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The Corrugator

OFFICIAL MAGAZINE OF FEDERATION OF CORRUGATED BOX MANUFACTURERS OF INDIA

April - June 2016



TAPPI AICC

2016

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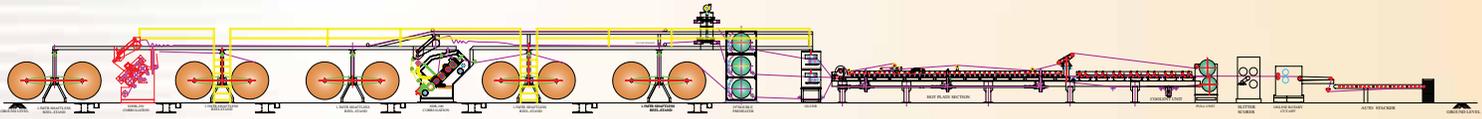
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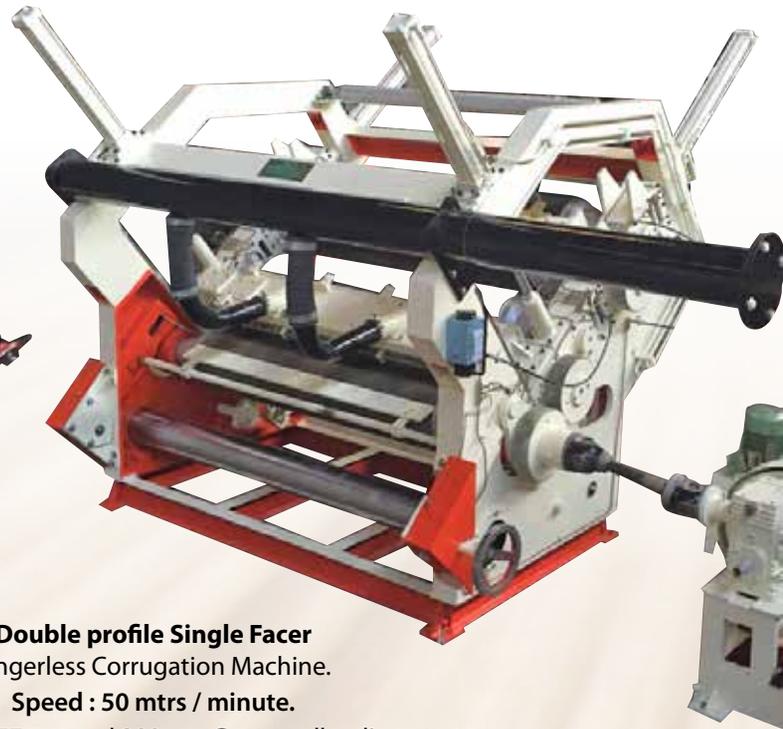
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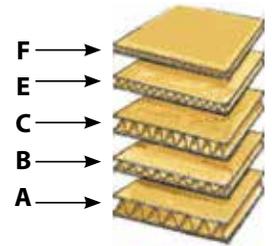
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Content Highlights

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OWNER

**Federation of Corrugated Box
Manufacturers of India**

138, Mittal Estate No. 3, M. VasANJI Road,
Andheri (East), Mumbai - 400 059.

E-mail: admin@fcbm.org

www.fcbm.org

Please address all correspondence
to the Chief Editor

R. Suresh

S. T. Reddiar & Sons, Cochin
streddiar@gmail.com

Editorial Board Members

Pulkit Shah
Ramkumar Sunkara
A. S. Datta

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General features

CE certificated machine designed with advanced concept, made according to European standards with Tai Yi many year experience in producing machines. The hardened micro-grounded driving gears are imported with HC>60°. The alarm will give warn while unit moving. The gaps between rolls are motorized with PLC control. With automatic zero setting and reset function.

Feeder Unit: Servo Drive Optional

- Continuous or skip feeding is available with counter.
- Lead Edge Feeder with feeding stroke adjustable and reduce the pull roll pressure.
- Variable frequency drive control for vacuum to match different paperboard size.
- Feeding roll is made of two-layer rubber, inner is soft and outer is hard. This makes inner layer more flexible and surface more wear-resistant, and reduce the paperboard flute damage.
- Several row brushes and anti-static system to keep the paperboard clean before coming into printer unit. So printing quality is promised.
- Main motor is protected from starting when units are not fully closed and locked.

Printer Unit: Servo Drive Optional

- Vacuum for paperboard transfer, ceramic-coated transfer wheel for increasing the friction and service life.
- Quick lock printing plate setting system on both R/L sides to achieve precise alignment.
- Printing register adjustment is servo motor driven.
- Auto cleaning function to promise ink recycle throughly.
- Doctor-blade inking system is available. (Optional)
- IR system for drying is available. (Optional)

Slotter Unit: Servo Drive Optional

- Single shaft with double slotting knives. Internal gear structure applied for adjusting carton box height, and prevents the lubricant oil from spilling or leaking onto the paperboard.
- Pre-creaser to prevent paperboard being damaged easily. Polyurethane wrapped upper creasing wheel will not damage the paperboard.
- Lead screw and guide rail matched for slotting base moving, which makes the movement much more flexible and precise.
- Upper base and lower base are coupled to keep the female and male slotting knife aligned while moving, also is helpful to prolong knife service life.
- A protective device applied to prevent the slotting knife from crashing when the height of the carton box is adjusted.
- Flap cutting knife can cut 3 and 5 ply paperboard with no adjustment, easy to operate.

Die-cutter Unit: Servo Drive Optional

- 50mm transverse direction movement structure for anvil cylinder.
- Independent motor used for the anvil cylinder speed compensation, the compensation range is ±3.5mm.
- Anvil cover trimming system is applied to keep anvil cover surface flat and smooth.

Dryer Unit: Servo Drive Optional

- IR or UV dryer system is available. (UV Optional)

Main Specification

Model	TG618	TG920	TG1224	TG1228	TG1420	TG1628	TG1632	TG1636
Max. Machine Speed (cal/minute)	350	300	250	230	220	180	180	160
Max. Feeding Size (mm)	600×1800	900×2000	1200×2400	1200×2800	1400×2000	1600×2800	1600×3200	1600×3600
Min. Feeding Size (mm)	200×435	300×600	365×600	365×600	365×600	450×600	450×600	450×600
Skip Feeding Size (mm)	800×1800	1200×2000	1500×2400	1500×2800	1700×2000	1900×2800	1900×3200	1900×3600
Max. Printing Size (mm)	600×1760	900×1960	1200×2360	1200×2760	1400×1960	1600×2760	1600×3160	1600×3560
Min. Slotting size (R: mm)	180×55×180×55	240×65×240×65	260×65×260×65	260×65×260×65	260×65×260×65	260×65×260×65	260×65×260×65	260×65×260×65
Min. Slotting size (S: mm)	110×110×110×110	130×130×130×130	130×130×130×130	130×130×130×130	130×130×130×130	130×130×130×130	130×130×130×130	130×130×130×130
Max. Slotting depth (mm)	200	250	300	300	350	400	400	400

Subject to technical improvement and changes without further notice.

THE EDITORS' PAGE

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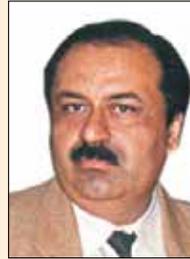
R. Suresh, Chief Editor



Pulkit Shab



Ramkumar Sunkara



A.S. Datta



The long awaited GST Bill is very likely to be passed in the monsoon session. This will help the Government to push through other reforms. The finance ministry has released the model draft GST law.

India has gathered momentum to extend its lead as the world's fastest growing large economy - overtaking that of fellow Asian Giant China.

India continues to remain a bright spot in the world economy with robust macro-economic and fiscal parameters. The union Government has boosted spending on defence and infrastructure, while consumer demand has risen thanks to lower interest rates. These pro-growth policies helped GDP to reach 7.9 percent

Momentum is building up faster than anticipated and there is a demand pick-up on the horizon.

The government has given green light to India's first-ever policy on capital goods that intends to make the country a world-class hub.

The policy also seeks to facilitate improvement in technology depth across sub-sectors, increase skill availability, ensure mandatory standards and promote growth and capacity building of MSMEs.

This will unlock the potential of this promising sector and establish India as a global manufacturing powerhouse.

RBI Governor Mr. Rajan recently said that a bunch of good things have happened in India,

but there are still some things to do. Financial inclusion is an unfinished agenda.

The governor added that measures were required to make it possible to lend to small and medium enterprises (SMEs) more effectively. This would require institutional reforms such as collateral registries and SME loan data.

The global attention India is receiving as a new investment destination is touching a "sensitive nerve" in China as the fast growing Indian consumer market may steal China thunder – as per media reports in China.

Some analysts have predicted that India will be the last new major market to emerge in the 21st century.

If India can further improve its business environment, the country can turn itself not only into a new global manufacturing base, but also a vital source of consumption and demand for the global economy.

Innovation and technology are the major factors for progress and growth. This holds true for corrugated packaging industry as well.

This quarter has been vibrant with many industry related activities.

EICMA joined hands with Govt. of West Bengal to present the corrugated option for Packaging of Mangoes.

WICMA has announced their Annual Symposium in September.

Karnataka hosted the FCBM Managing Committee Meeting held in June.

And HP is all set to host the 45th FCBM Conference at Chandigarh in November.

All these are featured under FCBM News.

This issue contains interesting and useful technical articles.

Corrosion reaction between product and package throws light on little known parameters of paper.

Innovation in Flexo illustrates the evolution of flexo printing.

Also featured are articles on rotary die cutting and cracked scores.

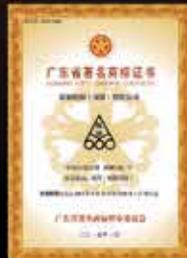
There is a lineup of events this year.

SuperCorrExpo is scheduled in October. FCBM is planning to take a large delegation of members to this International Exhibition and Conference.

FAPGA (Forum of Asia Pacific Graphic Arts) is having their Conference on 17th October at Shanghai along with the 6th All in Print Exhibition (Incidentally your Chief Editor is the Secretary General of this prestigious international forum).

On the domestic front, we have WICMA Symposium and the eagerly awaited FCBM Conference.

Let us look forward to meaningful participation of our members in these industry Events.



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PRESIDENT'S MESSAGE



N. X. George

Good Day Friends,

It is halfway through my tenure as President and it has been a pleasant period of interaction with all of you.

As our country's economy is growing and is expected to grow at higher rates we should all hope to see improvements all around. Let us look forward to the GST getting through in this monsoon session, which is highly hoped to push the reform processes more aggressively.

India has announced a slew of far-reaching measures to ease foreign investment in defense, civil aviation, pharmaceuticals, retail, food trade and broadcasting, and this is expected to strengthen the country's efforts to be a global "manufacturing hub."

The decision by the government to allow up to 100% FDI through FIPB in marketing of food products, produced or manufactured in India, including through e-commerce, is a progressive step and will help to reduce wastage, help farmers and encourage industry to invest more and expand. This far-reaching reform will create vast opportunities for the packaging sector.

This should bring cheer to our industry since food processing and e-commerce sectors predominantly use corrugated boxes for packing.

We have reports of useful and interesting activities across all regions of our Federation.

The recent Managing Committee Meeting was efficiently hosted by KCBMA showering the famous Karnataka hospitality.

I am in touch with AICC and TAPPI to build a stronger and lasting relationship for FCBM with these two reputed international bodies.

Our Federation is planning to take a delegation to the upcoming event – SuperCorrExpo, the prestigious international event of Corrugated Industry jointly hosted by AICC and TAPPI scheduled in October.

I am happy to inform you that the Corrugator has been invited to be a Media Partner for SuperCorrExpo.

FAPGA is organizing their Conference at Shanghai, China. Mr. R. Suresh, our Chief Editor is the Secretary General of this reputed Forum and has held many important positions in this forum.

I hope the international presence of FCBM will reach another milestone this year.

Wish all of you all the best of your hopes.

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Parameters preventing Corrosion reaction between product and package.

A Root cause analysis

One box maker was asked by his customer to supply boxes made from acid and chloride free, low Cobb kraft paper as they would be packing steel automotive parts. This box maker's problem was, how to convert this specification of kraft paper from qualitative parameters to quantitative parameters.

A packaged food manufacturer received complaints from market that some of the tin containers showed rusting on the outside rim which was in contact with corrugated box. Further analysis showed that this was predominant in tins packed in boxes from one particular supplier. This supplier called me to solve his problem as he was losing his customer. We come across such issues quite often. Some of the typical corrosion related issues are:

1. Corrosion of tin containers when packed in corrugated box.
2. Corrosion of metal parts when packed directly into box.
3. Tarnishing of polished metal parts when warped in kraft paper.

This article highlights the various quality parameters of kraft paper that need to be specified and their significance from point of view of preventing corrosion reaction when a metal product is in contact with it.

The parameters responsible for initiating rusting or tarnishing of metal parts, when they are in contact with kraft paper are:-

1. Moisture levels in the paper.
2. pH of Paper.
3. Porosity and Oil Absorbency of paper.
4. Chloride levels in paper.
5. Sulphate levels in paper.
6. Microbiological influence of the paper.

The mechanism of initiation of corrosive reaction due to each of the above parameters is discussed below.

1. Moisture levels in the paper.

Corrosion is an electrochemical process, requiring the presence of an electrolyte. Moisture in the paper provides the essential electrolyte required for electrochemical corrosion reaction. When a certain critical humidity level is reached, the moisture in the paper tends to form a thin film (invisible) electrolyte on the surface of the metal. For example, in case of iron this critical humidity level is around 60%. This moisture film is extremely important from the point of view of the chemical mechanism of the corrosion process.

The "time of wetness" (TOW) of a corroding surface is a key parameter, directly determining the duration for the start of the electrochemical corrosion process. The TOW refers to the period of time during which the conditions are favourable for the formation of a surface layer of moisture on a metal or alloy. The TOW is strongly dependent on the critical relative humidity levels.

Kraft paper being hygroscopic material, it absorbs moisture from air and also loses moisture to the air. The rate of absorption is dependent on the amount of moisture in the air (Rh) and its temperature while the rate of loss is dependent on the moisture content of the paper and its temperature. Paper holds moisture either between the fibers or with in the individual fibers as shown in the figure. H₂O molecule forms the bond between the individual fibers. Moisture between the fibers can be subdivided into:



Ramkumar Sunkara

a. Colloidal water.

b. Capillary water

At low vapour pressure (Low Rh) most of the water is present as colloidal water. (Water absorbed at the free hydroxyls) At high moisture content (High Rh) considerable capillary water (Water absorbed in the pores and voids) is present. It is this capillary water, which tends to form the surface layer (thin film) of moisture on the metal surface when it is in contact with paper.

At the same Rh, paper with low Cobb value has less capillary water as compared to paper with high Cobb value. A graph of Cobb Vs moisture percentage of paper at 65% Rh and 27°C is shown below.

Cobb of paper (65% Rh & 27°C)	Moisture % @ 30% Rh	Moisture % @ 65% Rh	Moisture % @ 90% Rh
20	5.7	7.9	11.6
45	5.6	8.6	13.2





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This shows higher moisture percentage at the same Rh for paper with higher Cobb value above 60% Rh. Use of paper with higher Cobb value will lead to faster film formation of moisture at Rh above 60% on the surface of the metal.

Hence care must be taken to ensure that Kraft paper used for metal wrapping is having Cobb value less than 25.

2. pH (Acidity) of paper

Low pH accelerates corrosion by providing plentiful supply of hydrogen ions. Paper usually has pH in the range from 5 to 8. In this range of pH, paper is non-corrosive. The threshold level of Hydrogen ion content (pH) in unbleached kraft paper, which is in contact with steel sheets, is 5. Kraft papers used for wrapping of metal parts having its pH lower than 5 will be serious corrosion risk.

Hence one must ensure that pH of paper is between 6.5 and 7.5 (Acid free paper), if the paper is coming in contact with metal parts.

3. Porosity and Oil absorbency of paper.

Porosity of paper is related to the oil resistance of paper. It is observed that the most oil-resistant papers have very low porosity. There is linear relation between air resistance measured in seconds on the Gurley instrument and oil resistance in seconds.

Wrapping paper should have very low porosity to prevent penetration of Hydrogen Sulphide, Oxygen, Carbon dioxide, and, other gases that cause tarnishing of steel. Also low porosity will lead to low oil absorbency. This will help in maintaining oil film on the metal parts intact preventing rusting or tarnishing of metal parts.

4. Chloride levels in paper

Chloride ion significantly accelerates corrosion. Chloride ions also cause localized break down of the passive film (Anti-rust oil film) on the metal part. Chloride ions increase the electrical



conductivity of the water so that the flow of corrosion currents is facilitated. Chloride ions reduce the effectiveness of natural protective films. Chloride ions are responsible for the initiation and propagation of localized corrosion damage. Soluble salts like chlorides and Sulphates pull moisture from air and cause failure of protective coating. Chlorides are found naturally in paper as a result of water recycling, use of secondary fiber, pulping chemicals etc. The threshold limit for chloride content in unbleached non-corrosive kraft paper is 0.05%. Kraft paper used for this application must have chloride level as NaCl % below 0.05%.

5. Sulphate levels in paper

As compared to the corrosive effect of chloride ion levels, Sulphates are generally considered to be more benign in their corrosive action towards metallic materials. Sulphate ions formed in the surface moisture layer are considered to be responsible for accelerating corrosion rather than the corrosion itself. The presence of sulphates some time does pose a major risk for metallic materials in the sense that sulphates can be converted to highly corrosive sulphides by anaerobic sulphate reducing bacteria.

The threshold limit for Sulphate content in unbleached non-corrosive kraft paper is 0.25%. Kraft paper used for this application must have sulphate level as Na₂SO₄ % below 0.25%.

6. Microbiological influence of paper.

Bacteria, Fungi, and other microorganisms can play major part in corrosion of metals. Microbiologically Influenced Corrosion (MIC) refers to corrosion that is influenced by the presence and activities of microorganisms and/or their metabolites (the products produced in their metabolism). Microbiological surface colonies on the paper lead to the formation of corrosion pits, driven by microbial activity and associated with the location of these colonies.

Micro-organism associated with corrosion damage are classified as:

- Anaerobic bacteria (bacteria which do not require or cannot tolerate oxygen in their life process) that produce highly corrosive species as part of their metabolism.
- Aerobic bacteria (bacteria requiring oxygen for life process) that produce corrosive mineral acids.
- Fungi that may produce corrosive by products in their metabolism, such as organic acids.

Bacteria's tend to live and grow under wide range of temperature, pH and oxygen concentration in paper. Carbon molecule (from paper making starches) is the source of nutrient for bacteria.

Ramkumar Sunkara is a well-known personality in the corrugated industry.

He is a very knowledgeable person and has been the Chairman of Technical Committee of WICMA and R. D. Committee FCBM.

He pioneered the concept of Quiz as part of Technical Sessions during FCBM Conferences.

He has authored many research based technical articles on parameters and their effect on the strength of corrugated.



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Understanding The Rotary Die Cutter

This month, I would like to review the subject of Rotary Die Cutting and offer some sound technical support. My focus is to improve our manufacturing environment, reduce waste, improve registration and ensure the performance of the Rotary Cutting Dies.

There are a number of items that need to be understood in order to manage a consistent and profitable Rotary Die Cut operation. In this article, we are going to discuss the following:

- Managing sheet caliper during the due cutting process
- Managing and understanding accurate registration
- Managing “proper” mounting procedures
- Understanding “Rubbering”
- Enhancing the performance of cutting dies.

As we all know, the subject and design criteria for our Rotaries has certainly grown immensely in the last ten to twelve years. Cutting Die manufacturers have also responded aggressively in response to the industry demands. The whole concept of marketing customer’s products through box design and display techniques has matured into a whole new platform. As an industry, we need to review the requirements, raise our standards and offer our customers first class, accurate and clean die cut products. Properly done, this process will add real value to our RSC’s, improve our competitive position in the market place and add contribution to the bottom line.

MANAGING CALIPER.

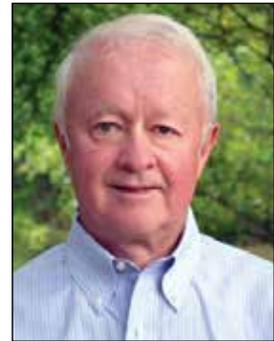
Every machine center must focus on recording and minimizing caliper loss in the converting process. Maximum allowable caliper loss is 0.003” (0.008 mm). Each order should be

measured for sheet caliper, as there are many different paper combinations that we are converting today. “C” Flute is not always “C” Flute. It can vary anywhere from 0.155” (3.9 mm) to 0.172”(4.3 mm) depending on the box requirements and the required paper combination. The operators need to be aware of the differences so that the nips can be set for each order. We have to cut clean and accurately so that we can send our customers a box or display that they will not only pay for but also will buy that same box or display again. NOTE: The design of the Cutting Die is based on a certain caliper sheet and if we change that caliper, how can we expect to die cut accurately? Our Supervisors need to be sure that this part of the process is a “Culture” on the production floor. This needs to be done on every order! Sample triangles, three inches on a side, need to be displayed so that management can see them on the table for good process control.

