING STRENGTH
- LOOSE PARTICLES ON FRONT SIDE OR ON BACK SIDE
- pH
- SQUARENESS

PRINTING

- TEXT MATTER READING
- LAYOUT CHECKING
- SHADE
- SMUDGING
- SCUMMING
- PUNCTURE OF BLANKET

- HICKIES / BULLS EYE
- ROUGH / WEAK APPEARANCE OF PRINTING
- SET OFF OF INK
- VARNISH STRIP LINES
- VARNISH SET OFF
- VARNISH SCUFFING
- BLOCKING

EMBOSSING

- EMBOSSING DEPTH
- OUT EMBOSSING
- CRACKING AT EMBOSSSED EDGES
- DENT, DAMAGE AT UNEMBOSSSED AREA

PUNCHING

- REGISTRATION / POSITIONING OF PUNCH
- ROUGH CUTTING
- CRACKING WHILE FOLDING THE CREASE
- LOCKING OF TUCK IN FLAP
- MISSED / WEAK CREASING
- GAP BETWEEN THE 1st FOLD & FINAL FOLD

PASTING

- DESSICATOR TEST / OVEN TEST
- DEGUMMING
- INSIDE STICKIN
- DOUBLE CARTOON PASTING
- CROSS PASTING
- FLAP PASTED INSIDE

Miscellaneous Department

CLASSIFICATION OF DEFECTS IN CARTON

A) Critical defects AQL .1% of sample size.

- Color shade of cartons totally out of range.
- Wrong text matter or missing matter.
- Badly crashed carton.
- Degummed carton (fully or partly)
- Unlaminated carton.
- Main illustration absent.
- Cracking at crease.
- Foreign particle present like insect or dust etc.
- Wrong dimension of carton.
- Short packing in cld.
- Cartons where the board is delaminated.

B. Major defects: AQL-1.0% of sample size.

- Printed defects like smudging, visible from 50cms distance.
- Major dents.
- Prominent off centered punched carton.
- Color shade marginally outside the approved range of shade card.
- Shiny spot of lamination.
- Inside sticking.
- Delaminating of film.
- Printing registration.
- Prominent hickies or bull eye on print.
- Non insertion of tuck in flap affection machinability of carton.
- Letter cut.
- Doubling in printing.

C. Minor defects: AQL-4% of sample size.

- Carton stained.
- Minor print defects visible from 25cms distance.
- Improper locking.
- Minor black marks.
- Slightly off centered.
- Minor hickies
- Packing slips absent of CLD.

STORE DEPARTMENT

It is the important dept of any company. Mainly this dept. is the backbone of the company. Store dept deals with the export and import of the dept. In KUMAR PRINTERS, the printed job is send back to the client by taking permission from the store manager.

And the various raw materials which are used in the company comes according to the store manager. during the printing and packaging , if there is any requirement in Kumar printers then the4 whole req. is convey to the store manager which arrange all the product for the company with the help of their clients.

The mainly used particulars in the company are:

- Aluminum foil board gold
- Art paper
- Cast coated paper
- Chromo board gray black
- Chromo paper
- Color paper
- Enso coat paper
- Kraft paper
- Map litho paper
- News print paper
- Pearl graphic paper
- Safire graphic
- Gold foil board