

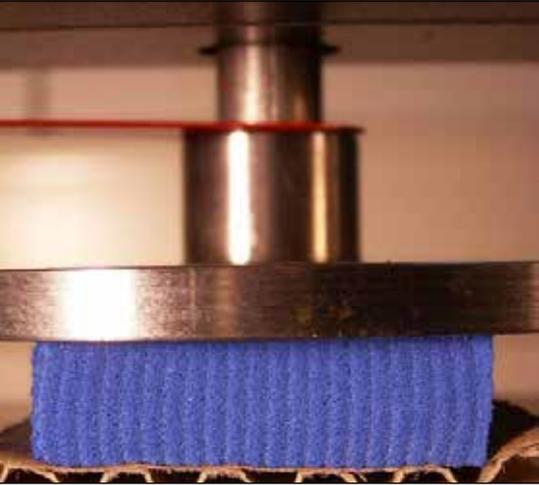
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The Corrugator

OFFICIAL MAGAZINE OF FEDERATION OF CORRUGATED BOX MANUFACTURERS OF INDIA

January - March 2018



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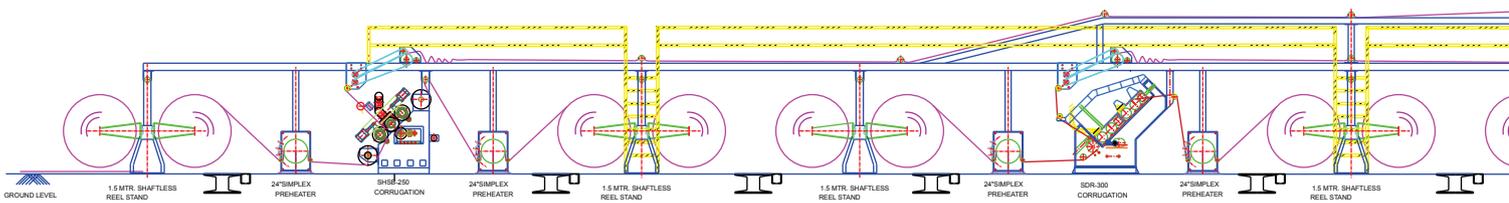


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Federation of Corrugated Box
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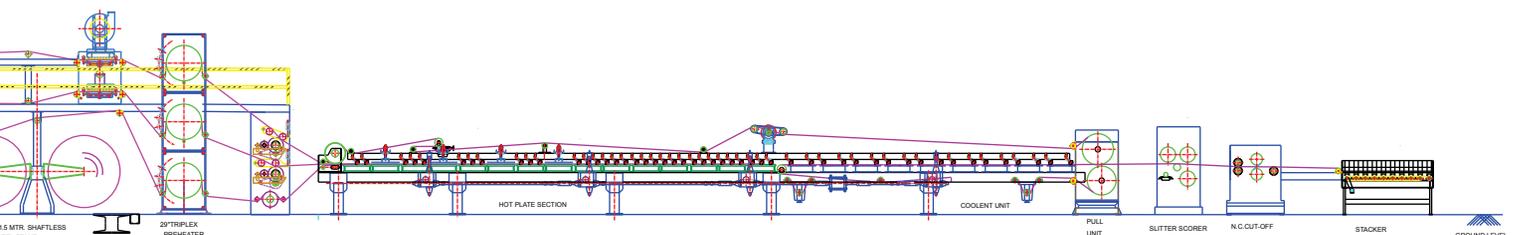
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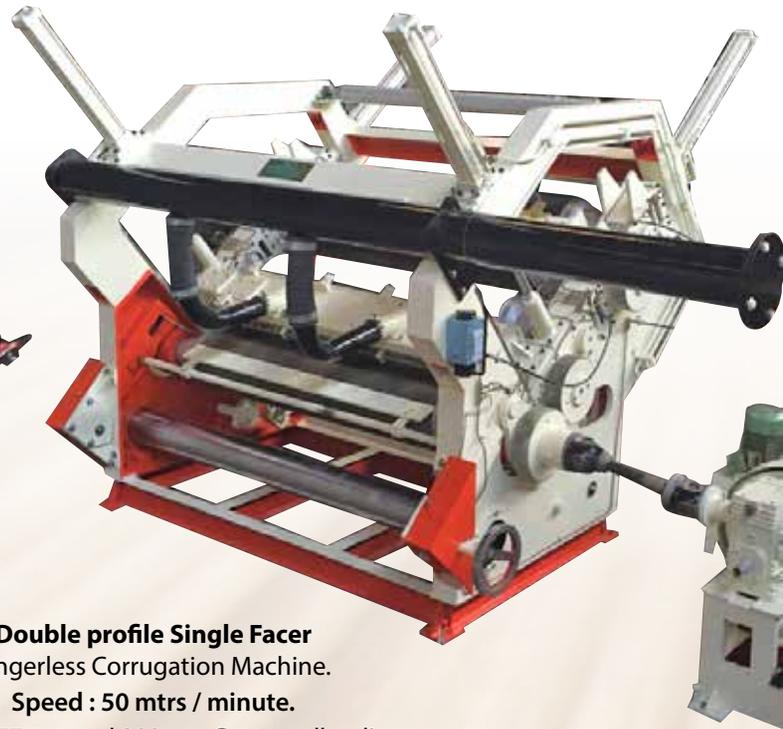
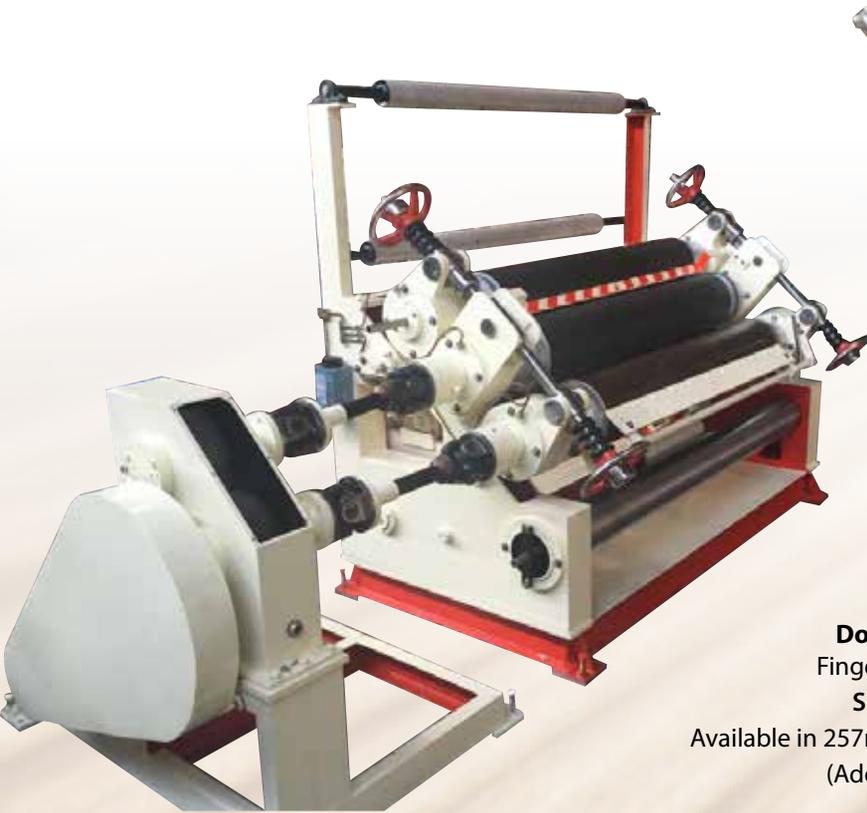
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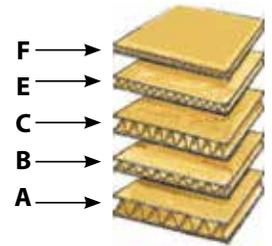
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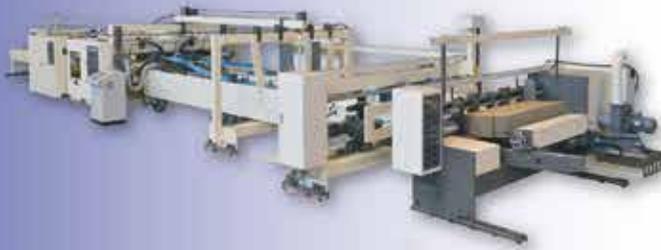
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Federation of Corrugated Box Manufacturers of India

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 Editor

Mr. Ashok Vyas

On-Line Packaging Pvt. Ltd.

Vile Parle - E, Mumbai
ashokpyyas@gmail.com

Co-Editor

Mr. Haresh Mehta

Design & Production:

Print Links

Bldg. H-4,
Flat No. 2 (Lawn side)
Jankalyan, Bangur Nagar,
Goregaon (West),
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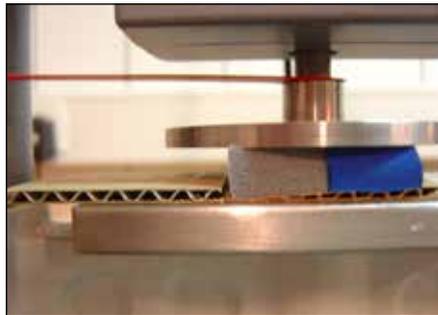
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THE EDITORS' PAGE



Ashok Vyas



Hareesh Mehta

The Editors take pleasure in welcoming all readers to *The Corrugator @2018*.

Looking back - the wonderfully organized 46th FCBM Conference at Pune, was quickly followed by FCBM's participation in Global Exhibitions at Delhi and Nagpur and the presence of FCBM at FICCI.

This year began with the Post – Union Budget Managing Committee Meeting - traditionally held at New Delhi followed by a Seminar organised by EICMA at Kolkata

The Union Budget had little or no impact on our industry. Details will be circulated to all members.

As exhorted by our new President Mr. Pradip Bosmaya – the year is dedicated to 'Growth Unlimited' and we hope to see many vibrant activities by Regional Associations leading to 'Growth in Membership', 'Growth in Knowledge' and 'Growth in Quality'.

In this context – Punjab joining as the 13th Regional Association of FCBM will add impetus to this initiative.

 The jump in GDP to a healthy 7.2 percent is a news that has come as a fresh breeze in an otherwise gloomy picture of the state of economy. Revival signs in consumptions spending and investment activities will move the economy into the faster lane.

Retail inflation cooled for the second consecutive month in February on the back of moderating food prices, while industrial output continued with its strong run in January, bringing a cheer for all industries.

Economists said the factory output data showed that the impact of disruptions caused by the rollout glitches of the goods and services tax (GST) and demonetisation had diminished.

The manufacturing sector grew at 8.1 percent in the third quarter and is projected to expand at 5.1 percent during the full year, inching towards last year's 7.9 percent growth – indicating that factories and firms have moved on to a growth trajectory. The agriculture sector also grew 4.1 percent in Oct. – Dec. 2017

India has already out paced China as the fastest growing economy.

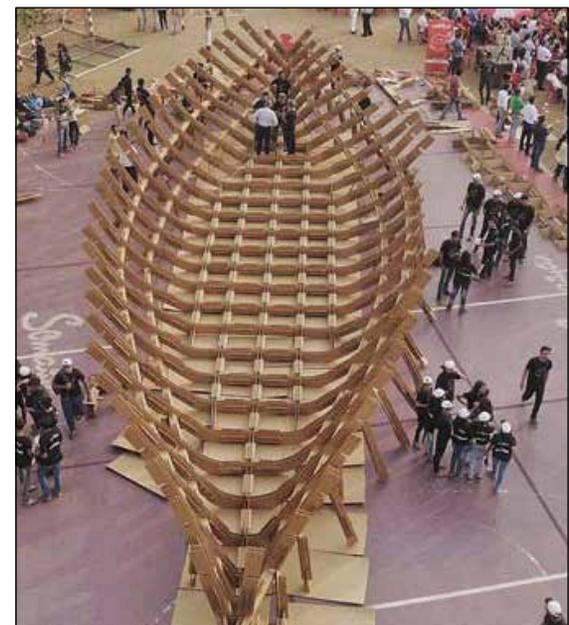
All this portends well for our industry as growth in consumption of goods and agriculture will trigger growth in demand for packaging.

We need to leverage these growth indicators by adopting new technologies and modernizing our production activities to be able to meet the new demands and expectations of our customers.

This issue features in-depth articles on "Flat crush of Corrugated Board", "Customers Expectations" and "Caliper" will be enlightening to the readers.

Besides we have featured Industry News and Product Profile with highly relevant and interesting tit bits.

The Corrugated Boat is sailing to set a new Guinness World Record. This non-packaging innovative is featured the Industry News.



Hope you will all enjoy the issue – as always.



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Delhi

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PRESIDENT'S MESSAGE



Pradip Bosmaya
President

Dear Members of FCBM,

I convey my Greetings to you all.

We face many challenges but I feel proud that our members have prepared themselves to face all the challenges and to grow accomplishing the need of the market.

We have begun our journey with one mission "Growth Unlimited". I had appealed to all the Regions and Committee Chairpersons to focus on Growth in Membership and Growth in Knowledge and Growth in Research & Development during the year.

My heartiest Compliments to Chairman Shri. Ramkumar Sunkara and Vice Chairman Shri. Amit Jain for already organizing three Comprehensive Educational Courses in Indore, Kolkata & NOIDA and also planning four more in the months of April, May, June & July with RCBMA, HPCBMA, KCBMA and SICMA respectively.

Equal compliments go to the Regional Associations for taking initiative and organizing seminars and extending full support to the Chairman and the Vice Chairman. This will definitely help our members in enriching their knowledge and will also help to strengthen the membership with this value-based seminars and workshops.

I am further pleased to inform the Chairman of R&D Committee, Shri. Ankit Agarwal has promised to launch Corru-Converter Application for our FCBM members to help in calculation of box parameters. This will definitely help the members in the times to come.

My compliments to Chairman Shri. Amit Jain for continuously motivating Regional Presidents for Membership Growth. I am pleased to inform in the first quarter we have added almost 150 Members and would like to remind everyone that our target for the year is to increase 600 members. I once again appeal to every member to join in our Membership Growth Campaign - "Each One Bring One". This will help to increase the strength of Regional Associations and enable the Federation to work with more strength and with new ideas in future years.

I am pleased to inform that our delegation is attending the SinoCorrugated South 2018 exhibition in China where I will representing the Federation and will be giving a presentation on "The Future of Corrugated Industry in India".

Members will be pleased to know that the entire managing committee of FCBM is invited by the organisers of Corrugated & Carton Exhibition South East Asia (CCE, SE Asia) 2018 at Bangkok in the month of September, 2018 and together we will spread the strength of India which will benefit the members to import the machineries at the best possible price in future times.

The Federation pledges to provide the best of support to all the Regions and together we shall try to achieve greater heights.

Thanking you once again and wishing you grand success in future endeavours.



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What are our customer's expectations?



Ramkumar Sunkara

Introduction

Customers want Value. Value is decided upon based on perception of the customer. Over the last three generations this perceived nature of "Value" has undergone a sea change. Looking at the number of dynastic companies in this field, let us consider the three generations to be **Grandfather, Father, and Grandson.**

An example of such a company represented by me, which has three generations in box business:

Grand father – Shri Amilal Bhansali – Started box business in 1956 under the name "Orient Paper box".

Father – Shri Dhananjay Bhansali – Joined the business in 1968.

Grand Son – Shri Pathik Bhansali - Joined the business in 2004.

This article looks at how customers expectation has changed in last three generations.

The Grand Father's Generation

The customers valued relationship with clients and vendors. Customers wanted relationship with dependable suppliers who would keep them running. Customers valued personal relationships and did business with people they liked and they felt comfortable with. Everybody made money and life was good.

The Father's Generation

The customers began to expect more. Quality became a major component of the value proposition. Customers started to talk about real cost of the products they were buying. They started looking into the "Cost of Quality" as a concept and reducing total cost became primary objective. At the same time, demand for corrugated box was down and the industry had a great deal of

unused capacity. The high manufacturing cost of the corrugated box industry had a terrible toll on the profits. The customers got lower price, but demanded more value. Customers still wanted more value, but value once again began to take on a new meaning. Concept of total cost began to disappear and was replaced by Price, Price and Price. Information technology became a new tool in the hands of upper management and upper management started to push purchase people for cost reduction using IT systems.

The Son's Generation

The markets opened up. Global trends in packaging changed how the box industry must do their business. With multi nationals becoming large players, new technology had to be adopted. Thus, investment in new technology became necessary and consequentially new technology increased capacities multi fold. New IT systems made availability of price variances more easily to our customers.

However, information regarding the quality and service performance of supplier was not easy to quantify. When we talk to customer about quality differences among suppliers they usually responded negatively. Customers simply said the quality is a given thing. If supplier cannot meet the quality they would not have been invited to be our supplier. However, we know that this is incorrect. There are differences in quality and services. Many customers do not have any good measurements to determine which supplier delivers most value in terms of quality and services. Today the purchasing people and upper management seems totally disconnected from the factory operations people who use boxes. This has lead to corrugated boxes being treated as commodity and not as performance specified. The demands of

upper management for reduced costs lead them to seek lower and lower prices thru e-bidding, treating the corrugated boxes as commodity. Most customers like to think they are purchasing a pure commodity that needs no input, no problem solving, no help, no relationship. This is not true. Corrugated box is not a commodity to source it thru e-bidding. It is a value added service to enable customer to reach his product to his customer by Value addition and not by Value retention.

Conclusion

The relentless who blinks first attitude of box makers and their customers towards price has far reaching consequences. The box makers who are not able to get true price for their boxes will put pressure on paper mills to reduce their price and still demand paper with performance parameters. This will lead to the paper mills to give you the performance parameters by short cut methods which in turn lead to quality issues which are not being quantified now, like odour in the paper, score line cracking, white spots and fungal growth, loss of some properties over a period of time. This will lead to huge losses for box makers due to higher wastages, higher rejections which are not accounted for while you are bidding for business on e-bidding. So think twice may be thrice before you do e-bidding. In conclusion, We must sell our Capabilities, not our excess Capacity

Ramkumar Sunkara of P. R. Packing Service is an encyclopedia of corrugated packaging and the most sought after consultant and speaker in the industry. He has conducted many seminars across India at various Regional Centres of FCBM.

He is presently the Chairman of Seminar & Workshop Committee.



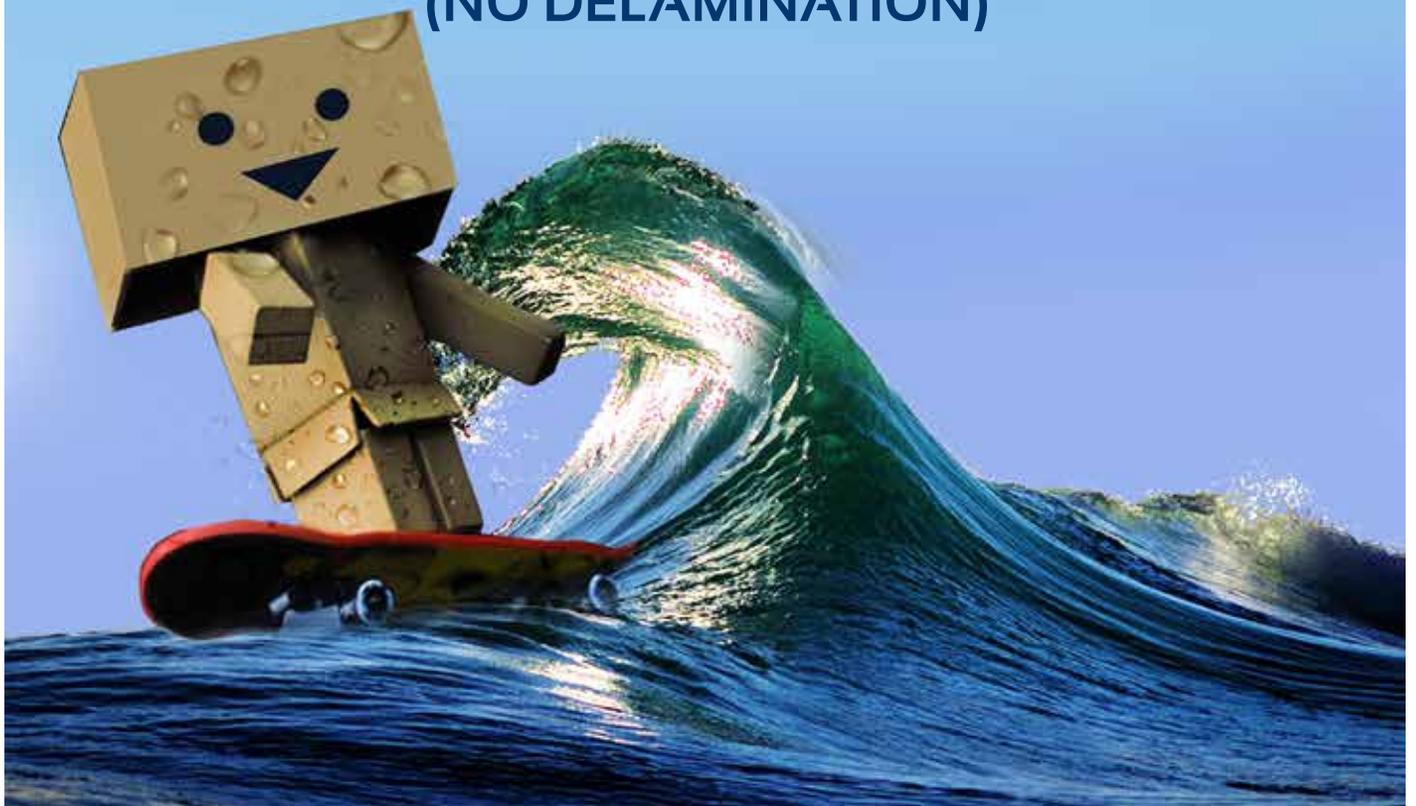
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A few Thoughts about Managing Caliper

During this last year, I have discussed many components that affect corrugated plants in our industry. I spent time defining calibration practices we require in order to properly manage and control the “Nip” Settings in both Rotary Die Cutters and Flexo Folder Gluers.