GOOD REGISTRATION PRACTICES.

Die Cut Registration or Inaccurate Registration is a major cause of scrap and unscheduled downtime in our industry. Running and managing the die cutting process requires proper understanding of accurate registration. Accurate registration means proper Time & Register calibration, proper registration numbers on the Cutting Dies and controlled sheet transfer throughout the color stations.

Work with your Die Suppliers to be sure that they locate the Zero Register Number (Registration Number) on the lead edge



Dick Target
“On Target Consultants”

of the wood on the operator’s side. This makes it easy for the operator to read it and use it as part of the set up process. Be sure that the crews understand this number and enter it into the machine control center. Remember, the Zero Registration Number is calculated as follows: Measure the distance from the centerline of the first row of boltholes on the wood to where the product begins—subtract that number from the cylinder size and add the lead edge trim.



It is also necessary for the crews to mount the cutting die as follows: The first row of boltholes is to be mounted over the zero row of boltholes on the die drum. The zero row of boltholes is the zero registration point on the die drum.

It is also important to remember to accurately control the sheet as it travels through the print stations. Be sure to use

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Min. Sheet Size	650 × 500 mm	650 × 500 mm
Max. cutting Size	1630 × 1180 mm	1630 × 1180 mm
Max Mechanical Speed per hour	5000 sheets	5500 sheets
Max. Cutting Pressure	450 Tons	450 Tons
The precision die-cutting	± 0.5 mm	± 0.5 mm
Stock Range	G、F、E、B、C、A、AB Laminated corrugated and corrugated board thickness 0.7-9mm	G、F、E、B、C、A、AB Corrugated board thickness 0.7-9mm
Machine Dimension(L × W × H) (include operating platform)	10726 × 5484 × 2458 mm	9658 × 5484 × 2458 mm



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low profile pull bands on the active print stations. Please use pull band printing plates on the inactive print stations. This practice will assure an accurate arrival of the sheet in the die cut section of the press.

NOTE: Please be sure that your die supplier prints the zero register number on all cutting dies including the presses smaller than the 66" (1600 mm) die cutters. For some reason, in this industry, Die Suppliers think that we do not have to set the register on Flexos in the die cut section and we all know that is just wrong!

PROPER MOUNTING PROCEDURES.

The subject of mounting cutting dies on the die drum actually needs some real discussion. This is one area that needs improvement in our industry. Across the board, operators rarely completely and properly mount cutting dies on the cylinder. They only use a portion of the mounting holes in the wood and this leads to a number of "silent" production issues. Silent issues are slower running speeds" un-even die cutting, scrap and cutting dies that wear out pre-maturely. Cutting Dies should last around 1,000,000 impressions. If the wood is not snug against the cylinder, the tooling in the wood will move up and down every revolution and eventually become loose. It then has to be repaired at a cost or may be just replaced. Loose tooling always results in poor die cutting.

I would suggest that you review the annual costs of cutting dies in your plant. Depending upon the size of your



production floor and the number of converting machines you have, the annual cost can vary from US \$75,000.00 up to US \$200,000.00 or more. These are real numbers and either contribute or take away from your bottom line. I would say that these costs are hard if not impossible to trace but are certainly real numbers!!

It is important that a bolt is put in every hole location in the wood. A good die maker will locate as many holes as they can in order to properly support the process without jeopardizing the integrity of the cutting die. So, a good operator will maximize the performance of that tool by using every hole. Operators tell me that if they put a bolt in every hole, it adds to their set up time. Vacant holes result in running slower speeds. So, my response to their comment is take the 45 seconds additional set up time and then run the order at a proper speed of 200 + kicks per minute. Otherwise, run with vacant holes and run at speeds of 150 kicks per minute or less.

Also, use the hammer and hollow sound test to assure proper mounting. If you tap the wood with a hammer and the sound is hollow, that means that there is space between the wood and drum. That indicates that the cutting die is not properly mounted. This die cutting process says that, during the process, the knife or scoring rule pushes against the steel drum every revolution in order for it to work. If the knife or scoring rule is moving up and

down because the wood is not properly mounted, the process is wrong and cutting and scoring process cannot be accurate and clean.

UNDERSTANDING RUBBERING.

Rubbering in the world of die cutting is not a science but an art. Rubbering has several very important functions in the converting process.

- Transport the sheet
- Maintain Register
- Support the body of the product on the outside of the knife (Straight Side) as it is being cut.
- Support the inside (Bevel Side) of the sheet
- Eject the die cut scrap as it is separated from the sheet.

Pull Band Rubber controls the sheet in the nip point and assures that the sheet travels the same speed as it enters and exits the die cut section. This is critical as the die cutting process continues throughout the process as the sheet enters the die cut section (while under control of a previous nip in the last color station) and while the lead edge of the now die cut sheet enters either the folder entrance section in a FFG or the beater section in Rotary Die Cutter. This is a very important part of the die cutting process.

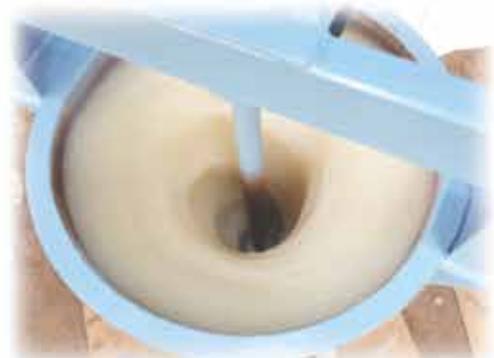
Support rubber needs to be the same height of the blade so that the body of the sheet is properly supported in the cutting process. This generally happens on the non-bevel



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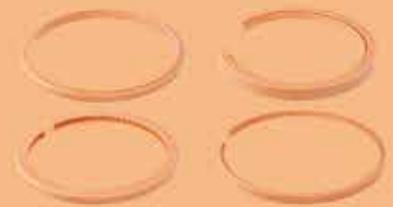
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(straight) side of the knife. Please note: If the sheet is not properly supported, it will move up and down in the process and alter the point of cut and change registration.

Ejection rubber is on the beveled side of the knife and must be higher than the support rubber. This rubber is also closed cell rubber; as it needs to be harder so that it can punch out the scrap and aggressively remove it from the sheet.

ENHANCING THE PERFORMANCE OF THE DIE BOARD.

The last item and certainly not the least important are the anvil blankets. They are a major factor in accurate and clean die cutting. Please be sure to either rotate the blankets on a scheduled basis or ensure that the proper blanket trimming device is working properly and accurately. Just to be sure that we understand... if you trim

the blanket it is necessary the they die cut section is servo driven so that as you trim the blanket and reduce its diameter, the surface speed of the outside diameter is adjusted so that it matches the surface speed of the cutting die. The anvil blankets are the icing on the cake.

It is important that all of these points are properly managed and supported in the plant at all levels to be sure that you produce a quality product.

Enjoy your job!!

Dick Target, owner of "On Target Consultants" based in Lower Gwynedd, Pa., has been in the corrugated industry for over 35 years.

He has worked in 29 countries developing and guiding corrugated plants in lean manufacturing, vendor development and management training.

He teaches Flexo and Die Cutter Calibration "Short Courses" for TAPPI several times each year.

Dick Target also writes for Corrugated Today and International PaperBoard Magazines.

The Readers will recall that he is a regular contributor to our magazine.

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He can be reached at: dicktarg@t@gmail.com





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Methods for Reducing Cracked Scores on Corrugated Board

The purpose of this article is to talk about methods for reducing cracked scores on corrugated board and rotary diecutting. There are three main reasons that the scores fracture. It is typically the paper, or it's the cutting die, or it's the anvil. Since I'm a diemaker, I'm going to pick on the paper manufacturers first.

There are four styles of corrugated board. There are single face, single wall, double wall, and triple wall (see Diagram 1), with probably the two most prominent being single wall and double wall.

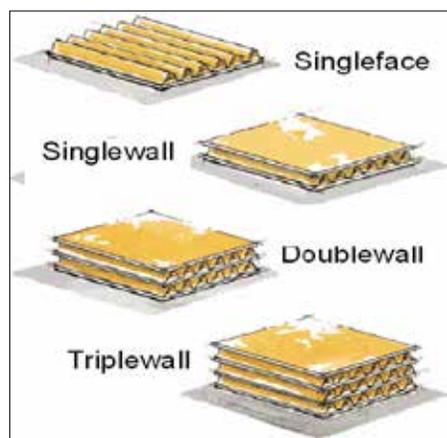


Diagram 1

There are five basic profiles, F, E, C, B and A flute (see Diagram 2). Probably the most common in our industry are B, C and E. They all have different caliber thicknesses, and they also have different dimensions from glue nip to glue nip. For example, B flute has .25" (6.35mm) between the nip of one glue to the next on center line and C has .3125" (7.937mm), and so on.

The corrugated board is made of two outside sheets called liners glued to a wavy sheet in the middle called the median (see Diagram 3). The outside liners are made from soft wood and they have long fibers. The medians are made from hard wood with short fibers, and that's what makes the paper rigid.

Problems with recycled paper

One of the biggest reasons why paper converters are having this issue is because

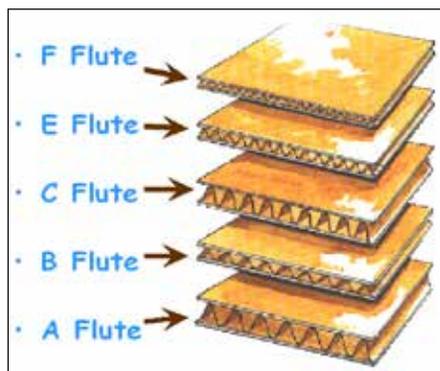


Diagram 2

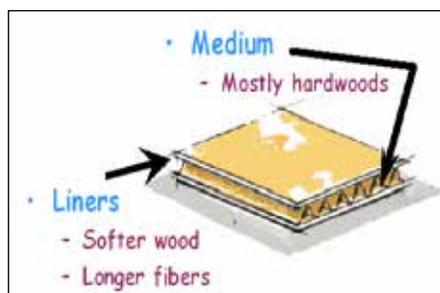


Diagram 3

of recycled paper. It's chopped... every time you recycle it, it gets chopped into smaller fibers. When it gets recycled again, it gets chopped into even smaller fibers. So each time it's chopped, the fibers get smaller and smaller and eventually you have a really hard time folding the paper when the fibers are that small. They just can't stretch.

Another thing that's hurting us is the paper mills are using more densely packed compressed liners that are thinner, but they still have the structural value as the heavier liners. Now, this is something that we probably didn't see a few years ago, but they're really starting to compress them tight and make them thinner.



Ken Smith,

Dynamic Dies, Inc., Holland, OH, USA

The problem is that they dry out faster from all the excess heat. During the manufacturing process, they then add starch or rigidity and then the scores crack even more.

The best way to control this is to use virgin paper, but as everybody knows it's pretty tough to get virgin paper any more. Virgin paper has long fibers in it, which allow the paper to stretch when you're bending it to fold it. If you're using recycled board, when the creasing rule starts to compress the paper, the fibers can only stretch so far before they begin to tear. That's just what happens. If you can imagine a four foot (1.2192m) stick, you can kind of bend it, but if you have a little short one, you really can't bend it, it just wants to snap.

If you're trying to crease a double score, the paper wants to pull from the center to each direction, and this is a common problem. You have a double score and the paper's pulling this way on one score, it's pulling that way on another score, and it splits right down the center. I'll address a way to solve this problem in a moment.

Usually the only time you have issues is when you're creasing with the flutes. If you're creasing across the flutes, it is very unlikely to see an instance where the board wants to fracture. Most of the

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problems occur when you are creasing with the flutes. Even if you're running a job cross-corrugated and your horizontal scores are creasing with the flutes, it typically is not an issue. You might get a little bit of wrinkling, but you're really not ever going to fracture your scores when you do that.

Let's address moisture in the paper. The moisture content is just crucial. The moisture keeps the paper softer. The target is to have 7% moisture in the paper when it comes off the corrugator, and obviously the sooner you cut the paper, the better results you're going to have because the paper is pliable. It's got a lot of moisture in it and you can crease it more deeply and you don't have to worry about the fracturing.

Another thing you have to look at is the humidity in the plant. I'm from up north and in the summer we hardly have any issues with scores fracturing because it's so humid. The plants are hot and the humidity is high, but as soon as winter comes, that's when you start seeing all the complaints. The buildings are cold, the paper's coming off the corrugator, it's hot, it dries out a lot faster, goes into the cold temperature, the humidity goes away, and that's when they always start having the issues with the cracking. Now sheet plants are at a pretty big disadvantage, because their paper is sometimes made two or three days in advance and it can sit on a truck waiting to be delivered. A lot of times it's dry by the time they get it.

If you're going to diecut a litho label, a lot of times they put full glue on the paper and then when the glue dries, that becomes brittle, so that's just another thing that can make the paper become more brittle.

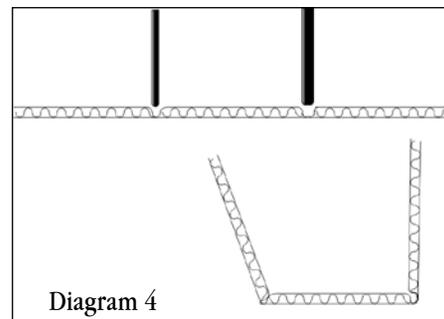
Cutting die problems

It seems like everybody wants to blame the cutting dies when the paper is fracturing. The first thing you have to look at is, is the score too high. Standard dies are typically made out of .990" (25.146mm) rule. You have to subtract the impression and the compressed thickness of the paper to get

your score height. In this example, take the .990" rule, subtract .080" penetration and in this case .032" is like 200 pound single wall, which comes out to .878" (25.146mm - 2.032 - .8128 = 22.3012mm). So when you're diecutting into a soft anvil, you have a little bit of tolerance that you can deal with. When you're cutting against a hard platen, there's not as much to give. If you're in the range of between .850" (21.59mm) and .875" (22.225mm), at least you're in the ball park.

The crease width matters. Your standard rotary dies are typically made with 4 point (.056) crease, but 6 point (.084) and 8 point (.112) creases are readily available and these distribute the pressure over a wider area. The good thing about them is they typically come with a 4 point base. You can have either a 6 point or an 8 point top and the rules are interchangeable, so they're very easy to swap out if you only have 4 point in your dies.

Diagram 4 shows an 8 point score on the right side and a 4 point score on the left side, and as you can see, when you fold



the 8 point score there's a wider channel in the box, so you can fold it at 90° with a lot less binding in the corners. When you do the 4 point, it starts to bind and it wants to push back all the time. If you have too much inside resistance, you can cause the outside to stress, so you have to try to relieve as much of the inside stress as possible. Diagram 5 shows all the stress that was put on the outside of that carton. We have to try to reduce that stress as much as possible.

If you're still having issues with the scores cracking, the next thing to do is examine the cutting dies. The first thing we need to



Diagram 5

look at is if the creasing rules notched to the correct depth (see Diagram 6). If you're using 1/2" (12.7mm) wood and they're only notching the rule 3/8" or 7/16" (9.52mm or 11.11mm) and they're pounding the scores in, the scores are going to be sitting up on top of the wood. They're not going to be seated down to the cylinder like they should to be the proper height.



Diagram 6

The next thing to look for is the creases sometimes have a tendency to pop up on the end (see Diagram 7). When you pound a piece of vertical scoring rule into a rotary dieboard, you are literally pounding it over the top of each bridge, and it has a tendency to kind of bend up a



Diagram 7

Contd. on - 31

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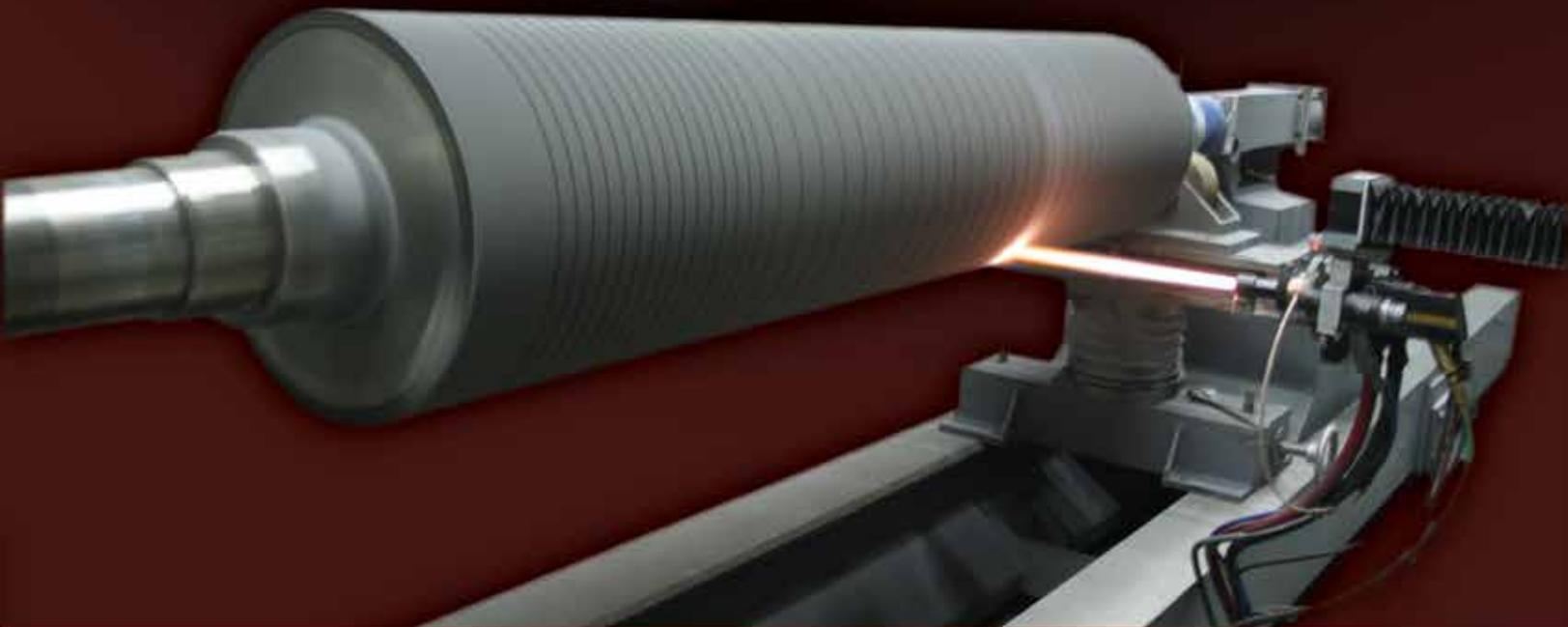


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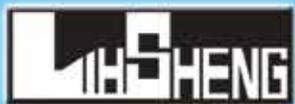
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little bit. The diemakers have to make sure they bend that crease back down to the original diameter. Sometimes the saw cut has loosened up or wiggled out. Usually it's a simple fix to put a two point shim on the side of it and drive it down to pound the score back down. If that doesn't work, you have to flip the die over and check for loose saw cuts or broken bridges. If you can see a crack through the bridge, it means that the wood is actually split and it won't hold the rule down tight, and you're going to have to have the dieboard repaired.

Some people have their diemakers tap all their bridges to knock the bridge down a little bit. There's certainly nothing wrong with that, especially if your crease isn't bridged quite deeply enough, but if it's bridged to the right height, it should lay right on top of the wood. Sometimes the specifications of the timber alter it a little bit. Remember, the less steel you take out of your scoring rule, the more steel you have left at the top, so you have less chance of it ever breaking.

You also have to make sure that the back of the dieboard, when it's flipped over, doesn't have any debris underneath the scoring rule. Sometimes the diemakers pound the rule in and there are a lot of little wood chips underneath it. When this happens, the rule won't sit down on the cylinder properly and be the right height.

Once the dieboard is mounted onto the cylinder, we have to make sure that the cylinder is free from all foreign objects like glue and tape and rubber and whatever else they might slop on the cylinder before they mount the die (see Diagram 8). There shouldn't be anything on the back of the dieboard like packing slips or strips of mounting material which may have been placed under it to make it raise up. Sometimes the threaded inserts wiggle out and they back off and stick up in the air just like this one. It's impossible to mount a dieboard and get the rule flush in a case like that.

