

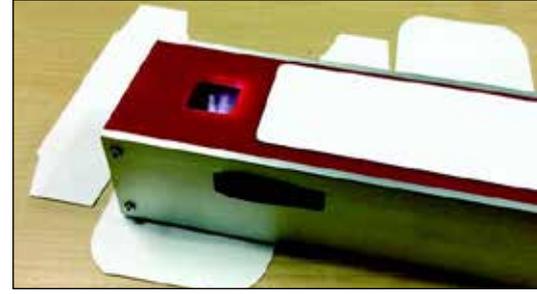
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# The Corrugator

OFFICIAL MAGAZINE OF FEDERATION OF CORRUGATED BOX MANUFACTURERS OF INDIA

April - June 2019



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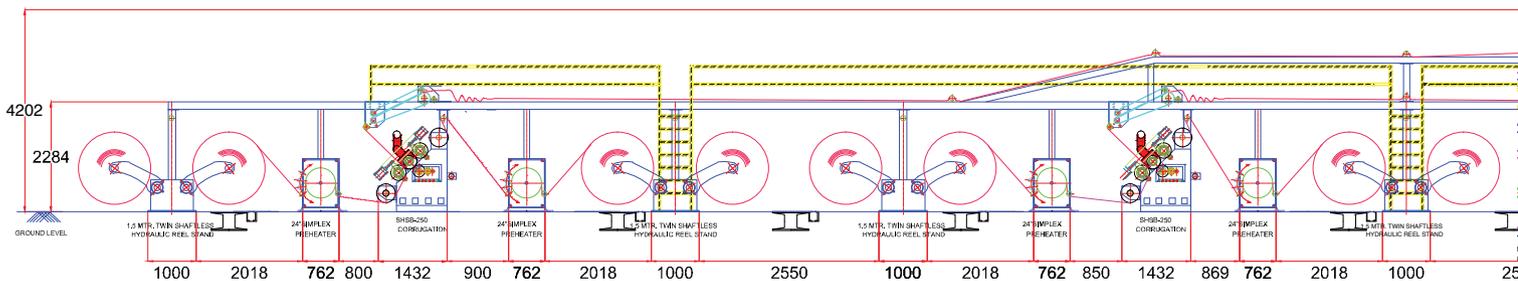
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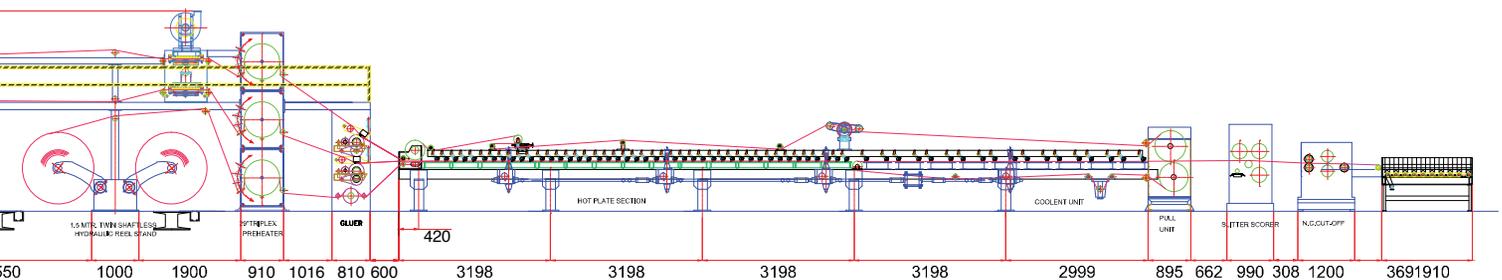
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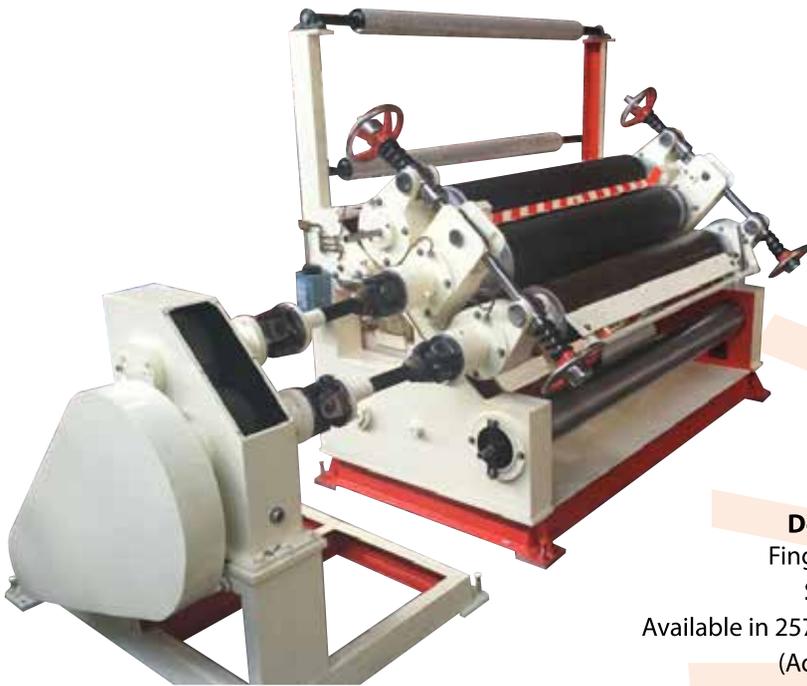
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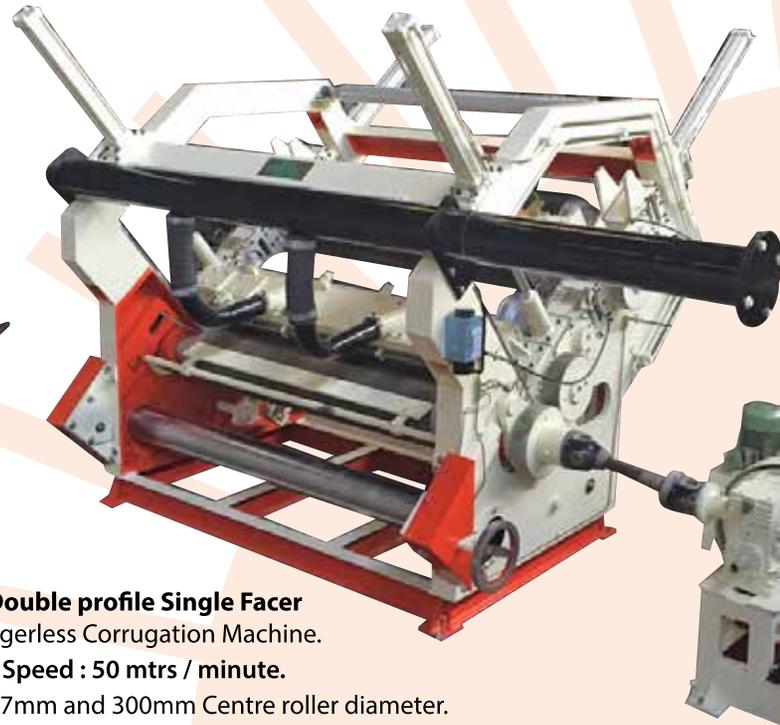
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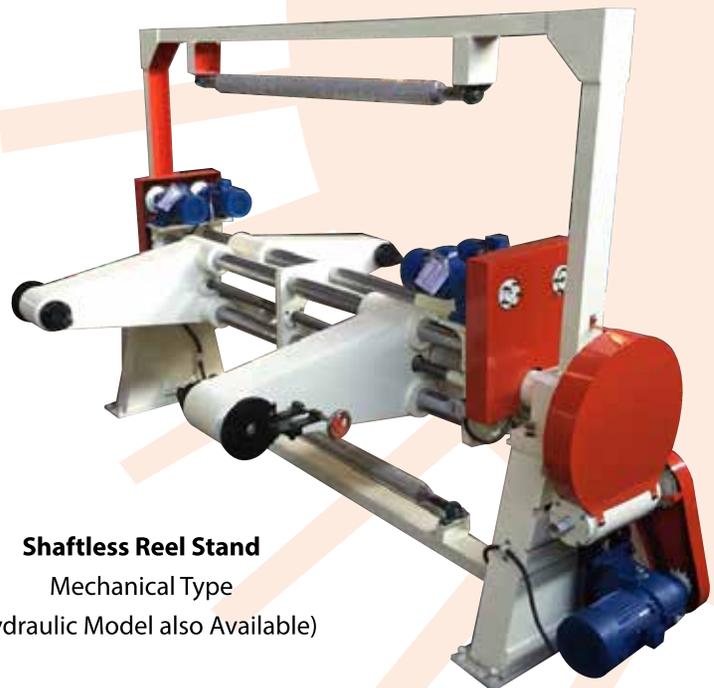
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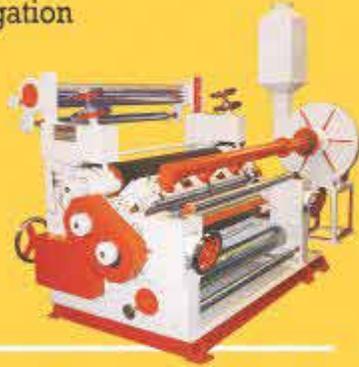


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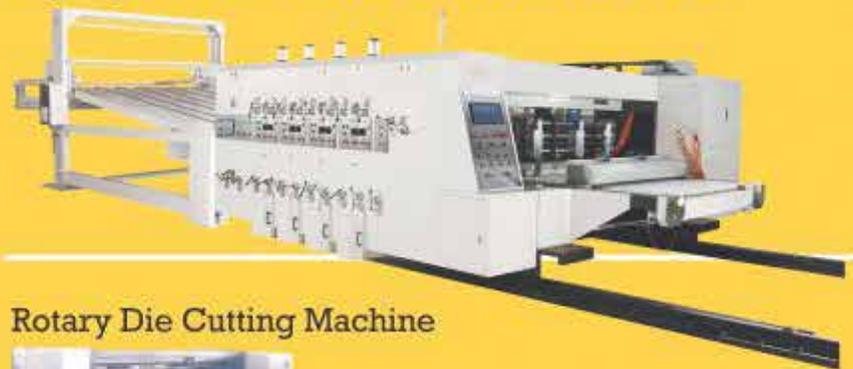
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OFFICIAL MAGAZINE OF FEDERATION OF CORRUGATED BOX MANUFACTURERS OF INDIA