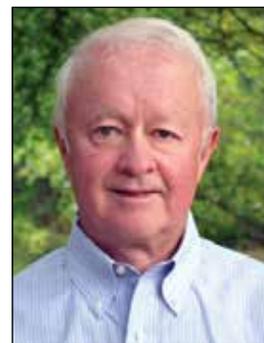
I also discussed ideas that will help improve our performances in tooling and machine settings resulting in customer satisfaction. All of these areas of expertise are ingredients that contribute to financial success and stability in our plants as well as our customer’s operations. The market today is changing ever so quickly in the direction of new designs in paper structure as well as customer’s demands and requirements. There are many different types of board combinations that are surfacing every month and we can’t sit back and ignore them. We as box makers should be aware that there are also “subtle” changes that are slowly developing in our industry. I believe that some of these changes are developing under the radar and since we are in a world of manufacturing, we must stay ahead of the curve.

We all live and work in a unique industry where all of our plants have an interesting equipment inventory of old design machines, newer Flexos and Die Cutters and then the brand new, high speed, computer controlled, multi-colored Flexos and Rotary Die Cutters. We share orders between plants and we also do a great job of “Drop Shipping” orders to our customer’s facilities. Many of these orders are made on different machine centers every time they are shipped depending on the particular schedule for that day. “Caliper Maintenance” and “Colour Control” should be consistent and must be on the top of the list every day for every order.

The first area that we should investigate is in the design department. I do believe that in many cases, our boxes are “over designed”.

Our Sales people generally obtain orders the following way:

1. Visit a potential customer. Obtain box samples and then bring the samples back to the office.
2. We then copy the box design and develop a cost.



Dick Target
“On Target Consultants”

3. If the selling price is competitive with an aggressive delivery, we might have an advantage.
4. We then take an order from a competitor and the new order is ours.

In this process, the actual application of the new order is sometimes overlooked. I do believe that many liners and mediums are excessive as the box design and application has not been properly reviewed internally or with the customer.

“Historically”, in our industry, converting crews crush the sheets excessively in the feed sections well past the 0.003” (0.08 mm) maximum caliper loss standards. As a result, heavier liners and mediums have been used in order to sustain this process to supply a shipping container that will satisfy the customer’s requirement. This certainly adds cost and unnecessary loss in profits.

In the case of new designs or new products for existing customers, the process is quite different. Product samples such as plastic bottles, folding carton samples or actual weighted products are supplied. Our design teams then have a real chance to shine with appropriate structure suggestions, inserts and product

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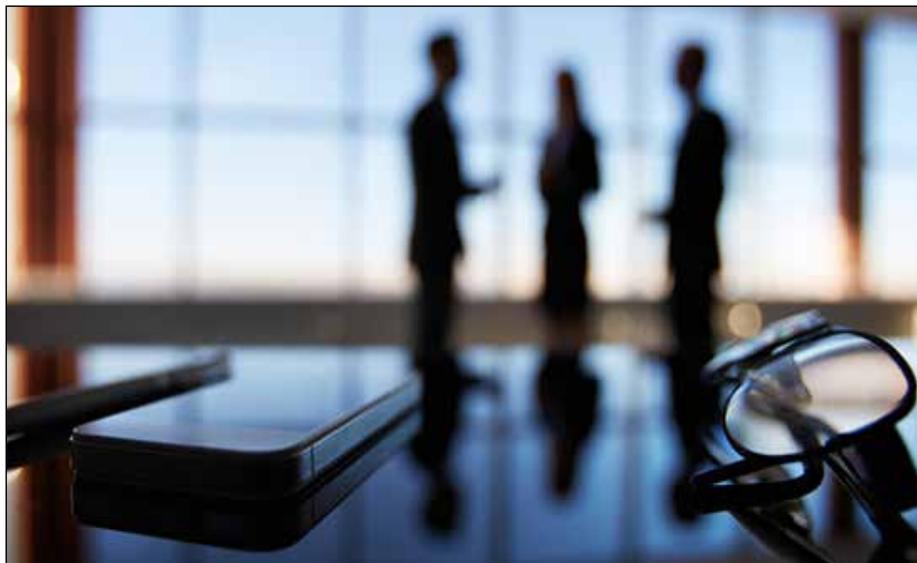
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protection ideas such as partitions or foam support. RSC's, Wrap Around Designs and /or Die Cut Designs are then offered. I will say that all of these ideas again, are based on "Historical Data" and known manufacturing characteristics that are used in the plant. This is based on flute designs, flute profiles from various corrugator rolls, paper combinations and recent success stories. In order to keep current, I would suggest that the "Historical Data" information in the plant should be updated and reviewed by the design and quality departments on a regular basis. Manufacturing needs to be a part of this. You need to be sure that the box that you are supplying your customer is the one that he needs and not one that is over designed (or under-designed). If you are a sheet plant and you buy your sheets from different sheet feeders, I encourage you to have design review meetings with your sheet feeders just to be sure that the sheets that you are buying are correct or maybe consistent in all areas. Each corrugator has their own flute design corrugator rolls and profiles in each of their single facers. They all buy their corrugator rolls from a number of different roll manufacturers. As the plant makes improvements on the corrugators and new papers are introduced to the plant, the paper changes should be identified and passed along to the design department. Any new mechanical characteristics of the paper, temperatures of the corrugator rolls (as a results of improvements to the steam systems), new types of showers (moisture content) for the medium, all make a difference to the caliper of the sheet. This frequently has a positive effect on the ECT numbers. They will also dictate new mechanical settings in your presses as a result of these changes and / or improvements. We also know that sheet caliper certainly controls the compression strength numbers of the many flute combinations that are manufactured today. This type of information will then enable the design department to offer a better, more accurate designed product that will certainly satisfy customer's requirements. By doing this, the plant will have a better opportunity to



offer and manufacture the correct product that actually works for your customer.

Methods of recording sheet caliper from the corrugator also vary across the board or in some cases don't exist. I would encourage every corrugator crew or group to develop a plan to standardize methods on reporting sheet caliper from the dry end. Keep in mind that the paper changes on the wet end are a moving target. The different mills supply liners and mediums that are specific to their own mill.

Again, if you are a sheet plant, the caliper is going to be different all the time and these numbers need to be managed and understood by the converting crews. Remember: We have discussed a caliper loss in Flexo and Die Cutters of no more than 0.003" (0.08 mm) in the non-printed area in the converting process. If there is a 0.005" (0.125 mm) variation in the sheet itself from the corrugator, the Flexo and Die Cutter crews need to be aware of this so that proper settings can be made and better managed.

The corrugator scores should also be reviewed and recorded. The variations in the paper that I have discussed directly affects the amount of force required to break a corrugator score in the folding process. Proper Score Bend Testers should be used to establish and monitor standards. These numbers should then be reviewed with sales and their customers.

The corrugator crews should report an accurate number that truly represents that "caliper" of the sheets within that order. They need to be sensitive to the fact that their customer, "The Finishing Department", will be checking their numbers for accuracy and consistency. The Finishing Department should also support their own customers. The final customer (the end user) is also the one who pays the bills and is the one who completes the final inspection process. In previous articles I have discussed the fact that controlled caliper allows the press to print better and offer consistency in colour and registration. As we know, if the printing and colour is correct, the customer will be more willing to accept the order without further inspection. If the colour is off and the shades are not correct due to caliper variation, there is a good possibility that the order will be over inspected and possibly returned.

We know that there are tolerances and variations are a part of our business, so the caliper numbers should be properly and accurately recorded. This industry is getting tougher and tougher all the time and we need to have current and more accurate information through out the process. As we have said before, orders are lost on a "½ penny" per box selling price and we need to continue to be better managers of our process.





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Manufacturing cost is also critical part of this market. As we have discussed, costing is based on "Historical Data". It is the only basis that accounting can use for an accurate cost analysis. Based on this fact, our manufacturing process should be reviewed on a scheduled basis based on liners, mediums and production speeds in both the converting department, the corrugator department and accounting. If our speeds are improved based on machine settings as a result of better temperature controls, better product knowledge and understanding including caliper control, our cost numbers can be updated so that they are more accurate. From experience, orders have been both lost and secured based on better, more accurate accounting practices due to more current information from manufacturing. In today's market, "current and accurate" are great tools for success.

One other very "positive" area to think about is one of communicating with the sales group and ultimately with the

customer. If this process that we discussed today is an active one and one that is a culture in the company, it will better enable the sales people to discuss positive manufacturing and design control with customers. I know that there are a number of box plant customers that never think about process control. They just want boxes that work. There are however, a group of large vertically integrated companies in North and South America as well as Europe that thrive on "process control". They demand it from all their various suppliers. We as box manufacturers need to be focused in this area and should position ourselves so that these customers have a high level of confidence in our process control systems.

We need to be strong and proud of what we do both internally and in the market place. Don't be afraid to brag to our customers as to how strong we are internally and that we know what we are doing!!

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 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.

We sincerely acknowledge that This article was first published in International Paperboard Industry - Feb. 2018 Issue.

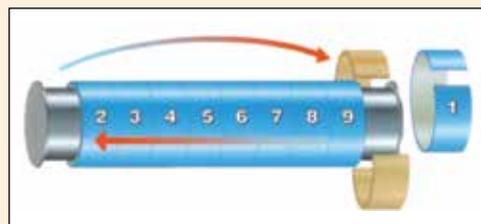
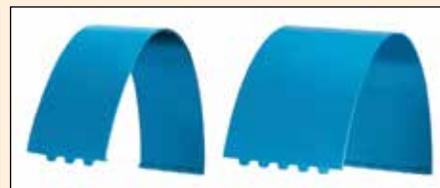
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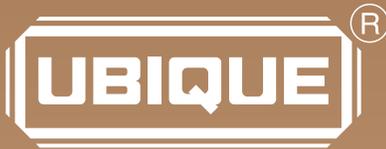
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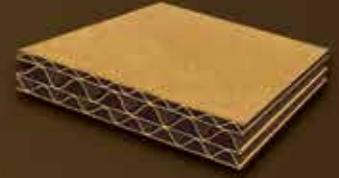
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Adhesive Viscosity

Adhesive Viscosity

Adhesive viscosity can have a significant impact on starch consumption, bond strength, combined board warp, and corrugator performance, so maintaining optimal and stable adhesive viscosity is essential to efficiently producing quality board.

What is Viscosity

The dictionary defines viscosity as “the property of a fluid that resists a force causing the fluid to flow.” More simply, it is the measure of fluid’s resistance to flow—motor oil has a higher viscosity than water.

Starch-based corrugating adhesive is typically composed of 20% - 30% solids and 70% - 80% water. To make corn starch-based adhesive with a stable viscosity (i.e., resistant to loss of viscosity over time), a portion of the starch is completely cooked, which sets the viscosity of the adhesive. The cooked portion is referred to as carrier starch because it keeps the raw starch in suspension and carries the uncooked starch through the pipes and to the glue line for gelatinization by heat on the corrugator. Making adhesive this way is called the Stein Hall method and has been the basis for most corrugating adhesives since the 1940s. The carrier portion of the adhesive is generally only 3% - 6% of the total adhesive, but it is key to the process. This fact is very evident on automatic high-shear starch mixers, where the amount of carrier is easily changed, and the resultant change in the finished batch viscosity is easily observed.

Measuring Viscosity

There are two main methods to measure starch adhesive viscosity in a box plant: Love cup and Stein Hall cup. Both methods measure the time for a defined amount of adhesive to flow through a specific-sized orifice. To get an accurate result with a Stein Hall cup, the cup must be pre-heated with adhesive before the actual measurement is performed. The cup has a wall of 3/16” solid brass that, if colder than the adhesive being measured, will cool the sample and alter the viscosity before the measurement

is completed. When filling the Stein Hall cup, the adhesive must first be strained to remove any debris that could plug the 0.10” hole which the adhesive passes through. Failing to strain the adhesive can yield a viscosity measurement that is higher than the true viscosity. The viscosity is measured by the time it takes for the adhesive level in the cup to drop from the top pin to the bottom pin. This time is recorded as “xx seconds Stein Hall.” The Love cup method is similar but does not require preheating the cup or straining the adhesive because the cup construction, wall thickness, and orifice size are designed to simplify the measurement process. For calibration and reference, the viscosity of water is 15 seconds Stein Hall (+/- 0.5 seconds), or 7 seconds Love Cup.

How Does Viscosity Affect Corrugator Performance

Changes in adhesive viscosity can influence the application rate, penetration into the paper, bond strength, and ultimately, corrugator speed and board quality. An increase in viscosity will increase the amount of adhesive carried on the glue roll and consequently applied to the flute tips—even if the gap between the glue roll and metering roll remains constant. This potential variability increases the importance of maintaining consistent and stable viscosity.



Alan Clark
CEO, Harper/Love, NC

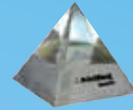
The viscosity of the adhesive can also affect the penetration of the adhesive into the paper, which has a significant impact on the strength and quality of the bond. Viscosity can be used to compensate for the absorbency of the papers, particularly when the liners and medium exhibit similar tendencies. When running unbalanced papers (e.g., a very absorbent medium and a highly sized liner), it is difficult to achieve the appropriate absorption simply by adjusting the viscosity. In these situations, it is far more effective to adjust the adhesive chemistry through the use of appropriate additives.

Because adhesive viscosity can have a direct impact on the application rate and the absorption into the papers, it ultimately can have an impact on corrugator speed and board quality. Too little adhesive can lead to a poor-quality bond. Too much adhesive can lead to a green bond, warp, and having to slow down the corrugator.

Optimal Viscosity

The optimal adhesive viscosity depends on the specific design and condition of





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the corrugator, the starch system, and the papers being run. For example, glue machines (double backer and single facer) with restrictive piping may require lower viscosity to ensure sufficient adhesive supply during high-demand operating conditions. An anilox glue roll with cells may need an adhesive with a different viscosity than one with a sandblasted surface. Single facers can tolerate (and sometimes benefit from) lower viscosities than double backer glue machines. This is partly due to the difference in how the bond is made, with higher pressure and temperature. Older, fingered corrugators run better with lower viscosity adhesives that can flow and bridge the gaps left by the fingers (i.e., the finger lines).

There are indicators and diagnostic tools that can aid in determining whether the adhesive viscosity is optimal. Glue line iodine stains are particularly useful in identifying viscosity related problems because glue line integrity is compromised by improper viscosity. Other indicators are slinging, foaming, and glue pans that run out of adhesive when the corrugator is running at high speeds.

Viscosity Changes

Viscosity can easily be manipulated through formulation, but achieving consistent viscosity requires good process control and a starch kitchen that is clean and in good mechanical condition.

The starch kitchen must deliver precise and repeatable amounts of each ingredient in every batch. Variability in the ingredient addition amounts will lead to inconsistent viscosities. Steam leaks, water leaks, dirty or clogged hoppers, and scales that

are not calibrated can all lead to imprecise or varying formulations. Furthermore, bacteria in the starch system will affect the stability of the viscosity as the bacteria attack the starch over time.

Viscosity will change significantly with even small changes in temperature. For every 2°F drop in adhesive temperature, there is ~10% increase in viscosity. Additionally, an adhesive with a lower temperature will require more time to gel because of the larger temperature differential between the starting temperature and the gel temperature. The higher viscosity will also cause excess glue application which further exacerbates the time to gel.

The mechanical design and setup of the starch system can also affect the viscosity of the adhesive. Older mixing equipment with marine-type propellers will make adhesive that will lose viscosity due to mechanical stresses. Adhesive loops with constant circulation, numerous elbows, or gear-type pumps will shear adhesive over time and lead to decreased viscosity.

Correcting Viscosity Issues

If you are seeing changes in viscosity, it is important to identify and remedy the source of the problem. Don't simply compensate for the problem by altering the formula. The most likely causes are temperature changes, dilution from a water leak, and bacteria attacks.

Every plant should have procedures in place that prescribe what actions to take when a batch of adhesive has the incorrect viscosity. A batch with a small deviation from the standard may still be runnable with special attention from the operators and adjustments to the application rate. A larger deviation may require making a new batch and mixing the bad batch with it to yield a more acceptable viscosity. Although high viscosity can be corrected with the addition of water, care should be taken to avoid major additions because the water dilutes the chemical properties and

may lead to bonding problems. There is no acceptable way to correct low viscosity adhesive other than to mix it with a higher viscosity adhesive. Adhesive that is out of spec because it is several days old (e.g., it was made on a Friday and sat unused over the weekend) is often segregated in a separate tank and slowly mixed in with fresh adhesive as the machine runs. If you adopt this practice, take care to avoid blending it when running challenging board combinations, such as heavyweights or doublewall. To assist the operators and ensure consistent practices, the procedures for correcting out-of-spec adhesive should be formally documented along with the viscosity ranges at which each corrective action should be taken.

Summary

Adhesive viscosity is one of the many factors that can significantly impact the performance of a corrugator and the quality of the board produced. Changes in viscosity will affect application, penetration, and bonding, and will adversely impact overall corrugator performance. Maximizing corrugator performance and board quality requires determining the optimal viscosity, accurately measuring the actual viscosity, and addressing the plant conditions that can adversely affect consistency and stability.

This article is reprinted with permission from its author Mr. Alan Clark who is currently the CEO of Harper/Love..., leading manufacturers of Adhesives and additives for corrugated packaging. We thank Harper/Love and the author Allan Clark for graciously allowing us to reprint this article. Also we thank 'International Paper Board Industry'. Feb. 2018 issue in which the article was first printed.

Alan joined HarperLove following an 18-year career with International Paper in a progression of management positions in the packaging and distribution businesses. Prior to International Paper, Alan was a Senior Engagement Manager for the international consultancy, McKinsey & Company, working in their Dallas, Houston and Atlanta offices. He earned his Bachelor of Science degree in Electrical Engineering from North Carolina State University and his Master's degree in Business Administration from Harvard University.

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Flat Crush of Corrugated Board



Rick Putch

The Q & A Session by IADD TechTeam™

Question

We are a corrugator and have been in this industry for the past 30 years. Until recently, we have never had any issues pertaining to our diecut corrugated boards.

Because of the nature of our Asian market, we diecut our corrugated paper boards using flat bed platen diecut methods (manual and auto) almost 99% of the time. We line our steel rule die fully with ejection rubbers to prevent cracks due to stresses, to strip as well as to aid the ejection of the board after diecutting to prevent jamming of the auto machine.

We realize that almost all the time, our fluting and liners are crushed so badly that the board loses almost its entire strength. The crushing occurs mainly where the ejection rubbers are placed. Crushing is so bad that the original C Flutes would end up looking a lesser B Flute after converting. We have tried changing the rubbers and varying between rubbers of different elasticity, but to no avail. Without the rubbers, the board would get stuck most of the time on the steel rules, jamming the diecutter as a result.

I wish to seek your professional help in view of this problem and I am wondering if you would be able to offer me any advice.

Is it the:

- 1) Steel rules
- 2) Type/composition of ejection rubbers
- 3) Diecutting pressure
- 4) Method of placement of the rubbers
- 5) Thickness of the rubbers
- 6) Diecutting technique

Which result in these damages?

Please help. We have sought the help of several of our die sub-contractors but they too do not have any idea why this is happening. We understand that slight crushing of the fluting at the sides is unavoidable in die cutting corrugated

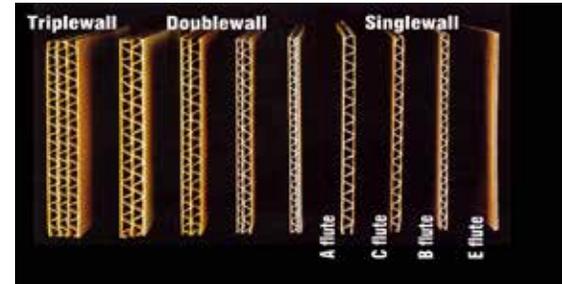
board but our damage is just too great and our cartons have started to fail even at the lowest loads.

Answer

The flat crush of corrugated combined board causes a myriad of problems from jammed equipment and product rejects, to poor print quality and reduced compression strength (box performance). Numerous articles have been written about flat crush issues originating from deficiencies within the corrugating process.

This article/answer will concentrate from the converter's point of view emphasizing the four key aspects: combined board, tooling, press conditions, and sheet transfer. Crush can occur from cutting rule, ejection rubber, feed rolls, and unparallel presses.

Corrugated Combined Board: This is the strategic formation of multiple plies of linerboard and medium (the fluted core), most often into sheeted goods, which then are diecut and creased for a variety of purposes, such as packaging. The flutes are configured differently to perform best for post printing applications or enhanced structural value. Each profile is designated by a "letter" which uniformly identifies the general flute spacing and caliper. Multiple plies can be processed to create a very flexible and beneficial range of products.