Another thing you can do is have your diemaker put plenty of bolt holes near the



Diagram 8

creases. The average diemaker probably puts a bolt hole going across every 14" to 16" (355.6mm to 406.4mm), and sometimes they can be maybe as much as 8" or 10" (203.2mm or 254mm) away from the crease.

I've been asked whether we need to have a standard bolt pattern of every five across. You can absolutely request your diemaker to do whatever you wish. If you want a standard bolt pattern every 8" or 6" (203.2mm or 152.4mm), you can certainly put that in your specifications to have your diemaker do that. The industry standard is 14" to 16" (355.6mm to 406.4mm), but if you're having creasing issues and you want your creases to stay down tight, you should have them as close to the vertical scores as possible.

As long as we're on the bolt hole subject, it's very important that every bolt be put into the die, especially if you're putting holes every 14" or 16" (355.6mm to 406.4mm). If you have a bad threaded insert, you could be possibly up to 32" (812.8mm) from one bolt hole to the next. So it's very important to maintain the cylinders and replace the bad threaded inserts when you have to.

Another reason why you need to have all the bolts in the dieboard is the wood is an organic material and it's susceptible to environmental changes with humidity and heat. Dies will grow in the summer and shrink in the winter. Wood is not always perfect, so that's why you need to get all the bolts in it and really get it down tight.

Sometimes I see diemakers leave sharp corners on the ends of scores. It's very important in rotary diemaking to grind a

radius at the end of each score. It eliminates it piercing through the first liner, and it gives the paper a little place to go when it's being diecut. Grind a nice little radius on the end of it; otherwise you might see some fracturing at the ends of your scores.

In addition, you'll get better performance if you use a rounded crease. Diagram 9 on the top right shows the crease at the top is rounded. The picture on the left is flat. It has a sharp edge on it and the sharp

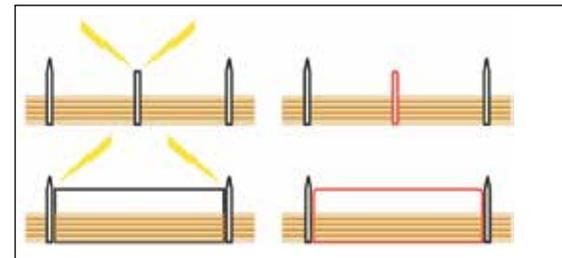


Diagram 9

edge can actually cause fracturing. On the bottom left it shows the crease was just pounded into the dieboard with it being cut off straight. On the right, it's how it should be installed. It's got a nice little radius at the tip to stop the fracturing.

Diagram 10 shows a fracture that was pulled from the side laterally, and my guess is the die was either rubbered wrong or the crease was just too high. Diagram 11 shows where the crease literally just split the paper right in half; if I had to guess, I would say that the crease was bubbled up in the middle, and it wasn't pounded down all the way.



Diagram 10



Diagram 11



Excellent!

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The elasticity of the liner determines the amount of fracture, so without the proper rubber next to the creasing rule, the paper stretches and cracks (Diagrams 12, 13, and 14). Diagrams 15, 16, and 17 show how the crease comes down and the paper is pulled laterally, and it just can't pull that far unless it has the proper rubber on it.

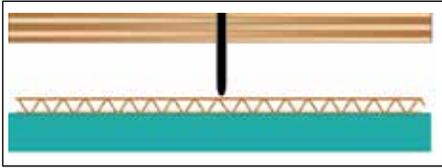


Diagram 12

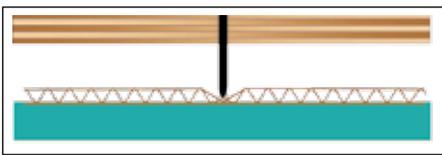


Diagram 13

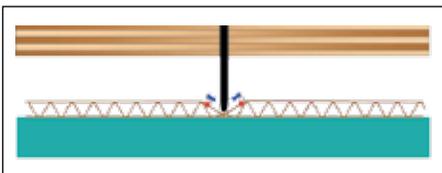


Diagram 14

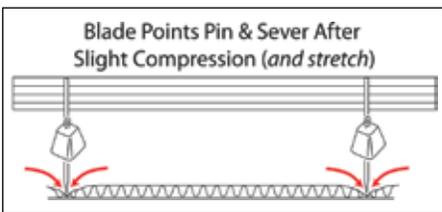


Diagram 15

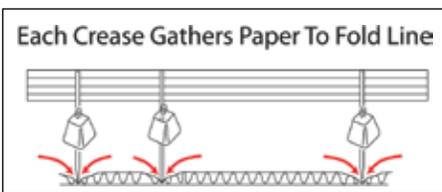


Diagram 16

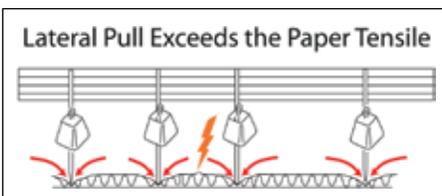


Diagram 17

Now comes the nitty gritty of this whole article. I'm going to talk about some of the remedies to fix the problems, so all hope is not lost. Under ideal conditions, if you're using good, virgin paper, you can probably get away with using gray sponge (medium density). I don't recommend it, because you're not always going to get good paper. One time you might and the next time you might not, but there is a variety of urethane products that can crush the paper, it can spread the load and reduce the full resistance to stop the cracking.

You can get good results by widening the score and putting dense rubber adjacent to the scoring rule (Diagram 18). There are a lot of products that have been developed that are proven. They all pretty much do the same kind of thing, and the majority of them will do what the manufacturer says they will do. Most of the time it will stop the cracking.

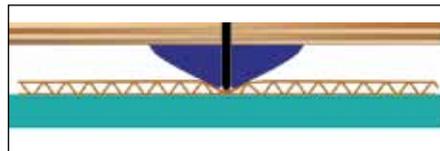


Diagram 18

There is a cushion crease, there are shoulder flex products, Red Rhino, poly score—there is a wide variety of these products that are out on the market, and they're all very similar. They're all made out of hard rubber. They're almost as high as the score, and then they all have a tapered down edge to them (see Diagram 19). By adding a tapered hard rubber next to the creasing rule, you provide more crushing of the crowns

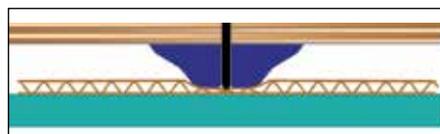


Diagram 19

(flutes), allowing the paper to stretch over a larger area. In extreme cases or 180° folds, you may have to have additional creasing. This can be done by adding hard rubber between the tapered rubber and the creasing rule (Diagram 20). As I said, there are a number of possibilities (Diagram 21).

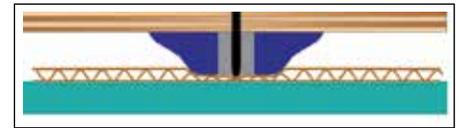


Diagram 20

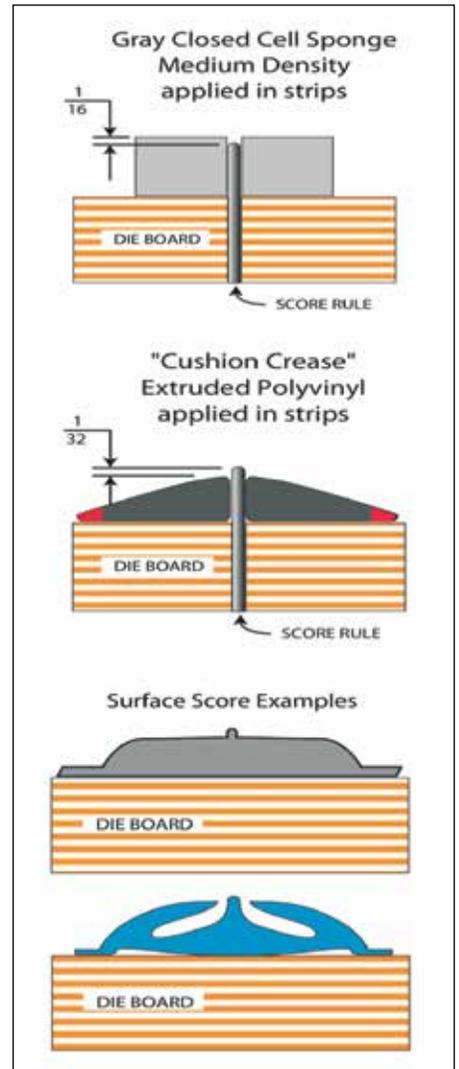


Diagram 21

Now let's look at the depth of your perf. If you're having issues with your perf rule cracking the board, the odds are the depth of the gullet isn't deep enough. There's a simple formula to figure that out: Rule Height - Penetration - Board Caliper > Depth of Space. On a standard .990" (25.146mm) die with cutting B flute, you subtract the penetration of .080" (2.032mm) and subtract the board caliper of .118" (2.9972mm) to get the depth of your space as .791" (20.0914mm). A standard piece of .937" (23.7998mm) perf that would go on a rotary die like that



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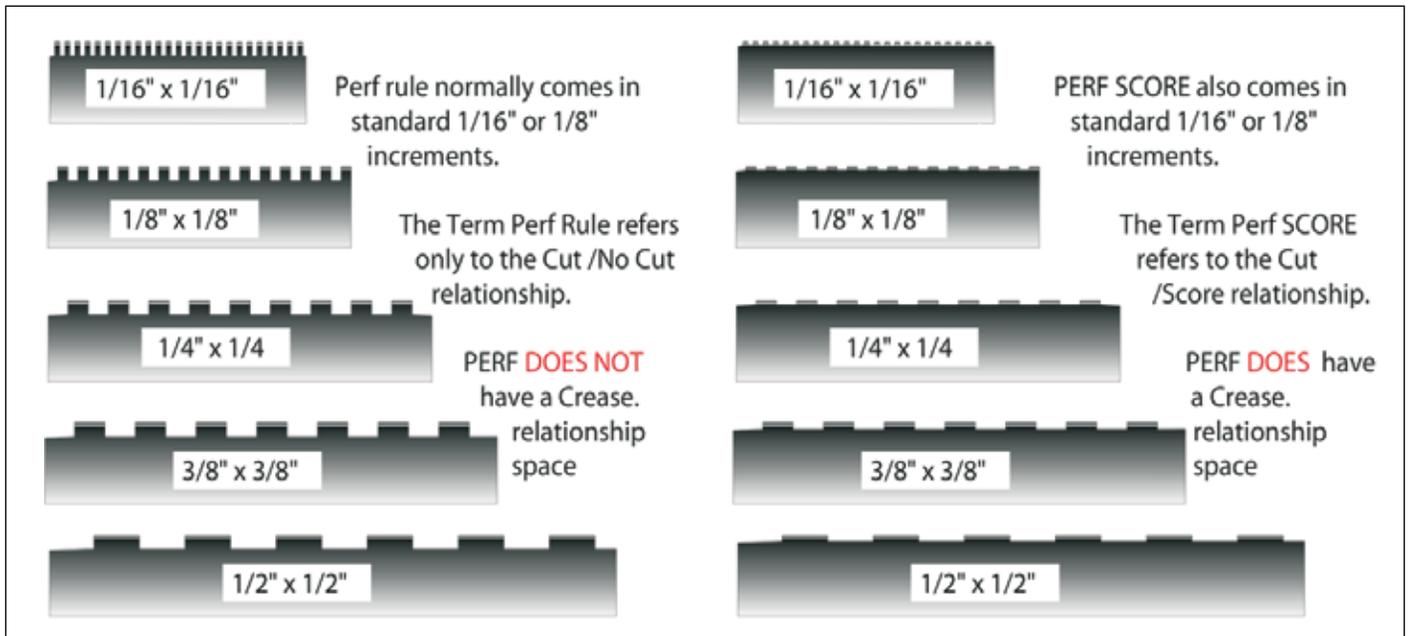


Diagram 22

is only .760" (19.304mm) high, so you've got plenty of clearance. Actually you can probably go up as high as .800 (20.32mm) high and still not have any issues with it. I highly recommend not to use perf score when you're creasing with the flutes. I'll explain that in a minute.

If you look at Diagram 22, the standard perf on the left does not crease the box. It has a gap that is deep enough in the gullet that it will not crease it. Now perf score does put a crease, which is on the right side. The perf score does put a crease in the box between each cut. I highly recommend that you don't use it with the corrugation direction, but if you're perf scoring it across the flutes in a horizontal direction, you may or may not have a problem with it depending on whether you use the proper type of perf score. There are several types of perf score which we'll look at shortly.

At the top of Diagram 23 it shows a standard piece of perf that has a deep gullet in it, and the bottom one shows a perf score



Diagram 23

which has very little room between the top of the teeth and the crease.

The biggest reason why perf score fails is it's got a flat edge on the top and that's created during manufacturing (see Diagram 24). The sharp edge wants to fracture the score. It fractures it all the time, but there are some rule manufacturers that can

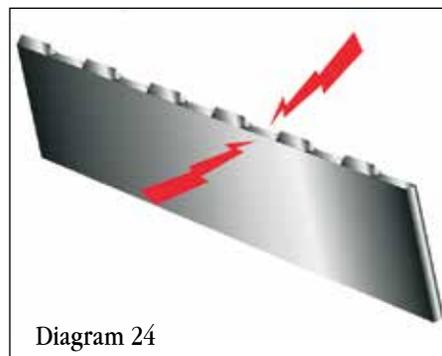


Diagram 24

make a perf score that has a radius edge on it, so it softens the blow and it really can help stop some of the fracturing. Diagram 25 shows the radius edge. It's kind of hard to see, but the one on the right has a radius edge ground on perf score, which can help stop the cracking.

The last thing I want to cover is the double scores. Whenever you have a double score, you can put your hard rubber on the outside, but a lot of times it wants to split on the inside, because the paper's getting

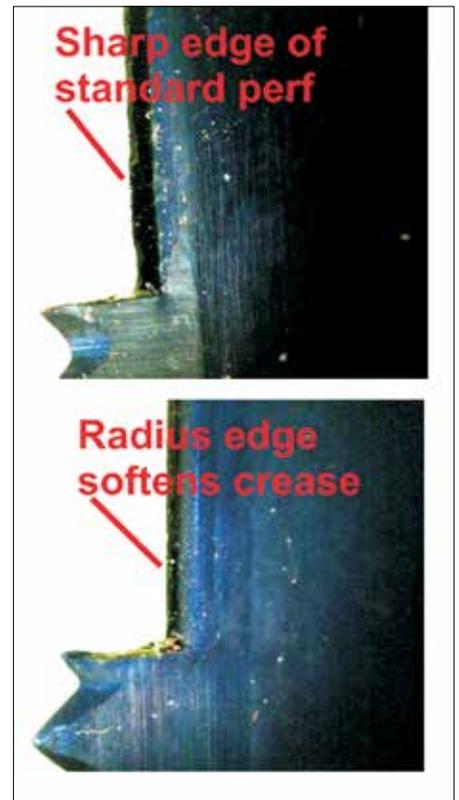
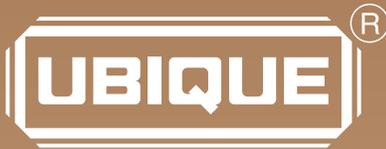


Diagram 25

pulled this way on one score, this way on the other score. The best way I found to eliminate that problem is to put a piece of Diaprene or cork right in between the double scores so it's as high as the score is, and that seems to do a really good job on stopping that.

Contd. on - 39



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Anvil problems

If you're pretty sure you have decent paper and you've checked the dieboard and everything's down tight and the scores are down, and it's got the right kind of rubber next to it, another thing we have to look at are the anvils. As the anvils wear, the greater the chance of fracturing, because you have to put more penetration on the knives, and then your scores are going in deeper.

The anvils have to be smooth. They should not be beaten up or have grooves in them; there should not be chunks missing or be all wavy. There are a lot of different reasons that can make the anvils cause

cracking. If the bottom anvil rotates a little bit—it oscillates back and forth—it solves a lot of those problems because then you don't get grooves worn into the anvils. A lot of older machines didn't have that, but the majority of the newer machines that are out there have the oscillation. You need to make sure that the oscillation is working all the time. Sometimes the anvils look like an old piece of shag carpet, that's how bad they get. The maintenance department must rotate the anvils periodically to keep them smooth and to keep them flat, and so they're not higher on the outside and lower on the inside. It's just something that has to be done.

The anvils have to be parallel. If your cylinders are out of parallel, then one end is going to be closed more than the other. Just recently I had a complaint from a customer about a double score that was cracking on the operator side, and I checked the die over twice and couldn't find anything wrong with it. I had the operator take the die off, turn it around and on the operator side the scores were cracking and the other ones were fine, so I had to prove to him that the machine was out of parallel. That's something you have to watch out for. When you check it, look for whether it is parallel and for roundness. You really should check it four times.

Ken Smith is the Production Manager at Dynamic Dies, Inc. based in Holland, OH, USA. Dynamic is a premier supplier of steel rule cutting dies and flexographic printing plates for the corrugated box industry. Since 1971 they have provided innovative products and solutions with unmatched service. They use the latest technology of lasers and CNC machines to produce almost any size cutting die. Plate materials of virtually every variety are inventoried with a maximum one piece plate size of 50" x 80". Manufacturing locations are: Holland, OH; Middleton, OH; Indianapolis, IN; and Pittsburgh, PA, USA. Ken can be reached at 1-419-865-0249 or ken_s@dynamicdies.com

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The IADD is an international trade association serving diecutters, diemakers and industry suppliers worldwide. IADD provides conferences, educational and training programs, a monthly magazine, online resource library of 550+ technical articles, industry experts to answer technical questions, publications and training manuals, recommended specifications, online used equipment marketplace, videos and more. IADD also co-presents Odyssey, a bi-annual trade show and innovative concept in technical training featuring a hands-on Techshop where training programs come alive in an actual working diemaking and diecutting facility inside the exhibit area.

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Corrigendum

In **The Corrugator Oct. – Dec. 2015 issue**, on page 43, the credit line may please be read as below:

The article titled **“Corrugated vs. Paperboard”** is Co-authored by Mr. Ian Young.

Mr. Kevin Koelsch is the Vice President- Operations at Dynamic Dies, Inc.

Mr. Ian Young is the President of Radiant Lasercut, Inc. and the VP of Media and Content for IADD.



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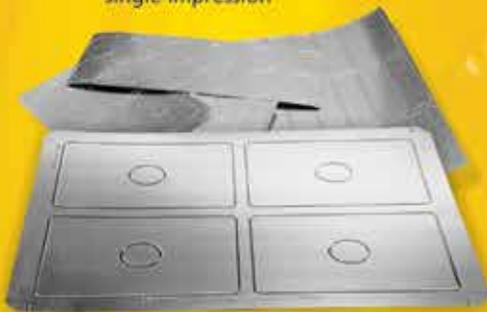
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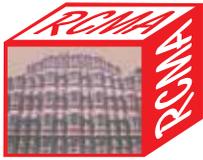


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RCBMA has grown at a steady pace in the last year and is planning various activities to reach out to its members more frequently. In this process, RCBMA organized a technical seminar for the benefit of all its members in Jodhpur on 19th March 2016. The event was managed by the Jodhpur Region of RCBMA. Mr. Ambuj Jain (Vice President, Jodhpur Region, RCBMA) and Mr. Puneet Kothari (Joint Secretary, RCBMA) led an enthusiastic team for organizing this seminar. Around 100 members from all over Rajasthan attended the event. RCBMA invited Mr. Ram Kumar Sunkara & Mr. Bhaskar Reddy to enlighten its members on the following topics:-

- A Step towards Semi-automatic corrugated Plant
- Effective ways of using Corrugation & Pasting gum
- How to dry box in one hour in normal plant
- Optimal adhesive solutions for manual plant

The event started with a welcome address by Mr. Rajeev Katta (President, RCBMA) who thanked all those present for their participation in huge numbers and active support. He briefly described the activities of RCBMA in the recent past and plans for the immediate future. He also encouraged all the non-members to join RCBMA and members to more actively participate in RCBMA.

This was followed by an announcement of hosting FCBM 4th Managing Committee meeting in the month of September' 2016 in Jaipur by Mr. Sumit Goel (Secretary, RCBMA) and a word of advice by Mr. V.K, Dewan (Advisor, RCBMA).



Mr. Bhaskar Reddy spoke about the usage of gum and its importance in the corrugation industry.

Mr. Ramkumar Sunkara deliberated on the profitability and future of our industry. All the members actively participated in the technical discussion with the speakers and were definitely enlightened by the knowledge, facts and ideas shared by both the speakers. Members were delighted to get knowledge about new machines, new technologies on raw material, idea on how to reduce cost and

how to prepare for the future. There were a lot of queries by many members for both the speakers which were very well attended.

The technical seminar ended with a vote of thanks and felicitation of the speakers, senior members and the organizing committee.