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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](mailto:admin@fcbm.org)

[www.fcbm.org](http://www.fcbm.org)

Please address all correspondence to Editors

**Mr. Ashok Vyas**  
On-Line Packaging Pvt. Ltd.  
Vile Parle - E, Mumbai  
[ashokpyyas@gmail.com](mailto:ashokpyyas@gmail.com)

◆  
Mr. Hemant Saraogi

◆  
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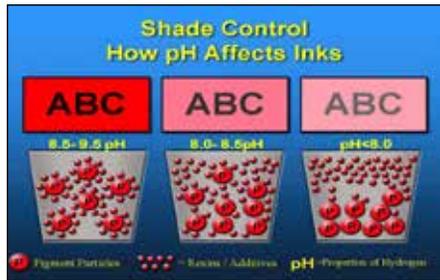
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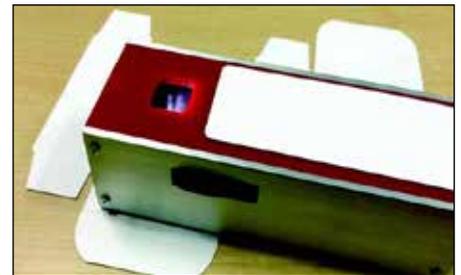
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Printed at:  
Rajesh Printouch, Mumbai

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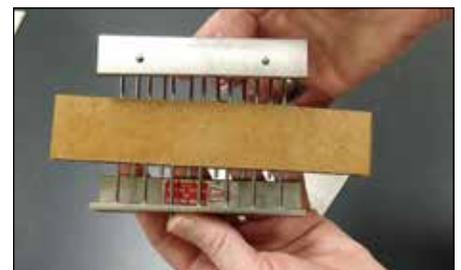
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# THE EDITORS' PAGE



*Ashok Vyas*



*Haresh Mehta*



*Hemant Saraogi*

This quarter began with the inauguration of Sino-Corrugated2019 at Shanghai. A large delegation of FCBM members visited the world – renowned exhibition and brought home a treasure of technological innovations.

A new initiative this year was the World Corrugated Awards. FCBM members were in the forefront of winners of these prestigious awards, reinforcing the image of Indian Corrugated industry for Innovation and Creativity.

Our members from Rajasthan promoted the forthcoming FCBM Conference to exhibitors at Sino-Corrugated through a specially designed brochure.

This issue presents glimpses of the world renowned exhibition.

The end of this quarter witnessed the formation of the new Government at the Centre.

A stable government is always welcome. Let us hope the new government will infuse the much needed vibrancy of growth into the economy. The MSME Ministry headed by the dynamic Nitin Gadkari promises to 'identify good' being imported and to explore the possibility of manufacturing them here by Micro, Small and Medium Enterprises?

Further he said that the ministry would look into the reasons which are leading to closure of small units.

The New Government has already drawn the Blue Print for the next 100 days.

The Finance Ministry needs to take steps to combat slowdown, spur growth, create jobs and boost up resources while balancing fiscal arithmetics.

The Commerce & Industry Ministry need to bring us more reforms to improve ease of doing business.

India Inc. looks forward to policy continuity and more reforms.

Our Federation as usual has been brimming with activities. After the visit of FCBM delegation to Sino-Corrugated, FCBM has organized Comprehensive Courses in Corrugated Packaging at Pune and Hyderabad.

UPCBMA also organized a Seminar at Banaras Hindu University.

The NMDC of FCBM presented a Report on the Promotion of Corrugated Packaging for Agricultural Produce.

The Delegation had an opportunity to meet Union Minister Hon.ble Mr. Nitin Gadkari. This is also featured in this issue.

The Federation also brought out the Proceedings of 46th Conference hosted by WICMA. This publication, which was mandatory brought out by host associations has been revived after a long gap.

The book has been well received by all participants who attended the conference at Pure.

Let us hope this will be followed for future conferences.

The issue also features interesting articles on 'Ink Supervision', 'Creasing Dynamics', 'Effect of Online Shopping on Corrugated', 'Wet Strength Resin'. Besides a number of Product write ups and Industry related News will also be of interest to the readers.

The quarter ended with the FCBM Managing Committee hosted by HPCBMA at Radisson, Chandigarh.

RCBMA made a presentation of the forthcoming FCBM Conference at Jaipur and the host association extended an invitation to all members to attend the conference in large numbers and make it a grand success.

We welcome Mr. Hemant Saraogi to the Editorial Board.

His extensive knowledge and deep insight will further enhance the value of The Corrugator.





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# PRESIDENT'S MESSAGE



**K. Arunachalam**  
*President*

Dear Members,

I look forward to this opportunity to communicate with all of you.

As we set into the monsoon I hope for a bountiful rainfall all across the country. India being a predominantly agro based economy, I hope this also helps to kick-start a phase of growth in our economy. With the national elections also just concluded and the incumbent government taking fresh guard I am hopeful that industry will have a renewed confidence and come out of the phase of sluggishness which we are currently witnessing.

The momentum of activities has continued this quarter also. I am proud of my entire team for their sincere efforts in this endeavour.

Our flagship programme the 2-day Comprehensive Course in Corrugated Packaging was held in Pune on 18th & 19th April 2019 and Hyderabad on 11th&12th May 2019 hosted by WICMA and ACCT respectively. Our Seminar & Workshop Committee headed by Mr. Ramkumar Sunkara is in the planning stages of the level 2 of this course. The topics being planned by him are very relevant in today's rapidly evolving industry scenario and I am sure it will be an even bigger hit amongst our members spread all across our country.

I was very fortunate to lead a record number of over 1000 delegates from India including nearly 700 FCBM members to SinoCorrugated 2019 at Shanghai from 7th -11th April. The hosts REED Expo were highly impressed by participation of FCBM.

It is also a matter of great pride for us that two of our FCBM members were honoured with Word Corrugated Awards 2019 launched concurrent to SinoCorrugated 2019.

FCBM Director, ICCA Mr. Vincent Mathias participated in 2019 ICCA/ WCO Global Summit held from 20-23 May 2019. His presence on behalf of FCBM at this global event was very positive.

A delegation consisting of FCBM Office bearers, senior FCBM members and FCBM NMDC Chairman Shri Achyut Chandra guided by our dynamic Shri Kirtikumar Gandhi met with Hon Union Minister Mr Nitin Gadkari on 17th June 2019 and presented a detailed report on promotion of corrugated packaging for horticulture produce.

I am very optimistic that this dialogue initiated at the highest decision making levels of our country will augur very well to opening new markets for our product.

FCBM was also privileged to associate with CII as a supporting association partner in hosting the National Packaging Conference 2019 on 27th & 28th June at Bengaluru.

FCBM Past President and senior corrugator from Karnataka Shri Manohar Shetty made a presentation on behalf of FCBM. He also spoke on corrugated packaging in the E Commerce sector. His address was very well received.

Before concluding I wish to make special mention of our young brigade from Rajasthan RCBMA who having been pulling out all stops to make the forthcoming FCBM Conference at Jaipur, their maiden effort an unforgettable experience to every delegate. From knowledge packed technical sessions bound to keep the members engaged to well-planned events lined up throughout the day to keep the accompanying families involved to lavish cultural extravaganza in the evenings. This will be one memorable event which will be talked about for years to come. I would not like any of our members to miss this experience and would request you to register at the earliest.



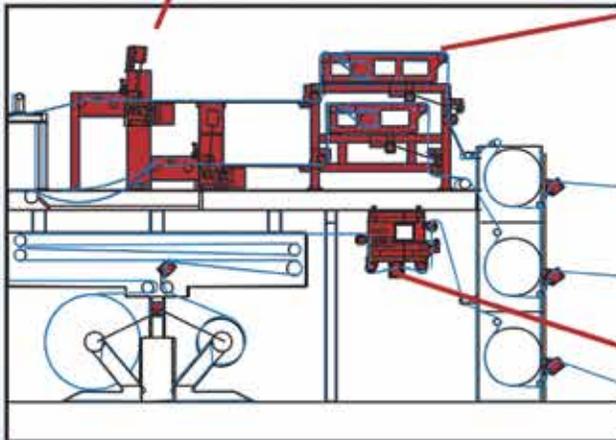
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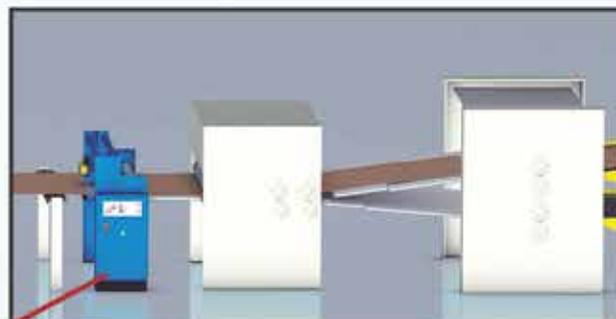
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# The Specifics of Managing Caliper

Generally speaking, ink has a shelf life of approximately eight to ten months. During that time the amines evaporate causing the resins to separate from the pigment particles resulting in color variation. Color variations also exist because the crews do add water to the ink buckets as a tool to reduce viscosity. I have discussed this subject in previous articles and have discussed why this is wrong.

In some plants, there can be 9 shades of blue, 10 shades of red, 5 shades of yellow and a dozen shades of green. Don't forget BLACK. Black ink should be very black and not variations of black.

In previous articles, I have discussed ink management, the chemistry of ink and the importance of color control in the corrugated industry. For some time, I have been thinking about how we process and manage the color that we deliver to our customers.

This article will be very specific and is directed specifically to plant management. We are going to discuss the following:

1. Reviewing Ink inventory and the reasons why.
2. Technical support and proper understanding print stations.
3. Properly managing ink suppliers.
4. Specific ink supervision for the crews.
5. Consistent support allowing predictable results.

I would like everyone to stop and take the necessary time to review the ink inventory on racks in the plant and identify the following:

- a. The age of the all the ink buckets.
- b. When was the last time the ink was used?
- c. The number of colors and how many "shades" of each color are on the shelf.
- d. How many colors are seasonal and just used once a year?

This is not a good sign in the plant when this "color variation" condition exists. At this point, the plant isn't really sure what colors are in inventory and which color shades the crews are picking for specific orders. This is not good and can be very costly!