The closer the flutes are together, such as in E Flute, better print quality is achieved and the more resistant it is to flat crush since the "crowns" are positioned so close together, they offer superior strength and support (Figure 1). However when standing on edge, this profile does not offer significant resistance or "edge crush" structural properties. E Flute corrugated board is ideal for small to mid sized consumers, point of sale packaging. A flute, on the other hand, would be ideal for vertical structural integrity but would be susceptible to flat crush at far less force. B and C Flute are the most popular profiles utilized today. So many factors play into the flat crush resistance, therefore one cannot designate a "PSI number or factor" to any one specific profile but as an example, if B Flute failed at 40 lbs. of force per square inch of area, "C" by comparison is about 18% less (33#PSI) and "A" is 35% (26# PSI) less than "B" Flute.

Tooling: The three primary components of steel rule dies—cutting rule, plywood and ejection materials—each can contribute to the flat crush of corrugated. Most flatbed diecutting is done on presses which cut "onto" a steel cutting plate. The corrugated board is pinched then eventually, simultaneously "bursts" apart during the cutting process. Obviously, as the cutting rule becomes dull and flat

Contd. on - 31

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What ? is the condition ?

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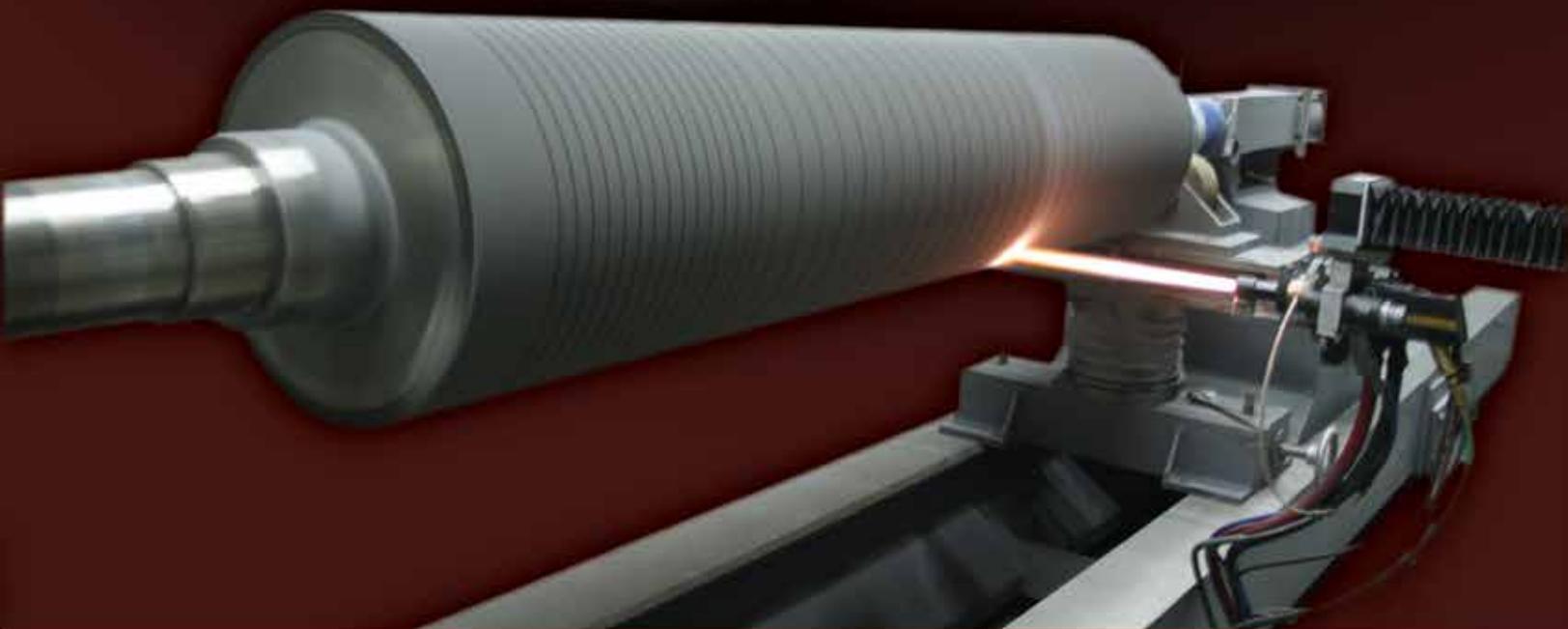


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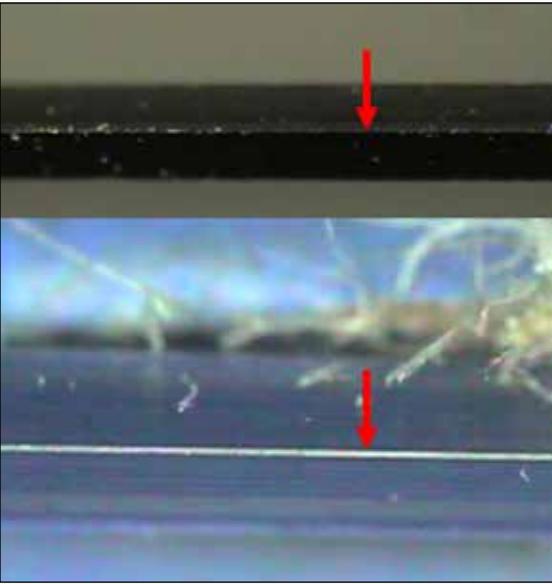
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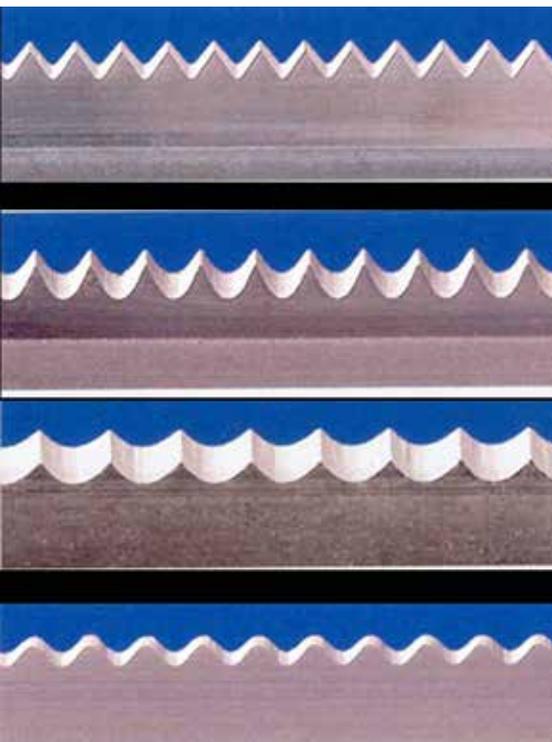
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Specifications			
Model No.	OMEGA-23 / ES-23	OMEGA-28/ES-28	OMEGA-32/ES-32
Max. Sheet size	700 x 2,000 mm	1,200 x 2,500 mm	1,200 x 2,900 mm
Min. Sheet Size	250 x 600 mm	300 x 900mm	300 x 900 mm
M/C Dimension	2,800 x 12,000 mm	3,100 x 13,000 mm	3,500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

along the cutting edge, more force would be exerted onto the substrate being diecut. Note the photo comparison of a sharp edge to a worn flat cutting edge.

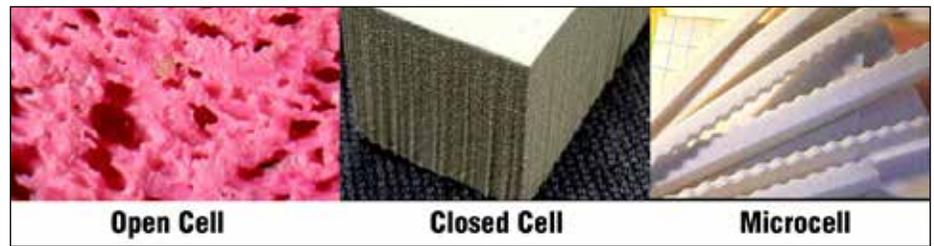


Most Rotary diecutters cut “into” a urethane cutting surface with serrated edged knives. The tooth geometry and sleekness of the cutting bevel exert various degrees of force during this “incremental” cutting process. Rotary rule is well recognized for the tooth count per running lineal inch, such as 8, 10, or 12 teeth per inch. In general, less teeth require less force to penetrate;



however, the trade off can be that deeper impression will be required to completely pass the cutting rule through the product. Much more could be said on this subject just as the aforementioned corrugating process. Regarding bevels: by facing the bevel toward the waste, using side bevel rule while diecutting hand holes and vent holes, will give very good aesthetic results and significantly reduce edge fracture. Figure 3 shows four very popular tooth geometry profiles used in soft anvil rotary diecutting. They often have proprietary names affiliated with the manufacturer.

Ejection rubber certainly plays a large role, largely because there are so many choices and it has the loosest tolerances of the three main components within the die. Without being too long winded or technical, but detailed enough, let’s look at the basic differences in “type” of popular and most recognizable materials (Figure 4). Open cell is often a red color,



medium density by definition, and has a knobby surface. This material can be sensitive to UV light, absorbs dust in to the exposed cells and can become brittle and harder over time. Grey colored closed cell is a popular material used in rotary diecutting as well as platen diecutters. It seems to hold its original physical properties longer than open cell under general plant conditions. Microcellular “slot” rubber is the most firm of the three. The very tight cell structure produces a tremendous rebound force to remove waste from narrow and small scrap areas of the design. Each of these materials are available in many different heights with a rather “liberal tolerance.” Additionally, over time, they will take a compression set (loss of height through cyclical use).

The firmness of rubber can be measured with a durometer tester. The devices have

a small “ball or point” which is pressed into the material. The size of the point on the device to be used varies with the cell size of the material. The two popular durometer devices are Shore “00” (larger ball tip) for the closed and open cell materials and Shore “A” (sharper point) for microcell rubber, extrusions, and solids like those used to test the hardness of photopolymer printing plates. Basically the closed cell material measures around 60 Shore 00 while the microcellular slot material is around 40 Shore A. It’s much like Fahrenheit and Celsius temperature readings. If someone tells you material is 60 Durometer, you better know the scale it was tested on.

A 60 durometer Shore “00” material would hardly be measurable on the A scale. A firm open cell of 75 Durometer shore “00” would be equivalent to 25 Shore “A” but would give inconsistent reading on the “A” device because of the large cell sizes.

Those who are experienced at using these materials have learned two basic things: if the rubber is softer, I will not crush my material; and if I use a more firm material, I usually run faster but risk crushing the corrugated. You see, since the rubber is cellular, it is not a “solid.” As it is compressed, it moves closer to a solid. The force and energy that compressed it, is transferred in “rebound force” giving us ejection. The tricky part is how much can I compress, how much force do I need to eject the waste or product from the die and what am I doing to the cell structure of the rubber over time. Rubber can be of the same height but because of its density, one will crush the corrugated sooner. Simply stating, if a rubber is 65% material and 35% air/gas, then at 35% compression, it’s essentially a solid. You now begin to either laterally expand the rubber or destroy what is beneath it (Figure 5).



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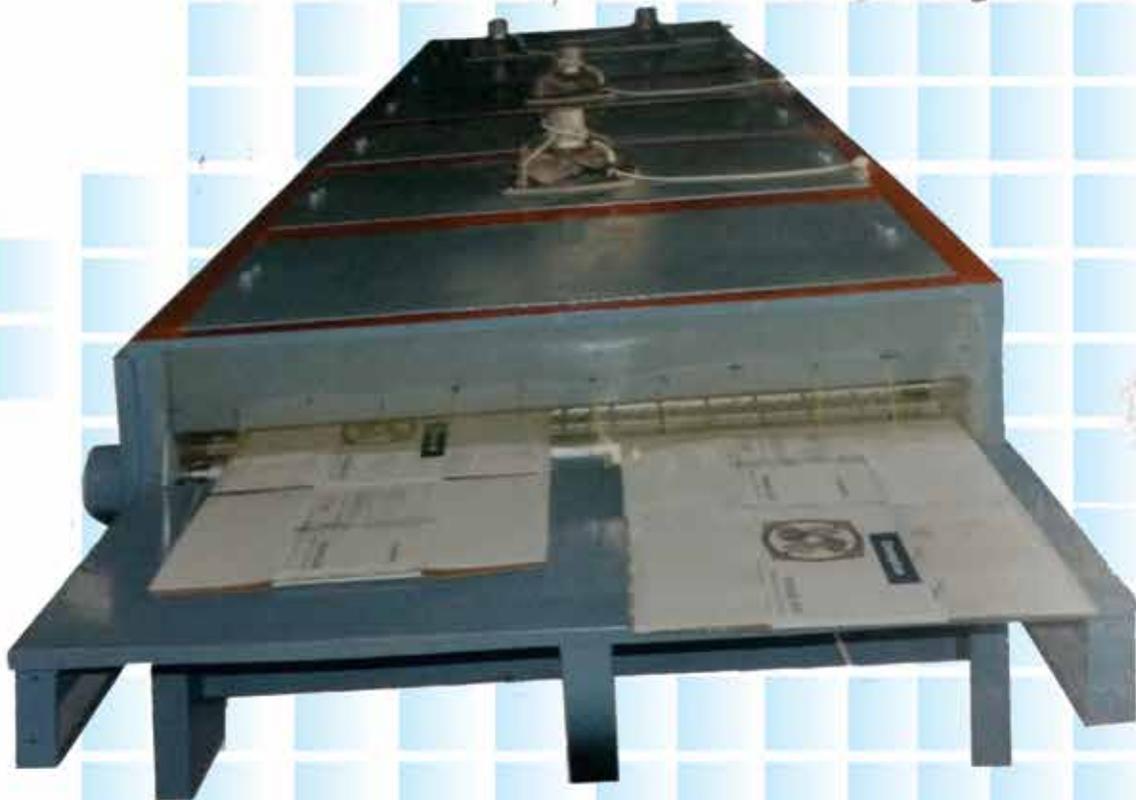
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Corrugated Box or Sheet Dryer System

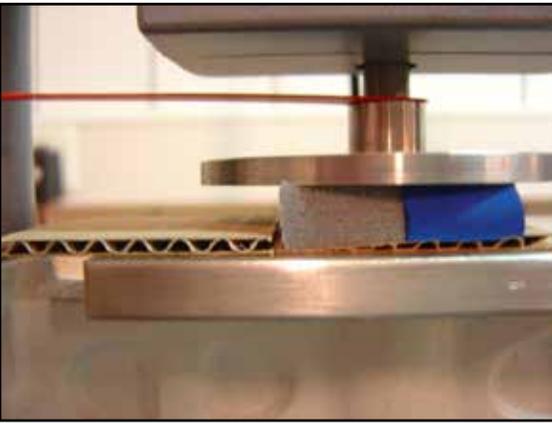
Note : Electricity consumption required in the machine is 3 Phase.

FEATURES : The special features of this machine as follows :

1. The machine is specially manufactured for corrugated box and sheet drying purpose.
2. The speed of conveyor in the machine is variable due A C drive installed in the machine.
3. The three digital temperature controller installed in the machine for controlling the heat in the heating chamber.
4. Heavy and good quality of electronic/Electric goods in the panel and heater used in the machine
5. The machine is manufactured by very heavy fabrication

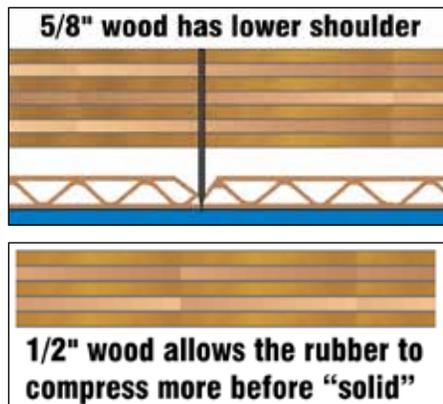
Corrugation Machine Heaters





The plywood is a key part - in that the distance from the wood surface where the rubber is glued to, to the cutting rule tip (called the shoulder), plays a key part in how much rebound force will be realized during diecutting.

If rubber becomes solid or “becomes dense” at 40% compression it will do so on a 5/8” dieboard sooner than that on a 1/2”



board (Figure 6).

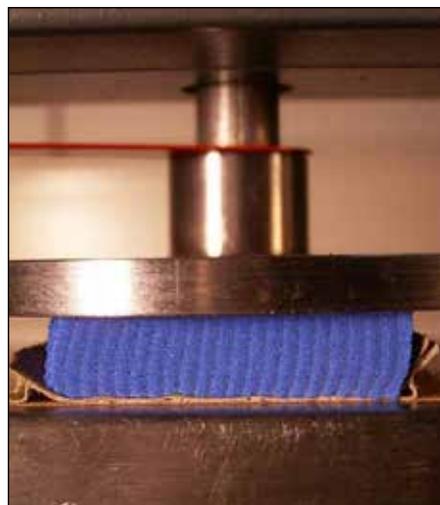
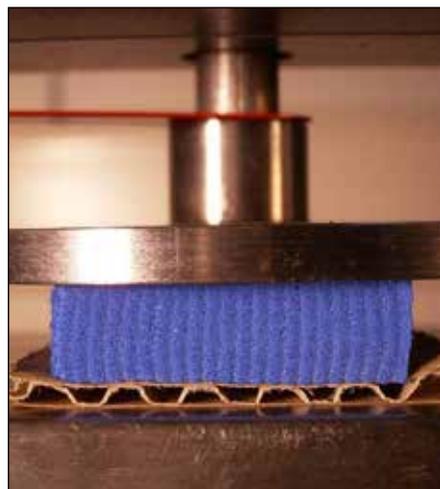
If we compare equally ruled dies constructed from plywood of 5/8” thick with 1/2” rubber, to 1/2” thick wood, and 5/8” rubber, the ejection rubber on the 5/8” plywood will be 40% compressed if the Z axis travel is about 3/16”. On the 1/2” plywood with 5/8” rubber you would need 1/4” of Z axis impression to reach 40%.

The tradeoff here is rule support and reduced deflection of the rule. Plenty of applications are better suited for either combination of wood and rubber.

Press Conditions: Flat bed “onto” presses are typically much more parallel and true than soft anvil “into” machines, so uneven

cutting surfaces do not play as large of a role here. However, beware of tape and other materials which can be added to the cutting plate. These practices may temporarily aid in cutting, but will begin exerting force to the sheet. Soft anvil conditions contribute much more to the problem: parallelism of the diecutting drum to anvil surface as well as typical wear and tear to the anvil covers themselves. Poor rotational habits lead to over impression, surely resulting in crush.

Sheet Transfer: Most auto-platen presses deliver with gripper bars which only contact the front waste. This is an excellent form of transfer and contributes nothing to the crush of the finished product. Same holds true for sucker style feeders which lift from the top with vacuum. On the other hand, soft anvil rotary diecutters can employ lead edge feed rolls which are often crushless urethane wheels onto a chrome plated steel lower roll. Basically, the diecutters



are designed to run everything “on center.” Each order varies in width.

Linerboard is abrasive and will wear the urethane. Pressure across the roll will vary.

Pull collars throughout the machine transfer the sheet throughout each stage of printing and cutting. Improper settings will cause crush. Innovative vacuum transfer systems have helped with this issue.

If the crush force is minimal, during transfer, the fluted material may be slightly deformed but there is little loss in strength because of the inherent elasticity of the starch bonded medium. If the crush force is greater than the elasticity, fiber damage transpires, permanent damage will occur and structural performance of the corrugated is imminent.

Know your press condition, understand the components in your tooling and please recognize all corrugated is not created equal. One specification does not fit all. If diecutting was meant to be simple, anyone could do it. It’s challenging and rewarding to those who chart their successes and learn from their failures.

The question in this article was answered by TechTeam member Rick Putch of National Steel Rule Co. You may reach Rick at 1-908-862-3366 or by email at r.putch@steelrule.com. For more information on the IADD TechTeam, visit www.askTechTeam.org.

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Corrugated Trends in Online Packaging

The role of packaging for products ordered online is very different to its use in store. Tony Corbin looks at how designers and brands are adapting to the unique demands of that sector.

It has almost become a Christmas tradition for the tabloids to run stories along the lines of a member of the public ordering a teaspoon set online only to have it delivered in several large boxes. Clearly this is not the experience of the majority, which is why it's considered newsworthy. However, excessive packaging is one of the issues being tackled by e-commerce specialists and those stories do at least highlight a sizeable shift towards online shopping that's being reflected by whole departments at major packaging firms being dedicated to this category.

Fulfilment

Supply chain efficiency is absolutely key in this sector and at Packaging Innovations 2017, Amazon discussed its e-commerce fulfilment journey, explaining that products and packs are handled a minimum of 20 times.

Justine Mahler, manager for consumables, softlines and media packaging at Amazon,



Here's a collection of Ideas. Thoughts and Trends on the most important role being played by Corrugated packaging in the field of E-commerce or Online Packaging.

A perspective of possibilities as envisioned by experts analysts, designers and packaging pundits.

Immense opportunities will open up and the field can catalyse for the future growth of the industry. Food for thought and an insight into the road map we need to take.

We need to Imagine... Innovate... Explore... and Transform...

---Editors

spelt out the company's packaging objectives saying: "First and foremost the packaging must protect against damage. We also want to design packs that reduce

waste and thirdly we want to enable kerbside recycling where possible. Lastly we want them to be easy to open. There are many things that brand owners currently do not leverage."