The seminar was followed by cocktail and dinner which everyone enjoyed while enjoying T20 match between India and Pakistan.





SICBMA Team @ Sino Corrugated - 2016 Show at China

A delegation of 23 members visited Sino Corrugated South 2016 held at Dongguan, China. Reed Exhibitions appreciated SICBMA for their efforts and interest in the Show.



Thailand Team visits SICBMA Lab Cum Office

SICBMA had extended an invitation to the Thailand Team during their visit to Pack Expo, Thailand last year. In response to these a team of Thailand industrialists visited, SICBMA Lab cum Office. The Thailand team was heartily welcomed and shown the facilities installed at SICBMA lab.

Later the team was escorted to the manufacturing facilities of some of SICBMA members' packaging industries.



SICBMA has recently installed New Testing Equipment in their laboratory.



This will facilitate accurate and speedy testing of corrugated boards and boxes for the members of SICBMA and their customers and supplier



Testing Equipments at SICBMA Lab



Emergency Meeting

WICMA organised an Emergency Meeting on 5th April 2016 to discuss the alarming situation arising out of increasing prices of kraft paper and the pressure tactics adopted by paper mills.

Many members attended the meeting and actively participated in the discussions.



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WICMA has announced its Annual Symposium, which is scheduled on 29-30, September 2016, at Daman (U.T.) near Vapi.

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For other details please contact: WICMA Office or write to wicmaoffice@gmail.com





“Interface Meeting on Packaging of Mangoes”

Organised by – Government of West Bengal,

27th May 2016, Venue - Office of the Deputy Director of Agriculture (Fruits) Malda in association with ICAR-CISH-Regional Research Station

Keeping in line with the global necessity of conserving natural resources and also with the necessity to develop new markets for the use of corrugated boxes, EICMA has been in constant endeavor to create awareness and develop usage for corrugated boxes, particularly in the area of packaging of agri-horticultural produce.



After the initiatives taken for packaging of tomatoes produced in the Haldibari area of North Bengal, EICMA in association with the Government of West Bengal has recently completed an extensive programme for packaging of mangoes in Malda district of Bengal.

Over the past few months, Milan Dey, President had been interacting with Government officials in the concerned departments pushing for the use of

corrugated boxes as a replacement to wooden crates. Apart from the executive officials, even the Honorable Minister of the outgoing government, in charge of food processing and horticulture had shown keen interest in the possible use of corrugated boxes.

Huge Market

Mango, being a seasonal fruit, the harvesting and packaging season lasts for about three months from end May to early August. Taking into account good years and lean years, an average of 0.25 to 0.30 million metric tons are produced annually in the region. With the average pack size being 20kgs, an estimated minimum of 10 million cases is the annual requirement.

On 27th May 2016, EICMA members under an invitation from the Deputy Director, Horticulture Department, Government of West Bengal, Malda, attended an “Interface meeting on packaging of mangoes” organised by – Government of West Bengal, Office of the Deputy Director of Agriculture (Fruits) Malda in association with ICAR-CISH-Regional Research Station. The meeting/seminar was held at the Regional Research Station, in the Food Park premises of the Government of West Bengal, in Malda.

Fifteen members representing EICMA from Kolkata, Siliguri and Malda attended the meeting/seminar (mention may be made that, the delegation from Kolkata drove to Malda, as no train tickets were available). A substantially large number of mango growers/sellers mostly using wooden crates, were present in the audience.

Representing the organisers, the following eminent persons were present as speakers.



Dr. S. Rajan
(Director – CISH – Lucknow)

Dr. D. Nayak
(Scientist, In-Charge, CISH,
Regional Research Station, Malda)

Mr. Saha
(Dy. Director –
Agricultural Marketing, Malda)

Mr. Rahul Chakraborty
(Dy. Director – Horticultural Dept.,
Government of west)

Samples of corrugated boxes manufactured, after keeping in mind the specific need of the produce, were carried from Kolkata. These were even printed in attractive designs and colours to stress on the display aspect of the packages. Leaflets, posters, streamers/danglers were also carried and distributed/displayed at the venue.

The meeting/seminar was split into two halves with the first session left to the organisers, all of whom unanimously espoused the cause of switching over from wooden crates to corrugated boxes. Mr. Krishnendu Narayan Choudhury, Chairman-Malda Municipality, spoke on the environmental and eco-friendly aspect of corrugated boxes and also mentioned



the aesthetic qualities while stressing on the positives of Brand creation with Geographical identity. Mr. Dwivedi, District Magistrate – Malda, spoke on similar lines and Dr. Rajan, Director – CISH – Lucknow, was lucid in his explanation that a good product receives even greater acceptance if the packaging is good both in terms of quality and aesthetics.

All the speakers categorically pointed out to the audience that corrugated boxes were extensively in use worldwide and even at home, apples and grapes have long been successfully converted to being packed in corrugated boxes.



The second session was left to EICMA where Mr. Milan Dey after the necessary preliminaries, handed over the presentation to Mr. Subroto Das, Managing Committee member, who made an excellent visual presentation with specific mention on advantages of corrugated boxes over wooden crates. He pointed out the aspects of benefits in storage of empty boxes, brand building through print possibilities, price benefits, transport benefits, removal of injury hazards possible during manufacturing and packaging in wooden crates and various other points. The audience was receptive and showed keen interest in the presentation. The entire presentation was given in Bengali to facilitate a proper understanding by the audience. An interactive session was held thereafter with the audience.

Mr. Hemant Saraogi in his usual inimitable and audience-friendly manner answered the queries in Bengali, with Mr. Subroto Das and Mr. Milan Dey adding in with their

technical expertise. All the questions that were asked were of relevance and proved that the attendants had come well prepared and were conversant with the intricacies. This was indeed a boost for participants in the interaction.

At the end many requests for trial quantities started coming in at which Mr. Milan Dey suggested that initially a single local sourcing point be set up from where distribution of trial quantities would be feasible and convenient. It was decided that while implementing this may take some

time, the first lot of a trial quantity would be sent from Kolkata. On behalf of the Government, EICMA was requested to set up an office-cum-liaison centre within the food park premises for which an assurance of all help and assistance was also given.

EICMA has also been requested to be present at the exhibition-cum-seminar on sustainable mango production to be held at Malda on 18th and 19th June 2016, where EICMA has been asked to set up a stall and give a presentation.



Team EICMA



Section of audience



Checking the Compressive Strength !



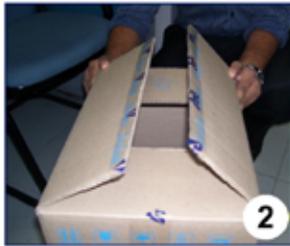
Press Coverage



Compiled by - **Soumitra Choudhury**,
M. C. Member , EICMA



SOP for using Corrugated Boxes for Packaging of Fruits and Vegetables



- (1) Store the Boxes in dry place, under cover and away from rain. The storage area must be covered from all sides and NOT just overhead.
- (2) At the time of packing, close the shorter (inner) flaps first and then the longer (outer) flaps of one end.
- (3) Seal the end by using good quality BOPP Tape of atleast 2.5" width. The tape should extend by 2" on either side of the box (shorter panels).
- (4) Overturn the box and fold the four flaps by 180 degrees on the outside.
- (5) If any filler or cushioning material (like straw, leaves, waste paper, etc.) is used, ensure that these are absolutely dry.
- (6) Place the product (fruits, vegetables, etc.) preferably of more or less similar size inside the box in the same orientation only.
- (7) Fill the box upto the top edge or nearest to it.
- (8) Close the box by bending the shorter (inner) flaps first and then the longer (outer) flaps inside.
- (9) Again seal the end by using good quality BOPP Tape of atleast 2.5" width. The tape should extend by 2" on either side of the box (shorter panels).
- (10) Stack the boxes by placing one on top of the other, in a manner that all the corners are aligned with each other (Columnar Stacking) and are vertical
- (11) The maximum stack height, from the bottom of the lowermost box upto the top of the uppermost box should not exceed 8 feet
- (12) Store the filled boxes in dry and enclosed space.
- (13) Care should be taken while loading the boxes, so that they are not dropped or thrown to avoid damage to the product.
- (14) Do not use the ventilation holes as handles to lift the box. The box should be held from the bottom only.
- (15) Load and place the boxes vertically in the truck as they were stacked in the warehouse.
- (16) Cover the truck properly on all sides and place cushioning materials like old corrugated strips under the rope to avoid damage to the edge of the box or use a containerized truck



Eastern India Corrugated Box Manufacturers' Association

R & D CENTRE, "Merlin Links", Flat No. 3F & 3G, 3rd Floor, 166B, S.P. Mukherjee Road, Kolkata - 700 026
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Federation of Corrugated Box Manufacturers of India



FCBM Managing Committee Meeting, Bengaluru

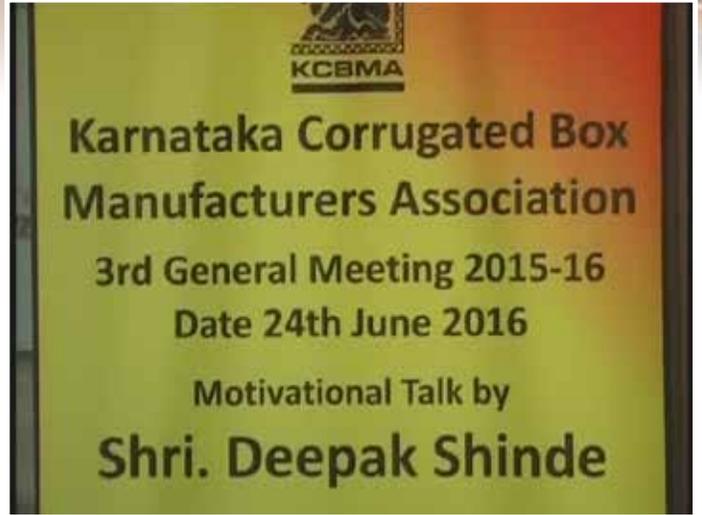
The 3rd FCBM Managing Committee Meeting was held at Hotel My Fortune, Bengaluru on 25th June 2016. KCBMA had the opportunity to host the event.

Besides regular agenda, Presidents of Regional Associations gave a briefing of their regional activities.

On the earlier day i.e. 24th June KCBMA had organised then 3rd General Meeting. They had invited Mr. Deepak Shinde for delivering a Motivational Talk. PMCC had organized an Interactive Meeting with Paper Mills where meaningful discussions took place.

Cocktails & Dinner was organized in the evening.







Corrigendum

In The Corrugator Jan. – Mar. 2016 issue, on page 49, the venue of KCBMA Technical Seminar was wrongly mentioned as The Chancery Pavillion, Chennai. The City is Bengaluru - not Chennai.

The seminar was organized by KCBMA. Instead of the logo of KCBMA the logo of KeCBMA has been wrongly put.

The error is regretted.





 **45th Conference of**
Federation of Corrugated Box
Manufacturers of India
November FRI 18 SAT 19 SUN 20 2016 - Chandigarh, INDIA

The Future
BOX
Trends & Technologies that will shape
the Future of India's Corrugated Industry

From the Desk of Conference-Chairman

Dear Friends,
Warm Greetings!!

As you must be aware that Himachal Pradesh Corrugated Box Manufacturers Association (HPCBMA) have been nominated to host the forthcoming **45th Conference of FCBM of India from 18th November to 20th November 2016 to be held at Chandigarh.** It will be our privilege to host the same.

The FCBM conference has been drawing ever-increasing number of Global Industry Leaders. We are getting Ready to welcome you all with your Family & committed to make the **45th FCBM conference cum Corru Show 2016 a bench Mark for future events.**

The concurrent **Corru Show 2016** will play an important roll in marketing and selling of products and show to provide platform to display, demonstrate up coming technologies for the participants followed by interesting technical sessions etc. In addition this will be a fruitful meet for both exhibitors and delegates. We are expecting minimum Participation of 880+ Corrugated Box Manufacturers from all over India.

We assure you that all three days at Himachal will be filled with interesting, action –Packed Entertainment & Programs for your relaxation besides having a memorable time as our Dev Bhoomi Himachal Pradesh is a mountainous state & you and your family will enjoy weather with lots of other attractions which also includes world famous narrow – Gauge Trains from Kalka to Shimla . These trains covers distance of about 80 kms in 2-3 hours & Passes through many tunnels and a maze of Hills.

We once again invite you with your family to participate in this Corru Show 2016 to be held at Chandigarh and experience the hospitality of HPCBMA (Himachal Pradesh).

With Best Regards,
Mukesh Jain,
Chairman-Conference
09318593599
Email id:- conferencechairman@thefuturebox.in

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Electronic model with 5 sample size measurement



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Tear Tester

Measures the force required to tear multiple sheets of paper



Puncture Resistance Tester

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Cobb Tester

Determining water absorptiveness of papers, boards etc.



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Winner of Pacmachine 2006 Award



Rub Tester

To measure the rub proofness of prints on paper or board. Can also be used to measure colour transfer from printed or coated materials during rubbing.



Drop Tester

Determines the performance of a packed box during handling and transportation.



Vibration Tester

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Specifications			
Model No.	OMEGA-23 / ES-23	OMEGA-28/ES-28	OMEGA-32/ES-32
Max. Sheet size	700 x 2,000 mm	1,200 x 2,500 mm	1,200 x 2,900 mm
Min. Sheet Size	250 x 600 mm	300 x 900mm	300 x 900 mm
M/C Dimension	2,800 x 12,000 mm	3,100 x 13,000 mm	3,500 x 13,000 mm
Max. Belt Speed		200 M/Min	
Max. Stitching Speed		120 Sheets/Min (OMEGA Model)	100 Sheets / Min (ES Model)

Improving Soft Anvil Rotary Diecutting and Stripping

Diecutting Uncured Corrugated Board

The Just-In-Time concept of manufacturing is forcing reduced inventories. Order lengths are decreasing. Lead times to process orders are shrinking. Frequently, winning an order is based on quick delivery.

The impact of these factors is that greater and greater pressure is being placed on the diecutter to produce die-cut blanks without the time to adequately cure the board between corrugating and converting (generally not a problem for sheet plants). It is generally accepted that diecutting uncured (right off the corrugator) board:

- Requires more pressure to cut, leads to under-sized blanks as the die-cut blank cures,
- Is more difficult to separate nicked-together bundles when the nicked were “sized” for cured board and
- Reduces anvil cover and cutting die rubber life.

What is generally not understood as well as it should be is the fact that processing uncured board, whether through a rotary die cutter or a flexor folder gluer, can lead to:

- excessive board crush, reduced stacking strength and
- “loose liner” (separation of the liners from the fluting).

More pressure to cut

Uncured board is generally high in moisture, which means that it has greater resistance against cutting. To obtain cutting, crews apply more pressure, which drives the cutting rule deeper into the anvil and thus the corrugated paper deeper into the die, leading to shortened diecutting dimensions. Since the paper was already

high in moisture, the curing that takes place after diecutting means the blanks will shrink even further, and therefore the final blank dimension may be “out-of-spec” and subject to rejection by the customer.

More difficult to break “Nicks”

When a die is nicked, either by the diemaker or the diecutter crew, the nicks are sized for cured board. The result is the nicks are usually larger than would be required to hold “wet” board together. When “wet” board is run, the nicks are now too large, and separation of the nicked bundles, or batches, becomes very difficult, more downtime is incurred as the nicked rule is re-placed or the edges of the blanks become ragged as the nicks are pulled apart (a quality issue).

Reduces anvil cover and die rubber life

Rubber and urethane materials are not very good at withstanding heat. Both anvil covers and cutting die rubber fall into this category. Heat softens this material and increases its rate of wear. The membrane around the pockets of air in die rubber loses its elasticity, failure occurs so air is expelled from the rubber when compressed and the rubber becomes “dead.” Several years ago, I visited a box plant running beef boxes (275# test “C” flute board directly off the corrugator). In 45 minutes the cutting die rubber was completely “gone” (like melted) and the anvil was so hot, one of the crew received a “burn” when he placed his hand on the anvil drum.



Russell Smith
Centerville, OH, USA

This may be a good time to comment on the type of glue (adhesive) used to affix the die rubber to the wood. I have seen die press operation manuals recommend hot melt adhesive for gluing the rubber to the die wood and diemakers using hot melt guns to apply glue to the wood for affixing the rubber. Based on my experience, this practice is not good when running “hot” board. The heat softens the glue and shortly thereafter the rubber disappears from the die. Use a good grade of “contact cement.” Apply cement to both the rubber and the wood, apply the rubber to the wood and, under hand pressure, “work” the adhesive into the surface of both the wood and the rubber using a circular motion. Then separate the rubber from the wood and let both surfaces “set-up” by air drying; then replace the rubber exactly where you want it to go, for once affixed in this manner, you will not be able shift it later. DO NOT apply cement to either, or both, of the surfaces and apply the rubber to the wood without the “working-in” action. When rubber is applied to the wood without “working” the adhesive into the surfaces, the rubber does not bond tightly and frequently has fallen off by the time the die is delivered to the box plant. When using contact cement, if you can slide the rubber on the wood after placing it

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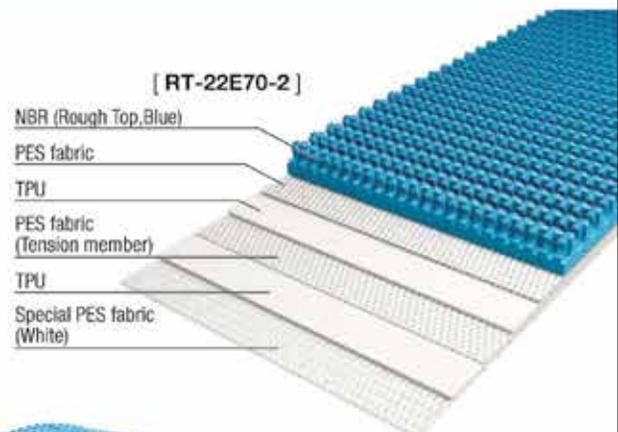
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where it is supposed to be, you have not achieved a good bond between the rubber and the wood.

Another good adhesive is “super-glue.” Many die-cutters do not like super glue because it holds too tightly and removal of rubber from the wood becomes very difficult.

When replacing any rubber, be certain to scrape all of the old rubber from the wood before adding the new rubber. Also, do not add rubber on top of old rubber. This usually causes the new rubber to fail prematurely.

Excessive board crush and reduced stacking strength

A recent TAPPI paper by James A. Cummings and Arthur P. Burkart provides some insight into the impact on stacking strength of processing uncured board. Conventional corrugator slit board, hot-off-the-corrugator, has a stacking strength of 95.5% of the stacking strength of cured (14 hours) board. Several equipment manufacturers are working on forced curing (cooling) of corrugated board and when forced cooled (18 minutes) the stacking strength increases by 8.9%. Thus, not only does curing eliminate the potential for bond separation due to diecutting, but the stacking strength of the die-cut product is substantially increased.

Board crush due to feed rolls and die rubber is also a significant factor in die-cut blank quality. Tests have shown

that “B” flute caliper loss under a constant 11.6 psi. flat crush load is 4.5% for uncured board and 1.0% for cured board. For “C” flute, the caliper loss is 3.3% and 1.9% respectively.

“Loose liner”—disruption of the bonding formation yielding poor “pin adhesion”

Starch manufacturers recommend that board be cured prior to conversion to allow for proper glue bond formation. Starch, especially resin based, cures at the rate of 50% every four hours, which means the bond formation is at 50% strength after 4 hours, 75% strength after 8 hours, 87.5% strength after 12 hours and so on. Diecutting, before adequately curing the board, can lead to liner/medium (flute) separation which may not be evident until the blanks are used by the customer. While there is little technical data available to pinpoint just how much cure time is required to pre-vent bond formation disruption by diecutting, it is generally accepted that 12 to 14 hours cure time should be provided.

The message of this article is simple! Die-cut blank quality should be at the top of our priority list. To produce a quality diecut, we must use a quality sheet of corrugated and to obtain a quality sheet of corrugated, the board must be cured. If conventional curing time is not available in your plant, check out the new concept of “fan-cooling” (forced curing). It shows great promise for the Just-In-Time corrugated diecutter.

Russell Smith spent 50 years in the folding carton and corrugated box industry, with the last 16 of those years as a consultant. Now retired for 10 years, he has been honored with three lifetime achievement awards (from IADD, TAPPI and Ward Machinery Co). Russell can be reached via the IADD at staff@iadd.org or 1-815-455-7519.

This article is reprinted with permission from the International Association of Diecutting and Diemaking's monthly magazine, The Cutting Edge, November 1995.