REMEMBER: When we ship boxes to our customers, the first thing they look at is the color and how their company's name appears on the box. If the shade is off or not according to specification, the box will be returned. At that point, the sales person has only one response... Mr. Customer, what color do you want and we will match it. He or she then shows the customer the pantone book and the buyer picks a color. Instead of showing the "standard" 5 samples of red or blue, you now have to introduce new special ink. In many cases, these buckets will only be used once, especially for seasonal or one time orders.

Print Stations. Review your anilox rolls and understanding the roll designs in your plant. Many times, plants will have a variety of anilox roll designs in different Flexos and Die Cutters on the plant floor. Each design anilox roll and cell volume will deliver a unique volume of ink resulting in various colors and shades. Please, be sure everyone understands this point.



Dick Target  
"On Target Consultants"

In a perfect world, every cell in the anilox roll should also evacuate completely every time it comes in contact with the surface of printing plate. Take time to be sure that the chemistry of the ink is correct and consistent all the time. If properly done, colors will be predictable and the printing process will be easier to manage.

MOUNTING STRAPS. Also, please be careful in choosing the mounting straps that use plastic clips. Plastic clips are the preferred design. There have been times when metal clips have fallen off during manufacturing and they fall into the anilox roll nips. The roll is now damaged. This always happens in the working area of the anilox roll and then this roll needs to be replaced. This is another cause of "unscheduled downtime". Note: Roughly 60% of the anilox roll business today is the process of repair damaged anilox rolls!

In our industry, we do use different types of print stations. One design says they are built with Pull Collar systems and another design uses Vacuum Transfer Systems. These are both unique and they both offer different opportunities for the box plant. They also offer very different "air environments" for Flexo Inks.

A Vacuum Transfer print station offers a high volume air environment for the ink. The vacuum creates a negative air

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environment within the print station. The Ink suppliers should be told this as they need to supply an ink with slower reacting amines in order to maintain the proper realigy of the Inks.

Pull Collar print stations have a static air environment and just need normal speed amines in order to maintain the proper realigy of the Inks. If the same order is run on a vacuum transfer print station one day and a pull color print station another day, this condition needs to be addressed.

How many orders are returned for poor coverage in block printing, wrong shades for specific company colors and logos and cert stamps that are not readable? These are all a result of improper ink management. I look at this, however, as an opportunity. With a little effort, we can positively influence our customer service, reduce unscheduled down time and improve our position in the market.

INK MEETINGS. Schedule "technical" meetings several times a year with your

on consignment or straight out purchase orders? Are you correctly buying your inks? Does your supplier offer technical support? Do they offer pH Neutral or pH Stable inks? Learn and understand the difference. Their processes are not the same!

Ink Maintenance: With all of these discussions regarding the mechanical side of ink, we must not forget to be proactive in maintaining the proper chemistry (REALIGY) of inks during the process. As I have said, we spend a considerable amount of money every year on ink. The crews

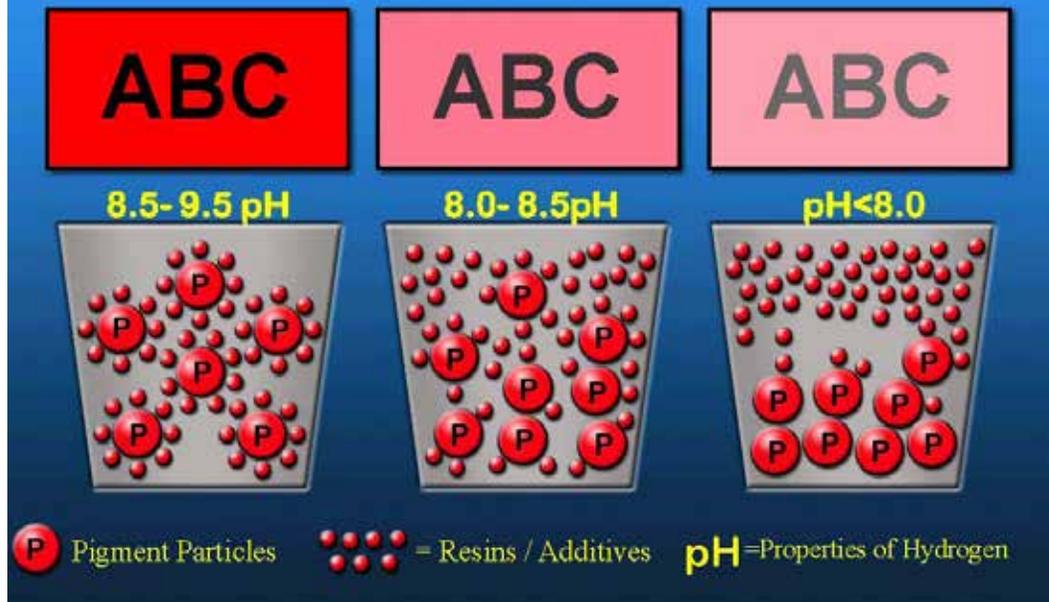
and supervisors should have an easy way to manage the process whereby we assure ourselves that we are getting the maximum performance from our inks. An easy solution is for the ink supplier to offer a "pH adjuster" for the crews to use and add several ounces of this product to the ink bucket "once an hour". We have discussed this in previous articles. A process that is coordinated with the ink companies will assure the plant a successful and profitable environment where everyone wins.

DETREGENT. We should also be very aware of the pH of the detergent that we use in the cleaning process. The maximum pH of the detergent should be no higher than

10.5. Anything higher than this number will start to cause mechanical separation between the ceramic coating on the anilox rolls and the substrate (Roll Body) itself. This results in cell failure, inadequate ink transfer and poor printing. This can be a very costly mistake as we are talking thousands of dollars in repair costs plus additional unscheduled down time and poor printing due to improper care and maintenance of our anilox rolls.

Print Stations: In our industry, as I have said, we use different types of print stations. One design says they are built

## Shade Control How pH Affects Inks



I have always felt that in costing a box, we can easily identify and trace material cost, labor and overhead. Our ink costs somehow get buried in these numbers. Some plants have different numbers that may be charged for one-color boxes and other arbitrary fees for multi color boxes. They are rarely traced against specific orders. I do think it is very difficult if not impossible to measure ink coverage on a particular order. I challenge everyone to review your annual ink cost with accounting. This is very important. I think that you may be surprised on how large these numbers can be.

ink suppliers. Always start the meeting with a brief discussion identifying the annual dollars spent with their company. This quickly identifies the importance of the meeting. This number frequently approaches \$90,000.00 @ year depending on the size of your plant.

I encourage everyone to learn to be a demanding customer. We as box makers are a group of the best suppliers in the world. Our customers are always very demanding. Demanding customers can make us better suppliers. Review how your ink is purchased. Do you buy the ink

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TwinFeed™ is an option for the EMBA 245 QS Ultima™, to enable feeding two identical sheets from 280 mm up to 520 mm in running direction in a single machine cycle.

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in the slotting unit. The result: up to 30 000 boxes per hour. And there will be no tolerance variations between the boxes. It's like having two machines in one!

The DualBox™ innovation combined with the intelligent Ultima™ platform, the unique Non Crush Converting™ and Quick-Set™, makes EMBA 245 QS Ultima™ unbeatable.

We will be happy to tell you everything you want to know about productivity excellence – and doubling it – with EMBA 245 QS Ultima™.



A new revolution from your premium class supplier:  
EMBA 245 QS Ultima™ with DualBox™



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ECIL X Roads, Kushaiguda, Hyderabad - 500 062, India. Tel: +91-40-27130313, Website: [www.emba.com](http://www.emba.com)

with Pull Collars and another design uses Vacuum Transfer Systems. These are both unique and they both offer different opportunities for the box plant. They also offer very different air environments for the Flexo Inks that we use.

The other major design variation is the wiper roll vs. the chamber doctor blade system. The two-roll wiper roll system delivers the ink in an atmospheric environment where normal evaporation occurs in the process. Our ink suppliers need to know this so that they can supply the correct ink for this process. The chamber doctor blade systems as we all know, delivers the ink in an enclosed, controlled environment to the anilox roll. This is actually a more efficient system as this enables us to deliver a more precise amount of ink for demanding printing

requirements. Both of these systems have been extremely successful; however, we just need to include our ink suppliers in the process.

Please take time to review your ink systems, ink designs and all of the various points that I have discussed in these ink articles. My only intention is that we improve the overall performance in the plant, better manage cost and make you a better competitive box manufacturer in your market!

As Always, ENJOY YOUR JOB!!

*Dick Target, owner of "On Target Consultants" based in Lower Gwynedd, Pa., has been in the corrugated industry for over 4 decades.*

*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.*

*This article is printed in this issue with the permission of the author.*

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

## Corrugated vs. Reusable Plastic Containers (RPCs)

**Corrugated packaging excels over RPCs in a variety of ways.  
The following information will help you make an informed choice when  
deciding between corrugated and RPCs.**

### **CORRUGATED EXCELS** **See how corrugated excels over RPCs:**

- Made predominantly from trees, a renewable resource, in sustainably managed forests.
- Once recycled, corrugated box fibers are used 7-10 times to make new boxes and other paper products.
- Corrugated packaging is frequently lightweight and can reduce shipping costs.
- Corrugated has four printable panels for custom graphics and product information.
- Corrugated packaging is readily available from 1,155 plants in communities nationwide.

### **RPCs FALL SHORT** **See how RPCs fall short when compared to corrugated:**

- Made predominantly from fossil fuels.
- RPCs weigh up to 4X more than corrugated; increasing freight costs.
- 10 studies show multi-use RPCs have inadequate sanitizing systems to consistently meet cleanliness standards.
- RPCs often have small labels for product identification.
- RPCs require washing and return transportation before reuse.

# Trouble Free Adhesives.....



- ◆ Board moisture drops to 9% in less than 1 hour in manual plant. In the case of Flute Laminator this occurs in less than 10 mins
- ◆ Special grade adhesives hold moisture in corrugated board, thereby reducing the tendency of cracking in Automatic Plants
- ◆ Additives designed for glue kitchen improve initial tack, stabilise viscosity and provide bonding even in HRCT papers.
- ◆ Imported Resins give higher compression values. At increased dosage corrugated boards can achieve waterproof(FEFCO-9) bonding.