If time saving and space limitations are among those things, Carlton Packaging has developed a solution that addresses both and the Milton Keynes-based firm believes it can truly change the online packing process. Aimed at e-commerce fulfilment operations, Rapisac is a hanging mailing bag system that increases speed due to single handed opening and filling and is immediately accessible without taking up bench/packing space while requiring less physical movement.

Contd. on - 39

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Models :

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- Micro digital • Micro print • Micro PC
- Available in two measuring ranges : 0-5 to 0-75 kg/cm².



GSM (Substance) Tester

Electronic model with 5 sample size measurement



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Compression Strength of a Box, Container, Tube, Drum, Bottle etc., gives a reliable indication of the overall performance of the package - besides indicating its ability to resist external compression loads during transit and storage.

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Tear Tester

Measures the force required to tear multiple sheets of paper



Puncture Resistance Tester

Five different scales to analyze materials of variable thickness.



Cobb Tester

Determining water absorptiveness of papers, boards etc.



Crush Tester

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Suitable to measure : Flat Crush Test (FCT), Ring Crush Test (RCT), Edgewise Crush Test (ECT), Pin Adhesion Test (PAT), Concora Medium Test (CMT) and Corrugating Crush Test (CCT).

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.



Sutherland Ink Rub Tester (Micro Digital)

Sutherland type rub tester for ink rub test is a new type testing machine designed to measure scuffing or rubbing resistance.



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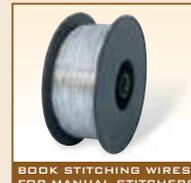
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Alan Magee, client account manager, Carlton Packaging says: “Guided by clients and market conditions, Rapisac was born as a hanging mailing bag system. It hangs from two clips which are pre-formed in the bags. Fill it, tear it off, seal it, job done. It’s so much quicker, tidier and safer than the traditional bulk pack mailing bags. We can increase speed significantly. For example if you save four seconds per bag through using rapisac, that’s over an hour per thousand bags. If you’re using 50,000 bags a day, that’s 50 hours a day.”

Time and space were also considerations for Antalis when devising its storage service. “Accommodating automated systems is sometimes an issue for clients where space is limited,” says the company’s packaging director David Smith. “At Antalis, we offer a ‘Just-in-Time’ storage service where essentially we hold packaging products until the customer needs them, creating further space for both automation machinery and/or product stock.

Efficiency

“While it may seem obvious to simply drive down costs at each stage in a supply chain, the key to optimising efficiency actually lies in the overall process,” adds Smith. “The packaging process itself, as well as logistics and distribution, is as important as the materials and suppliers used. It is one thing to get the cheapest price you can on your materials, but if you’re not using the right packaging products and delivery method for the product you’re selling, you could actually be losing money.”



Clearly much thought is going into e-commerce packaging at the moment and how the sector is rapidly changing from the start of the supply chain to the consumer. Matt Crowson, owner of male grooming e-commerce business The Modern Man, feels consumers now demand high standards from e-retailers. “The standard across the board has dramatically increased, in terms of speedy delivery, secure packaging and customer service,” he says. “This has boosted people’s expectations, so they now expect everyone to be delivering the same level of service that a major e-retailer will, along with the customer service you’d expect from a big high street brand.

“Without that face-to-face interaction that you get in a bricks and mortar store, it can be difficult – how can you tell the difference between a great deal and something that’s too good to be true? It all comes down to building brand awareness, delivering a smooth user experience onsite, and ensuring if a customer does order that they’re thrilled when it arrives.”

Rob Carle, e-commerce specialist at DS Smith – of whom The Modern Man is a client – adds: “It’s true to say that trends we’re seeing in the e-commerce industry is about so much more than changing delivery methods. Consumer demands and expectations have moved on so much that we will probably look back at this period and see it as significant as the emergence of the supermarket. There are, of course, challenges with the rapid evolution of the e-commerce marketplace, but there are also great opportunities for businesses who invest in their supply chain to

bring about efficiencies and develop sustainable packaging solutions that create a real ‘wow’ factor when they open their online purchase.”

Wow factor

That ‘wow’ factor is an increasingly desirable goal for brands and e-commerce pack designers. Celloglas launched the Mirri Wow Pack, providing bespoke luxury e-commerce packaging, after conversations with some of the UK’s leading luxury brands looking to improve their omni-channel retail experience.

“With the luxury e-commerce market predicted to grow to 70bn (£60.7bn) by 2025, it’s long overdue for luxury retailers to ask themselves: why are only 4% of luxury sales e-commerce?,” says Mark Askham, Mirri development manager at Celloglas. “Consumers are expecting more than the standard brown cardboard box from omni-channel retail now – it really is time to up the ante.

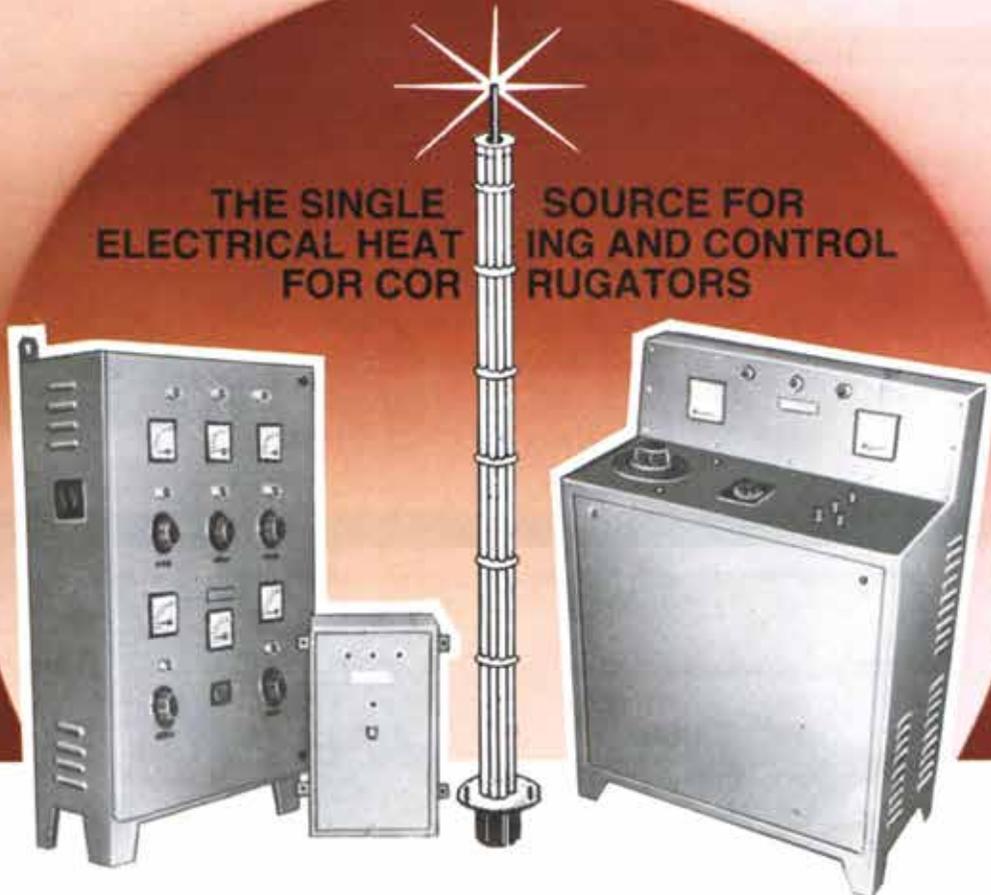


“The Mirri Wow Pack looks like an ordinary brown box from the outside but inside boxes are lined with eye-catching Mirri for a luxurious unboxing experience, which can be created bespoke to the client’s needs. It’s a very flexible offering and clients can then choose any Mirri products to line their box with, from the colourful range of Mirri H to the dazzling Mirri Stardust.”

Rigid Containers believes the growth of the e-commerce sector has huge potential for the corrugated market and an eye catching printed box is now part of increasing brand awareness. Although shopping online cuts out the instore purchasing experience, brands and retailers are using corrugated packaging to

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find new ways to give customers that 'wow' factor.

Also fuelled by the YouTube 'unboxing' phenomenon with images of people unwrapping and opening packages and capturing and uploading the experience on the web, brand owners are becoming increasingly aware of the importance of great e-commerce packaging.

Rigid Containers has launched an inside printed transit packaging concept for increased branding potential. The corrugated cases, which can be printed with brand logos and product information offer the consumer an easy way to access the product while using high quality print inside for visual impact when the box is opened. In addition a plain outer enables the brand owner to visually reduce the temptation of tampering or theft during the logistics chain.

"When a box is printed on the inside it transforms transit corrugated packaging from its image as just a brown box to one that offers luxury and protection," explains Julian Freeman, group sales and marketing director at Rigid Containers. "E-commerce packaging has to be able to interact with the customer at the point of use. If the box is decoratively printed inside it also helps brand owners and e-commerce retailers to visually compensate for any transit damage, soiling or creases that can occur to the outside of the box during the transport process."

Sustainability

Environmental considerations are also pushing the demand for fibre-based e-commerce packaging solutions. Freeman explains: "Inside printing on corrugated also offers brand owners and retailers a sustainable and easily recyclable way to differentiate themselves while acquiring market share."

As in all packaging markets, you'd be hard pushed to find anyone working in this sector who isn't reflecting the public's eagerness to make more environmentally friendly packaging a priority.

"The packaging industry is under constant scrutiny over the environmental impact of materials," says Jason Inwood, managing director at Woodway UK, an independent supplier of packaging materials in the UK.



"As e-commerce and Click and Collect continue to grow, the green credentials of packaging are increasingly important. Recyclability for consumers is high priority. Woodway's packaging survey tool, PackRate, found, in 2016, 72% of consumers thought recyclability was important.

"However, the issue isn't just about whether packaging can be recycled. The quantity of packaging used is also an important consideration. Last year a BBC programme highlighted over-packaging and encouraged people to post photos on social media with #WarOnWaste. The issue facing the industry is finding the balance between too much packaging and too little, which can result in the product being damaged or lost in transit. The negative environmental impact of re-manufacturing a product and resending is considerable.



Environmental improvements also need to be balanced with any cost impact. There are a number of automated systems available that can calculate the correct box size and we are seeing more of our customers adopting these."

Non-conscious priming

In addition to the primary functions of packaging, previously alluded to by Amazon's Mahler, it can play several more roles in e-commerce as Sukky Jassi, head of the Retail Institute points out: "Packaging design has become the single most important marketing task for many consumer products. There is most definitely a need for the development of packaging for e-commerce and for brands to embrace it as a 'sensory signature'.

A consumer's experience of a product typically starts with sight leading to touch and other sensory faculties which are also triggered in response. Packaging is also the digital integrator providing the consumer with the link between the digital and physical experience.

"Often overlooked by brand managers, packaging can play a major role in 'non-conscious priming', the sensory and environmental factors that give consumers emotional cues on the context and premiumness of their experience. The key concepts in the integrated sensory approach of sensory branding, sensory congruence and sensory experience need to be addressed within e-commerce packaging".



Contd. on - 47

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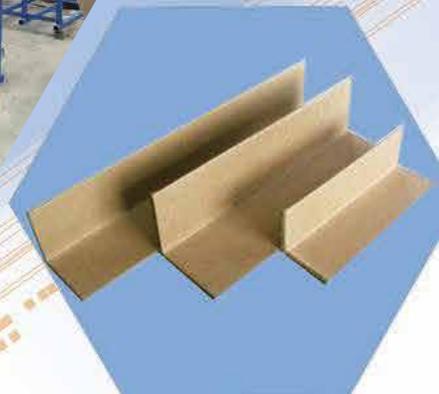
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SYKM-M FLEXO BOX MAKER
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SYKM-L FLEXO BOX MAKER
(STANDARD)

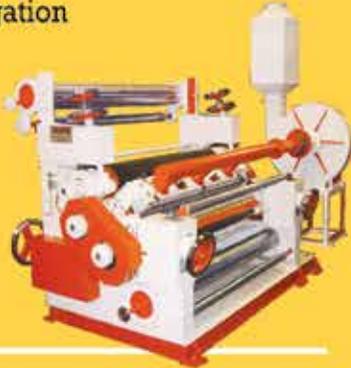


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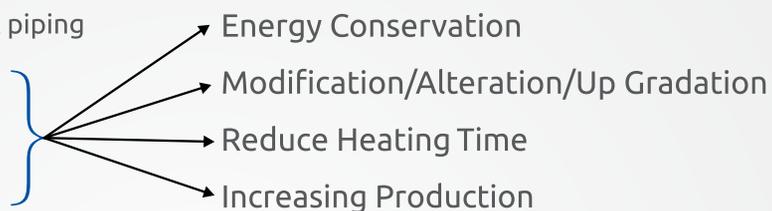
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Woodway's Inwood sees another potentially beneficial opportunity that packaging presents brands in this sector. "Packaging is also being used as advertising space which can be used as a revenue stream to offset other operating costs," he explains. "With an estimated 296 million shoppers using e-commerce in Europe during 2016, spending an average of £1,173 over the year, the possible exposure of marketing messages to consumers is vast."

Dedication

Further evidence of how much attention is being paid to e-commerce packaging is the emergence of special programmes and courses dedicated to this field. Macfarlane Packaging, distributor of protective packaging materials, last year launched the Macfarlane Packaging Innovation Lab, designed to create solutions for even the most demanding packaging challenges.

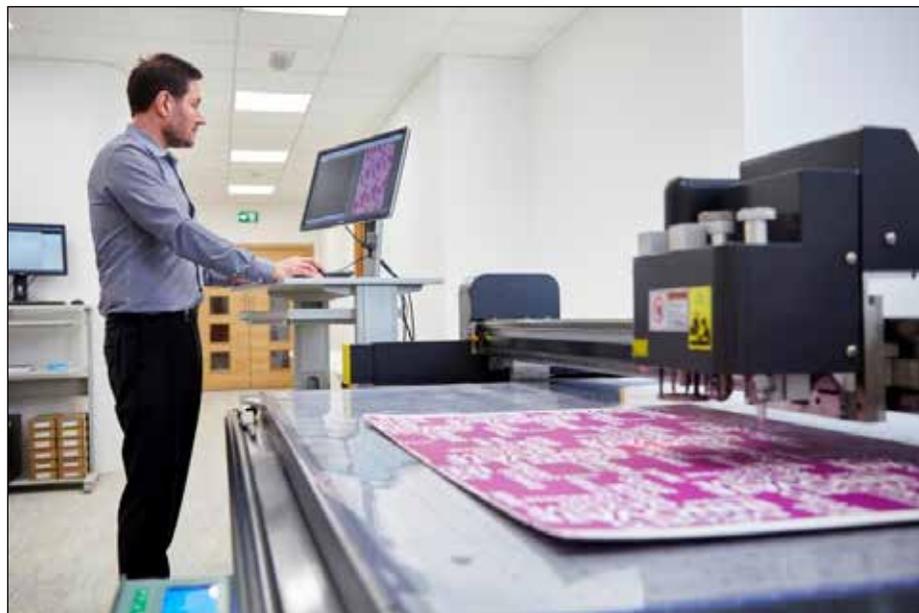
Macfarlane Packaging has invested £300,000 in the Milton Keynes facility which first time brings the latest technology under one roof. Customers visiting the Macfarlane Packaging Innovation Lab work with protective packaging experts from Macfarlane and its partners in a uniquely creative environment.

Speaking about the Innovation Lab, Craig Wheeler, e-commerce/retail operations director of Feel Unique, described

as Europe's largest premium online beauty retailer, says: "The online retail environment moves at a terrific pace, so being able to bring even our most demanding packaging challenges to Macfarlane and work with them in one location with access to the latest packaging technology and materials is a major step forward."

Michelle Street, head of operations and service delivery at The Jewellery Channel, a falling-price auction-style home shopping channel and online retailer specialising in jewellery and gemstones, adds: "The major benefit of the Innovation Lab is that you can visit with all stakeholders and leave with a solution that everyone has had an input in and most importantly, has signed off. This saves weeks of emails and waiting for samples."

Woodway UK, meanwhile, launched its onsite PackAcademy courses two years ago, focusing on efficient packaging. "Manufacturers are under increasing pressure to produce higher quantities often over shorter lead-times," says Inwood. "In addition, peak also brings an uplift in temporary workers in fulfilment who often don't receive sufficient training to pack in the most efficient way. Woodway have been offering onsite PackAcademy training courses to customers for the last two years to help improve this.



It seems like it's all starting to click for e-commerce packaging. Is over-packaging over? Well, you can probably brace yourself for more of those stories come Christmas but, due to the diligent work being carried out behind the scenes, there's no doubt that there will be a significantly larger amount of satisfied, and even wowed, online shoppers.

Key challenges for e-commerce

Consumer perception

"A key challenge is consumer perception and whilst the term 'over-packaged' is frequently used there is a lack of understanding how the carrier network and supply chain works to ensure the product arrives intact. Historically parcel distribution was a B2B operation, and this was reflected in the practices in use at distribution hubs. However, carriers and 3PLs have begun to react to the change of parcel distribution from B2B to a mainly B2C operation. As this change develops, the need for heavy protection of shipped goods should diminish."

Jason Inwood, managing director, Woodway UK

Supply chain complexities

"More and more e-commerce retailers are turning to the packaging industry to help them with the complexities of the e-commerce supply chain. At DS Smith, we have more than 500 designers who work closely with customers to understand each touch point a package goes through, from packing, distribution and the eventual receipt by the shopper. In the e-commerce supply chain, a box could be handled up to 50 times. We're very focused on how to support this constantly developing market but collaboration with our customers, just as we did when working with The Modern Man, is crucial to ensuring that we provide innovative solutions that benefit the whole supply cycle."

Source: <http://www.planetpaper.com>

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4 Trends Causing the Corrugated Box Industry to Grow

Corrugated box styles and design have come a long way since 1856, when the patent was approved for the first known corrugated material, used in England as sweatband lining for men's tall hats.

Since then, corrugated materials have been through a rapid evolution.

In 1871 unlined corrugated was first used to package glass and kerosene lamp chimneys, and the material was first cut and slotted to fold into boxes in 1894.

Manufacturers began using corrugated boxes to ship multitudes of products, and throughout the 20th century, development of rubber printing plates, flexographic printing, flexo folder-glue, preprinted linerboard, anilox technology, and edge crushing brought us to the corrugated boxes we know today. Here are four of the latest trends that continue keeping the corrugated box industry moving forward.

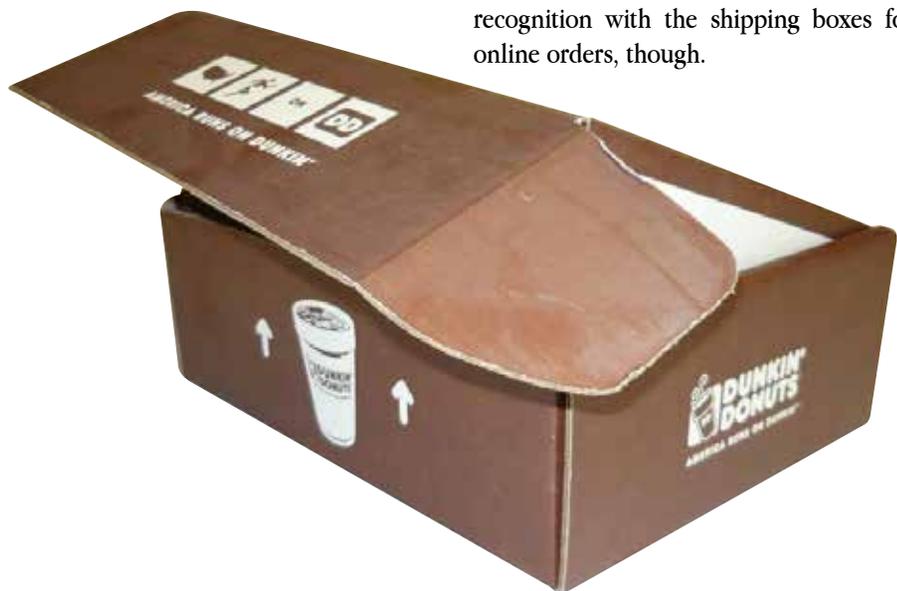
As Lightweight As Possible

Corrugated box producers are constantly striving to reduce the weight of their products, and they continue to achieve great results. Companies that ship their products long distances often need to keep their overall packaging weight to a minimum in a concerted effort to remain within budget of their targeted operational costs. One way to achieve this is by

continually developing more lightweight corrugated boxes. Today's lightweight containerboards can handle surprising capacities and weights. The durability and strength of shipping materials ensures products are packaged and shipped safely, allowing for secure delivery of products that remain in tact throughout the shipping experience.

Boxes for the Online Shopping Craze

There is no end in sight to the popularity of online shopping. It's unbelievably convenient, there is a virtually unlimited selection of products and comparison shopping generally makes it possible for consumers to save big money. Oftentimes, retailers can simplify the box designs for their online sales because the purchase is made long before the consumer sees the box. There is still plenty of room for innovative designs, graphics and brand recognition with the shipping boxes for online orders, though.



Environmentally-Friendly Corrugated Boxes

New developments in technology that reduce the amount of paper used in corrugated box manufacturing, combined with more innovative designs and greater recycling possibilities, have made it possible for the development of much more sustainable and environmentally-friendly corrugated boxes. Not only do "green" consumers enjoy seeing the mark of sustainability; these sustainable practices are also often more efficient and cost-effective for businesses, making it a win on both sides.