The IADD is an international trade association serving diecutters, diemakers and industry suppliers worldwide. IADD provides conferences, educational and training programs, a monthly magazine, online resource library of 550+ technical articles, industry experts to answer technical questions, publications and training manuals, recommended specifications, online used equipment marketplace, videos and more. IADD also co-presents Odyssey, a bi-annual trade show and innovative concept in technical training featuring a hands-on Techshop where training programs come alive in an actual working diemaking and diecutting facility inside the exhibit area. Visit www.iadd.org or call 1-815-455-7519 for more information.





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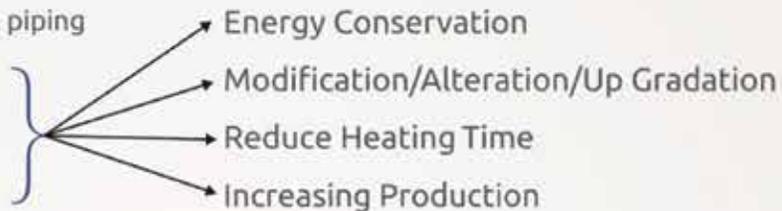
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Growth of flexo in India

- Growth of packaging requirements
- Conversion from other print processes

Kingfisher (offset to flexo)

Huggies (Gravure to flexo)

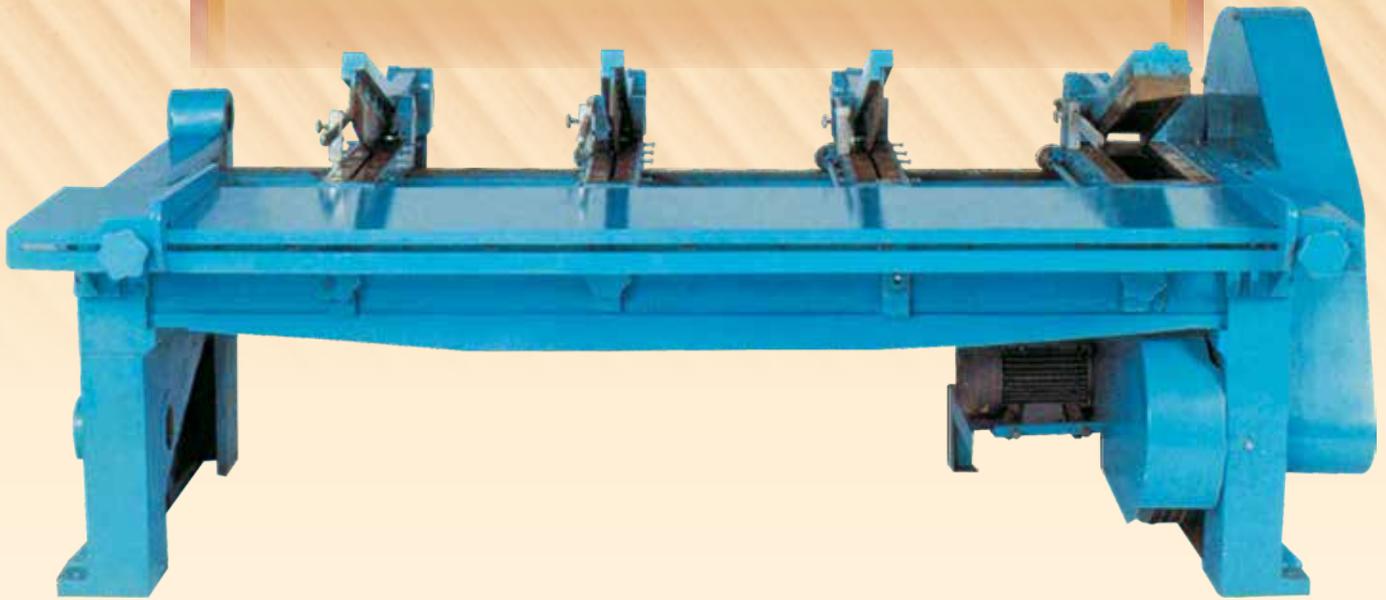
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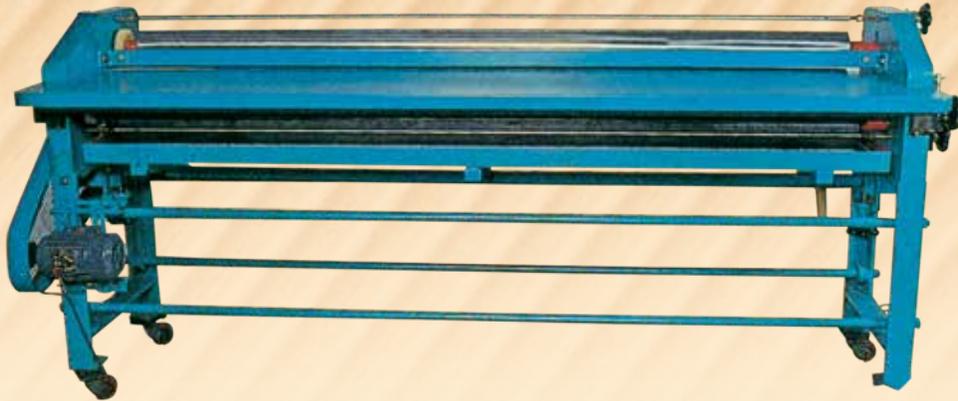
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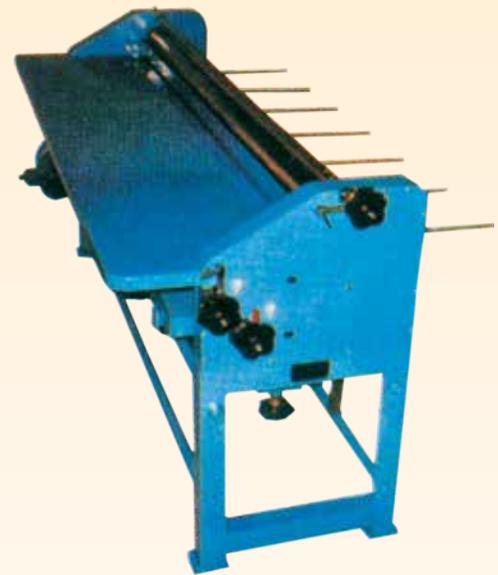
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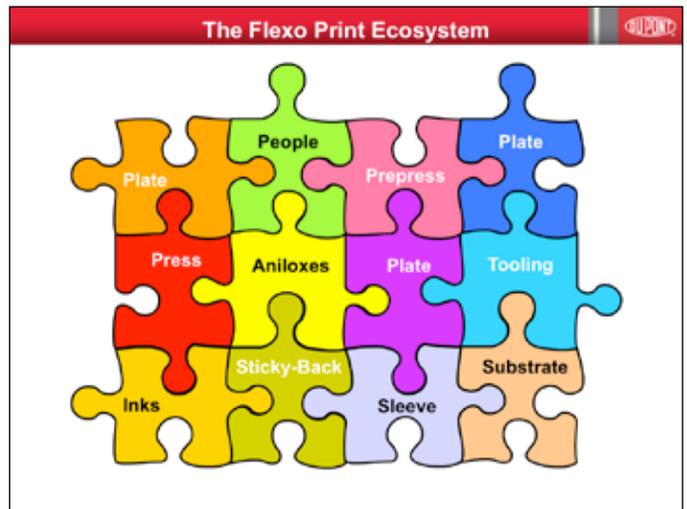


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Key industry changes -India

	Labels	Flexibles	Corrugated
Press	High end press proliferation, multi colour , 6,8,10,12 cols now	High end press proliferation, multi colour , 6,8,10 cols now	Mostly mid end presses, 1,2 col mainly. Few 4 col
Aniloxes	Shift to 1000 to 1400 lpi for process colours	Shift to 900 - 1000 lpi for process colours	300-400 lpi aniloxes
Plate Technology	Close to 100% usage of Digital plates. Flat top dots. Thermal plates	100% Digital plates. Flat top dots	Approx 12% Digital plates
Plate thickness	Shift from 1.70mm to standard 1.14mm	Shift from 1.70mm to standard 1.14mm	print and 4.70mm for post print

Plate Making - India

Digital Platemaking for Corrugated

Reasons for using Digital plate:

- 1) Decline in production of silver halide film
- 2) No filmsetters (imagesters)
- 3) Easier Workflow
- 4) Better consistency

Digital Platemaking for Corrugated

Issues with Digital

When printing on the uneven surfaces and non-uniform compressibility associated with corrugated board, the shape of the dot in combination with the composition of the plate material has a significant impact on the appearance and intensity of fluting.

The collaboration with an international Die manufacturing company has given our company the right skills, expertise and technological support to manufacture Rotary Dies of all types. The high quality imported raw materials are used for better productivity and accuracy.

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Introducing DigiCorr

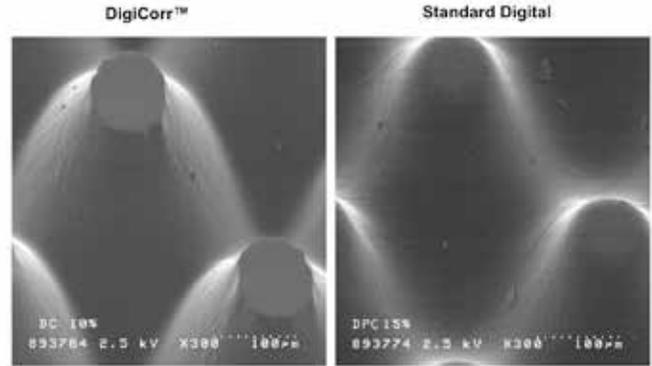


A workflow innovation to produce Digital Cyrel® plate that is optimized for the needs of the corrugated printer.

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- Reduced fluting** (wash boarding)
- Improved **solid ink** density
- Superior **highlights & vignettes**
- Improved **plate life**

Standard Digital v/s DigiCorr



Standard Digital v/s DigiCorr



Standard Digital v/s DigiCorr



DigiCorr™



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60/81/106/122 lpi**

**Substrate 135g
Kraftliner white
125g B-Flute**

**Bobst Masterflex HD
Anilox 320L/cm**

Standard Digital



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H-350 Fingerless Single Facer
Speed : 150 M/ Min



**HSL-2 Hydraulic Shaftless
Mill Roll Stand**



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Standard Digital v/s Digicorr

Standard Digital

DigiCorr

Digicorr in India

Digi Corr Installations in India

Shift to Thinner plates

Standard plate thickness in India for corrugated:
Pre-print – 2.84mm Post print – 4.70mm

Is there case for shifting from 4.70mm to 3.94mm in India?

Benefits for the Corrugated Printer

4.70mm to 3.94mm : Print Quality benefits

- Thinner plates have lower dot gain
- Print sharper images
- Compared to 4.70mm, 3.94mm plates will print the finer elements cleaner without compromising on solids

Benefits for the Corrugated Printer

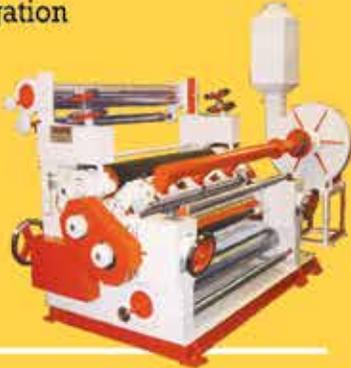
4.70mm to 3.94mm : Handling benefits:

- Lighter weight, easier mounting
- Lower cost of plate, plate transportation
- Lesser space for storage
- Lesser waste to dispose

Contd. on - 71

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Fingerless Model



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Benefits for the Corrugated Printer



4.70mm to 3.94mm : Standards

- Globally, the trend is to move towards thin plates.
- India among the very few countries using this thickness
- China standard thickness is 3.94mm
- Branded plates for identification
- High end installations, targetting offset printed boxes.



DuPont™ Cyrel® Branding on HDC Plate



Case for moving from 4.70mm to 3.94mm?

Future Plate Technology for Corrugated



Flexo Plate Making



Gururaj is from DuPont Cyrel Packaging Graphics Business, which is essentially into manufacturing photo polymer plates for the flexo industry.

He has been in the flexo industry for the last 13 years. He, in this presentation brings his own experiences and wants to pose a question to the Corrugated Industry whether some of the developments or some of the things that are accepted in flexo by other segments can be used by the corrugated industry to help their growth.

This presentation was given at a Technical Session during 44th FCBM Conference 2015 held at Cochin, hosted by KeCBMA.

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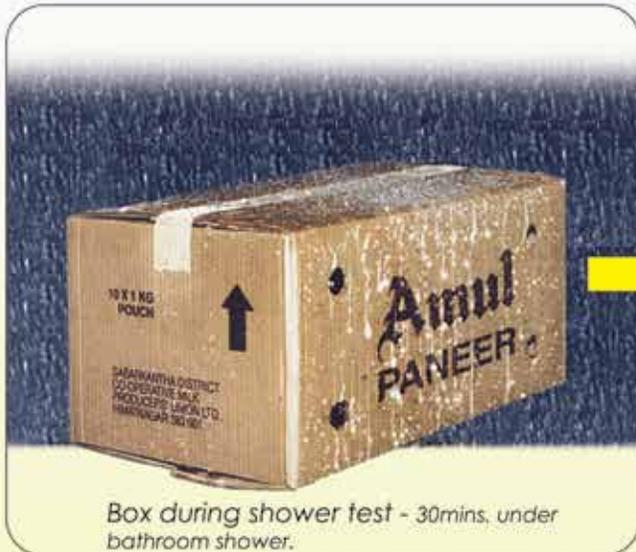
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Box during shower test - 30mins, under bathroom shower.



Box after shower test.

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- Application is simple
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- No change of properties between (-)45 deg. C to 150 deg. C.
- *Environment friendly - The coating is bio-degradable and coated paper can be recycled directly*
- Coating is flexible - does not crack on folding

Comparative Properties:

	Plain paper	coating - ml/sq. mtr.			
		10	15	20	30
B/F	14.9	16.5	17.6	18.2	19.47
Cobb value	35.0	19.0	15.5	8.5	2.5
Gloss	18.36	18.26	18.17	18.2	18.28
GSM	147.5	148.5	149.0	149.5	149.5

Applications:

- Water proofing of corrugated boxes for packing of :
 - Fruits, vegetables, flowers
 - Tea, ice cream, butter, milk powder, paneer, cheese, Dahi.
 - Bidi, cigarette, tobacco, soap
 - Garments, fabrics, yarns
 - Fish, meat and other frozen food exports
 - Electronic and electrical goods
 - Any other moisture sensitive product
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Corrugated Helps Improve Delivery for Fresh Produce

Demands for fresh produce and flowers change with the season, which is why the Confederation of Paper Industries (CPI) believes corrugated offers great quality, sustainable and stand-out packaging at the most cost-effective price which assists in this fast changing environment.

Corrugated packaging's versatility and quick turnaround can help deliver a customer's objective of optimum freshness from farm or nursery to high street – an advantage recognised by Pauleys, one of the UK's leading specialist fresh produce companies.

Pauleys, part of the Brakes Group, has enhanced its packaging capabilities by installing cutting-edge box-making machines at its sites to significantly increase the number of boxes produced per hour. In addition, the equipment is able to create different styles and designs, including corners and flanges, to offer the best protection for the wide range of fruit and vegetables.

John Turney, Pauleys' Operations Manager, said: "We pride ourselves on delivering a first-class service and corrugated packaging is playing a significant role in helping us to achieve that aim. The new machines have enabled us to take control of our on-site packaging which is crucial for us to respond to the requirements of our customers."

Another bespoke solution helped a major high street supermarket cope with the additional volumes of spring flowers through seasonal horticulture peak trading times, like Easter. The retailer switched from returnable plastic crates used for transit packaging which require a washing regime, to recycled single-trip corrugated flower shippers as they proved more cost-effective.

CPI's Director of Packaging Affairs, Andy Barnetson, said: "These are further examples of the Corrugated Industry working closely with its customers to find bespoke and sustainable packaging solutions to support their requirements. Pauleys improved efficiency and has greater flexibility over its packaging, which is vital for all food businesses."

Supply chains continue to be scrutinised in an effort to drive down costs and meet environmental objectives. Reduced pack weights – average corrugated board decreased by 12% between 2005 and 2015 – and recycled materials are also becoming essential in helping producers respond to what retailers want.

Corrugated packaging can save fresh produce suppliers money by being manufactured to the optimum size suitable for transportation to shelf. Although the industry does work to standard footprints, the flexibility exists to introduce bespoke solutions quickly, efficiently and cost-effectively.

From speeding up delivery of fresh produce and supplying containers for flowers to insulated packaging for life-saving vaccines, corrugated companies are meeting customers' commercial objectives under the most testing conditions.

The Corrugated Industry understands all aspects of the supply chain and works with retailers, category managers, growers, importers, agents and packers to ensure the best solutions for all companies, irrespective of size or location.

More info: www.paper.org.uk

Gulf Carton Factory is well on its way to achieving its objective of becoming a leader in high graphics flexo ost-print in the GCC region.

Stay on top of the latest and greatest

The Gulf Carton Factory of today is very different to the one founded over twenty-two years ago, says Eng Meshari Al Jabr, General Manager at the Al Ahsa, Saudi Arabia, plant. "Since we became part of the multi-industry Al Jabr Holding Company,

Contd. on - 79





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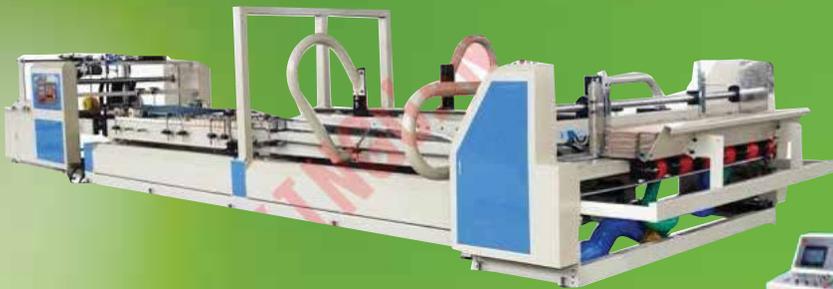
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we have benefitted from substantial investment in our factory, equipment and processes. That investment has seen us grow from 50 employees in 1994 to over 325 people and from a capacity of 500 tons a month to around 8,000 tons a month.”

A factory extension, corrugator investments, new logistics, upgrades to pre-press, and the installation of three Bobst lines in three years, have all seen the company grow into one with substantial capabilities, which packaging buyers in the region are making the most of. “We have many long-standing customers and they say that one of the reasons they come to us is that they feel we are very open with them,” explains Mr Al Jabr. “We listen to them, especially about what their requirements are and accordingly, we continuously develop ourselves.”

It was by listening to its customers that the company realised it needed to invest further in its high graphics capabilities. “Our customers are rapidly developing their concept of branding,” says Mr. Al Jabr. “They now have brand managers and marketing teams, and they are focusing on certain products that need high-graphics to draw attention.”

When GCF first began to produce high graphics work twelve years ago, it did so on equipment that meant passing the job through the press twice, once to print and once to varnish and die-cut. Installing an Esko Digital Flexo Suite system and moving the work to a more capable press, meant the plant was able to improve print quality, but its customers still demanded more. “Even using better pre-press and digital printing plates, the quality from the machine was still not quite good enough

for some customers,” recalls Charudutt Butala, Operations Manager of Gulf Carton Factory.

DRO delivers

Not wanting to lose such work, the plant’s owners, the Al Jabr Holding Company, decided it was time to invest further in high-graphics printing at GCF, which would also allow the plant to differentiate itself in the market. “A significant portion of our work is now high graphics, and demand is increasing all the time,” says Mr Butala.

Having looked at three suppliers, the plant chose a seven-colour Bobst DRO 1628 NT RS to deliver its high graphics capabilities and the press was installed early this year. “The servo technology on the DRO and the vacuum transfer mean the registration is much better than what we could achieve previously,” explains Mr Butala. “We also installed a Bobst Registron S5500 system, which takes care of the register automatically as it is running, without the operators having to intervene.”



Electrostatic sheet cleaning, infra-red inter-station driers by JB Machinery, and a Duo-Technik ink control system, all mean that the plant can get the most from the DRO’s 11,000 boxes per hour running speed. “We can see that there has been a big improvement in our print quality, as we expected,” says Mr Butala. “But we can also run at double the speed of the machines we were using before.” Ensuring that the plant can cope with this speed are a Bobst Mutiloader automatic pre-feeder and a fully automatic Bobst DRO Palletiser. “Previously we were producing maybe 600 tons a month, with six people on the machine we had. Now we can produce double the volume with half the people.”

Running speed is, of course, not the only important production factor. Ease of use makes for high performance as well. This is why the DRO is designed as an ‘over-pit’ machine, keeping all operations at floor level, while an MPC3 human-machine interface records the parameters of up to 10,000 jobs, making setting and running the press very easy.