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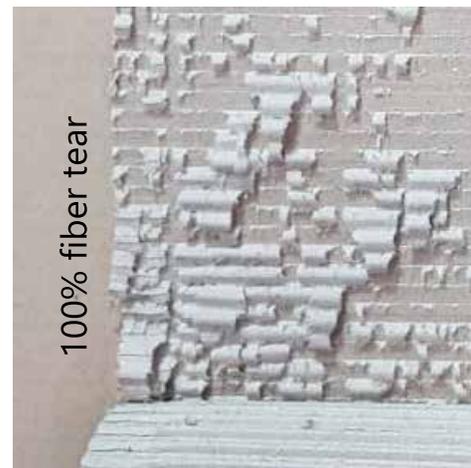
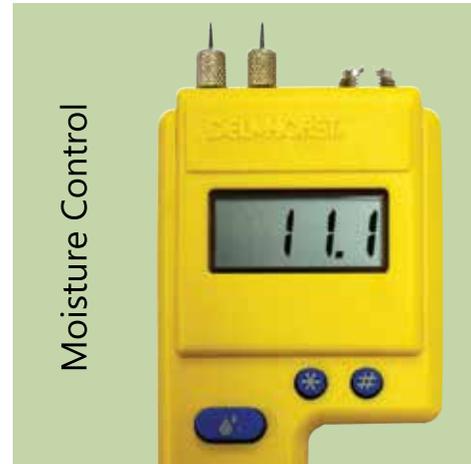
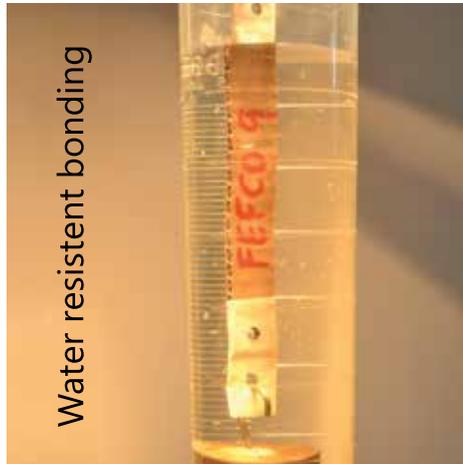
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# for Corrugation Industry



## Other applications

Paper Cores / Tubes

Paper Cones

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Edge Boards

Kraft Paper Mill

Foundry

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**3/5 ply**  
Automatic Corrugation Plant

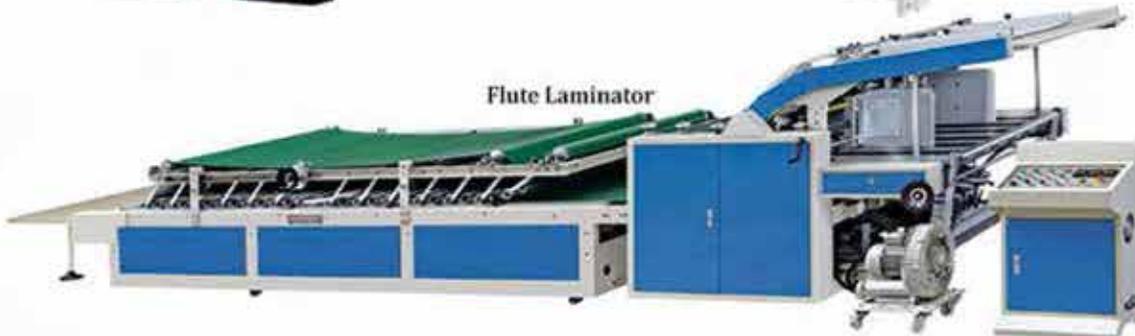
Auto feed Four Colour Flexo  
Printing, Slotting & Creasing Machine



Semi - Auto Gluing Machine



Flute Laminator



Chain Feed Rotary Creasing  
& Slotting Machine



Chain Feed Rotary Die Cutting Machine



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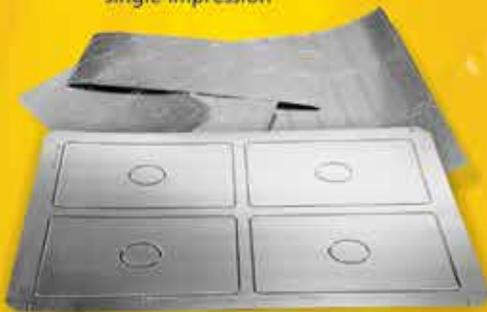
# DIEHARD

Manufacturers of Laser-cut Flat & Rotary Dies, Stripping Dies, Flexible Dies for Labels, Embossing Dies, Braille Embossing Dies & AccuBraille

## Dies with German Technology now in ... India

### Products

- Steel Flexible Dies  
For labels cutting
- Rotary Dies  
For all corrugated cartons
- Flat dies  
Stripping dies  
Blanking Dies  
Pertinex Counter Dies  
Special-Steel Counter Plates  
For folding cartons & e-flute cartons
- Accubraille Strips  
Braille Embossing Blocks  
(Male & Female)
- Flat Dies  
For labels cutting
- Embossing Blocks  
Foiling Blocks  
3D Embossing Blocks
- Fluted Dies  
For embossing & foiling with  
single impression



### Perfect solution for label industries

#### Technology

"Diehard Dies" is a full-fledged biggest Die-shop in India with advanced German technology. The company's Engineers & Technicians are trained in Germany on CAD software, Laser cutting machine, automatic and semi automatic Die making machinery.

The new technology involves innumerable number of innovative techniques to improve the die quality. Immaculate computer aided designing, precision laser cutting, optimum knife joints, perfect rule fit in the Die board, perfect ejection rubber are just a few quality features to mention.

#### Raw Materials

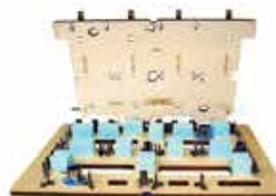
Rotary plywood shells, flat plywood, cutting & creasing steel rules, ejection rubber, special-steel counter plates, embossing Die plates and other accessories are imported from Europe.

#### Quality

The emphasis is on dimensional accuracy, high cutting performance and long life of the Die for more number of impressions. German technology & training, highest quality standards of raw materials, highly skilled technical man power contribute to an unparalleled perfection and innovation in Die making.

#### Service

Quality & performance is only the means of communication we progressed with so far. 'Diehard' is ready to cope up with all the requirements of clients. We have the commitment and resources to meet these challenges. Round the clock Service & Support will be given to the customers



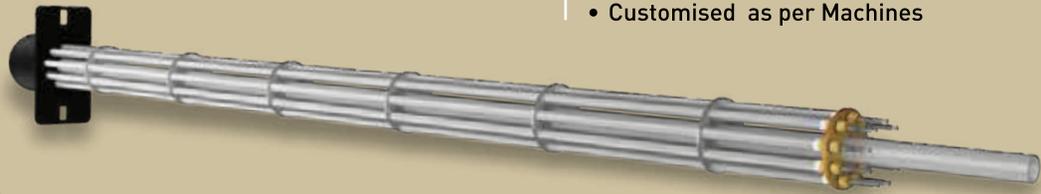
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- Pioneers in Corrugation Industry Heating
- Long Life – Consistent Performance
- Best Quality – Value for money
- Faster availability (24 hours)
- Customised as per Machines



*When it comes to efficiency in heating, leading, corrugated box manufactures have come to rely on Hotron. Endowed with a rich technological expertise backed by 45 years of experience in the field, Hotron have developed a range of electrical heaters with exceptional features, specially suited for corrugation machines.*

### Hotron means “electrical heating & control too”

- Electrical Tubular Heaters
- Infra Red (I.R) Heaters
- Zonal Heaters
- Power Saving Heater Control Panels
- Drying Systems

**We manufacture  
CORRUGATED SHEETS  
DRYING SYSTEM which  
enables faster, easier,  
convenient & most  
economical drying  
mechanism so as to  
achieve very good  
quality corrugated boxes**

### Hotron Heaters offer features that make them stand apart:

- STURDY SPIRAL RESISTIVE WINDING in 80/20 or Kanthal with resultant low level specific load.
- Ideal “INSULATION” – imported MGO powder having high melting point, high thermal conductivity and high electrical resistance.
- S.S.Studs – long lasting, prevents frequent burning.
- Proper Assembly of unit prevents frequent burning.
- Proper assembly of unit having flanges and Strong Central Support. Prevents sagging
- We also manufacture Infra Red (I.R.) Glass heaters for high speed imported corrugation machines

**We shall be  
pleased to offer  
free technical advice  
and recommend  
most ideal heaters  
for your  
Corrugation Machines**

### Salient features of Hotron Control Panels:

- Saves power by correct monitoring & control.
- Proper control enhances life of the heater.
- Better safety & protection system.
- Panel mounted indicators & meters indicate status and performance of heaters.

# Creasing Dynamics

## Anatomy of a Folding Carton Crease

Can you imagine how many products are being bought every day in the world—everything from medical, cosmetics, food, literature and other materials. Our industry is one of—if not THE—largest in the world. Not many people really think about what goes into making a box or some sort of packaging.

We buy a product, maybe read over the box or packaging, but usually just open and toss—or hopefully recycle—the packaging. Of course, some of us probably disassemble the box to see how it was made: the type of board, who printed it and who cut it. Then we can say we had some sort of input, right?

Box making has certainly come a long way from cutting them by hand. Today there are so many different substrates—solid bleached sulfate (SBS), coated unbleached Kraft (CUK), coated recycled board (CRB), uncoated Kraft boxboard (UKB), solid unbleached board (SUB or SUS) and many, many more. Every one of these will crease differently than the other, even if you start with the same board thickness.

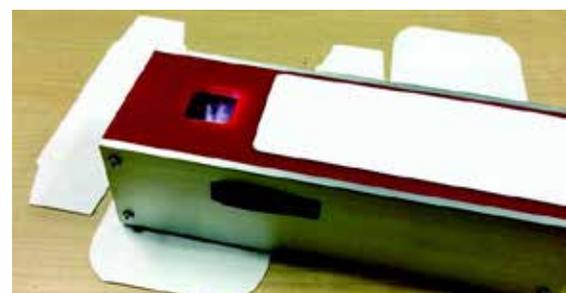
For the most part, boxes are no longer filled with products by hand; automatic box opening and filling machines are doing the work. These highly sensitive machines require specific loads that come from the creases to open the box properly and allow the product to be inserted. Not

only are these loads important, but also the quality of the cutting, folding and gluing. Having the box be out of square will stop these machines. If the force to open the box is too great, this too will put a damper in the day's production. Folding carton companies are really being brought to a higher level of quality in today's fast-paced market. It is routine now to check the force of the crease using a force bend tester; new to the market are crease checking devices (see Diagram 1).

There are so many ways to make creases and so many different types of board. Not all boards crease the same even when they are the same thickness. To complicate matters, not even the same board will crease the same day to day. Everything you can imagine affects this process, from board manufacturers' tolerances to moisture or dryness to inks and coatings.