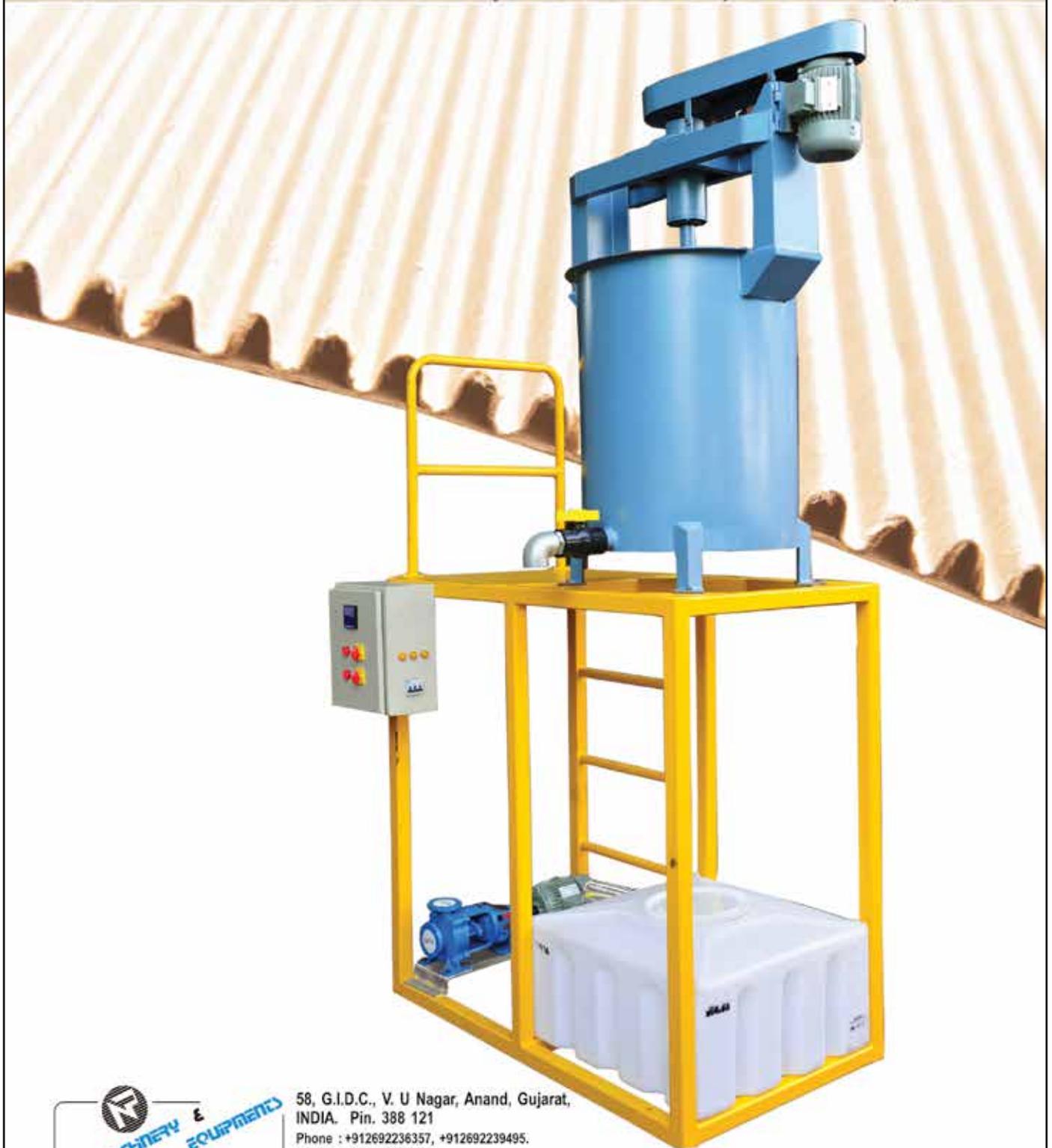
Rapid Advances in Printing

While simple and environmentally-friendly packaging is on the rise, the demand for point-of-sale displays, merchandising units and retail-ready packaging has also increased. This has spurred advances in printing that enable photorealistic images on displays and boxes, with smart marketing to go along with it. A little branding goes a long way in your brand imaging efforts. It's well worth looking into the potential of taking advantage of the new technological capabilities for printing and packaging.

Source: customboxesnow.com

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Second Managing Committee Meeting - New Delhi

The FCBM Managing Committee held its second meeting for the year on 24th March 2018 at Hotel Jaypee Sidhartha, New Delhi. The sub-committee meetings were held on the previous day. The meetings were hosted by NICMA. The committee discussed various matters regarding the corrugated industry.

The Corru-Converter App was launched at the meeting. The app can be used for conversion of units of measurements.

The warm hospitality and arrangements made by hosts NICMA was appreciated by the members in attendance.

A curtain raiser on the forthcoming FCBM Conference 2018 to be hosted by SICBMA was also presented.

SICBMA invited all members to plan to attend the conference and make it a success.



Under the New Membership drive RCBMA released a poster 'Each one Bring One'. and they also organised to present a comprehensive kit to the new members joining their association.





Managing committee member holding the poster 'Each one Bring One' prepared by RCBMA



Unveiling of Member's Kit by RCBMA



Curtain Raiser

DATE

November 30,
December 1, 2

2018




**47th Conference of
Federation of Corrugated Box
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Organizer & Host




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**47th Conference of
Federation of Corrugated Box
Manufacturers of India**





Technical Seminar

One Day Seminar was organized by GCBMA Ahmedabad on Thursday 21st December 2017. at Hotel Planet Land Mark, Ahmedabad.

The Seminar was inaugurated by GCBMA President Mr. Prahaladbhai Patel with Lighting of Lamp & Prayers.

Subjects were:

Inventory Control:
Speaker Shri Amit Jain.

Sustainable Energy - Solar:
Speaker Mr. Ajay Tiwari.

Introduction of Indian Institute of Packaging:
Speaker Mr. Tushar Pandya.

All the Speakers were welcomed by Mr. Prahaladbhai Patel. Mementoes were presented to all the speakers.

The Seminar was appreciated by members.

Almost 95 members took benefit of this seminar.

The Seminar ended with Thanks giving by Mr. Sunil Puraswani, V.P.

Managing Committee Meeting.

After lunch break, GCBMA Managing Committee Meeting was held.

Mr. Prahaladbhai informed the house that GCBMA is going to be the Host for 2022 FCBM Conference in Gujarat.

He also informed the house that GCBMA is Number One Association in FCBM Family because of its largest membership.

Seven more new members were added. The meeting ended with National Anthem.



Managing Committee Meeting



Section of Participants





Full Time Comprehensive Course in Corrugated Packaging

“Anyone who stops learning is old, whether at twenty or eighty.”

— Henry Ford



Encouraged by the initiative of Shri Pradip Bosmaya, President, FCBM, EICMA conducted the Two Day Comprehensive Course in Corrugated Packaging on 27th & 28th February, 2018. Being held in the eastern region for the first time, the course received overwhelming response – 103 enrolments. Supported by FCBM and organised under the aegis of the Seminar & Workshop Sub-committee of FCBM, the Course was held at The LaLiT, Kolkata.

Behind the Scenes:

This was preceded by weeks of detailed planning about the venue, faculty participation, subjects to be included and preparation of study material. The EICMA organizing committee, under the able leadership and guidance of our president Mr. Narendra Kumar Jhunjhunwala, Mr. Hemant Saraogi and yours truly as Program Co-ordinator worked closely with Shri Ramkumar Sunkara and Shri Amit Jain, Chairman and Co-Chairman of

the Seminar & Workshop Sub-committee, respectively, in framing the course material and the schedule of subjects, to perfection.

It was decided that this pathshala would be headed by none other than Mr. Ram Kumar Sunkara – Chairman Seminars and Workshops Committee of FCBM. Mr. Amit Jain, Mr. Bhaskar Reddy and Mr. Sanjay Bothra, in spite of their busy schedules, readily agreed to be a part of the faculty for this event.

As the venue organizing committee zeroed in on The LaLiT Great Eastern Hotel, a colonial era heritage hotel to host this event. Registration forms went out to all EICMA and FCBM members and registrations started coming in. What started as a trickle soon turned into a tsunami as we received more than 100 registrations from all across the country. Apart from registrations from all across West Bengal, we received registrations from Assam, Orissa, Coimbatore and one from across the international border - Bangladesh.

A 300 pages Book was given to each student illustrating all Presentations/Subjects in detail with Notes-writing facilities on the Book itself.

Day 1:

The day started with a welcome address by yours truly followed by greetings from the EICMA president - Mr. Narendra Jhunjhunwala. This was followed by felicitation of Mr. Ram Kumar Sunkara, Mr. Amit Jain, Mr. Bhaskar Reddy and Mr. Sanjay Bothra by current and past EICMA



office bearers - Mr. Hemant Saraogi, Mr. Milan Dey, Mr. Bharat Kedia and Mr. Mohit Agarwal.

Things started on a spiritual note as the faculty members along with past and present EICMA presidents lit the ceremonial lamp, with a rendition of the Saraswati vandana playing in the back ground, to officially commence the proceedings for the day. Then the gathering stood as one for a rendition of our national anthem.

We finally got down to business as Mr. Ram Kumar Sunkara took center stage. The classroom filled with over 100 participants listened with rapt attention as Mr. Sunkara started to speak about latest and upcoming trends in packaging and a host of other topics. The intense technical sessions were interrupted by the odd tea break, and we got an idea of how keen the participants were when the younger faces in the crowd did not leave their seats even for the tea break.



Next, it was the turn of Mr. Bhaskar Reddy to keep the participants 'glued' to their seats as he went on to speak about the various aspects of adhesive making in the industry. Finally, the participants got their much deserved lunch break as they got a taste of a few Bengali delicacies in a lavish lunch spread.



Post lunch sessions by Mr. Sunkara on fluting media and liners finally brought an end to the day's proceedings as participants finally left the venue after a tiring but a very satisfying day.

Day 2:

Day 2 was marked by the gracious presence of Mr. Pradip Bosmaya, President - FCBM, who had flown in all the way from Mumbai just to be with us for the event. His presence added motivation and a spring in the step of every individual present at the venue.

In the morning session, Mr. Sanjay Bothra regaled us all with his in-depth presentation on Printing while Mr. Amit Jain made us all think by presenting hard-hitting facts during his session on Inventory Management. Post lunch, Mr. Sunkara had everyone scurrying for calculators as he



explained the theory and calculations behind the mystery of box compression strength.

Finally it was time for the much-anticipated MCQ test! As question and answer papers were being distributed, the apprehension and eagerness was distinctly visible, especially on the faces of the younger participants. The day ended with a warm speech by Mr. Pradip Bosmaya, following which he handed over participation certificates to candidates who gleefully clicked photos with him and instant prints were handed over to the participants. Mr. Bosmaya also acknowledged the top three scorers in the MCQ test. As the two-day event finally came to an end, the effusive feedback received from the participants, youngsters and veterans included, added to the overall level of satisfaction for the organizers for a job well done.

Few Comments from the Students –

..... Never knew Corrugated Box manufacturing can be so interesting as well as challenging. I always thought it is a simple process..... BBA, final year student and prospective entrepreneur

..... Ohh marathon sessions, very interesting though many of the subjects went over my head. Still looking forward to attending such courses in future..... Graduate girl assisting her father in the factory

..... Daaron (too good in Bengali), learned lot of new aspects of paper & box manufacturing. If it would have been in local language perhaps we could have related things better with our existing



operations..... Floor Supervisor from Corrugated Box manufacturing unit

..... I am in this trade for last 30 years , many subjects were eye openers , very well designed & conducted course , hope Federation & EICMA will continue this tradition and come up with new courses in times to come A veteran from Corrugation Industry

..... Inventory Class was awesome, having the report on specific Reels for particular SKUs was simply fascinating, I would like to adopt the same in my paper mill where we always have dead inventory due to Deckle matching, if I can get a historical data of buyer of such reels, I can approach focused Corrugators to get rid of my dead inventory instead of selling at huge discounts Young paper mill owner & new entrant

..... Two lunches, Four Tea/Coffee sessions, book, ambience with such learned faculties from all over India is complete value for money..... Cost conscious Corrugated Box Manufacturer

Many more encouraging comments have come, we could list a few. The whole team was overwhelmed with the response and enjoyed the immense eternal satisfaction of this endeavour towards education and learning.

EICMA is immensely grateful to Shri Pradip Bosmaya, Shri Ramkumar Sunkara and Shri Amit Jain, for showing us the way and we plan to organise such courses periodically in the region

As Reported by - Rajarshree Datta

EICMA @ IIP Conference

Indian Institute of Packaging, Kolkata organised a National Conference on “Emerging Packaging Technology – Optimizing Performance & Cost” on 14th and 15th March, 2018 at Hotel ITC Sonar, Kolkata. The conference was attended by over 300 participants, including 10 members from EICMA. Presentations were made by professionals and industry leaders on all forms of packaging over two days. On the second day, Mr. Manish Patel, Chairman & Managing Director of South India Paper Mills Limited made a presentation on “How to Increase Performance of Corrugated Fibre Board Box at Optimum Cost”. This was followed by a Panel Discussion on Corrugated Box Performance – Techniques & Technology. The panelists for the discussion were Mr. Hirak Sen, President – Krishna Tissues Pvt Limited, Mr. Ramaiah Muthusubramanian,



Global Programme Director, Hindustan Unilever Limited, Mr. Manish Patel, SIPL, Mr. Ramkumar Sunkara, Mr. Hemant Saraogi and Mr. Milan Dey. The Moderator for the Panel Discussion was Prof (Dr.) N. C. Saha, Director, Indian Institute

of Packaging. It was an engrossing and interactive session and several practical issues related to kraft paper and board quality were discussed. The sessions were quite interesting and beneficial to the members who attended the conference.



Awareness Programme

APCMA organised an awareness programme on MSME's Design Clinic Scheme at The Plaza, Begumpet, Hyderabad on 27.2.2018 in association with the MSME Development Institute, Hyderabad.





MPCBMA had hosted 2 days Full Time Comprehensive Course in Corrugated Packaging at Hotel Country Inn, Indore on 20th-21st Jan., 2018, which was organised by Workshop & Seminar Sub Committee with the support of FCBM.

The workshop was well attended by 50 students who represented 40 member units.

Faculty Members:

Shri Hemant Saraogi (EICMA),

Shri Bhaskar Reddy (Amylodex, Hyderabad)

Shri Ram Kumar Sunkara (Chairman, Workshop & Seminar Sub Committee) &

Shri Amit Jain (Co-chairman, Workshop & Seminar Sub Committee)

Different subjects like Types of Paper, Properties of Liner, Medium, Factors affecting CS of Box, Fundamentals of Adhesives, Costing, How to increase profits in the corrugated industry etc were covered.

Shri Pradip Bosmaya, President, FCBM was present at the Valedictory Function on 21st Jan, 2018 and presented **Certificate of Participation** to all the participants.

Shri S.J. Ajmera (Past President, FCBM) & Shri Ajit Mansharamani (Past President, MPCBMA) also graced the occasion.



A test was conducted on last day in which 3 students scored 17 marks, 4 students scored 16 and 3 students scored 15 marks out of 20 marks.

The students were asked to give their feedback about this workshop.

The students requested the association to organise these type of workshops frequently.

It was planned that a live demo of testing procedure, Visit to Paper Mill & Box Factory, Videos of machines in running condition, Machine maintenance etc to be covered in next workshop to be held in MPCBMA.

MPCBMA has got 5 new lifetime members during this workshop and the Association is looking forward to get 25 new members in next 2-3 months.



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National Packaging Conference

Organised by Confederation of Indian Industry (CII) Chennai

9-10 February 2018

SICBMA organised a FCBM delegation to participate in this Conference.

Firstly views expressed on the forum on different aspects of packaging with current scenario attains utmost importance as it was expressed by leading strategic decision makers, reputed consultants and leading packaging suppliers and by the end user of the industry.

Growing awareness of sustainability among consumers, cost pressures and TCP concept are the key parameters driving the packaging industry among the strategic decision makers.

TCP concept among end users predominantly recognises the importance of secondary packaging which comprises

and relates largely to the industry as success of primary packaging are interrelated.

In Corrugated Industry RSC is considered to be the most economical design, the end industry is further considering the Wrap concept (as wrap design reduces corrugated board consumption) area wise and they are also expected to seek solution from us.

This clearly indicates that the corrugated box manufacturers should view and market their product as a solution provider which shall facilitate better costing & pricing policies.

In lieu of above price wars to be substituted by Innovative wars.

Two major advantages:

Paper and Board packaging stands ahead on sustainability in comparison to other forms of packaging and in packed food process industry micro biological properties are well preserved for longer duration than other forms.

This is primarily evident from the facts in developed economies paper and board consumption is the highest and where as in our economy use of rigid plastics and flexible packaging is highest and growing rapidly. Mainly on account of cost factors.

A niche market for affordable consumers can be created by promoting the advantages of our product.

Advancement in Block chain concept in supply chain logistic seems to be realistic in near future and shall drastically change the end users packaging expectation.

The above concept is complimented by current successful implementation of cold chain logistics in vaccines by Pfizer ..

Above all information is gathered and interpreted from various presentations of the Conference.

It was very pleasing and encouraging to see a packaging company namely manjushree technopack ltd achieving a turnover of 900crores and few others more than 100crores which connotes the scope of packaging.

Moreover importance of the corrugated industry can also be viewed from the fact that CII has put FCBM and SICBMA logos on their banners and even went further to grant almost 50% concession in registration fees to encourage participation.

FCBM has taken initiative to support and participate in such conferences and also encouraging regional association SICBMA to do so and take active part..

Technical Workshop on Testing

2 day Technical Workshop on Testing was inaugurated by Jt. Director of IIP Chennai, Mr. Venkataraman who was also the Event Coordinator.



Members of FCBM Delegation who had participated in CIIA National Packaging Conference



GUM POWDER PLANT FOR PASTING & DEXTRINE

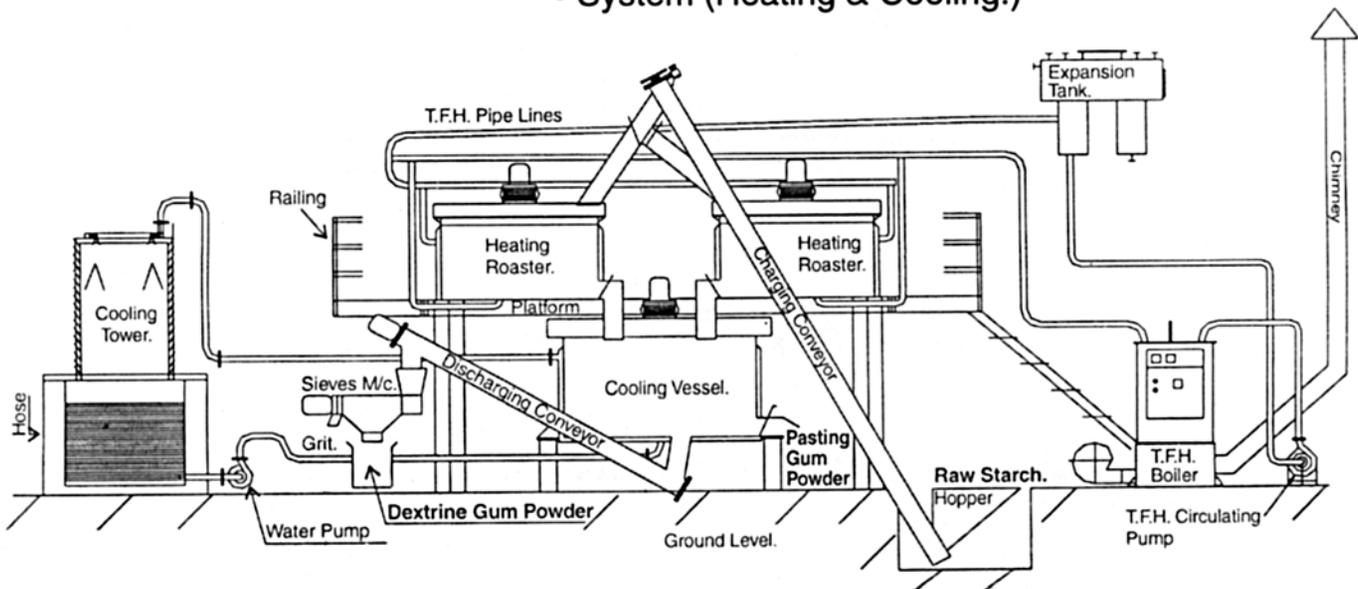
PLANT CAPACITY : 2 Tones / 4 Tones Per Shift

Feature:

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- Decreases Fuel Consumption.
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- No Explosion Hazards.
- Controls Dusting Of Powder
- low labour Cost.
- Fast & Easy
- Charging & Bag
- Filling System
- Immediate Transferring
- System (Heating & Cooling.)

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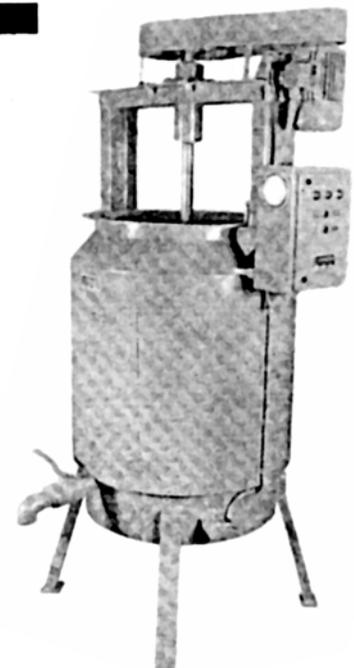
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- Gum Cooking Vessel.
- Synthetic Resin Plants.
- Fast Cooling System.