With ISO 9001 Quality Management and ISO 22000 Food Safety Management certifications already, GCF was recently asked by a prospective customer if it had FSC Chain of Custody accreditation. “It was a big, blue chip company,” explains Mr Butala. “Thanks to the systems we already had in place, we were able to move fast and achieve accreditation in just one month.

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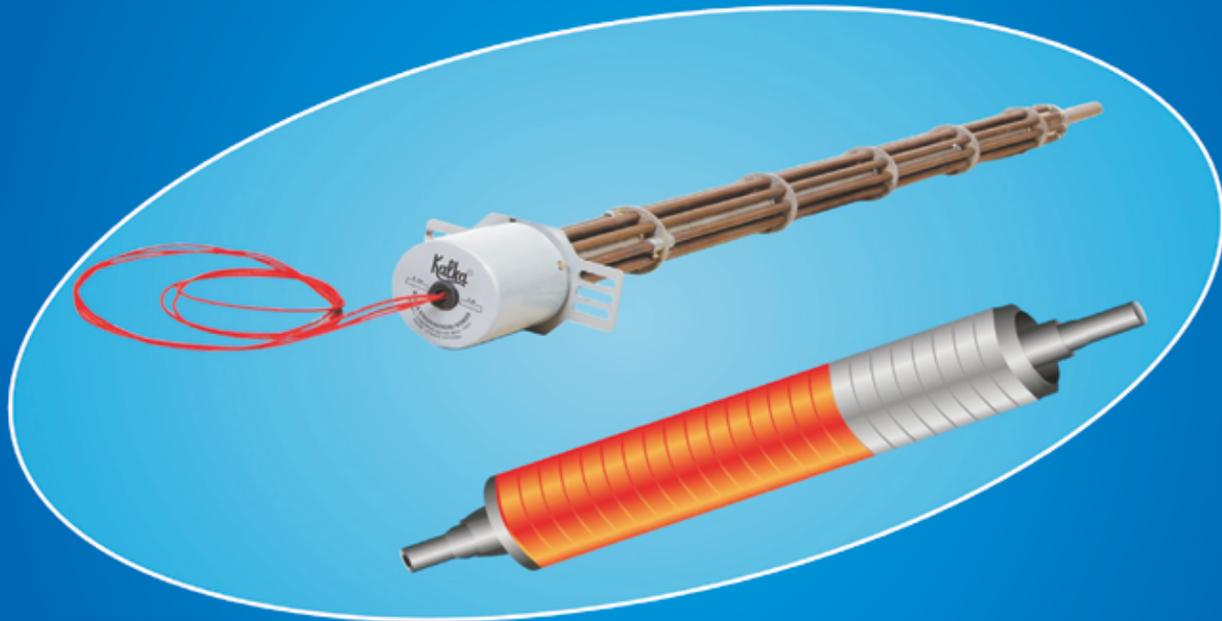
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The client was very happy. We achieved it even before their existing suppliers had and now their orders are coming in. Chain of Custody is a growing trend in some sectors and we expect that this customer's competitors will now go down the same route."

The investments at GCF have gone hand-in-hand with a revision of the company's outward image - partly to clear away any vestiges in customers' minds of the old GCF. "Just like many of our customers, we are paying close attention to branding," explains Mr Al Jabr. "We have created a new visual identification for the company and we have completely re-modelled our website."

The investments made in GCF by the Al Jabr group have increased both turnover and market share, Mr Al Jabr says. "Our customers particularly like that print quality has improved, while our service has remained excellent. They especially like that we serve them well in their emergencies. We had one customer who had to launch a product in just one week. In twenty-four hours, we had made the plates and dies, manufactured the boxes and delivered them. We're proud of that sort of achievement. You can't do it every day, but when our customers need us in an emergency we are there. We are very flexible. Having equipment like the Bobst lines makes us able to accommodate our customers like this."

Source: www.thepackagingportal.com

DS Smith celebrates double award win

At the prestigious WorldStar Awards 2016

DS Smith won two awards in the transit category, the first for its work on an adaptable, scalable and 100% recyclable design for Glazing Vision.

The heavy duty pack had to suit the many different shapes and sizes of the high value industrial Glazed Roof Lights so they were ready for global distribution. Customer protection and branding has



been transformed thanks to the design, resulting in reduced packing times and annual packaging savings of 15%.

Toolspec Shipper for CNH Tractor Components won DS Smith its second WorldStar award in the transit category. As a result of the innovative design, packing time has reduced for Toolspec Shipper by 30 per cent and decanting time reduced by 50 per cent. The new pack eliminates the need for bubble wrap and has achieved zero damages since being introduced. As well as being suitable for re-use and fully recyclable, the side doors allow packing from both sides and provides excellent space efficiency for awkward shape components.

Tony Foster, Sales and Marketing Director for DS Smith, said: "It is a huge honour to win international recognition for our innovative packaging solutions at the WorldStar Packaging Awards. Success in these global competitions is very important to us and sends out a strong message to our customers that we are a truly creative business that can solve supply cycle challenges and deliver innovative and total cost effective solutions.

"With many years of packaging industry experience, we have the right tools, know-how and expertise to meet and exceed the

changing demands of our customers and shoppers. At the heart of everything we do is a commitment to delivering quantifiable results for customers and helping them to achieve higher levels of supply chain sustainability.

Source: pulppapernews.com

Modest Market Demand for Corrugated in U.S.

E-commerce and retail-ready applications will drive growth for corrugated boxes; folding carton demand to be sustained by the foodservice carryout and pharmaceutical markets.

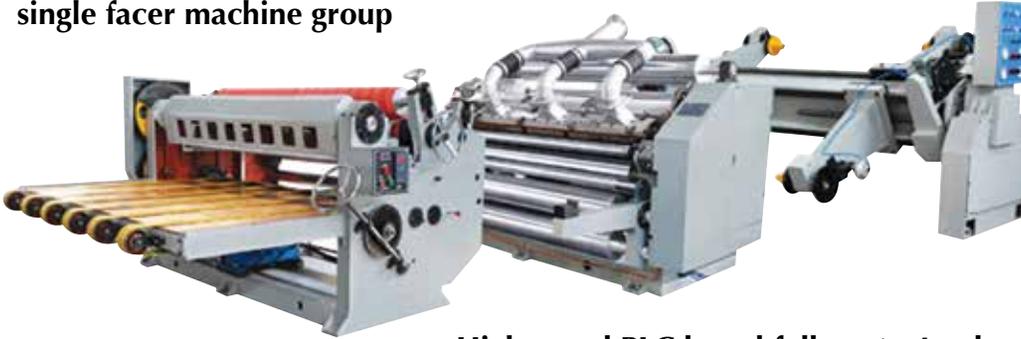
The Freedonia Group's new study, "Corrugated & Paperboard Boxes," predicts demand for corrugated and paperboard boxes in the U.S. will increase 2.6% per year to \$41.2 billion in 2020, as both nondurable goods manufacturing and retail sales post healthy gains.

The report says, "Value gains for corrugated and paperboard boxes will be stimulated by the increased adoption of value-added features such as high-quality printing, easy-open tear strips, and special coatings. Volume growth, however, will be held back by lightweighting trends and market maturity."

Contd. on - 87

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to the Corrugated Packaging Industry

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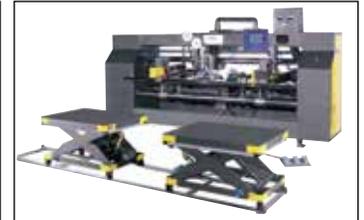
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- Platen punching Machines.
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- Manual stitching machine.
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Finger Type Single Facer



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Corrugated and solid fiber boxes will continue to hold the largest share of demand, says Freedonia, comprising 74% of the total in 2020 and reaching \$30.5 billion on annual growth of 3%.

Corrugated boxes provide cost and strength benefits. The Cleveland-based industry market research firm says corrugated boxes “will remain the default shipping container throughout the foreseeable future, despite some competition from reusable containers, flexible packaging, and film covers.”

“Moreover, as the e-commerce market continues to expand, so too will demand for boxes to ship products to consumers,” notes Analyst Katie Wieser.

Demand for shipping containers that can also act as retail displays will boost value growth as this application typically requires the use of high-quality printing and the integration of features that allow the box to be opened without tools.

Source: www.lifescienceslogistics.com

Smithers Pira forecasts corrugated board packaging market to hit \$269 billion in 2021

World demand for corrugated board packaging will increase steadily across the next five years according to the latest exclusive market data from Smithers Pira.

It's new report *The Future of Global Corrugated Packaging to 2021* Smithers Pira's critical analysis of the key drivers shaping this segment show that a market with an annual consumption value of \$222 billion in 2015 will expand to be worth \$269 billion in 2021, and consume 160 million tonnes of board in that year.

Importantly the outlook for material suppliers, board converters and users in various segments and regions will be different across the study period. With electrical goods and processed foods, for example, outpacing growth in fresh foods and produce and paper products, like office paper.

Globally growth in demand for corrugated board packaging is showing signs of a slowdown. For 2009-2015, volume consumption of corrugated board grew on average by 4.3% annually, but this is expected to decrease to 3.6% annually in 2016-2021. This is largely due to the slowdown in the Chinese economy coupled with sluggish to negative prospects in North America and Western Europe.

Cost will remain the core motivator for changes in the corrugated packaging industry – and this will not be restricted to raw material production alone – with a new emphasis on the impact electricity prices can have on production facilities. There are also positive developments for the corrugated industry, such as a recent study of the use of rigid plastic containers (RPCs) in tomato delivery in Mexico, which shows that corrugated board can be far more cost-effective, despite the re-usability of RPCs.

Macroeconomic influences of course exert some influence on the demand for corrugated board packaging, including issues such as urbanisation, growing disposable incomes in emerging economies, ageing and growing populations, smaller family units. However, industry specific trends and drivers tend to exert greater and more direct influence on the market.

Regionally, the market has seen a distinct shift eastwards, with Asia's market share blooming from just over 40% in 2009 to over 46% in 2015, and this is likely to continue over the medium term with the region accounting for more than half of the global market by 2021. This may be a result of the Chinese government embarking on a programme of mill closures to rid the market of out-dated, inefficient paper machines, targeting over 8 million tonnes of capacity across all paper and board products, and focussing on linerboard and fluting machines less than two metres wide and slower than 80 metres/minute.

The ongoing penetration of internet shopping into consumer behaviour is seeding a spate of innovation in the corrugated market, with companies taking on the challenge of what they term ‘frustration-free’ packaging; as well as corrugated producers designing clever ways of ensuring the safe transportation of goods via the postal service to reduce the cost of delivery by courier and enable easy returns.

The Future of Global Corrugated Packaging to 2021 is based on an in-depth combination of primary and secondary data gathered during Smithers Pira's extensive research programme for the global packaging industry. Primary data was compiled from interviews conducted with industry experts in each key region and country. Secondary sources included data on production and consumption of various packaging suppliers, cross verified with production data and trends in key end-use markets, and statistics from various government and industry association website.

Stora Enso inaugurates next generation Varkaus mill Conversion project

Stora Enso has successfully converted a fine paper machine at Varkaus Mill to produce virgin-fibre-based containerboard. Stora Enso invested EUR 110 million in the conversion work, which took place in 2015. Kraftliner production began in October

Contd. on - 101



ToolAsian

PAPER LAMINATED WOVEN FABRIC



ITEM	PAPER LAMINATED WOVEN FABRIC
MATERIAL	HD/PP FABRIC+ PP LD COATING + PAPER
WIDTH	20 INCH TO 60 INCH +/- 2 INCH, AS AVAILABLE
LENGTH	1500/2000 METERS OR ABOUT 200 KGS
COLOUR	BROWN KRAFT AND WHITE, OTHER COLOURS ON REQUEST
GSM	100 TO 350 GSM
MOQ	500 KGS IN STANDARD SIZE OR MORE
APPLICATION	CORRUGATED BOX, METAL PACKING, STEEL WRAPPING, BAG MAKING, PVC FLEX ROLLS AND OTHER ROLL PACKING
FEATURES	STRONG, DURABLE, WATER / MOISTURE PROOF, COST EFFECTIVE STRONG PACKING MATERIAL
PRINTING	MULTI COLOUR PRINTING AVAILABLE ON FABRIC OR PAPER SIDE
DELIVERY TIME	READY / TWO WEEKS



ABOUT PRODUCT

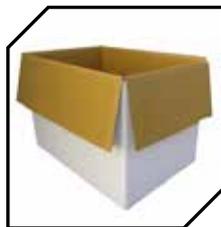
Paper Laminated woven fabric is strong, durable, moisture/water proof high performance packaging material with different strength and specifications, made from the Woven fabric, kraft paper laminated with layers of resin. It protects material from moisture and prevents RUST. Also available with VCI coating is designed for the application in such fields as metallurgy, war industry, machinery, auto parts, electron and hardwares, etc. We can make This Paper Laminated Fabric as per your Specification also.



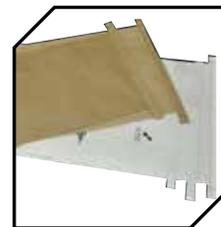
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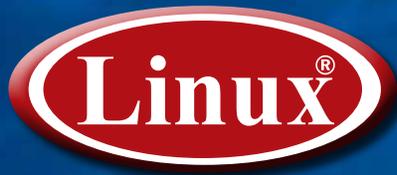
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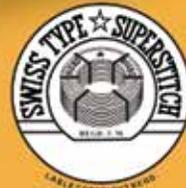
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2015 and full production is expected in early 2017. The capacity of the Varkaus Mill will be about 390 000 tonnes of light-weight kraftliner per year.

Moreover, Stora Enso has built a new production line in Varkaus Mill that will make wooden building elements, laminated veneer lumber (LVL). The investment of EUR 43 million will further enhance Stora Enso's position as a global provider of high quality engineered wooden elements. The production is scheduled to begin in June 2016, and the estimated yearly capacity will be around 100 000m³.

"Both investments in Varkaus are part of Stora Enso's transformation into a customer-focused renewable materials company," says Karl-Henrik Sundström, CEO of Stora Enso. "By converting the fine paper mill into a kraftliner mill we are responding to the increasing global market need for renewable packaging, while the new LVL production line will meet the growing need for sustainable wood products for construction and industrial applications."

The renewed mill directly employs some 400 people and the estimated total employment impact for the Varkaus region is 1 600 FTEs. The investments in Varkaus will increase the demand for softwood raw material by about 1.3 million cubic metres.

Source: pulppapernews.com

The corrugated industry in Italy consolidates

Pro-Gest acquires Ondulati Giusti, Cartonificio Fiorentino

Pro-Gest is the leading private Group of companies in Italy and one of the main players in Europe involved in the vertically integrated production of containerboard, corrugated cardboard and packaging solutions.

Pro-Gest Group acquires Ondulati Giusti in Altopascio, Tuscany, and Cartonificio Fiorentino based in Sesto Fiorentino, also Tuscany, Italy.



In October 2014 Pro-Gest, with headquarters in Istrana, Treviso, rescued the two businesses from bankruptcy in record time, taking over operations through a business branch lease, thus preserving all existing jobs.

Thanks to the promptness of Pro-Gest, the conditions were met for the business to continue having access to lines of credit for the much needed working capital. Moreover, the acquisition of the two sites by the Italian leading Group for the production of containerboard, corrugated cardboard and packaging solutions ensures the maintenance of high quality standards and cutting-edge technology in this industry.

No negative repercussions for the approximately 300 direct employees and for all indirect employees of the supply chain, who have been able to keep their jobs during the various steps of this acquisition. The process has been conducted with the positive involvement of the trade unions.

The intensively fought auction was open to International competitors and in the end Pro-Gest's offer was the winning bid.

"We are very proud of these acquisitions for several reasons" says the, CEO of Pro-Gest Group. "The first is to have demonstrated that the interest of Pro-Gest towards the two companies was serious and consistent. Secondly, we take pride in being able to keep the headquarter of these operations

in Italy as we are certain that we have the capacity and the potential to increase our competitiveness in an industry with a very strong global growth trend. Therefore, this acquisition was strategically important to further reinforce our integrated supply chain from pulp to packaging. Finally, we

Contd. on - 95





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- Production Qty.: 40-300 Ton
- Corrugation Roller Dia: 300 mm / 320 mm / 340 mm / 360mm / 380mm
- Control Panel: Scada Controlled Centralised Panel

PRICE RANGE: 200 - 450 Lacs

PREMIUM MODEL



03/05/07 Ply Automatic Plant (ECONOMIC)

- Design Speed: 100 - 150 Mtr / Min.
- Economic Speed: 60 -120 Mtr / Min.
- Production Qty.: 25-60 Ton
- Corrugation Roller Dia: 300 mm / 320 mm / 340 mm
- Control Panel: Centralised Controlled Panel

PRICE RANGE: 80 - 200 Lacs

ECONOMIC MODEL



High Speed Square Model Single Facer

- Design Speed: 120 - 200 Mtr / Min.
- Flute Roller Design: UV Flute Design
- Corrugation Roller Dia: 320 mm / 340 mm / 360 mm / 380 mm
- Heating Type: Steam / Thermic Fluid Heating
- Control Panel: Touch Screen HMI Controlled Panel

PRICE RANGE: 22 - 64 Lacs

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- **Control Panel:** Touch Screen Controlled Auto Order Set
- **Folder Gluer:** Inline Folder Gluer OptionAL

PRICE RANGE: 70 - 200 Lacs



Semi Automatic Stitching Machine (Heavy Duty)

- **Speed:** 500-600 Pins/Min
- **Operation:** Semi-Auto (Double + Tie Pinning)
- **Control Panel:** PLC based with Touch Screen Control Panel.
- **Stitching Head:** Taiwan Stitching Head, Dual Servo Motor
- **Electrical System:** Good Quality Products from ABB, Siemens etc.

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- **Case Maker:** Inline Folder Gluer Attached to Printer Slotter
- **Speed:** 120-200 Box/Minute
- **Folding Type:** Bottom Folding
- **Control Panel:** PLC based with Touch Screen Control Panel
- **In-Line Bundling:** In-Line Bundling Optional

PRICE RANGE: 55 - 85 Lacs



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are fulfilled knowing that we have worked in full cooperation and harmony with the employees, trade unions and institutions with the aim of maintaining the great heritage of professionalism and expertise of these companies, only a few years ago on the verge of closing doors.”

Source: www.pulpapernews.com

UK Corrugated Industry is Helping Retailers to Cut their Carbon Footprint

Corrugated companies are helping retailers make savings in the supply chain and cut their carbon footprint by developing packaging solutions that maximise storage and reduce transport costs by enabling increased efficiencies, says the Confederation of Paper Industries (CPI).

Consumers are helping to drive the trend towards sustainable business practices as they become more aware than ever of the environmental impact of goods. The environmental impact of food waste is 10 times as significant as packaging, and well-designed packaging is the best way to protect food from getting damaged or spoiled. In addition to protecting the contents, packaging can also look to

reduce its own impacts and, as an example, effective steps taken by the Corrugated Industry have seen a steady reduction in average board weight over the last 10 years.

Average corrugated board weight at the start of 2015 was 464gsm, a reduction of 12% compared to 2005 (527gsm). The long-term downward trend in average board weight is set to continue alongside an increase in production of the material, as borne out by the latest figures from CPI.

Efficient production goes hand in hand with sustainability. Following the volatile trading conditions caused by the 2008 recession, the Corrugated Industry is steadily regaining lost ground as the UK economy emerged from the downturn. CPI reported that the total area of corrugated board produced by its Members rose by 4% in 2015 compared to 2010.

However, the weight of paper used to make this increased amount of corrugated board decreased by 3% during the same period. In other words, less paper was used to meet a significantly increased demand from consumers.

CPI's Director of Packaging Affairs, Andy Barnetson, said: "Corrugated box makers are helping to meet demand from

consumers and retailers for attractive and sustainable packaging. The industry is doing more with less by taking effective steps to hold its own in a fiercely competitive global market.

"New technological advances have enabled papers to be made stronger, meaning that lighter weights can be used for the same roles. Combined with novel fluting grades, this makes for significant space savings in transit and storage. Corrugated will continue to evolve and adapt to the challenges ahead."