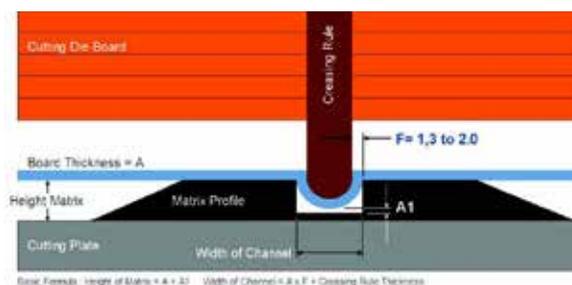


**John Dickison**  
Bobst North America Inc.,  
Roseland, NJ, USA



There is so much you really need to think about, you can no longer just tell the diemakers making your dies what the board thickness is, for instance, 16 pt. Has the board manufacturer's tolerance been taken into account? How thick is the coating and what is the fit factor (see Diagram 2 for the formula for calculating channel width and depth).

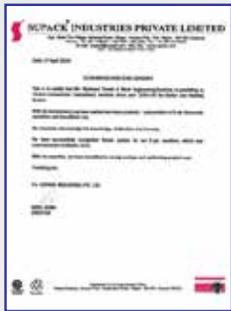
Now throw into the mix corrugated board or corrugated board with liners, and you cannot just tell the diemakers the thickness such as E-, F- or C-flute, without crushing the board and measuring the thickness (see Diagram 3). The era of just making





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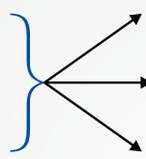


## BOILER CONSULTANT

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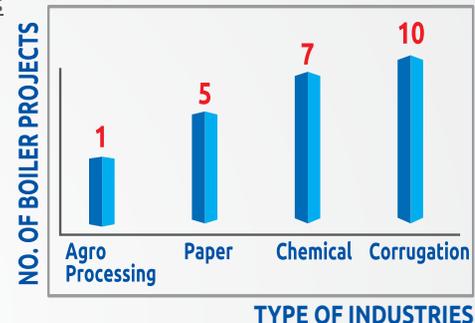
- ▲ Generation Area
- ▲ Distribution Area
- ▲ Utilisation Section
- ▲ Return/Recovery Area



To Provide Report For:

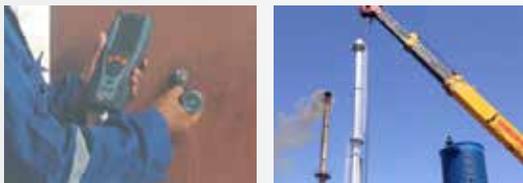
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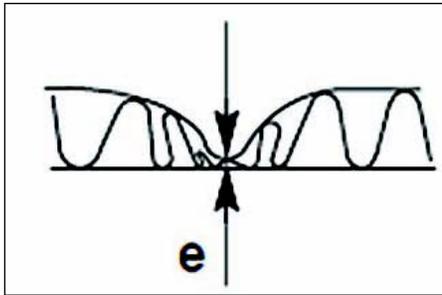
Email : markand@markengineeringservices.com Web : www.markengineeringservices.com

brown corrugated boxes has gone; litho lam and direct printing on corrugated are here and they require well-formed creases.

## Quality

Many companies are taking control of the quality of the crease. With some data collection, converters can really start to get a good picture of what's working and what's not working. There are devices available to check the creases like the Crease Checker Plus or Creasy that record the quality of the crease, the formation of the crease and, of course, the tolerance in which it is measured (as set by the user).

For example, let's use crease Sample A (see Diagram 4) and crease Sample B (see Diagram 5).



- Sample A: Well-formed and uniform, this was across the job (not in running direction) and with the grain. All the creases on this job in this direction were similar in formation and statistics.
- Sample B: Not very well-formed, sharp to the left. This is in running direction and against the grain. All the creases on this job looked similar, and knowing there was a thin plate involved, we can determine it was an alignment issue and a simple adjustment can correct this.

Having such information can visually tell you what's going on when you're using certain heights of creasing rule in combination with certain channel widths and counterpart depths. Counterparts

can be so many different things: PVC matrix, fiber matrix, metal-backed matrix, corrugate matrix, phenolic counters and steel counters. All these behave differently when you use different fit factors.

Although we cannot tell you exactly which type of matrix to use for your particular job, we can of course tell you where to start. When using a data collection device, you get some good history on board type and what gave you a good crease, and it will be easy to look up this information and come up with the correct matrix or counterpart calculation with correct rule height. The usefulness of these devices will enable you to be more productive, have less return and waste and, really, at the end of the day, invoice more to your customer.

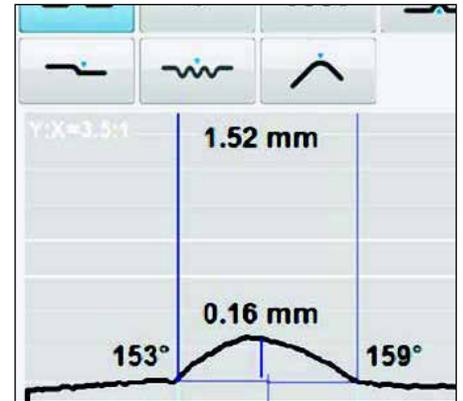
We can even look at the measurements of such creases and see the width and depth of the crease. Sample A, as stated, was well-formed and this is indicated by the fold angles of 153 and 159 degrees (see Diagram 6). Sample B was not so well-formed and we can also see this by the fold angles as they are 153 and 171 degrees (see Diagram 7).

Samples from statistic/quality control software (see Diagrams 8 and 9) allow us to start gathering some good data. In these two samples, we simply changed the allowable tolerance from +/- 0.1 mm (0.0039") to +/- 0.2 mm (0.0079"), and you can see what happens. When checking the first sheet, the operator would get a red indicator telling them the creasing is not to standard or off from last time, or they would get a green indicator telling them all is OK. The tolerance comes from the end user and/or converter. In addition, we can take known boxes of good quality and measure their creases to set our data base—in this instance you can see we already have a starting point for the size of matrix we will use (see Diagram 9).

## Basic guidelines

### Types of matrix

- PVC plastic: Good for abrasive board, plastic, virgin board, corrugated board; long runs of 100,000+.



- Metal-based PVC plastic: Good for abrasive board, virgin board, corrugated board; long runs of 100,000+.
- Hybrid material: Good for abrasive board, virgin board, corrugated board; long runs of 100,000+.
- Fiber material: Easily skived, not good for plastic; shorter runs less than 100,000.
- PVC corrugated matrix: Good for all corrugated material and thicker, solid fiberboard; wider base, stable and good for any type of run length.
- Counter material: Good for abrasive board, plastic, virgin board, corrugated board; available up to 2.0mm (.0079") which covers most thicknesses of solid and corrugated materials; long runs of 100,000+.

*Contd. on - 31*

# Put the Seal of Quality on Your Packaging

## Trust Linux



### Comprehensive range of Testing Equipments for measuring :

- Bursting Strength
- Box Compression
- Edge Crush
- Ring Crush
- GSM / Substance
- Puncture Resistance
- Water Absorption (Cobb)
- Moisture Content
- Tensile Strength
- Rub Proofness
- Tear Strength
- Stiffness Strength
- Caliper Thickness
- Drop Resistance
- Vibration Resistance

Testing is an integral part of Quality and Quality Assurance that of success.

In a competitive world, it is the Quality Assurance that sustains business and wins customers.

Participating as your partners in your endeavour is Linux – makers of Quality Testing Equipments.

Linux Testing Equipments, incorporating the latest innovative technologies, help you to assess the properties of raw materials as well as finished packages.

In a short span of twelve years, Linux has earned the trust and confidence of leading manufacturers and users of packaging, across India.

Your needs for package testing equipments will continue to drive our initiative and product innovations.

An attestation of our customer - centric approach.



Super Model



Micro Print Model



Clamp N Print Model



Double Head Model

### Bursting Strength Testers

Bursting Strength is a widely used measure of resistance to rupture in various packaging materials like Paper, Paperboard, Corrugated board, Nonwovens, Textiles, Geotextiles, Films, Tissues etc.

#### Models :

- Standard • Super • Double head • Eco Digi
- Micro digital • Micro print • Micro PC
- Available in two measuring ranges : 0-5 to 0-75 kg/cm<sup>2</sup>.



### GSM (Substance) Tester

Electronic model with 5 sample size measurement



### Equinox Moisture Meter

Hand held Digital Moisture Meter imported from Germany for instant moisture results.

## Compression Tester



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.

Linux Compression Tester – MicroPC Touch Screen Model is an Indian Industry First and can be used for testing of Packages for stacking load, transit load bearing capacity.

**Four Models :** • Micro Print PC • Micro Print (Microprocessor based Model with Printer Port) • Micro Digital • Touch Screen Display Micro PC



### Servo Crush Tester

“Linux” Servo Crush Tester are designed for performing Ring Crush Test (RCT), Edge Crush Test (ECT), Flat Crush Test (FCT), Pin Adhesive Test (PAT), Concora Medium Test (CMT), Corrugated Crush Test (CCT) and other general compression tests, on a variety of materials like paper, paperboard, etc.

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



### 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.



### Crease & Board Stiffness Tester

A multi-function tester, mainly used for measuring cardboard, color box (such as Duplex carton and Mono Carton boxes)



### Internal Ply Bond Tester

For testing internal bond strength of paper board.

Can Test five samples at a time



### Puncture Resistance Tester (Digital Model)

The puncture test determines the board's resistance to penetration by sharp and solid objects.

The results are given in Beach units (each unit is equal to 0.0299 joules).



### Cobb Tester

Determining water absorptiveness of papers, boards etc.



### Short Span Compression Tester (Sct Tester)

Equipment designed to perform Shot Span Compression Test and determining the compression strength on Fluting Medium and Test Liner papers within the grammage range of 100-400 g/m2 units.

All Linux equipments conform to National Standards (IS, FCBM) and International Standards (TAPPI, ASTM, ISO, BS, AS/NZ, SCAN, DIN, etc.)

Calibration traceable to National Physical Laboratory.



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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





- Steel plates: Good for abrasive board, plastic, virgin board and corrugated board limited in thickness up to 1 mm (0.0039”) for thicker, solid fiber or corrugated board; other types are available but may require a machine modification for different cutting plate thicknesses; long runs of 500,000+.
- Other materials: vulcanized fiberboard and certain proprietary materials are good for longer runs of 100,000+.