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 - No pollution.
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 - Reduces cost of Inventories.
 - Minimize the cost of production.
- FEATURES :**
- Compact Unit.
 - Long Life
 - Lowest Maintenance.
 - No consumption of heating oil.
 - No electrical Hazards.
 - Highly Homogeneous Mixing Efficiency.



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BBN Cricket League

Season-2 of BBN Cricket League was unveiled at a function held on 3&4 March, 2018 at Nimantran Resorts, Baddi.

Earlier the Launch Ceremony of BBNCL Uniforms & Trophies was held at Benia, Baddi.

Both functions were well attended by BBN members including HPCBMA who took active part in the functions.



Practical Course in Testing

Practical Course in Testing was held on 5th to 7th February, 2018 at WICMA R&D Centre

9 students attended the course out of which 4 were members and 5 non members.

Students from Rajasthan, Vapi, Nasik etc attended the course.





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Website: www.srws.com.cn



Kanpur Chapter

On 10th March CBMA-Kanpur conducted Holi Milan Samaroh and Installation ceremony of the newly elected team for the Year 2017 - 2018 at Hotel Best Western, Kanpur.

Around 65 members from Kanpur and Lucknow attended the Program & exchanged Holi Wishes to each other.

Installation Ceremony was conducted by Mr. Naveen Jain and Mr. S. K. Singh. Every one gave their best wishes to the newly elected team headed by Mr. Sandeep Arora as President, Mr. Anand Bhatia as Secretary and Mr. A. S. Dhawan as Treasurer.

In the Presidential speech Mr. Sandeep Arora expressed his views for the development of Testing Laboratory and New Membership Drive.

The arrangements made by the organizing team were appreciated by one and all



APPRECIATION BY FCBM

FCBM has sent a letter of appreciation to Krishna Tissues, Kolkata – acknowledging the fact of their mentioning Linear Meterage on every reel.

This has fulfilled the long standing request of member corrugators and help them in quality control and delivery of boxes as per customers' expectations.





CFM has devoted itself to corrugating roll coating techniques since founded. The comprehensive knowledge of CFM in flute profiles and HVOF spray systems enables extreme hardness and perfect coating. With the guarantee of high abrasion and corrosion resistance and impeccable precision, CFM has emerged as the leading corrugating roll manufacturer.

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M. K. RAMASAMI @ 99



M. K. RAMASAMI
1919 - 2018

M. K. Ramasami - the 'Grandfather' of the corrugated packaging industry, who pioneered the formation of SICBMA and was instrumental in the founding of FCBM, left for his heavenly abode on 26th January 2018.

Mr. Ramasami belonged to the First generation of corrugated box manufacturers.

Mr. Ramasami had started **Jayant Packaging Industries (P) Ltd.**
- the First Corrugating unit in Madras way back in 1967.

His son Mr. R. Muthaiyah – the veteran of our industry along with his wife Smt. Seetha, and grandson Mr. Alagapan continue to lead the 2nd and 3rd generations of corrugators at the Jayant Packaging.

He along with the other members formed
The South India Corrugated Box Manufacturers' Association. (SICBMA).

Mr. M. K. Ramasami was the founder President of SICBMA.

He became the FCBM President during the year 1978-79.

It was during his tenure that box-makers were freed from excise grips.

SICBMA stood on a strong base and within a short period,
SICBMA began hosting the annual conferences for its apex body, FCBM.

Mr. Ramasami was the Chairman of the 30th FCBM Conference during December 2001.

He has left a big vacuum in the industry and SICBMA.

May his soul rest in peace.

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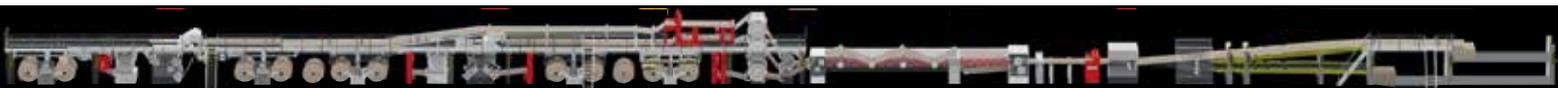


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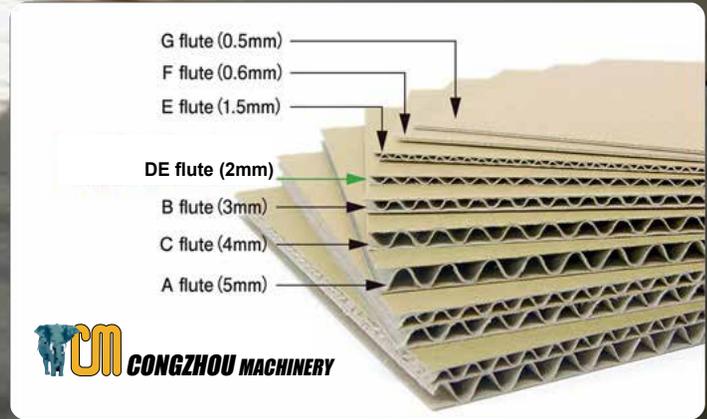
FLUTE CHART

FLUTE PROFILE	A	C	BC	BC2	B	D	DE	E	F
FLUTE SHAPE	UV								
NO OF FLUTE IN 300 MM	34 \pm 2	38 \pm 2	44 \pm 2	48 \pm 2	50 \pm 2	66 \pm 3	75 \pm 3	96 \pm 3	124 \pm 3
HEIGHT OF FLUTE	4.6-4.9	3.6-3.9	3.0-3.4	2.8-3.2	2.6-2.9	1.9-2.1	1.5-1.9	1.1-1.8	0.7-0.8
TAKE UP RATIO (T.U.R)	1.51-1.59	1.44-1.51	1.42-1.49	1.40-1.45	1.36-1.42	1.40-1.41	1.35-1.40	1.29-1.39	1.22-1.26

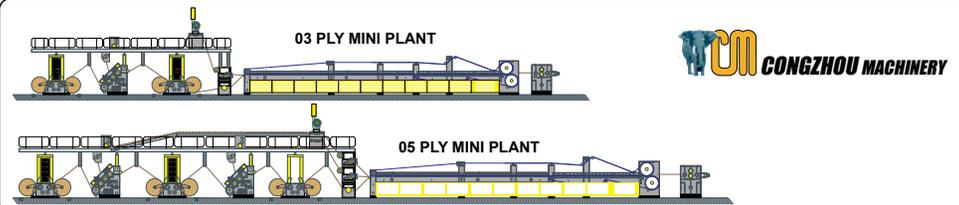




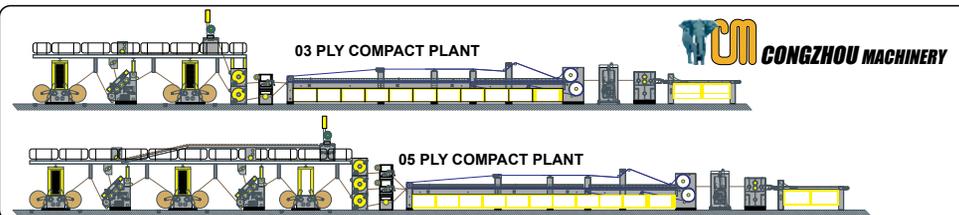
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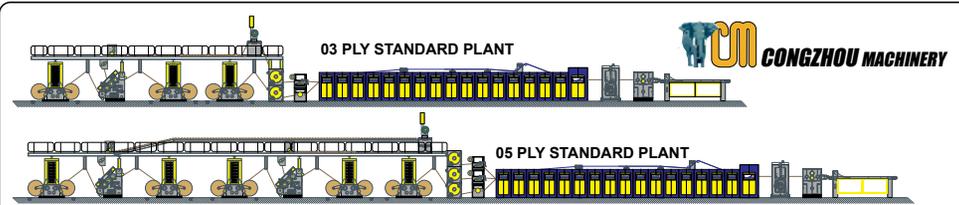
AUTOMATIC PLANT MODELS



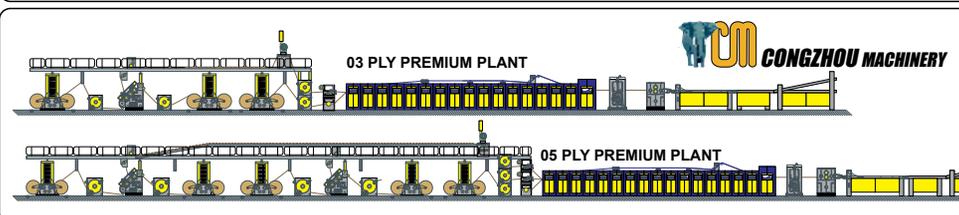
MINI PLANT		
DETAILS	03 PLY	05 PLY
CAPACITY	500 TPM	750 TPM
MAN POWER	4-6	6-8
PRICE	70 Lac	100 Lac



COMPACT PLANT		
DETAILS	03 PLY	05 PLY
CAPACITY	750 TPM	900 TPM
MAN POWER	4-6	6-8
PRICE	90 Lac	120 Lac

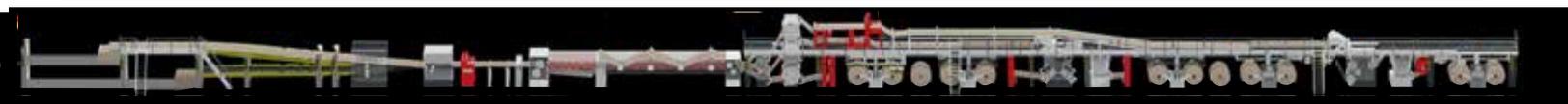


STANDARD PLANT		
DETAILS	03 PLY	05 PLY
CAPACITY	1000 TPM	1200 TPM
MAN POWER	6-8	6-8
PRICE	120 Lac	150 Lac



PREMIUM PLANT		
DETAILS	03 PLY	05 PLY
CAPACITY	1500 TPM	2000 TPM
MAN POWER	8-10	8-10
PRICE	180 Lac	240 Lac

Capacity calculated in per shift of 12 hrs.



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China's Containerboard Modernization and Potential for New Ventures

Over the past two to three years, China has announced tens of million tons of new containerboard capacity which makes people wonder: as a regional containerboard producer, can China really consume all this new capacity? Is this a signal of overcapacity? How will the future containerboard price behave?



By Neo Wu

Senior Consultant, Fisher International, Asia

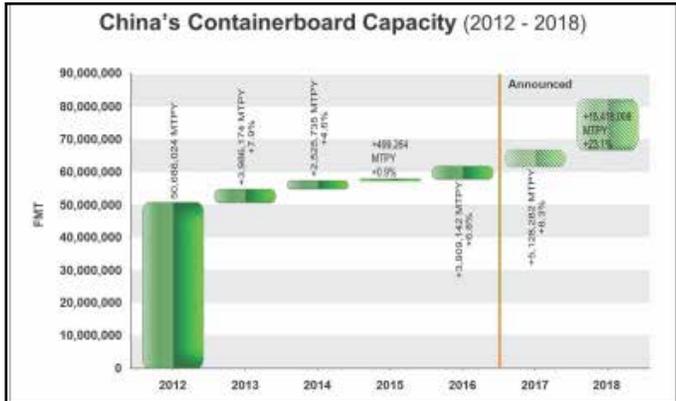
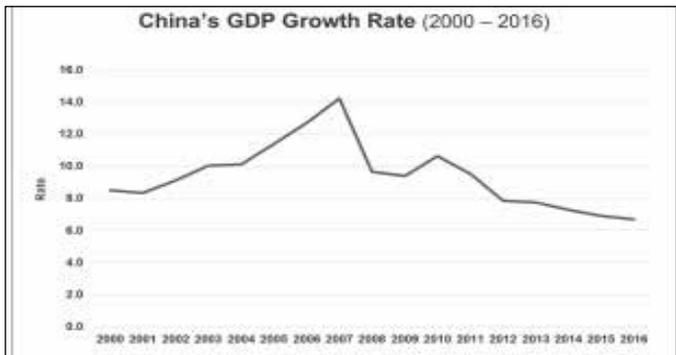


Figure 1 shows historic and announced new containerboard capacity in China from 2012 to 2018, indicating that China will experience nearly 20 million tons of new containerboard capacity in just the next two years if all the new capacity is installed.



The percent growth that represents is very significant, especially considering that GDP growth in China has fallen to less than 6.5% (Figure 2).

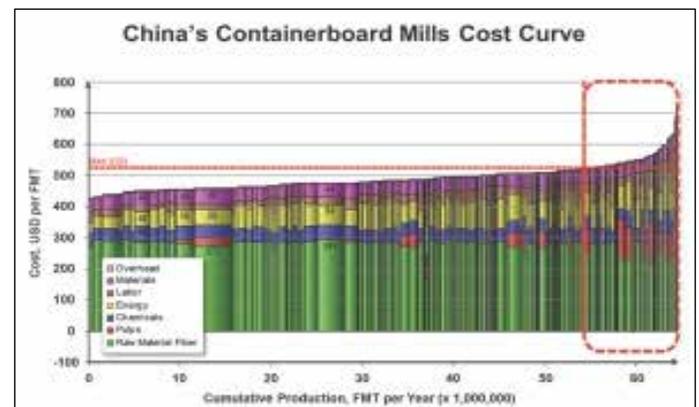
If we accept that 6.5% is a reasonable GDP growth rate for China for the next few years, we would expect about 65 million tons of operating containerboard capacity by 2018 to meet the market demand, which may result in more than 10 million tons of excess capacity in the market.

Since late 2016, paper prices in China have experienced significant growth, making most paper producers, especially containerboard

producers, extremely profitable. Prices grew because of the confluence of three factors: inventories had trended down, investment in new capacity had been low (see the year 2015 in Figure 1), and demand grew. These made the supply-demand balance tight. We see the result in the spate of new capacity announced for 2018.

A secondary effect of the large amount of new containerboard capacity to be pumped into China will be some consolidation of the market. The new capacity will be low cost and, together with government pressure, will eventually force marginal producers to close, leaving larger producers with a greater share of market. We expect over 10 million tons of containerboard capacity to be retired in China over the next three years.

There will be another follow-on effect of new capacity and consolidation: a change in the long-term price of containerboard. Figure 3 shows the cost curve of all containerboard mills in China. Once the market retires the highest-cost 10 million tons of capacity, those in the red boxed area at the right of the cost curve will mostly be eliminated.



Contd. on - 79

Shear LINE



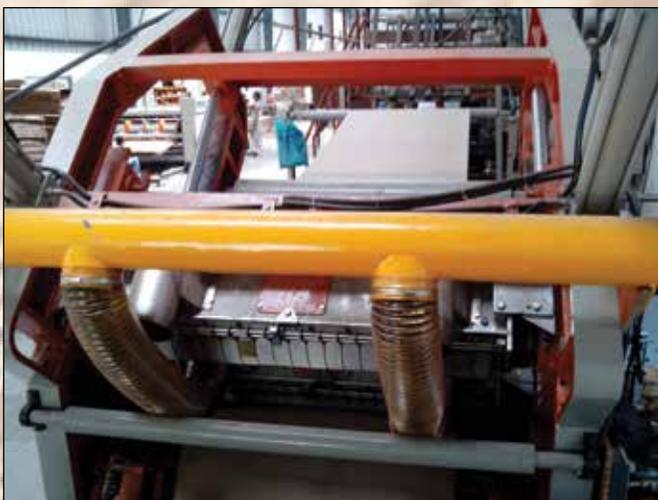
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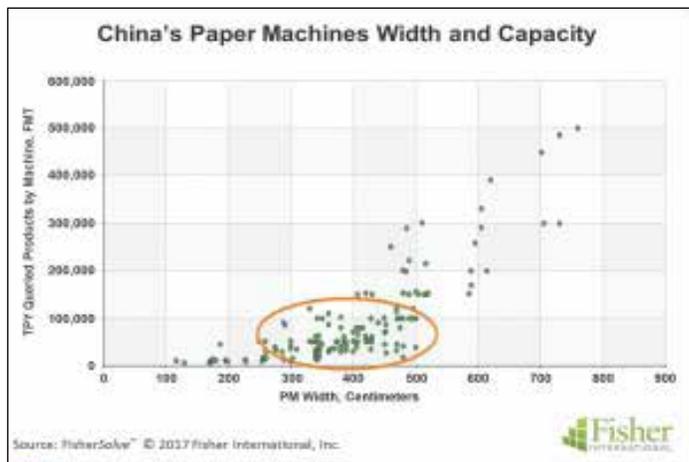


Figure 4

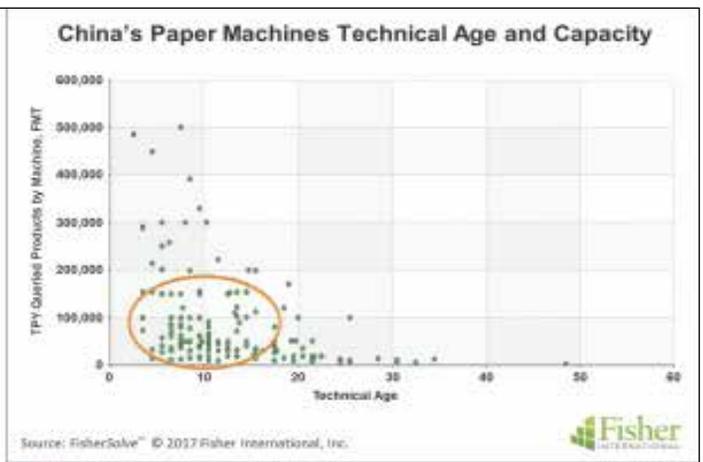
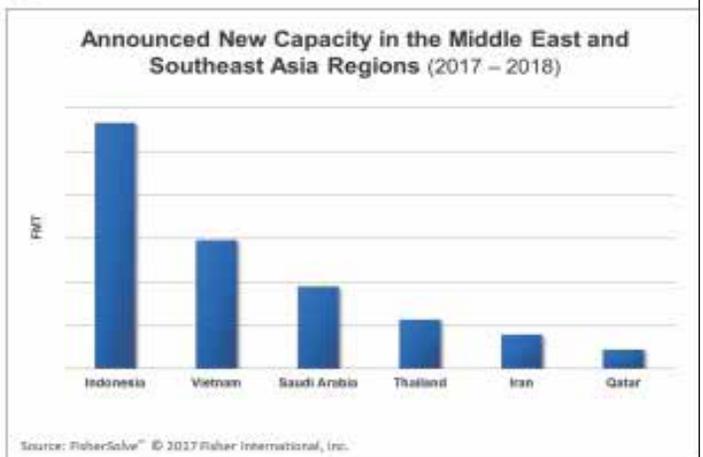
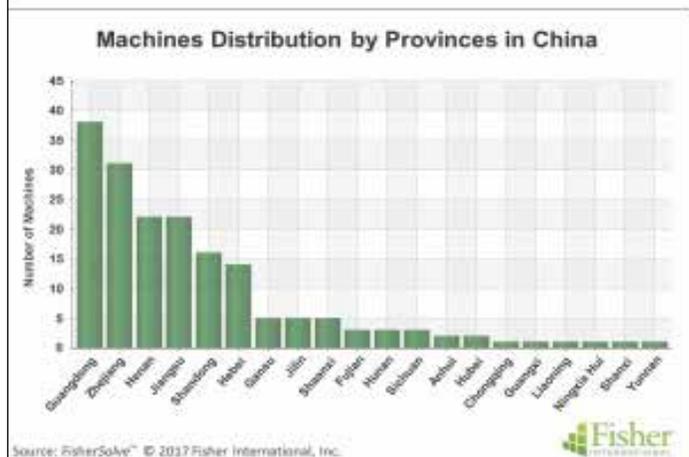


Figure 5



The marginal producers' costs, therefore, will be those that are now in the third quartile which is already in the flat part of the cost curve. Once the cost curve gets that flat, whenever the market price falls to the floor, no producer will make much profit. Conditions like that typically stimulate M&A activity which would further consolidate the market. We can look forward to a changing containerboard market structure in China.

Figures 4 and 5 reveal that a majority of the paper machines in those riskier mills average 100,000 MT per year of capacity, run at speeds of around 400 MPM, and have a technical age below 20 years - fairly young.

Figure 6 reveals the location of these machines, indicating that Guangdong and Zhejiang provinces hold most of them. Will these machines be sold elsewhere second hand (whether in their entirety or as key components) to other developing countries?

Figure 7 shows the announced capacity addition in Southeast Asia and the Middle East regions which total over 2.5 million tons.

Through the Chinese government's "one belt one road initiative", there is a golden opportunity for equipment suppliers, trading partners, as well as financial institutions to work together and create this new business model.

Information for this article came from FisherSolve™, a database maintained by Fisher International, Inc. We hope you'll use FisherSolve to explore further some of the issues addressed by the article and answer any questions it may have raised in your mind. Please feel free to contact us to discuss these or other pulp and paper industry issues.

Neo Wu is a paper industry professional with over 10 years of experience in R&D, market research, and consulting in business development and strategic planning. At Fisher, Mr. Wu is instrumental in helping pulp/paper producers and industry suppliers emerge from the frenetic growth phase that characterized China's paper industry over the past decade to bring about market stability and growth through data-driven management.