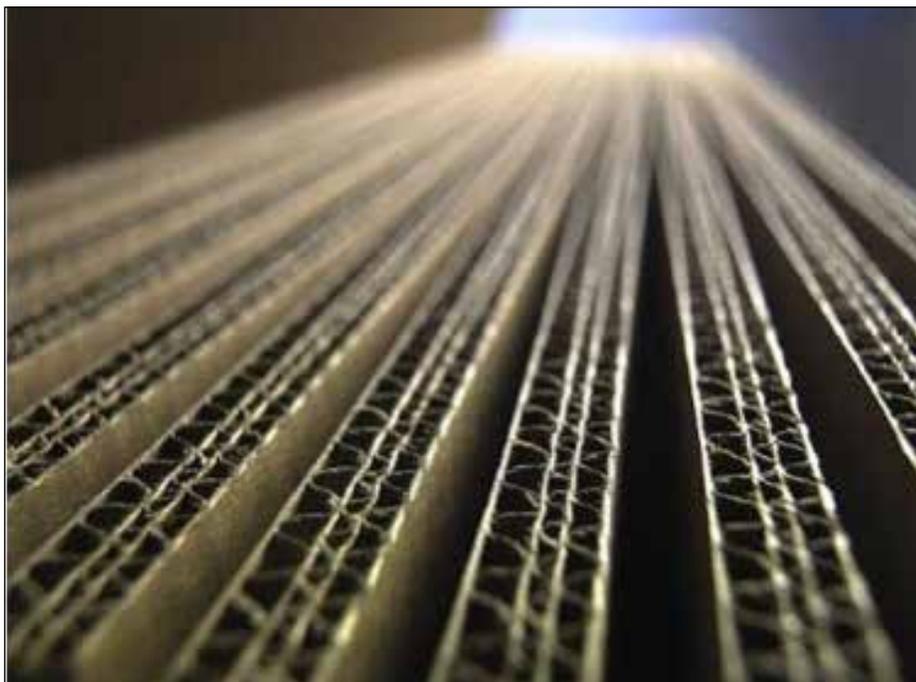
Corrugated packaging has superb environmental credentials; however, the industry is not complacent. It is renowned for innovation and will continue to explore ways of reducing the carbon footprint of its products further still. It sets a benchmark for versatility as it can be adapted to fit almost any shape and size, making it a vital packaging partner for a variety of reasons.

As well as optimising packaging, measures to combat waste include increasing re-use and recycling. Over 80% of corrugated is recycled, and new UK boxes are made from more than 75% recycled material. Where new fibre is used, it typically comes from sustainably managed forests. This commitment to responsible forest management has made a huge contribution to the increase in the size of Europe's forests (up by 30% since 1950).

Sustainability is not a buzz-word, it's good business. The UK Corrugated Industry is constantly looking for, and investing in, processes and logistical efficiencies that can provide the sustainable future that an increasing number of consumers are expecting from packaging.

More info: www.paper.org.uk

Source: packagingeurope.com



Contd. on - 99



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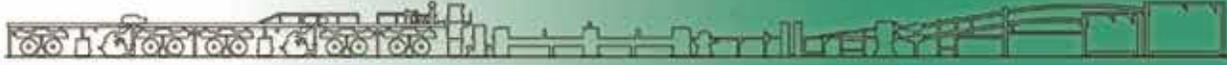
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- 5) Three minute quick order change
- 6) Single/ Double and Tie nail stitching (//////, // // // //, // // // //)
- 7) Max Sheet Size: 3000(L+W)x2 = 6000 x 2850mm
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Semi Auto Stitcher

AS016A with (Servo Drive & Touch Screen)

- 1) Made in Taiwan
- 2) High Speed Stitching
- 3) No Training Required
- 4) One minute quick order change
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J. S. Machine Hosts 2016 'Smart Factory' Open House



JETS 400 Corrugator Running



J. S. Machinery Co. of Wuhan, China held its "Smart Factory" Open House on April 16-18 at company headquarters in Wuhan. More than 1,200 customers, dignitaries and honored guests from around the world attended the machine-centric event, which simulated a carton factory operation with two corrugators, two converting lines, and a logistics system on display.

"J. S. Machine has hosted its Open House every two years since 1989," said Oliver Li, President of J.S. Machine. "The world economy motivates us and pushes us to improve our machines for faster speeds, higher intelligence, more efficiency and greater energy savings."

Wang Yuezhong, Senior Vice Chairman, Secretary General of CPTA, said, "J. S. Machine, as a leading corrugated packaging supplier, has been for the past 30 years contributing to the progress of the packaging industry and has built a great model for the internationalization of their brand."

EFI announces single-pass press for corrugated packaging

At the pre-drupa media conference, EFI CEO Guy Gecht announced an acquisition of UK-based Rialco LLC, which is one of Europe's leading suppliers of dye powders and color products for the digital printing and industrial manufacturing industries. Rialco will operate as part of EFI's industrial inkjet business under the management of Stephen Emery, vice president of the Ink Business and Jetrion at EFI. EFI aims to reach a billion US\$ in revenue this year, Gecht announced.



Guy Gecht, EFI CEO

EFI also announced that it will launch a single pass press for corrugated packaging at drupa, which it claims will offer a significantly lower purchase price than rival systems. It will be based on a new aqueous UV ink technology, which is enabled in part by its acquisition of UK-based colourant specialist Rialco.

"The new machine combines some of our great concepts," said EFI CEO Guy Gecht. "It uses our experience of single-pass printing in a tough industrial environment from CretaPrint, the in-line digital finishing capabilities of the Jetrion and the image quality of the Vutek. And we will make it a lot more affordable than anyone else attempting to go into the digital packaging market." Gecht promised that the machine would be the first of a range using a new platform that in time would also address signage, labels and textiles.





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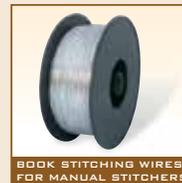
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EFI also announced that users of its Prinance MIS and Printy MIS who are on maintenance contracts will be able to switch to EFI PrintSmith free of charge. The announcement follows EFI's acquisition of Alphagraph, which developed Printy and the former Heidelberg MIS, Prinance, both of which were predominantly sold in German-speaking countries.

Source: *Indianprinterpublisber.com*

Board-making machine from Voith installed by TNPL is largest of its kind in India

In January this year TamilNadu Chief Minister inaugurated TNPL's New Board Plant at Modipatti.

With a production capacity of 2 lakh tonnes a year, the board-making machine from Voith of Germany is the largest of its kind in India. More than twice the length of a suburban train, it is capable of churning out packaging board at a speed of about 600 metres a minute.

The unit will reach full capacity in the second year of production. It will generate 800-1,000 jobs directly and as many indirect jobs, making it a key contributor to the industrially backward region.

This also marks the fastest implementation of a project of this scale in the paper industry in the country — it is being commissioned in less than two years of ground breaking, say company officials. Over 1,500 workers, about 35 expatriates from the German equipment supplier who are now giving finishing touches to the machine, and officials from TNPL's first unit have worked on the project over the past 22 months.

For the company, this is a significant milestone, as it will take its total output to 6 lakh tonnes a year, including the 4 lakh tonnes of printing and writing paper from its first unit in Karur, about 100 km away. In a full year of operation the new unit will add about 1,000 crore to the company's topline, now at about 2,300 crore.

The Mondipatti unit is expected to give TNPL a significant presence in the market for high-end, coated, multi-layered packaging board. Its product range will include folding box board, cup stock and solid bleached sulphate boards.

Driven by a thriving retail market, the demand for packaging board is estimated at about 2.4 million tonnes a year, and is

growing at 13-14 per cent, which is three times that of printing and writing paper.

TNPL's new plant will generate over 2,000 jobs directly or indirectly.

Khemka Containers unit in Sri City

Khemka Containers Limited (KCL), a leading Paper Printing and Packaging company will set up a Rs. 100 crore unit in Sri City, Andhra Pradesh.



The plant, to produce corrugated boxes, mono cartons and printed display items will come up on a 10 acres plot. It is expected to be completed by October and provide employment opportunity for about 200.

KCL has four production units through which it serves almost the entire packaging requirements of MNCs and large Indian Companies in -- Food, Consumer Durables, Home Appliances, FMCG Products, Engineering Goods, Automotive Components, etc.

Among its prominent clients are Cadbury, Pepsico, Tata, Godrej, Whirlpool etc.

The Directors of the company Rajeev Khemka, Sanjay Khemka and Ashish Khemka performed the foundation stone laying ceremony in January this year. Ravindranath Sannareddy, Managing Director, Sri City in a statement welcomed the latest industry to set base.



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Corrugated Box Manufacturers Fears Impending Crisis

Himachal Pradesh Corrugated Box Manufacturers Association has sought the intervention of the Prime Minister in this regard

According to a report published in The Tribune, Himachal Pradesh Corrugated Box Manufacturers Association (HPCBMA) has sought a check on the “monopoly” of paper mill owners, who were announcing frequent increases in prices. This was pushing corrugated box industry into deep crisis.

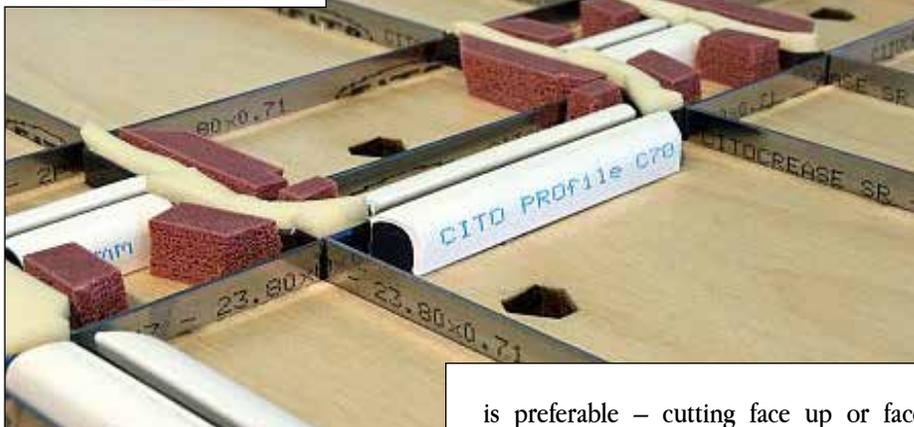
“The corrugated industry is incurring huge losses due to unilateral increase in price and in case the Central government did not intervene, the industry would die its own death in coming years”, Gagan Kapoor, President of Himachal Pradesh Corrugated Box Manufacturers Association (HPCBMA), told The Tribune. The association has also sought the intervention of the Prime Minister in this regard.

The Central government had once taken action against cement manufacturers for the same reasons but it is mum on the issue of paper mills, Kapoor added and claimed that due to shrinking profits, some corrugated manufacturers have been forced to shut down.

Arun Gandhi, who revolutionised CITO products in India is no more

The man the Indian print industry knows as the one to revolutionise CITO products passed away on 12 May in Delhi.

Arun, along with his partner Arun Gandhi, spread the good word about CITO creasing systems to Indian converters. Today, the German-based firm is a die-cutting and creasing leader in India because of the time the team at Capital Graphic Supplies and AS Print Aids have invested in demystifying the process for the past 15 years.



Seniors in the industry recall how Gandhi travelled across the country and discussed creasing parameters. He would get into detailed discussions about what is preferable – cutting face up or face down. He would also discuss issues of cutting pressure and makeready technique (patch up). Plus, he would take great pains to explain the process of nicking and rubbering and its influence on cutting and trimming results.

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is preferable – cutting face up or face down. He would also discuss issues of cutting pressure and makeready technique (patch up). Plus, he would take great pains to explain the process of nicking and rubbering and its influence on cutting and trimming results.

Convincing customers, especially Indian converters, was an issue in the early days. Arun Gandhi said, “In the past 15 years, converters have started understanding the system, and are looking at it seriously.”

Speaking to PrintWeek India, a senior print CEO said, “His demise is a huge loss for the industry. He was a team player who was willing to impart technical knowledge about die-making and cutting process for folding boxes, packaging from corrugated board, and displays.”



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Product Profile

Corrugated Trays are True to Form for Fish and Chips

A rapidly growing number of the UK's 10,500 fish and chip shops are opting for higher quality and sustainable corrugated takeaway containers as their primary choice of packaging to meet the demands of today's modern lifestyles.

The alternative takeaway packaging being spearheaded by the Corrugated Industry is new fish and chip trays, which have already been a hit with customers after the Chesterford Group, one of the UK's largest independent chains of fish and chip shops, decided to use corrugated trays as an alternative to polystyrene.



Micro flute corrugated board trays designed for takeaway meals are made from 100% recycled and recyclable material, boasting a special coating that drains oil from fried food. They also benefit from a high specification printing capability that cannot be replicated on polystyrene.

Corrugated's innovative new development for hot food on the go followed a request by Friars Pride, the UK's leading fish and chips wholesale company, to find a solution

to fulfil Chesterford's demanding brief for a specific formed tray that met strict environmental and branding requirements.

Friars Pride's Managing Director, Rebecca Lord, said: "There is no doubt that corrugated boxes offer better presentation through on-pack branding, portion control and a more robust structure, which offers vast improvements to the way in which takeaway fish and chips are served both from a retailer and consumer perspective. The benefits of the trays are directly responsible for the increasing market share of corrugated packaging within the industry."

Current estimates indicate that of the 200 million portions of fish and chips sold through the takeaway trade each year at least a quarter are served up in corrugated boxes. It was the preferred packaging format by 90% of the finalists in the Annual National Fish & Chip awards.

Whilst a customised flexo-printed two-compartment corrugated box might cost more than its polystyrene counterpart, it's an investment that offers chippies a significant payback in terms of performance and appearance, according to the Confederation of Paper Industries' (CPI) Director of Packaging Affairs Andy Barnetson.

He said: "It's an uplift that has a negligible impact upon the total cost of a portion of fish and chips; well-worth paying if it's securing ongoing custom. In ticking all the boxes corrugated perfectly complements the emphasis the sector places upon providing a very crisp and clean looking box, incorporating a high standard of print quality that can be personalised to the customer.

"There are also logistical and handling benefits to the supplier of being flat-packed, and to the takeaway outlet in being able

to optimise use of space in what can be limited storeroom facilities. In five years' time, I believe the adoption of corrugated boxes could be approaching 40% of the total UK market."

The Corrugated Industry has introduced a range of packaging solutions for hot food, specifically designed for takeaways, combining innovative design with fine fluting to make the product easier to handle and consume.

Bespoke, recyclable corrugated board trays are becoming a firm favourite for takeaway food and it would be short-sighted of anyone opening a fish and chip shop were they to opt for just wrapping the product in a polystyrene tray.

More info: www.paper.org.uk

Curved corrugated creates captivating containers

At the end By Lisa McTigue Pierce

New Arcwise technique lets packaging designers create unique designs.

Could cutting corners be a good thing? It is when it means you can reduce the weight of packaging by about 30% without jeopardizing product protection. The new Arcwise round corrugated board lets brands do that while also boosting retail eye appeal with unusual shapes and unique designs.



Contd. on - 109



Shear LINE



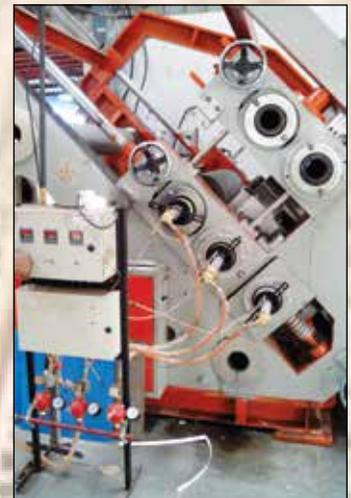
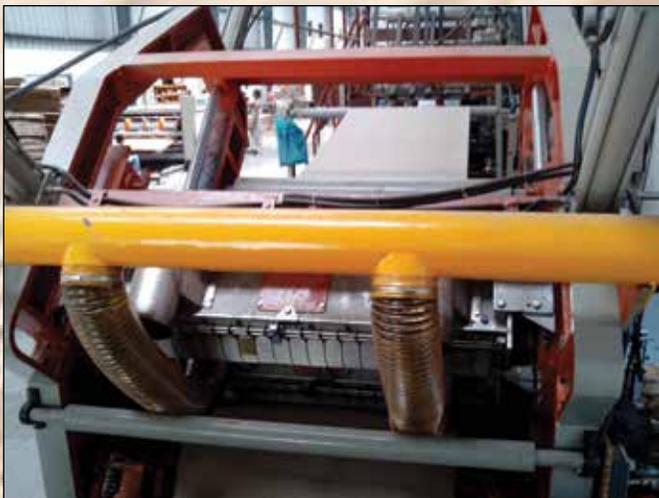
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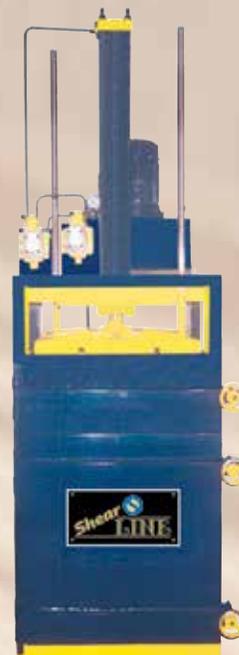
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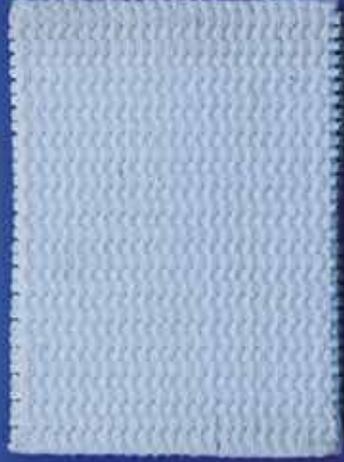
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Diamond-studded sidewalls for bag-in-box wines

Barcelona, Spain-based wine club Viajes de un Catador (Travels of a Wine Taster) has introduced uniquely designed bag-in-box wine packaging that can be re-purposed after use as safe, eco-friendly fold toys for toddlers.

By Judy Rice

Packaging design studio Nutcreatives worked with Viajes de un Catador to develop the attractive multiple-diamond-scored sidewall presentation.

Confronted with this creative challenge, Nutcreatives decided to avoid the more typical square bag-in-box and come up with a radically different approach. The concept they devised features triangular folds that can take on a myriad of forms. The packaging components are two-sided kraft board (170 g) and laminated 3-L foil bags. Grafiques APR helped source and prints the packaging materials and labels for the wine club.



The quality-looking packaging stands out distinctively on the shelf and is topped off with a handle that makes the bag-in-box wine easy to hang for in-store display and carry from the store without the need for another shopping bag.

In addition, this packaging is designed to offer environmental benefits. After the wine is dispensed from the packaging, the remaining diamond-scored corrugated can be scissor-cut, reshaped, and taped into various forms that can serve as safe and inexpensive, hexagonal “block-type” toys for young children.

Source: packworld.com

“Surveys show that we generally prefer rounded shapes to angular ones,” says Rickard Hägglund, business manager for Arcwise, a unit of SCA Forest Products AB. “Round packaging is eye-catching and attracts consumer attention in the retail environment.”

However, while the corners are curved rather than at 90 degrees, the otherwise flat panels still offer good billboard presence on shelves—including seamless continuation of graphics around the curve—as well as cube efficiency for shipping and storage.

The 30% reduction comes from the added rigidity of the curved corrugated, meaning you can use less material to get the required product protection. According to the company, “At targeted strength and stability values, up to 30% material savings are possible. The rigidity is an inherent property of curved shaped objects.”

A whitepaper on the Arcwise website contains load strength data of boxes with rounded corners versus right-angled corners.

Arcwise is suitable for retail-ready, consumer, transport and display packaging. It’s made in existing corrugated board manufacturing plants, shipped flat to brand owners for efficient shipping

and filled on typical the erecting/loading systems for many applications (such as trays and wraparound packaging). However, the company admits that some machinery adjustments may be needed depending on the application and the existing system.

“The technique opens up totally new possibilities for packaging designs that are attractive to customers and consumers,” says Hägglund.

Niclas Nilsson, CEO of VASA Brewery and an Arcwise customer, agrees, “A great thing about Arcwise is that we can introduce a breakthrough packaging design without specific investment costs and, since the material can be manufactured on a conventional corrugated machine, we see that sourcing is not an issue.”

Arcwise also offers prototyping and design workshops to help create effective packaging designs with curved shapes. It also provides erecting and filling support, as well as material optimization assistance.

The Arcwise technique is available to packaging manufacturers under license and production facilities must undergo certification to assure the quality of production meets the Arcwise requirements.