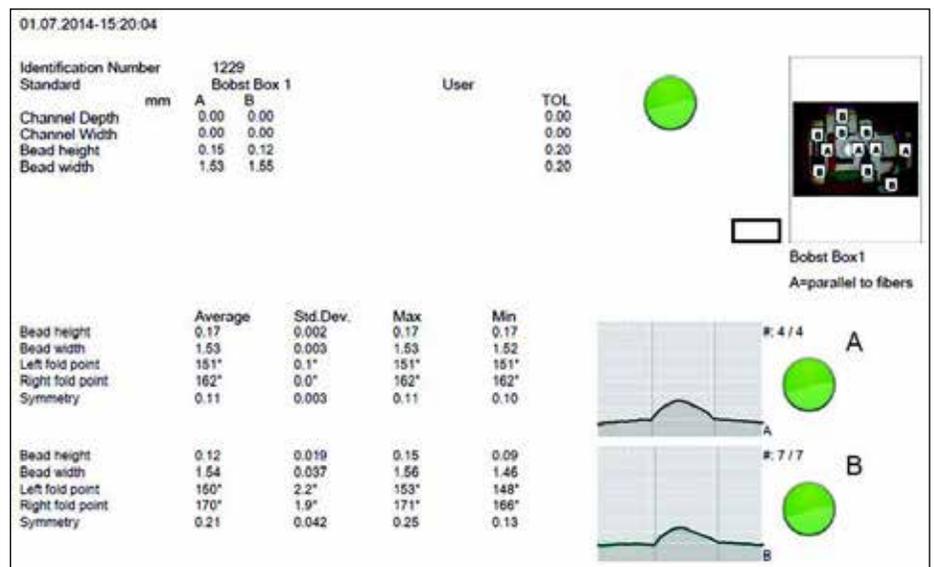
(see Diagram 10). It easy to say the diemaker is at fault when something is not working, but they are only making tooling with information provided by the customer; if the information is wrong, then it's hard to determine what happened. You get out what you put in, so to speak.

There is so much pressure being transferred to the die it really is incredible, and some common things that can cause a crease to go south include: misplaced matrix, wrong size matrix, wrong creasing rule height and misalignment of counters or steel plate. When calculating the height of the matrix, how many take into account the thickness

Talk to your manufacturer about the different types of matrix. Some are available with a strong acrylic-based adhesive which can be suitable for hot, wet climates or similar conditions. Your manufacturer can advise whether a particular type of adhesive may be harder to remove from your cutting plate and may require a special solvent to remove if the cutting plate is being re-used.

### Anatomy of a folding carton crease

So many things can go wrong at one time since you cannot see inside the platen during the cutting and creasing process





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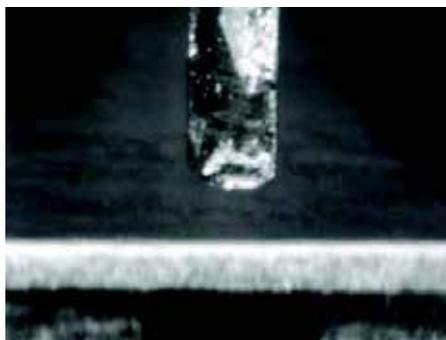
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of the base plus the adhesive? Do we allow for board thickness issues? Many times we see the creasing rule bottom out in the channel, so what do most people do? They increase the tonnage, right? Then they do the makeready with spot tape. Then all that extra tonnage is transferred to the creasing rule, and rule can be bent, believe it or not.

### Sharp creasing rule

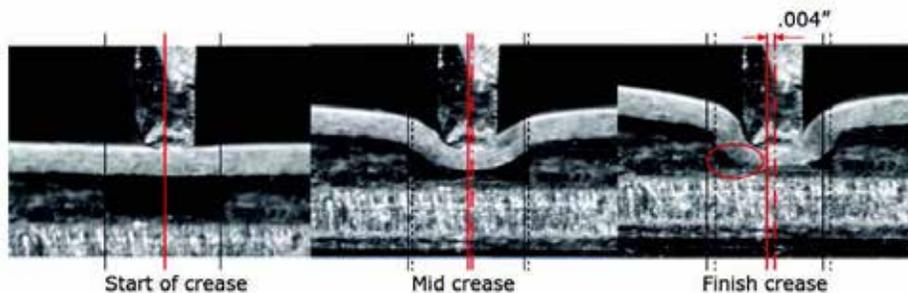
Sharp creasing rule can affect your creasing, making the crease itself sharp (see Diagram 11). The edge of the creasing rule is almost impossible to see or feel. What happens is the crease tends to then fold along this edge.



### Alignment issues

Misaligned matrix will cause creasing rule to move, as it will try to find the center of the matrix. In some cases it will cause the matrix to move on the cutting plate, which in turn causes many things. For one, the bond is broken to the thin plate, eventually leading to the matrix falling off. Secondly, if the matrix is fiber-based, it will cause the bond between the layers to fail, leading to delamination. Many times manufactures are blamed for this issue when in fact a cutter capable of producing 100+ tons (90.718+ tonnes) of pressure is most likely the culprit, along with some makeready issues. How many people run into panel sizes not matching the CAD file or cutting die? Matrix can move a creasing rule while it finds its center, thus changing your panel size and causing a host of other issues.

As you can see in Diagram 12, at the start of the crease everything is lined up; mid-crease we can see the rule moving and



matrix flex, and toward the end of the crease we can see approximately 0.004" (0.1016 mm) movement. Circled in red is a crack caused from the pulling of the board and stress of the machine tonnage forcing the rule—and in this case also the matrix—to move because of misalignment.

### Height issues

For calculation of creasing rule, many times we assume that just subtracting the board thickness will give us the creasing rule height. Not true—you need to take into account the base thickness of your counter, the adhesive being used and then, of course, leave some area for change when things like the board thickness changes. It's good practice to leave 0.005" to 0.01" (0.127 to 0.254 mm) clearance in the bottom of the channel. It is not good to smash the fibers of the board. You will get a much better crease by forming the fibers; smashing the fibers will cause the board to crack (see Diagram 13).



Cracking is not always the result of improper use of matrix, but is commonly caused by dry board conditions. The topic of dry board is for another segment. Current talk in the industry is board moisture should measure between 7-10%, and this can be checked by using a moisture meter. Do not confuse factory humidity levels with

board moisture. Keep in mind what we said before: we want to form and basically stretch the fibers, and without moisture it cannot happen. Paperboard is wood—with moisture you can bend wood into many shapes; without it the wood will splinter and break.

### What makes a good crease?

A good crease is well-formed and in proportion to board thickness (which varies, depending on the type of board). A good crease folds on center with just the correct amount of effort and is square and parallel. A good crease runs well on the gluer as well as meets all the filling requirements. A good crease does not just look good; we can prove it is centered by holding it on an angle and visually checking its shadow.

When a crease is well-formed, we can see this and measure it—even assign a tolerance that tells us when it is out. This will save thousands of dollars of product, machine time and re-runs.

Today the machine operator can measure the first sheet, determine if it's a good or bad crease and quality control departments can make determinations based on past data and current quality. Known boxes of acceptable quality from previous runs can even be scanned and set as standards so you're not starting from scratch. We can measure finishing machine times and come out with clear goals and standards.

In conclusion, where there are so many variables that come into play in the creasing process, it's best to know why something is happening so you can better prepare and make the necessary changes quickly. Our goal is to take out the guess work and increase machine productivity.



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Think of finished sheets as dollars; increased productivity can be directly turned into an invoice at the end of each day. Complex designs (see Diagram 14) with good creasing—and of course cutting—where crease characteristics remain the same regardless of when the job is run and repeated, can lead to less down time on finishing (gluer) and filling machines.

John Dickison is the Regional Service Manager, Tooling, North America for Bobst North America Inc. and IADD's Vice President of Technical Services. John may be reached at 1-973-226-8000 or by email at [john.dickison@bobst.com](mailto:john.dickison@bobst.com). For more information, visit [www.bobst.com](http://www.bobst.com).

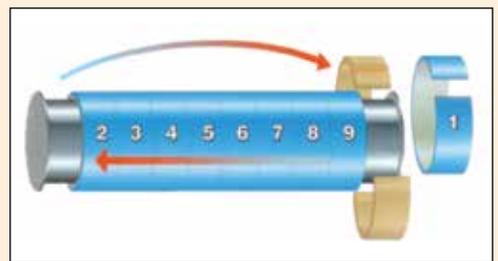
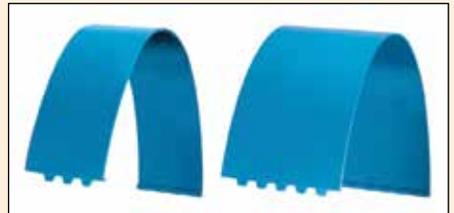
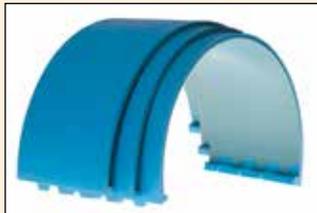
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# Shear LINE



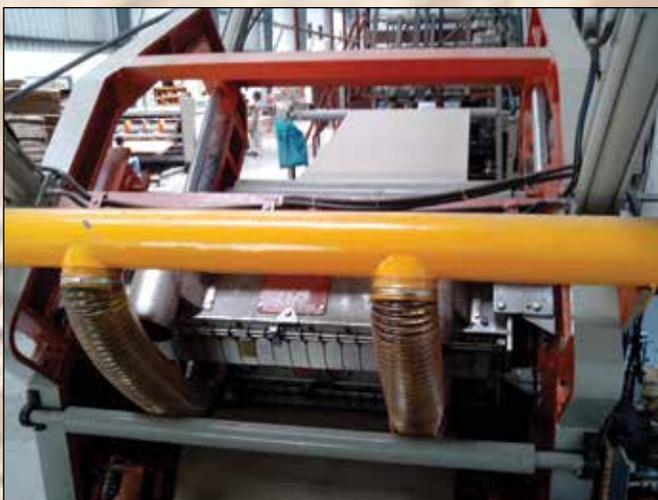
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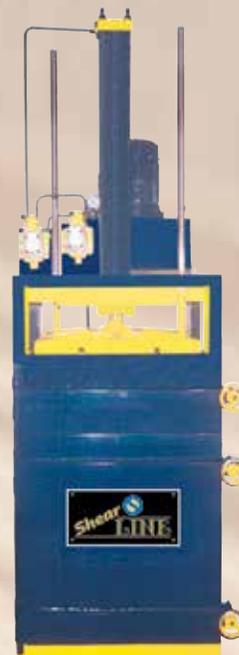
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# Corrugator Speed

Many times I am told the corrugator is not running at a high speed, and duly I am given some numbers about single wall and double wall speed. Excepting in one case, I have got single wall speed higher than double wall speed (which is what is usual). The one exception is also a valid case, and I will not discuss this here.