Prior to joining Fisher International, he worked in various consulting positions as market analyst and focused on the cost benchmarking of Asian and European pulp and paper mills.

Mr. Wu holds a Bachelor of Science Degree in Chemical Engineering from Nanjing Forestry University, China and a Master's Degree in Pulp and Paper Technology and International Business from the Helsinki University of Technology, Finland.

Neo Wu can be reached at zwu@fisheri.com.

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Printing on Corrugated Board

In simplest terms, corrugated board is the stiff, fluted paper

The first is flexography

f which cartons are made. Unfortunately, in addition to being light and durable, corrugated board is also easily crushed. That is, when you print on corrugated board, you are basically printing on a spongy material, not a rigid one. So how do you do it?

Actually you have four options, some pricier than others.

Flexography is relief printing (raised images and letters) done with rubber plates on a press (not an offset press, but more like a letterpress). It provides adequate but not superior quality. Sometimes registration is off a bit. And sometimes on corrugated board, you can see the patterning of the fluted cardboard reflected in the uneven ink lay-down. But it's economical for both small and large press runs, and for simple graphics and



pleasing color (one-, four-, or even six-color work), it's often just what you need. (Keep in mind that you can minimize registration problems and the visible patterning of the fluting by choosing a higher grade of corrugated paper stock with finer, rather than coarser fluting.) Once the board has been printed, it can be die-cut and converted into a box.

Screen printing is a second option

This is basically a process by which ink is forced through a screen mesh (made of polyester or other material) by using a squeegee (this is actually done not by hand but on a special press). A stencil or mask allows ink to pass through image areas while blocking out non-image areas. You can lay down a large quantity of ink (i.e., providing more saturated colors) on practically any substrate. The overall quality is much higher than that of flexographic printing, but it's more expensive than flexography. It's also more appropriate for shorter to mid-range press runs.



A third option is called "litho lamination"

Basically, you offset print your design on a coated press sheet that you then laminate to the corrugated board prior to die-cutting the board and processing it into a box. (This is in contrast to flexographic printing, in which you print directly on the corrugated board prior to its being converted into a box.) Litho lamination offers the high quality of offset printing. That is, you get much tighter registration and better quality than flexography, and much finer screens and halftones—i.e., more intricate detail—than silkscreen. This option is appropriate for medium-sized production runs, but you should expect a higher set-up cost than required for the other methods.

The fourth way to print on corrugated board is to print on the paper stock

From which the corrugated board is made (prior to its being made). That is, after the print provider prints on the top sheet of the soon-to-be corrugated board, the converter then laminates this sheet to the fluting and the bottom sheet (like a paper sandwich with the fluting in the middle) and then die-cuts and processes the newly corrugated board into a box. This option is called "preprint." Set-up costs are very high; therefore, preprinting is only appropriate for very large production runs (think hundreds of thousands of copies rather than a few thousand copies).

When approaching these four options, consider the quality you need first and then the set-up costs and unit costs. Set-up costs (the cost to prepare for the print run) are mitigated by lower unit costs, which decline as the press run is lengthened. Of course such concepts as "long runs" vs. "short runs" are relative, and without specific job specifications, there's no immediate answer regarding which technology would be the most economical for your job. Therefore, start by determining your press run and quality needs, then contact an offset print provider you trust. Together you can determine whether your job lends itself to flexography, screen printing, litho lamination, or preprint. Then ask your offset print provider to suggest vendors well versed in these processes. (In short, draw upon your printer's knowledge of these options and his relationships with other vendors.)

[Steven Waxman is a printing consultant. He teaches corporations how to save money buying printing, brokers printing services, and teaches prepress techniques. Steven has been in the printing industry for thirty-three years working as a writer, editor, print buyer, photographer, graphic designer, art director, and production manager.]

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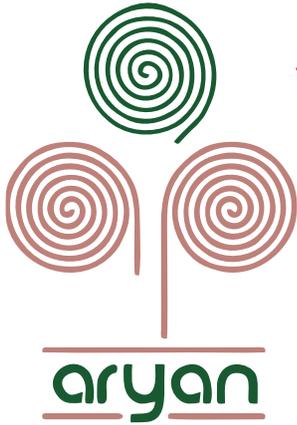
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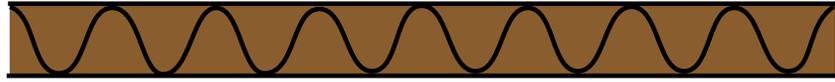
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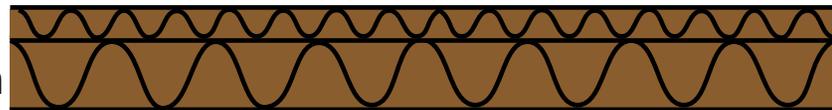


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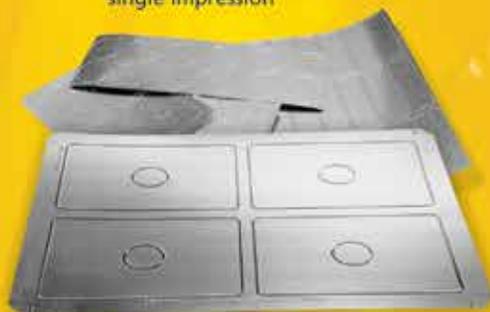
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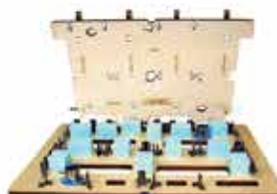
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To find out more about EcoShield® Barrier Coating for Paper and Corrugated, please visit: <https://www.cortecvci.com>



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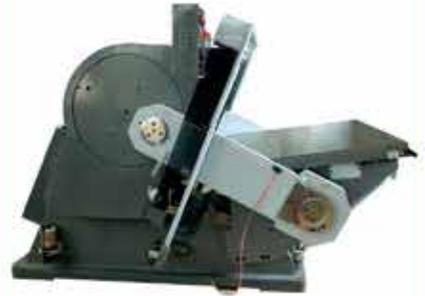
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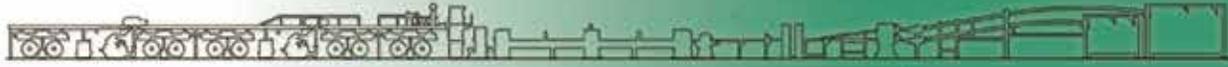
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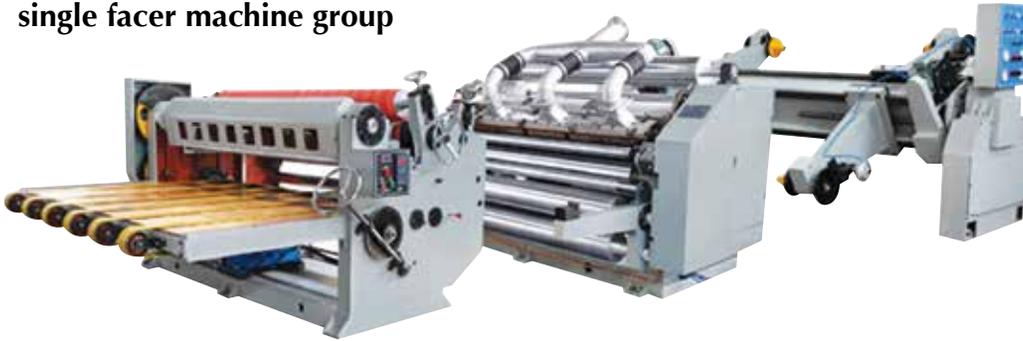
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		10	15	20	30
B/F	14.9	16.5	17.6	18.2	19.47
Cobb value	35.0	19.0	15.5	8.5	2.5
Gloss	18.36	18.26	18.17	18.2	18.28
GSM	147.5	148.5	149.0	149.5	149.5

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
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Industry News

Bobst, BHS India hosts open house at MNM

The Bobst 8.20 Discovery two-colour flexo folder-gluer, an inline converting machine along with BHS Steady line took centre stage at the open house co-hosted by Bobst India and BHS India at MNM Triplewall Containers' plant in Tamil Nadu.

The event was held on 15 December 2017 with close to 30 corrugation box manufacturers from across the country in attendance.

The Bobst 8.20 Discovery can manufacture RSC box, while the fully automatic BHS Steady line allows corrugators to produce a single as well as double wall boards. The two machines were installed in February 2017.

MNM operated from two plants, with the new one in Shoolagiri, Krishnagiri district in Tamilnadu, having a capacity of 5,000 tonnes per month, with the capability of expanding it to 6,000 tonnes per month. The older plant in Bengaluru has a capacity of 1,800 tonnes per month.

During the open house, Bobst presented three jobs of single-colour. "The three

jobs were performed at the top speed of the 18,000 boxes per hour. The best part of the show was the quick job changeover from one job to other in just 5 minutes," said Bhavesh Pingle, business manager for the corrugated board at Bobst.

Some of the key highlights of FFG 8.20 Discovery presented were the capability of the machine to deliver accurate feeding through the no crush feeder, the new generation slotter with four pair of shafts with dual scoring profile, automatic glue lap cutting with independent drive which is Bobst patent,



can be connected remotely and provide real-time production data along with the machine stoppage time and reasons for stop-pages," said Pingle.

Since its launch in 2014, Bobst has installed 90 FFG 8.20 lines globally, 10 of which are currently running in India with four more expected to be installed in the coming months.

According to Amit Agarwal, one of the seven directors at MNM Triplewall, his

company specialises in industry segments like e-commerce, food and oil, among others, with e-commerce being significant, and the investment in the Bobst and BHS machines were necessary. "With this, we have revamped the infrastructure, which puts us on a higher pedestal when catering to industry segments we specialise in."

Source: www.printweek.in

'Digiflute' Specifically For Digital Print On Corrugated Board

Smurfit Kappa Introduces 'Digiflute' After Partnering With Hp To Revolutionise Digital Print Technology.

folder gluer with vacuum transfer, multi T-belt folding with motorised calliper rollers to ensure perfect folded boxes with excellent control on the fishtailing or gap. "This folding quality parameters have become major requirements in the automatic case erecting lines at the brand owners," said Pingle

Bobst also present the new unique patented MPC4, the man-machine interface. "The skill level of the operator is minimal since he does not set the machine any-more, he just sets the Box dimensions and parameters on the MPC screen and the machine sets automatically. MPC4



Contd. on - 99

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Heating mode : LPG



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Make : China



Sheeter * Min 30", max 115"

Make: China



Sheet Pasting Machine

Size : 115 inch

Make: Local



Gum Stirrer -Square

Cap: 400 Ltrs

Make: Local



Semi-Electric Stacker

Cap : 1.5 T

Make : Local



Hydraulic Reel Beam Trolley

Cap : 1.5 T

Make : Local

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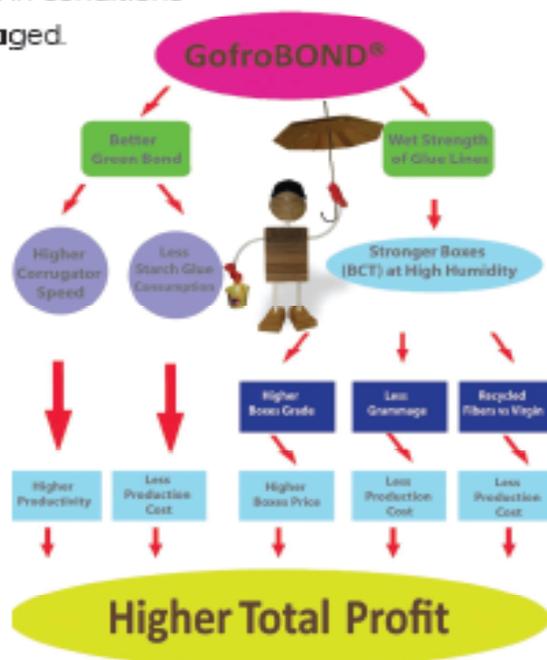
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DUAL HEAD

BURSTING STRENGTH TESTER (MICROPROCESSOR BASED)



DIGITAL

MICROPROCESSOR BURSTING STRENGTH TESTER

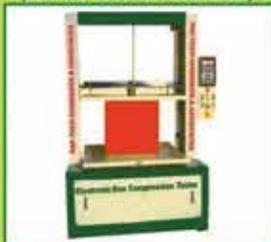


DUAL CLAMPING BURSTING MACHINE (MICROPROCESSOR BASED)



MANUAL

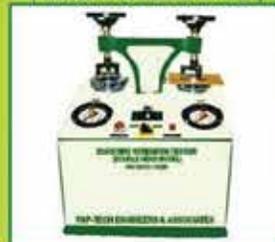
BURSTING STRENGTH TESTER (DOUBLE PRESSURE GAUGES)



BOX COMPRESSION TESTER (MICROPROCESSOR BASED)



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BURSTING STRENGTH TESTER (DOUBLE HEAD & DUAL GAUGE)



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PUNCTURE RESISTANCE TESTER



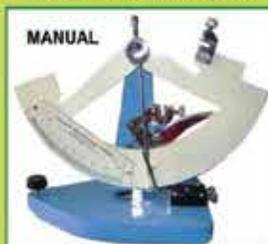
VIBRATION TESTER



QUADRANT SCALE



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Significant technological advancements happening every year mean that Smurfit Kappa can continue to push the boundaries of what can be achieved through print by working with other market leaders and utilising industry expertise to develop new solutions. Digital print technology has now evolved to a level where converters are taking the view that the time is right to invest in such machinery.

In order to produce the best print results, there needs to be a balance within the following areas;

- **Correct board choice** – lightweight coating, inner liner surface smoothness, flat board;
- **Correct ink** – paper/board formulated, not generic, machine manufacturer recommended;
- **Correct conditions** – machine environment and storage conditions of board;
- **Repro** – origination suited to digital.

As corrugated manufacturers, there have been considerable challenges in providing a substrate that is able to accommodate the narrow tolerances permitted by the digital printing process. Smurfit Kappa's approach to the solution was to form a team comprising of their own experts, machinery suppliers, paper manufacturers and of course, customers. The objective was to develop the substrate of choice for its customers that would not only solve current issues, but would enable future machinery advancements.

Vital to success of the project, was having a close collaboration with HP. After

numerous trials on presses alongside research and testing programmes, the result was the creation of Smurfit Kappa Digiflute.



L to R: Richard Revell- Technical Improvement Manager, Kevin Symon – Plant Manager, Mike Fadden – Regional Director, Andrew Connolly – Sales Director and Suzanne Armit – Business Development Manager.

Being 100% recyclable, Digiflute is available in the usual standard POS and display flutes and in both coated and uncoated options that permit matt, satin or gloss finish. The substrate is suitable for both generic and specialist inks and meets the requirements of all generations of presses, in particular new print technologies such as water based inks.

Existing issues experienced on digital printers, such as mottling and burnishing (particularly prevalent in designs showing high levels of cyan) are now alleviated with Digiflute. This has been achieved due to the print surface options which are optimised in a clay coating to enable quicker drying time and increased press productivity.

“The digital print process is extremely sensitive to the shape of the corrugated substrate,” says Andrew Connolly, Sales Director at Smurfit Kappa Sheeting. “The construction of Digiflute not only facilitates the initial print process, but also the secondary conversion process, with trials showing it is less likely to fracture or crack during creasing. A reduction of stack heights coupled with optimised palletisation also helps to control the shape of the board before being presented to press.”

Smurfit Kappa can be absolutely confident that the learnings amalgamated into this product will not only improve production

efficiency and consistency, it will in tandem present a print surface of superior quality. Digiflute is a corrugated substrate accredited by HP meaning that customers can be confident they have a substrate that works for this print process, (specifically on HP's FB15500 and FB17000 products).

“It is an exciting time for the digital print industry, with new technologies constantly driving change. For this reason, we will always work closely with our key partners to enable us to continue providing the most relevant market-leading corrugated solutions,” concludes Connolly.

Specific technical data relating to Digiflute is available. Please contact digiflute@smurfitkappa.co.uk

www.digitalprintforcorrugated.com

Contd. on - 103



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European paper sector grows 15% through increased packaging demand

The European paper sector rose 15.6% in 2017 in share price terms, benefitting from increased packaging demand and pulp prices, according to Jefferies.

The investment bank singled out Stora Enso, Smurfit Kappa and Mondi.

Justin Jordan, equity analyst at Jefferies, said that secular pulp demand growth underpins Stora Enso's performance, with packaging giants Smurfit Kappa and Mondi were supported by triple tailwind of e-commerce growth, improving European industrial production and accelerating consumer spending.

Stora Enso led the way with 29.5% gain in 2017, Smurfit Kappa rose 29.3% with DS Smith up 21.9%. Additionally, BillerudKorsnas fell 10.5% on mill technical issues which were stock specific, while RPC declined 14.8% on accounting concerns.

Jordan said a 3.5% 2017 global pulp demand growth and limited pulp capacity additions beyond mid-2018, and singled out Stora Enso's sector leading 15% EPS CAGR.



He added that Smurfit Kappa's 8% free cash flow gives flexibility for selective expansion/efficiency projects and M&A, while Mondi offers sector leading Return on capital employed, probable 1.00 – 1.50 2018 special dividend and upside from recent announced European containerboard price hikes.

Jordan told Packaging News there was a 3-4% growth in European box volumes in 2017, and set to grow similarly 3-4% in 2018.

He added that global pulp demand is up 3.5% – principally in Asia, due mainly to tissue and hygiene sales.

Source: www.packagingnews.co.uk

Global Pizza Box Market: Growing Trend of Ordering Online Augments Uptake, says TMR

Transparency Market Research points out that the vendor landscape in the global pizza box market is highly fragmented. Leading players are expected to focus on export of their packaging solutions to improve market share. However, introduction of local players due to low barriers is projected to intensify the competition in the global market. Some of the key players in the global pizza box market are International Paper Company, WestRock Company, DS Smith Pl., and Georgia Pacific LLC. In the coming years, companies are likely to venture into developing sustainable packaging solutions as governments across the globe are laying emphasis on reducing carbon footprint.

The global pizza box market was worth US\$2,223.0 mn in 2016. During the forecast years of 2017 and 2025, the global market is estimated to exhibit a CAGR of 4.6%. According to the report published by Transparency Market Research, the large boxes, which are about 15 inches and more are expected to be the key revenue contributors. Geographically, North America pizza box market is projected to surpass others with a CAGR of 3.3% between 2017 and 2025.

E-commerce Enables Demand for Pizza Boxes as Trend of Ordering Food Picks Pace

The global pizza box is primarily being driven by the changing lifestyles that are being dictated by consumption of fast food and packaged food items. Growing

number of people in favor of pizzas have been at the very center of surging demand for pizza boxes. The market is also driven mushrooming pizza joints by the dozen. The soaring number pizza-selling chains and independent pizza outlets have also augmented the growth of the global market. Furthermore, the convenience of packaging pizza in varying sizes has also triggered a demand for pizza boxes in multiple sizes. Over the years, the shape, size, durability, and the aesthetics of a pizza box have played an integral role in shaping the positive trajectory of the global market.

The growth of the pizza box market is also attributable to the booming e-commerce industry, unstoppable adoption of smartphones, and excellent logistics services. Convenience of ordering for food from home or office has thus supported the pizza box industry, as well-designed boxes are the only way of making deliveries successful. In the coming years, advancements to improve the quality of pizza boxes are also expected to work in the favor of the global market. Changes to avert seepage of oils through the container in case of prolonged storage are expected to up the demand for pizza boxes. In the past few years, pizza boxes have been a preferred way of storing pizza as they are built with a capability to withstand high temperatures such as 50 to 70 degrees.

Increasing Awareness about Healthy Eating to Restrain Market

However, the market for pizza boxes does face a few constraints. To begin with the growing realization amongst consumers about eating and living healthy is expected to have a negative impact on the overall market. The exceptionally high cost of manufacturing corrugated pizza boxes is also expected to be one of the downsides for the overall market. Despite the restraints, the market will have a plethora of opportunities as the world will continue witnessing younger generations inclined towards eating fast food. Penetration of big pizza brands in developing parts of the world will also result in higher demand for pizza boxes.



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This review is based on Transparency Market Research’s report, titled “Pizza Box Market (Whole Pizza Boxes – (5-10 Inch (Small), (10-15 Inch (Medium), and 15 Inch and Above (Large)) and Pizza Slice Boxes; Material – Corrugated Paperboard (B-flute, E-flute, and F-flute) and Clay Coated Cardboard; Print – Printed Boxes (Offset Printing, Flexographic Printing, and Screen Printing) and Non-Printed Boxes) – Global Industry Analysis, Size, Share, Growth, Trends, and Forecast, 2017–2025”.

Key Takeaways:

- The soaring number pizza-selling chains and independent pizza outlets have also augmented the growth of the global market.
- Convenience of ordering for food from home or office has thus supported the pizza box industry.

About Us

Transparency Market Research (TMR) is a market intelligence company, providing global business information reports and services. Our exclusive blend of quantitative forecasting and trends analysis provides forward-looking insight for thousands of decision makers. TMR’s experienced team of analysts, researchers, and consultants, use proprietary data sources and various tools and techniques to gather, and analyze information. Our business offerings represent the latest and the most reliable information indispensable for businesses to sustain a competitive edge.