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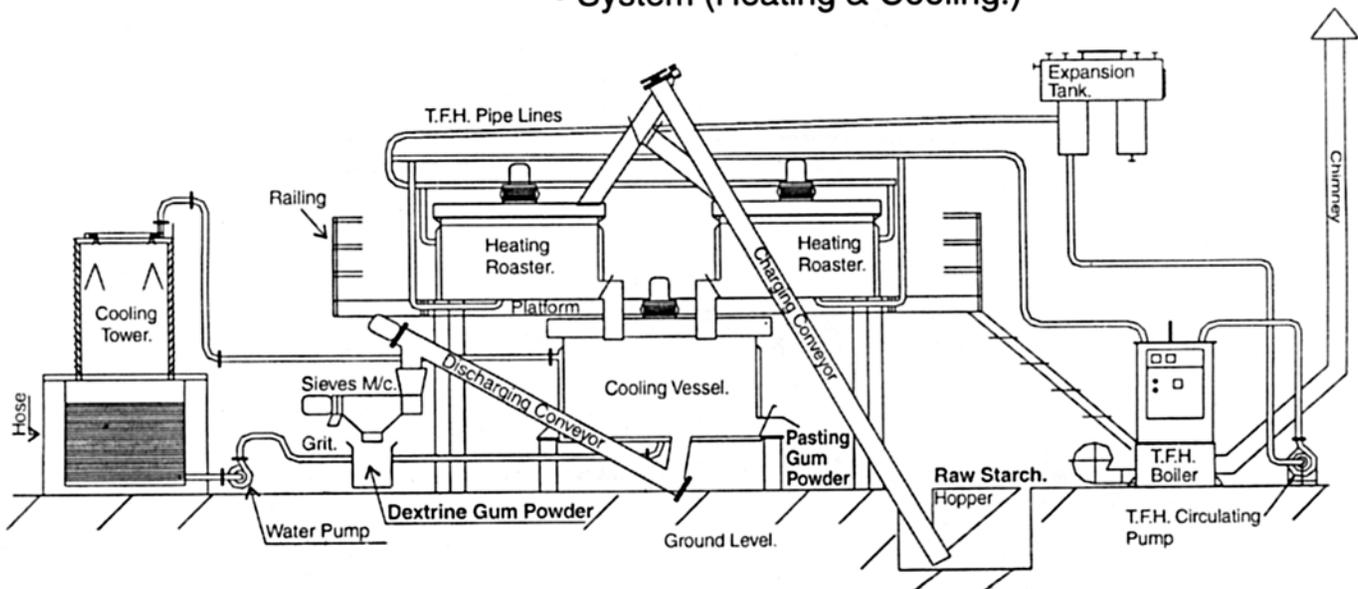
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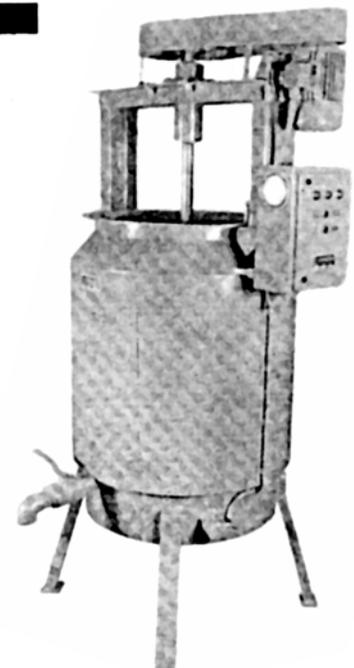
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Lifdek develops new corrugated skids

A sustainable cost saving solution

Lifdek Corporation, an innovator of site-assembled corrugated paper pallet technology, has developed new corrugated skids. A portion of worldwide shipping uses equipment that is not compatible with traditional pallets having a bottom deck; they use skids. The new Lifdek skids are a reliable and tough alternative using corrugated paperboard, offering a sustainable cost saving solution, according to Lifdek.

The new Lifdek skids, essentially a paper pallet version with no bottom deck, provide another low cost shipping platform. The Lifdek skids fold together from two die cut blanks without the use of glue or staples in under a minute and can support more than four tons. Lifdek skids are available in standard sizes, custom sizes, air freight versions, and fractional pallet sizes for retail POP displays. A Lifdek skid assembly machine is currently in development that will provide rapid assembly in thirty seconds with just one person.



According to Joseph Danko, President of Lifdek, "A portion of shippers use stacker type forklifts or other types of handling equipment that necessitate the use of skids, and now we have a tough new solution for companies to produce their own skids on-site from corrugated paperboard."

Lifdek pallets were originally developed to address the needs of the largest section of the pallet market, fast moving consumables. Incoming pallet freight and

pallet storage costs are reduced by nearly 90% because Lifdek pallets and skids are received and stored flat. Lifdek pallets and skids are recycled by the end receiver with other used corrugated boxes, generating recycling revenue while eliminating staging, storing and loading costs required with wood pallet retrieval. At less than eight pounds, Lifdek paper pallets and skids offer substantial air and LTL freight savings billed by weight and are a safer alternative for employees and retail customers. This one-way shipping approach also eliminates the chance of cross contamination from prior use, providing substantial safety benefits for grocery and pharmaceutical applications.

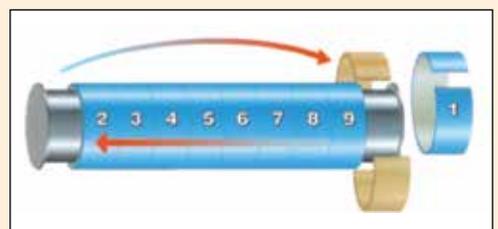
Lifdek licenses its pallet and skid technology to box manufacturers worldwide, which produce the die cut blanks for their own use as well as their local customers. Lifdek licensees have access to over a hundred pallet and skid sizes and designs, with new sizes readily available to accommodate a company's specific requirements and applications.

Source: pulppapernews.com



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Benefits

High Shear Mixing efficiency
Stable Viscosity, Consistence Product
Low wastage in handling & transferring
Improved Product Quality as compared to the Round Tank
No Maintenance Cost as in the case of Pulley System



Our organization has supplied more than 200 Cold Gum Mixing / Stirrer Machine to our valued customer which is our appreciated achievement.

For more information on our products and to watch our Cold Gum Mixing / Stirrer Machine video log onto our website [www. balajienterprisesindia.com](http://www.balajienterprisesindia.com)

We also sell-out Corrugation and Pasting Gum Liquid plant unit with One year free service and support

Coro Gum Machineries

21 Hiramani Shopping Centre, Bangur Nagar, Goregaon (W), Mumbai - 400 090

Website - www.balajienterprisesindia.com E mail - balajigums@gmail.com

Tel No: +91-9324287852 / 9324277931 / 7498951706

Quality Corrugation & Pasting Gum Powder

Established in the year 1985, we, "Balaji Enterprises", are a prestigious business organization engaged in manufacturing and supplying an excellent range of Gum Powder for Corrugation Industries under the guidance of our mentor and proprietor, 'Mr. Sumat Jajoo'. Balaji Enterprises' Corrugation Glue Powder & Glue Powder for Automatic Sheet Plant is an off white colour powder specially developed from high quality Maize Starch for corrugated Box Industries. Our products are produced by an exceptionally advanced technology & with maximum viscosity of Starch & qualitative chemicals.

Salient Features

Fast Drying Property.
After drying, sheet does not delaminate.
Liquid Gum Quality does not deteriorate up to 4-5 days.
Best Tackiness.
Added Strength.
Prompt Services are assured

Method Of Preparation

Take out Caustic Soda Packet from the bag
Take 100 Lts. water.
Start Stirrer & insert the powder.
Stir for 2 minutes.
Insert Caustic Soda.
Stir for 30 minutes.
Add 70 Lts. Water.
Set the Viscosity as mentioned below

Technical Specifications

	CG30 / CG35 / CG40	PG30 / PG35 / PG40 / PG50	PG50	DDG40 / DDG50
Purpose	For Corrugation Sheet Bonding	For Pasting Sheet Bonding	For Flute Laminator Machine	For 3 PLY / 5 PLY / 7 PLY Automatic Plant
PH of Liquid Gum	9-10	12-13	12-13	9-10
Viscosity of Liquid Gum (As B4 Visco Cup)	28-32	28-32	40-45	50-55
Powder's colour	Off White	Off White	Off White	Off White
Liquid Gum's Colour	White	Honey Shade	Honey Shade	White

Note – Method of preparation for PG50, DDG 40 and DDG 50 differs slightly.

Results

CG in 30/ 35/ 40 Kgs. which will give 200 Kgs. liquid Gum for application.

PG in 30/ 35/ 40/ 50 Kgs. which will give 200 Kgs. liquid Gum for application.

DDG in 40/ 50 Kgs. which will give 200 Kgs. liquid Gum for application.

Balaji Enterprises Since 1985

G-5 Mahavir Industrial Estate
Naik Pada, Valiv, Vasai East
Thane – 401 208 (M.S.)

Website - www.balajienterprisesindia.com E mail - balajigums@gmail.com
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Engineered for precisely sheeting & higher printing speed.

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Flat Bed Die
Punching Machine

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SUPER PRINTING MACHINERY CO.

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STATION ROAD, BHANDUP (W), MUMBAI - 400078

Contact : RANJIT S GILL (9820845598)

Tele Fax : 022 - 25947454, Email : gillspmc@gmail.com

FCBM Publications

3:90	Corrugated Box Manufactures' Practical Standards – Standard Test Method for Bursting Strength of Corrugated fibre board	25:02	Project Report (Condensed Version)
4:90	Proceedings – Technical Sessions of Conference 1982 – 1990		i) A study on the Important Properties of Kraft paper at Different Climatic Conditions
6:91	Corrugated Box Manufactures' Practical Standards – Standard Test Method for Puncture Resistance of Corrugated fibre board		ii) A study on the influence of Properties of Kraft paper on the Properties of Corrugated Board and Box at various climatic conditions.
7:91	Corrugated Box Manufactures' Practical Standards – Nomenclature: A Glossary of Terms related to the Corrugated Packaging Industry	26:03	Technical Information Booklet – Industry Survey – 2002
8:92	Corrugated Box Manufactures' Practical Standards – Standard Test Method for Water Absorption (COBB Method)	27:03	Proceedings – Technical Sessions of 31st Conference 2002, Mumbai
9:92	Technical Information Booklet – Variable Speed Drives for Corrugated Machines Standardisation of Electric Motors for Corrugated Box Manufacturing Units	28:03	Proceedings – Technical Sessions of 30th Conference 2001, Chennai
10:93	Corrugated Box Manufactures' Practical Standards – Standard Test Method for Grammage of Kraft paper and Corrugated Fibre board	29:04	Corrugated Box Manufactures' Practical Standards – Standard Test Method for Thickness of Board
11:94	Technical Information Booklet – Adhesives	30:04	Technical Information Booklet – Industry Survey – 2003
12:94	Technical Information Booklet – Box Styles	31:05	Proceedings – Technical Sessions of 32nd Conference 2003
14:96	Corrugated Box Manufactures' Practical Standards – Standard Test Method for Compression Strength of Corrugated Box	32:05	Proceedings – Technical Sessions of 33rd Conference 2004
15:97	Corrugated Packaging Brochure	33:05	Technical Information Booklet – Industry Survey – 2004
16:97	Technical Information Booklet – Industry Survey - 1996	34:06	Proceedings – Technical Sessions of 34th Conference 2005, Bangalore
17:97	Operational Manual ACS (Ver 4.2) (Account Computing System)	35:06	Technical Information Booklet – Industry Survey – 2005
18:98	Technical Information Booklet – Industry Survey - 1997	36:06	Technical Information Booklet – Units of Measurement and Conversion Factors
19:98	Corrugated Box Manufactures' Practical Standards – Standard Test Method for Ring Crush Resistance of Paper and Paper board	37:06	Technical Information Booklet – International Rules for Corrugated Board and Cases
20:99	Technical Information Booklet – Industry Survey - 1998	38:07	Proceedings – Technical Sessions of 35th Conference 2006
21:99	Corrugated Box Manufactures' Practical Standards – Standard Test Method for Moisture Content in Paper and Paper board	39:07	Technical Information Booklet – Restricted Heavy Metals Specification in packaging Material
22:00	Technical Information Booklet – Industry Survey - 1999	40:07	Technical Information Booklet - Guidelines for- Designing Heat Transfer System using Heat Transfer Fluids
R 1:00	Corrugated Box Manufactures' Practical Standards – Box Dimensions, Styles, Mfrs. Joints	41:08	Proceedings – Technical Sessions of 36th Conference 200
23:02	Technical Information Booklet – Industry Survey - 2001	42:10	Proceedings – Technical Sessions of 38th Conference 2009
24:02	Project Report (Full Version)	43:11	Proceedings – Technical Sessions of 39th Conference 2010 – Interactive DVD
	i) A study on the Important Properties of Kraft paper at Different Climatic Conditions	44:11	Technical Information Booklet - Industry Survey - 2010
	ii) A study on the influence of Properties of Kraft paper on the Properties of Corrugated Board and Box at various climatic conditions	45:12	Proceedings – Technical Sessions of 40th Conference 2011 – Interactive DVD
		46:12	Technical Information Booklet – Scoring Allowances and Blank Size
		47:14	Technical Information Booklet – Tolerances for Regular slotted containers (RSC)



Finding Your Perfect Fit

SuperCorrExpo® 2016, the largest trade show in the Western Hemisphere for the corrugated packaging and folding carton industries, will offer a value-packed four days of innovation, demonstration and education from October 17-20, 2016. Staged for the first-time ever in Orlando, FL, SuperCorrExpo® promises to be an extraordinary opportunity to see and experience a total concentration of industry resources—from multi-track workshops to 130,000 + square feet of exhibit space—for the expected 6,000-plus attendees, including suppliers, converters and box plant executives.

TAPPI took a few moments to chat with Keynoter Ron Sasine, Principal of Hudson Windsor LLC and former Senior Director of Packaging Procurement at Walmart, who gave his insights on the state of the industry and the value of SuperCorrExpo®.



Ron Sasine

Some excerpts from the interview

Packaging companies were reaching out and trying to understand how they could develop, innovate and manufacture in ways that were more conducive to the needs of the retailers and the retail consumer. But they always had to view those requirements through the filter of the consumer products company.

I tell people as we get into this conversation that packaging is there to do three things: It needs to convey, it needs to communicate and it needs to convince. In our modern society, most of what we consume comes from a much larger travel radius than ever before. So it's critical that packaging can convey a product from farm, field and factory through a distribution network to a point of sale and eventually to a consumer's home. So that "convey" is critical.

Throughout that process, a package needs to "communicate".

Then eventually, it's got to "convince" the consumer to buy the product and then it has to continually convince the consumer, in the home, to consume the product and eventually go back for a repurchase.

Corrugated for E-Commerce

Well, there've been a couple of immediate impacts. Obviously, the corrugated box is a very dominant and important way to move product through that e-commerce distribution. As a result, there's been a large uptick and potential future uptick in the use of corrugated boxes to deliver products to homes and businesses, whether it's apparel or consumables or grocery items to home.

That was not the case three or five years ago, and it will increasingly become the case in the coming years.

Products need to get moved through a system that is not designed to move groceries. And the only way to get that system to move groceries appropriately is to get more corrugated and better corrugated into the delivery process.

The corrugated industry is—from a packaging viewpoint - one of the best environmental stories that can be told.

Corrugated boxes generally use anywhere from 40 to 100 percent of recycled materials, so it's a great story in terms of where it originates. And it's an even more outstanding story in terms of the recycling process that has been well developed over the years to create reuse and recovery of the underlying fiber.

Retailers across the board are finding ways to simplify their operation, reduce costs in their operation and move products from distribution centers to trucks, to back rooms, and to shelves more seamlessly. We go back to that communication element that I talked about. Corrugated boxes are going to have to work seamlessly across the supply chain.

With insight like this, you won't want to miss Ron Sasine's keynote session on Tuesday, October 18th at 9:30AM, at SuperCorrExpo® 2016. Read the complete interview with Ron and learn more about this global hub of corrugated networking and education at www.supercorrexpo.org.



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2016 edition of SinoCorrugated South, comes to a successful close

SinoCorrugated South, four magnificent expos in one, covering the entire packaging industry chain, held at GD Modern International Exhibition Center in Houjie, Dongguan, came to a successful close on April 16. The trade show, organized by Reed Exhibitions, spanned 67,000 sqm and convened over 700 local and international exhibitors of equipment and consumables. An additional 200 suppliers of packaging containers and consumables, as well as numerous designers were onsite, showcasing over 1,400 pieces of corrugated, folding carton, flexo printing and paper packaging manufacturing equipment and over 1,000 consumables. The exhibition site buzzed with the energy of thousands of visitors - 33,539 in total. Participants in the event were impressed by the top brands on show and high returns delivered by the event.

4-in-1 Mega Expo Drives 'One-Stop' Commerce

At SinoCorrugated South, cutting edge corrugated / folding carton manufacturing equipment, technologies and consumables were on show, together with flexo printing equipment, packaging container products, consumables and new packaging designs.

The exhibition convened top local and international suppliers, showcasing advanced equipment and technologies along every link of the packaging industry chain. Onsite, visitors were able to learn about equipment optimization and how to improve product structure.

The exhibition was supported by local and international associations, as the organizers, Reed Exhibitions, leveraged links they had forged with industry stakeholders around the world by participating in activities hosted by international trade associations.

Multiple Complementary Activities Add Diversity to Onsite Offerings

In addition to numerous cutting-edge technologies and equipment, Reed also designed a value-enhancing collection of onsite activities to help visitors gather more market information and learn about the packaging industry's emerging trends.

Exhibition Draws All-Round Praise for Excellence

The mega expo drew widespread praise from media and exhibitors, thanks to the heavy flow of visitor foot traffic streaming among the booths.

Over 430 International TAP Participants Find Business Matches Onsite

Reed provided matchmaking services for exhibitors and buyers to come face-to-face before, as well as during, the show. Onsite, over 430 international visitors were successfully matched with exhibitors, bringing new business prospects for participants to enhance their return on investment.

SinoCorrugated South drew high praise from both exhibitors and visitors, laying a firm foundation for successful return events next year at the Shanghai New International Expo Center, from April 11-14, 2017. Reed Exhibitions is confident that the event will maintain its international profile and attract more local and international participants to this high-value combined packaging industry event.



Forthcoming Events

13 - 15 July 2016



Shanghai - New International Expo Centre (SNIEC)

China's premier trade exhibition for Processing and packaging technologies

Targeting buyers requiring processing and packaging technology for the following including food, beverage & beer, dairy, pharmaceutical, cosmetics, household, chemicals, consumer products, chemical and industrial products.

21 years track record of success in Shanghai for international and Chinese companies.

17,326 buyers attend in 2015.

50% of visitor from Chinese cities outside Shanghai and all over the world.

Record 733 exhibiting companies from 27 countries and regions in 2015.

Exclusively supported by packaging and processing associations with pavilions of their members from Germany, Japan, Korea, Italy, France, Taiwan Region, UK and USA.

27 - 30 July 2016



Pragati Maidan, New Delhi

The Total Packaging, Processing and Supply Chain Event

PackPlus is the premier packaging exhibition that explores the markets of India in depth and provides a platform for Indian and International suppliers to meet industrial customers with needs across the supply chain

16-17 October 2016



16th Forum of Asia Pacific Graphic Arts

JieLong Headquarter, Shanghai - China

The 16th FAPGA meeting and conference will be held at Shanghai, China on 16th and 17th October, 2016.

The theme for this Conference is named **'Discover the future of printing'. Green | Smart | Creativity | Interconnection**

18-22 October 2016

THE 6th ALL IN PRINT CHINA
SINIEC, Shanghai - China

All in Print China kicks off on 18 October 2016.

More than 400 renowned companies from the international print suppliers industry have already confirmed their participation at the 6th edition of All in Print.

Under the heading "Discover the Future of Printing" All in Print 2016 in Shanghai will bring some changes in its conceptual cornerstones.

04 - 07 October 2016

TOKYO PACK 2016

Tokyo International Exhibition Center, Tokyo, Japan

Tokyo pack, Asia's premier packaging exhibition, showcases all related to packaging including distribution, sales, consumption and recycling. It is the world's leading comprehensive packaging exhibition.

17-20 October 2016

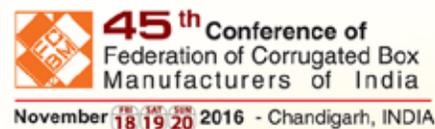


Orlando Florida USA

The most powerful global hub of corrugated networking and educational opportunities in the Western Hemisphere is returning this fall, featuring four days of education and networking in sunny Florida.

The 2016 TAPPI AICC SuperCorrExpo, held every four years, is scheduled for Oct. 17 to 20, and for the first time in its history, will visit the Orlando Convention Center in Orlando.

18 - 20 November 2016



November 18-19-20 2016 - Chandigarh, INDIA



Trends & Technologies that will shape the Future of India's Corrugated Industry

This is introduce ourselves as Himachal Pradesh Corrugated Box Manufacturer Association which is an official body of the Corrugated Box Manufacturers for the State of Himachal Pradesh. We are dedicated to strengthening our position in the market place through information exchange, events and publications that empower our members to compete successfully in a rapidly changing industry and an increasingly competitive and global business environment.



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COATING THICKNESS (Microns)	28 - 36 Linear
55 - 65 Microns	

For More Details: Please feel free to contact, we will be happy to help you:

Mr. Raghav Thapar @ +91-98116-68695

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India Corr Expo 2016
Booth: B-16
Date: 08-10 September 2016
Venue: Bombay Exhibition Centre, Mumbai