As I said, immediately the blame is put either on the corrugator or on the glue kitchen, as we happen to be representing manufacturers of these equipments. Of course it is the corrugator which has to produce board at a speed; but if that speed is not achieved, have we tried to analyse why? A few times I have found that it has nothing to do with the corrugator; but most of the time I have found that it is the corrugator, and the way we use the same. And, often, we do not provide the environment required for the corrugator to produce at optimum level.

Therefore, let me give you my perspective – and let me hastily add that my perspective is my own and is based on an average of circumstances I have encountered, and the same need not apply to the reader's situation.

The items that determine the speed of the corrugator, and hence the output in linear meter or tonnage, are:

## Input related

### Machine related

#### Input related:

There are only three inputs: paper and its quality. If the paper strength (or BF) is not appropriate for a particular speed, the operator will not run the corrugator at optimum speed to avoid frequent paper breakage and splicing. The corrugator has no role to play in this.

The second aspect is the glue. The gel point of the glue should be what the environment – paper, speed etc. – demands to get the desired speed. I will

not talk on the glue here, as it is a full subject. However, (a) I have clearly stated gel point and not viscosity as I expect the glue to have consistent viscosity; gel point is significant because if the glue either needs a longer time to gel (higher gel point and/or lower solid content or both/neither), or gels too fast (lower gel point), then you cannot run the corrugator efficiently. I am also a proponent of three formulas for running double wall so as not only to get a good speed, but also a flatter board.

I have not talked on the viscosity because viscosity is measured in different factories differently. Gel point is measured in centigrade or Fahrenheit – and is a non disputable measure. Whereas viscosity is measured in Stein hall cup, Ford Cup, Luv



**Anant Sarma**  
Jhalani Kamleh Overseas

cup etc., and varies from cup to cup. In the single tank, high shear system, the starch is sheared completely and hence the viscosity remains constant within a few seconds. In the case of SRS we know that the viscosity remains constant within a few seconds over a 48 hour period.

Viscosity also is related to the temperature. Therefore, we suggest that when viscosity is measured, the glue temperature is also noted. In the SRS system, we recommend the glue temperature at the MRT, immediately after mix, at around 38 deg.



# CORRUGATED PAPER CONVEYING SYSTEM



WAITING AREA FOR CORRUGATING MEDIUM	CONVEYING AREA FOR CORRUGATING MEDIUM	CONVEYING AREA FOR PAPER RETURN	AUTOMATIC WEIGHING AREA
<ul style="list-style-type: none"> <li>-Distributor for corrugating medium feeding</li> <li>-Centralizer for corrugating medium feeding</li> </ul>	<ul style="list-style-type: none"> <li>-Chain scraper conveyor for corrugating medium</li> <li>-Two-way push tractor for corrugating medium</li> <li>-Hydraulic centralizer</li> <li>-Feeding operation system</li> </ul>	<ul style="list-style-type: none"> <li>-Eliminator for damaged rolls</li> <li>-Pneumatic centralizer</li> <li>-Conveyor plate chain for corrugating medium</li> <li>-Pushing platform for corrugating medium</li> </ul>	<ul style="list-style-type: none"> <li>-Weigher for damaged corrugating medium</li> <li>-Recording system</li> </ul>

# CORRUGATED CARDBOARD CONVEYING SYSTEM



CORRUGATED CARDBOARD PRODUCTION AREA	INTERMEDIATE BUFFER AREA	PRODUCT PROCESSING AREA	FINISHED PRODUCT DISPATCH AREA
<ul style="list-style-type: none"> <li>-Cardboard conveying</li> </ul>	<ul style="list-style-type: none"> <li>-Cardboard conveying</li> </ul>	<ul style="list-style-type: none"> <li>-Cardboard incoming line and outgoing line</li> </ul>	<ul style="list-style-type: none"> <li>-Cardboard dispatch and conveying at wharf</li> </ul>

C. The heating needs to be adjusted to achieve this – especially in North India – where the ambient temperature during day time in summer crosses 48 deg. C and, hence, the temperature of the water which is added during the process, in the afternoon, is very high.

Let me, however, also state that consistent viscosity – that is a situation where the viscosity does not change significantly while in circulation – is very important, as, otherwise, the operator will have to attend to glue related issues which will necessitate slowing down of the corrugator.

In the beginning I mentioned that often the glue kitchen is blamed for not getting the appropriate corrugator speed. Let me emphasise here that an automatic glue kitchen, the high sheer single tank system, produces glue consistently batch to batch, and the viscosity remains constant over a period of time in constant temperature terms. This constant viscosity is independent and irrespective of the gel point required. The ingredients that go into making the glue – starch, water, caustic and borax – are mixed in certain proportion, and mixed over a period of time, to get the desired gel point. It is the responsibility of the corrugator user to run the corrugators at an appropriate speed, and demand a gel point that he needs. The SRS automatic glue kitchen will give you glue to that specification consistently, batch to batch.

The third variable is the calorific value of heat available over the hot plate length.

All these inputs are controllable and can be kept at or near the desired norms.

#### Machine related:

We have to look at each constituent of the corrugator and ensure that all of them are working in sync. I am assuming that the corrugator has auto splicers, and also a PMS or CPMS. These are essential tools to ensure minimum stoppage and maximum output at optimum speed.

a. Temperature of the medium and the liner. It is a common knowledge that

the paper has fibres, and the fibres have to be opened up to receive the glue so that bonding between the medium and the liner takes place. The typical method of opening the pores is thru preheaters and preconditioners. Ideally a temperature of 70 deg. C is required on the medium and the liner (in a recent article in The Corrugator I read 160-180 deg. F). Overheating or under heating the medium will affect the bonding, and the operator will slow down the corrugator to ensure better bonding. The medium should enter the corrugating rolls at 70 deg. C. Higher temperature will not let the starch penetrate deeply enough and lower temperatures will also lead to poor bond. I do not think most of the corrugators in India are equipped with automatic wrap arm control, but this should not prevent the operator from keeping a watch and adjusting the wrap angle manually.

b. Glue gap adjustment. The norm is slower the speed, higher the glue gap and vice-a-versa. Most of the machines may not have automatic glue gap adjustment – even those that have may not be able to use them in the absence of CPMS. Again, these should not prevent the operator from setting the glue gap adequately.

c. Hot plate length. I have mentioned the hot plate length specifically because the length of the hot plates, amongst other variables, also determines the maximum obtainable speed. 1800mm medium to high speed automatic corrugators normally come with 18 hot plates of 600mm width, and this is sufficient for the rated speeds.

d. Pressure on the hot plates. Basically we have pressure rollers and shoes. These help in transferring the heat from the hot plates to the board and on to glue to help gelling. Shoes are more efficient in heat transfer as it has larger area of contact, and hence boards can be run faster. Please remember the fundamental principle that we need a

certain calorie of heat to gel the glue – and the calorific value of available heat is a multiple of speed and hot plate temperature. The shoes need periodic inspection to ensure that they sit properly and give the desired weight. In the case of the Air Bond, the pressure is through the air bellows in each of the modules. Periodically, these air bellows are to be checked so that if any air bellow has developed leak, it can be replaced.

#### In summary, to get the desired speed:

- a. Paper, glue and heat have to be balanced.
- b. Temperature of medium and calorific value of heat transferred has to be appropriate.

Importantly the operators have to be trained, and motivated, to operate the system in auto mode and at optimum speeds. I have noticed, several times, on the shop floor, whenever I visit a plant, I see the owners complaining of the auto function not working, and on visiting the shop floor I see that the operator has put the function on manual mode. The operator is not used to auto mode, and is afraid that there may be board wastage. I have stood on the shop floor for 30 minutes or more, and the corrugator has run efficiently in auto mode. The operator's response is "sometimes" it gives trouble.

The shop floor manager has to bell this cat.

*"The author is a mechanical engineer with four decades plus experience in machine tools, cutting tools, and in automatic corrugating equipment and consumables. Currently, he is a partner in Jhalani Kamleh Overseas, New Delhi, a firm representing globally renowned manufacturers of corrugating equipment, converting equipment, and consumables."*





# Tungsten carbide corrugated roll



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## Company Profile

The company is located in taizhou, zhejiang province, specializing in carton packaging machinery (tungsten carbide corrugated roll) r & d and manufacturing, the company adhering to the quality of development experience and philosophy,

The company has been deeply engaged in the industry for nearly two decades and introduced a full set of corrugated roller manufacturing equipment. It is the first enterprise in zhejiang province with the production capacity of tungsten carbide corrugated roller.

The company has a number of Siemens full CNC corrugated roller grinder, cylindrical grinder and other large processing equipment,

The company has imported PRAXAIR supersonic flame spraying equipment and related supporting equipment from the United States, and has mastered the relevant spraying technology of tungsten carbide corrugated roll.

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### CHINA COMPANY INFORMATION

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COMPANY ADDRESS: LUQIAO DISTRICT, TAIZHOU CITY, ZHEJIANG PROVINCE

CONTACT INFORMATION: MR. WANG 13505774579 / 18606679332

FAX: 0576-82365832

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## Comprehensive Course in Corrugated packaging.

ACCT has a modest member base of 81 members in spite of which the 2-day Comprehensive Course in Corrugated Packaging had 145 paid delegates 25 students from IIP, Hyderabad were also present to gain knowledge from the experts of the industry.



Telangana & Andhra Pradesh put together have over 300 organised units out of which about 25 units are 3-ply/5-ply board plants and put together generate employment for over 5000 families having an estimate market size of 50,000 tons/month.



Mr. Prasad of Jairaj Fortune Packaging has created Mr. Bot which symbolises that we must keep with the changing times.

ACCT hopes to bring the next edition of Course to Hyderabad soon upon its launch for the benefit of the industry.



Chairman of FCBM Workshop & Seminar Committee Mr. Ramkumar Sunkara his team and Co-Chairman Mr. Amit Jain, Mr. Sanjay Bothra and Guest Faculty Mr. Bhaskar Reddy enlightened the participants.