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provide in-depth analysis and deep segmentation to possible micro levels. With wider scope and stratified research methodology, TMR’s syndicated reports strive to provide clients to serve their overall research requirement.

For more info visit : <https://www.transparencymarketresearch.com>

FEFCO/CCB Revision

Of the Reel Identification and Finishing Guidelines

FEFCO together with Cepi ContainerBoard (CCB) have released the second edition of the Reel Identification and Finishing Guidelines, available on their websites: www.fefco.org and www.cepi-containerboard.org

The document is the result of collaboration between Paper, Board and Core manufacturers with the objective to optimise the production process and reduce waste. The standard refines a uniform bar code to provide consistency between the coding and improves the understanding about the labelling of the reels. The recommendations cover, among others, requirements for moisture details on reel labels, the marking of paper joins on reel ends, new dimensions for standard core sizes, positioning of paper maker joins and reel tension, etc.

Angelika Christ, FEFCO Secretary General, says “This successful revision is the result of the good cooperation between the associations and the commitment of the

technical experts, marking another step forward to improving performance”.

Klaus Spielmann, CCB Managing Director, says “Through this revised guidelines FEFCO and CCB are providing a document detailing best practice for the handling and mounting of reels”.

Unique EU conference Paris addresses challenge how to nurture agility of the ageing packaging workforce

Every second, at least 100,000 products are packaged and distributed globally by industry and retail – and unpacked by the end-user. Tens of thousands of professionals contribute daily to the continuous improvement of the activity of packaging. How do organisations ensure that the skills, knowledge and know-how of the professionals in packaging will be available and up-to-date? How do they implement life-long education and training to nurture the agility of their ageing workforce in packaging? Answers to these questions were on 15 March 2018 in Paris at the 4th annual European Conference on the Future of Business Education in Packaging (FBEP2018).

Agility is generally considered to be a positive factor for the competitiveness of companies and for the people that work there. Ageing is often defined as the process of becoming older and (therefore) less healthy or efficient. The word may be applied to both people, organisations and even materials. The word ageing mostly evokes negative associations; ageing would result in illness, slowness and malfunctioning.

Whether these negative associations are really justified can be disputed. Who could be against living a longer life? How could the world population stabilize peacefully in the 21st century after the phenomenal tenfold increase since the 19th century, without ageing?

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FEATURES

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As in every FBEP edition, the afternoon programme includes three interactive Round Table Discussions. In FBEP2018 these will focus on the effects of ageing and flexibilisation in the European workforce, new education technologies and the impact of legislation on employability and job security.

Source: www.en.nvc.nl

Progress Continues In Replacing Waxed Corrugated Boxes

A new study shows continued progress in the replacement of traditional wax coatings on corrugated boxes. Since the introduction of the corrugated industry's recyclability protocol in 2005, use of wax has steadily dropped off. In 2016, the corrugated industry shipped less than 10 billion square feet of waxed boxes, just 2.5 percent of total shipments.

Wax coatings on boxes have been traditionally used as a moisture barrier to preserve the strength of a corrugated container holding wet or iced products such as fresh fruits and vegetables, meat, poultry, and seafood.

By developing and using wax alternatives, the industry continues to increase the amount of recyclable corrugated packaging.

- In 2016, the corrugated industry shipped 12.4 billion square feet of boxes using recyclable wax alternative coatings. That's over 849 percent more than the 1.3 billion square feet shipped when first measured in 2002.
- Progress has been made in replacing all types of wax treated boxes (cascaded, impregnated, and curtain-coated) with recyclable treated boxes.
- 51 recyclable wax alternatives have passed certification testing for repulpability and recyclability and have

been registered with the Fibre Box Association.

Corrugated recovery is a true success story.

The recovery rate for old corrugated containers (OCC) has been on a steady climb reaching a record 93 percent in 2016. Today, more corrugated packaging is recovered for recycling than any other packaging material primarily due to tremendous recovery efforts at supermarkets and retail collection where OCC is baled, then sold to generate substantial revenue and to improve store profitability.

Dennis Colley, executive director of the Corrugated Packaging Alliance, said, "Corrugated is the most reliable, cost-effective and sustainable package available for transporting most products, including those requiring moisture protection such as fresh produce. Even those boxes can be made with recyclable materials. The continuous decrease in wax coatings means that renewable, recyclable corrugated can be used for even the most demanding applications."

For more information about recyclable wax alternatives, including a fact sheet, visit <http://www.corrugated.org/recycling/recyclable-wax-alternatives/>.

#

The Corrugated Packaging Alliance (CPA) is a corrugated industry initiative, jointly sponsored by the American Forest & Paper Association (AF&PA), AICC – The Independent Packaging Association, the Fibre Box Association (FBA) and the TAPPI. Its mission is to foster growth and profitability of corrugated in applications where it can be demonstrated, based on credible and persuasive evidence, that corrugated should be the packaging material of choice.

Source: <http://www.corrugated.org>

Rajapack raises eco-awareness with James Lake cardboard art

Rajapack is challenging the norm by launching a campaign which focuses on cardboard artist James Lake.

The packaging company has focused on some stunning cardboard art by James Lake for the project as it looks to raise awareness and encourage eco-friendly solutions.

After conducting a study of over 2000 British citizens, Rajapack, found that although people in the UK understand the importance of recycling, in practice we don't always recycle everything we could.

Taking inspiration from Earth Overshoot Day, which is falling earlier every year, Lake created a cardboard sculpture which shows the size the earth would need to be to support the speed we are consuming the Earth's resources.

At the centre of the sculpture sits the Earth, and encasing half of it is a shell 1.7 times larger. This larger size represents how much bigger the earth would need to be for our current consumption to be manageable.



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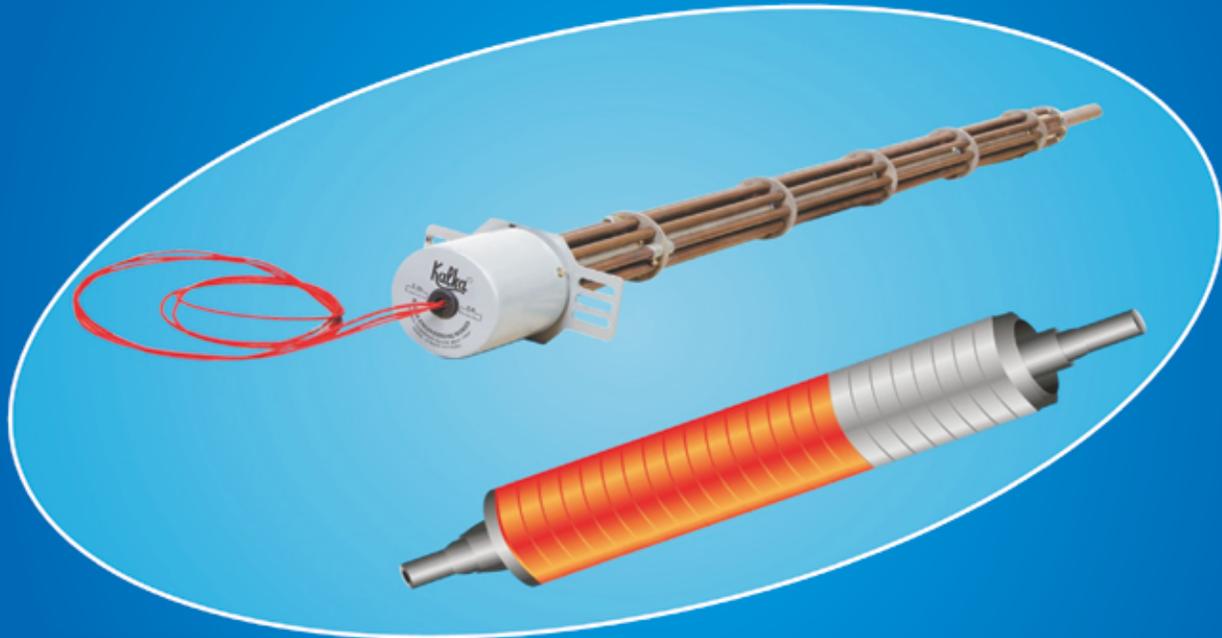
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Tube used are SS 304/ Incoly tube

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Contd. from - 107

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With over 50 years packaging experience, 3,800 products and a team of in-house experts on-hand to help you find the right solution, it's no surprise that Rajapack is Europe's No.1 packaging supplier.

Source: www.packagingnews.co.uk

Smurfit Kappa has opened a new recycling plant in Malaga, Spain, which will strengthen its recovered paper service in the region.

The plant, which is expected to process over 30,000 tonnes of recovered paper annually, is perfectly positioned to meet the city's growing recycling needs.

A fleet of eco-friendly hybrid vehicles collect paper and board from households and businesses. This is then sorted at the plant and sent to the Smurfit Kappa Mengibar Containerboard Mill where it is converted into board that is used to create new packaging.

The plant is designed to ensure the highest standards in health and safety and its proximity to the city centre makes it an ideal strategic partner for the city of Malaga.

Speaking at the launch, Ignacio Sánchez, Recycling Country Manager, Spain, said: "We are proud to open the doors of this innovative new plant which is further evidence of our ongoing commitment to sustainable development.

"Paper-based packaging is 100% recyclable. All corrugated, solid board and folding carton can be put through a process to make it into another box in as little as 14 days, demonstrating a truly closed loop approach."

Henri Vermeulen, Vice President of Smurfit Kappa Recovered Paper added: "This facility will play a significant part in our ongoing strategic priority to ensure the permanent availability of enough good quality recovered paper to guarantee the demands of all our customers in the chain. We are therefore very pleased to have opened another recovered paper plant."

Smurfit Kappa has long been committed to best practice in recycling and has a global network of specialist recycling plants. The company recently completed the purchase of a 12,000 sqm site in Blackburn, UK to significantly increase its recycling capabilities in the region.

Source: <http://www.smurfitkappa.com>

Creative Graphics adds new equipment to its Chennai facility

In hardware, the company has added EskoCyrel Digital Imager (CDI) Spark 4260 with hi-resolution optics and HD Flexo; and DuPont Cyrel 2000 ECLF exposure and light finisher and DuPont Cyrel 2000 PS plate processor.

Mr. Deepanshu Goel said with the new investment, the company's flexo printing plate capacity has doubled. Now, it can produce 1,000 sq/m flexo plates per month. Right now, the facility is running at 70% of its capacity.



Deepanshu Goel

"We are expecting around 20 to 30% of contribution from Chennai plant in the growth of the entire group,"

CI flexo printing companies in Sivakasi are also on our radar. Goel said Sri City in Andhra Pradesh is also picking up and big players like Parksons Packaging and Khemka Containers have established their plants in the area.

In the Chennai facility, Goel said, the prime focus is sustained quality.

But Goel is bullish about the future. "People are investing in advanced printing presses to produce better results. In this, pre-press plays a major role and that's our role. The industry, especially flexo pre-press will be consolidated in the coming years. Technology is changing. So you have to keep investing in machines and software. The market is now mature and no one wants to give chance to inexperienced people," he concluded.



Malaga Recycling Plant



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Guinness world record attempt for largest corrugated structure



“Cardboard is eco-friendly, as it is made out of recycled paper. By making such huge sculpture with cardboard using recycling ideas, we can contribute to the cause of prevention of water pollution,” added Haresh Mehta of Jayna Packaging.

Stressing on the problem of the water crisis, Nuru Karim of Nudes said, “Water conservation has posed a challenge to humanity. Here at Maker Mela, we are working with eco-friendly cardboard to raise awareness about the Global Water Management crisis. By making this unique structure we will spread awareness amongst communities who will take notice of my inspiration for the cause.”

On completion of the project, the paper boat structure was 88ft in height, 25ft width, and 9ft length. It comprised of 3050 CNC pieces which were interlocked and assembled like a jigsaw puzzle.

The boat is kept for display at the campus for seven days. Later it will be moved to various exhibitions and galleries to spread awareness regarding the water crisis. Also, the project Paper Boat was powered by Hafele India.

Haresh Mehta, Jayna Packaging; Yogesh Tamhane, RiiDL, Nuru Karim, NUDES; Jurgen Wolf, Hafele South Asia

Source: <http://www.printweek.in>

Jayna Packaging attempted Guinness world record for the largest cardboard by making a paper boat in collaboration with Somaiya RiiDL, Nuru Karim of Nudes and Hafele India at the three-day event Maker Mela in the campus of Somaiya Vidya Vihar, Mumbai.

The paper boat was made using 1000 sheets using the interlocking technique. The cardboard sheet size used is 40x60 inches and is double-layered 5ply – 6 mm thickness.

Purpose of the project was to raise awareness regarding the water crisis present across the world. According to the press release, there are 844 million people with no access to safe water.

Jürgen Wolf of Hafele South Asia said, “It is of utmost essence that all need to be made aware of the seriousness of the issue of Water Crisis. A project like this achieves that. Hafele supports worthy causes and is

happy to associate with this ‘#PaperBoat - World Record’ creating an eco-friendly initiative.”

Gaurang Shetty, CEO Somaiya RiiDL, “What better way to inspire and innovate at Maker Mela than making something that is ecologically friendly, is challenging to build and creates awareness of environmental protection.”





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One Day Workshop & Conference for Indian Corrugated & Packaging Machinery Manufacturers.



Indian Paper Corrugated & Packaging Machinery Mfrs. Association (ICPMA) has been working for the development and growth of the Indian Corrugated Machinery Manufacturers with the help cooperation and support of Indian Corrugated Packaging Industry.

The objective of the Association is to enhance and upgrade the technologies in order to enable corrugated machinery manufacturers in India compete successfully with their counterparts in the world.

The first A One day Workshop & Conference was organised on Sunday 11th February 2018. The venue was the prestigious Hotel Sahara Star at Santacruz Airport. Over 75 Corrugated machinery manufacturers from across India to attended and participated in the event.



EMBA Thanks FCBM for their support

Dear Friends,

As we began new year 2018, I must thank FCBM for the support extended to EMBA Machinery AB over the last decade.

Our achievements with installations of EMBA 170 QS FFG to 175 QS Ultima platform and to the latest projects of Dual Box are possible only with your support.

In our pursuit to further strengthen our position in the market, ***I am pleased to announce the promotion of Mr. Chitran Sastry as Sales Director, South Asia with immediate effect.***

He along with our swedish colleagues Magnus Eriksson and Camilla Larsson shall plan to visit all our important customers in the market and brief our strategy for coming years.

I am looking forward for your continued support with EMBA Machinery.

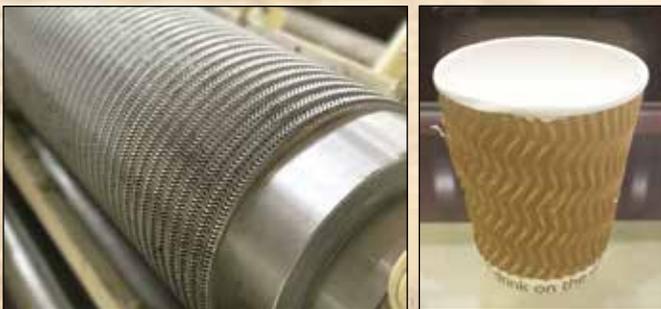
Kind regards

Esa Koski, Executive Vice President



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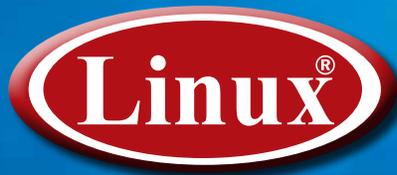
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These multi-functional equipments incorporate Servo Control System which drives the compression platen steadily along the guide track to compress the specimen.

Specifications:

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- **Least count:** 0.1 kgf
- **Deflection least count:** 0.01 mm
- **Accuracy:** $\pm 0.4\%$ FS
- **Test speed:** 12.5 mm/min (changeable)
- **Location Speed:** 200 mm/min
- **Platen Size:** 130 X 130 mm
- **Space between compression plate:** 100 mm
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- **Power:** 0.75kw, 220 VAC, 50Hz Single Phase.

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- Machine can be operated through PC and Control Panel.
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- Average of test results on report.
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Exhibition Scale

- 80,000 sqm exhibition area
- 36,000+ local and international visitors
- 700+ local and international renowned exhibitors
- 1,000+ kinds of consumable
- 1,400+ manufacturing equipment
- 200+ associations and media

SinoCorrugated South 2018 is a professional Asia-Pacific exhibition focused on corrugated manufacturing equipment, consumables and technologies.

Together with SinoFoldingCarton 2018 and China Packaging Container Expo 2018, the exhibition will connect the entire industry chain of the corrugated, folding carton as well as packaging container sector.

During the exhibition, more than 700 industry leading brands will occupy close to 80,000 square meters of exhibition area in order to present more than 1,400 exhibits which are focused on high-end and cost-effective equipment and consumables.

4 - 6 May 2018



Print & Packtech World Expo 2018

Prabhakar Kore Convention Centre,
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It is no longer the world of unpacked things. Virtually everything on earth can be packed.

Print & Pack World Expo-2018 will be tailor-made to reflect the market's evolutionary path driven by new needs, competition, technology, channels and other developments. The Exhibition will have a special focus on the integration of processes in Printing and packaging and its supply chain as this will eventually lead both Industries to claim market leadership and turning India to a Printing and Packaging hub.

15-18 May 2018



**FESPA Global Print Expo 2018
BERLIN, GERMANY**

Digital Corrugated Experience

FESPA Global Print Expo is Europe's largest exhibition for the wide format print industry. Where over 600 exhibitors showcase their latest innovations and product launches in the digital and screen printing sectors for graphics, signage, décor, packaging, industrial and textile applications.

20 - 22 May 2018



IndiaCorr Expo
Bombay Exhibition Centre,
Goregaon (E), Mumbai.

25-28 July - 2018



PACK PLUS 2018

Pragati Maidan, New Delhi - India

21-23 September - 2018



CCE SOUTH EAST ASIA
Corrugated & Carton Exhibition
BITEC, Bangkok
International exhibition for corrugated
and folding carton industry

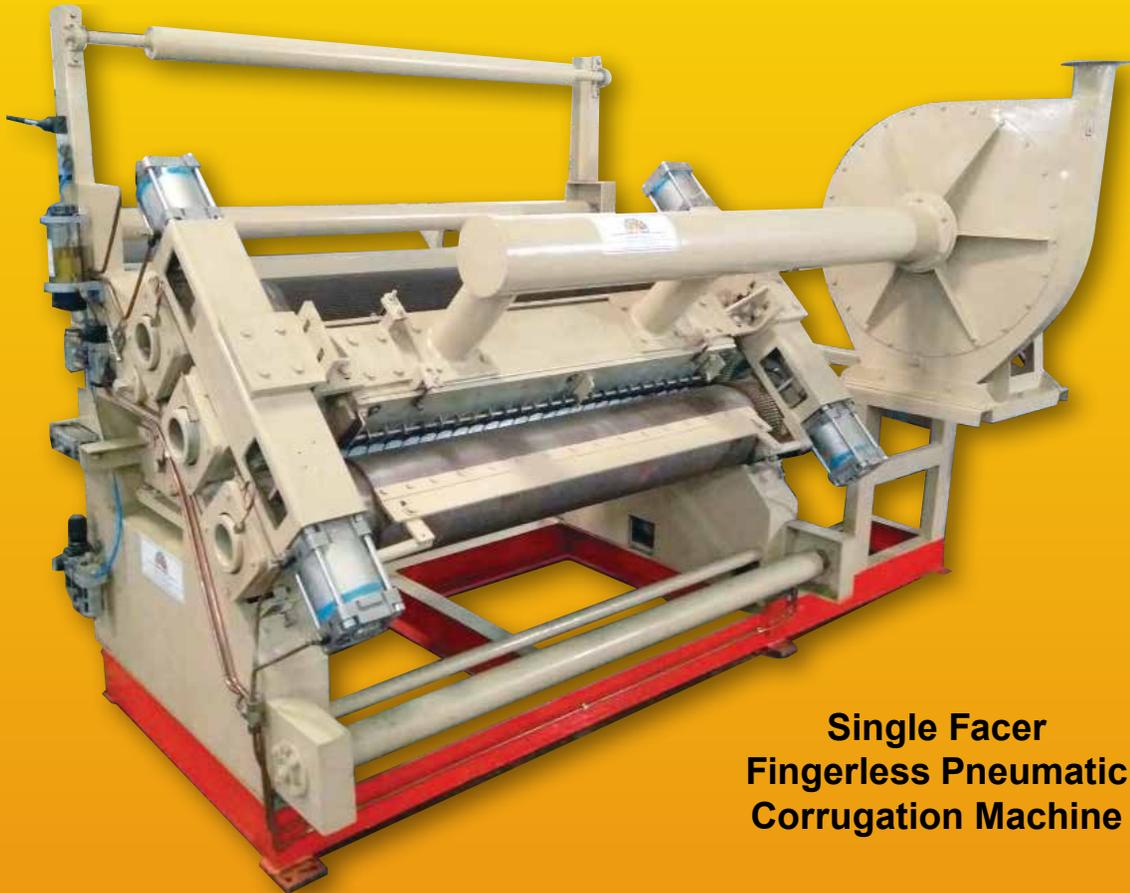
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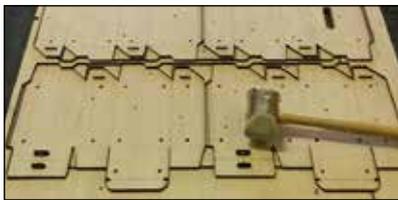
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