FCBM President Mr. K Arunachallam inaugurated the Course on 11 May along with addressing the media present and FCBM VP 1 Mr. V.K. Dewan joined for the distribution of certificates to delegates and honouring course associates on 12 May.

The program was very well attended and covered by print media. Some media cutting are attached.



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## Comprehensive Course in Corrugated Packaging, Pune

WICMA conducted the Two Day Comprehensive Course in Corrugated Packaging on 18th & 19th April at Auto Cluster Development & Research Institute Pune.

Course was attended by 101 participants from all over Maharashtra. There were some participants from Gujarat also.

Course was conducted by FCBM team lead by Shri Ramkumar Sunkara, Chairman, Seminars & Workshops Sub- Committee.

The other faculty members were Shri Bhaskar Reddy & Shri Sanjay Bothra.

On completion of course all participants were awarded Certificates by FCBM President Shri K. Arunachalam.



# NMDC Delegation meets Hon'ble Shri. Nitin Gadkari and Shri Sunil Kumar, Addl. Secretary, Ministry of Commerce & Industry

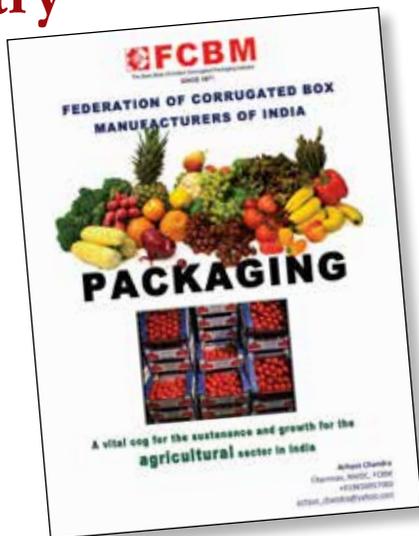
## Corrugated Packaging for People, Planet & Profit

India ranks second in the production of fruits & vegetables in the world, behind China. However, India's share in the global market is less than 1% and despite being a top producer, India's ranking as exporters of fruits & vegetables is not even in the top fifty. As much as 30-35% of Fruits and Vegetables perishes during harvest, storage, grading, transport, packaging and distribution – loss of almost Rs 15,000 crores annually.

FCBM has been steadfastly campaigning for the use of Corrugated Packaging for fruits and vegetables, over the years. The New Market Development Committee (NMDC) of the federation has participated in trade fairs, events, seminars & workshops across the country, to apprise the stakeholders the necessity of proper packaging of fruits & vegetables and the advantages of corrugated packaging – not only for shipping but also for storage, protection, display and branding.

Corrugated boxes are bio-degradable and perhaps the best environmental-friendly packaging solutions available. Apart from developing promotional videos, brochures and handbills, the NMDC team had released an analysis report at the World Orange Festival in Nagpur, on the 18th January, 2019. The report titled "Promotion of corrugated boxes for packing agricultural produce which can be a game changer for NATIONAL ECONOMY".

The report focuses on key issues that are affecting the farmers directly, affecting the environment adversely by the use of plastics and wooden crates and eventually resulting in depletion of the national wealth.



- The huge loss of over 30% of agricultural and horticultural produce post harvest which reduces the returns of the farmers and also a loss of national wealth.
- The deficiency in availability and/or lack of knowledge of modern packaging solutions one of the key reasons for these damages.



*The FCBM team with the Union Minister Shri Nitin Gadkari*

- Ancient practice of wooden crates usage is resulting in uncontrolled deforestation.
- Modern packaging practices will open up MSME manufacturing units at rural belt which creates a huge employment

potential to the extent creating opportunity one crore man days per month for every 100 million tons of product packed.

- It also gives a detailed comparative study of various modes of packaging with their advantages and disadvantages with back up research results from renowned universities of the world.



*Shri V K Dewan, VP -1, FCBM greeting to Shri Nitin Gadkari, Hon'ble Union Minister.*

The report, prepared by Shri Achyut Chandra, NMDC Chairman, is uploaded on FCBM website [www.fcbm.org](http://www.fcbm.org) and may be viewed following the link <http://www.fcbm.org/pdf/1s/fcbm-report-2019.pdf>

We were fortunate to have been invited for a meeting with Shri Nitin Gadkari, Hon'ble Union Minister on 17th June, 2019 for a discussion to understand the contents of the said report.

Team FCBM led by our enterprising President Shri K Arunachallam, Shri V. K. Dewan (VP), Shri Milan Dey (VP-2),



Shri Achyut Chandra (Chairman – NMDC), Shri Kirti Gandhi and Shri K. P. Singh, senior FCBM Managing Committee members met Shri Gadkari at his official residence in New Delhi.

After the interaction Shri Gadkari referred the report to Mr. Vaibhav, his secretary and instructed him to make a detailed analysis on the subject, consulting other concerned departments and if need be meet up again with the FCBM team for further clarifications.

The FCBM team were also fortunate to have a constructive meeting with the Addl. Secretary, Ministry of Commerce & Industry, Shri Sunil Kumar, IAS, in his office at Jeevan Tara Building, New Delhi. A copy of the report was also handed over to him.

Shri Sunil Kumar referred the matter to both APEDA and IIP for their opinion and further course of action. Shri Kumar advised the team to initiate dialogue with the state administration of UP as a test market for

packaging of fruits and vegetables for the domestic sector, using the APEDA and IIP as communicators. Based on the results in UP other states could be approached.

Shri K P Singh, senior FCBM MC member and NMDC member, has kindly consented to coordinate with government departments - both central and state govt. of UP, IIP and APEDA, as a follow up of the endeavour as representative of FCBM.

We would like to acknowledge the untiring effort of Shri Kirti Gandhi for facilitating the meeting with the Hon'ble Minister moreso, on a day, which happened to be the first day of parliament of the new government and to Shri K. P. Singh for offering to represent FCBM locally in New Delhi and adjoining areas.

Kudos to the NMDC Chairman, Shri Achyut Chandra for his dedication and preparing the NMDC report. Last but not the least, we would like to acknowledge Shri Arunachalam, President FCBM, for

motivating the team and leading from the front.

The journey which started in a small town in North Bengal, Haldibari way back in July 2012 and continued to travel through Bhagalpur (Bihar), Malda & Bankura (WB), Arunachal Pradesh, Nagpur, New Delhi, FCBM has pursued this noble cause of promoting a suitable and viable option by way of using corrugated boxes for packaging of fruits & vegetables across the country – a packaging which is friendly towards people – (growers, traders, users,) a packaging which is friendly towards the environment & our planet and eventually contributing to the growth of the economy of this great country.

FCBM will not shy away from any responsibility given to us in propagating, training and educating stake holders at grassroot level to promote the use of corrugated packaging. With blessings and support from the government, we will surely succeed in our endeavour.



## UPCBMA

The Varanasi Chapter of UPCBMA under the leadership of Convener Mr. Rajesh Bhatia co-organised National Workshop on Recent Advancement in Food Packaging and Preservation, at Banaras Hindu University.

The Subjects of Sessions and Speakers are given below.



<b>TECHNICAL SESSION 2: Innovation in Packaging with Special reference to Paper and Paper Based and Corrugation Industry</b>	
<b>Session Chairman:</b>	
<b>Co-Chairman: Mr. Kartik Jaiswal, Immediate Past President, UPCBMA, Varanasi</b>	
<b>Rapporteur:</b>	
• Industrial Aspects of Corrugation Industry	Mr. Rajesh Bhatia, President UPCBMA, Varanasi
• Role of Bio-preservation for Food Industry	Dr. Mahejaben Khan, Scientist, CSIR-CFRI, Mysore
• Intelligent Packaging for Dairy Application	Mr. Gaurav, Scientist, ICAR, NDRI, Karnal
• Innovation in Packaging with special reference to Paper and Paper Based Packaging	Mr. AK Datta, Guest Faculty, IIP Delhi.
Summing up by Session Chairman	



Contd. on - 50





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## The 3rd FCBM Managing Committee Meeting - Chandigarh

The 3rd FCBM Managing Committee Meeting of the year was held on 23rd June 2019 at Hotel Radisson, Zirakpur, Chandigarh. The sub-committee meetings were held on the previous day i.e. 22nd June 2019. The Managing Committee deliberated on various issues concerning the Corrugated Box Manufacturing Industry and reviewed the activities of the Federation. One notable feature was the briefing of the New Markets Development Sub-Committee on their meeting with Union Minister, Shri Nitin Gadkari and other top Govt. Officials. The meetings were part of the NMDC's efforts to promote Corrugated Boxes for Horticultural Packaging.

The meeting ended with a vote of thanks for the hospitality and arrangements of hosts. HPCBMA.





Join the Industry Event of the year



# 48<sup>th</sup> Conference of Federation of Corrugated Box Manufacturers of India

20-22, December 2019 - Jaipur, INDIA

Venue: **Fairmont Hotel** - Jaipur, Rajasthan

Hosted by:



## *Dear Friends,*

On behalf of Rajasthan Corrugated Box Manufacturers' Association (RCBMA), it gives me immense pleasure to welcome you to the 48th FCBM Conference being proudly hosted and organised by RCBMA.

It is the first time in the last 48 years that RCBMA has got this opportunity to host FCBM Conference and showcase the grandeur of culture and hospitality of Rajasthan to all its fellow FCBM members. Therefore, TEAM RCBMA is waiting with folded hands to welcome you along with your family with feelings in our DIL - "Athithi Devo Bhava".

The 48th FCBM Conference is being held at Fairmont, Jaipur from 20th, 21st and 22nd December 2019. Jaipur needs no introduction as the most sought after destination for tourist and rajwara style weddings in India and the whole world.

The venue is regarded as the finest property in Rajasthan – with its picturesque fort structure and grand Rajasthani ambience along with unmatched hospitality, definitely a lifetime experience.

FCBM Conference is the annual principal event of the Corrugated Packaging Industry of not only India but world over, where everyone connected with Packaging Industry congregate and communicate on a personal level, also gain knowledge and latest know-how from celebrated speakers from all over India. It is also an occasion that strengthens fraternity and fellowship. This year the theme of the Conference is DIL - Design • Innovate • Learn where we will encourage our delegates to take a step forward for the betterment of our Corrugation Industry.

CorruMach-Auto Expo will be a platform for exhibiting evolving technologies, systems, materials and methods. With over 140 stalls, we are planning to strike a fine balance between machines, material, new technology,

ancillaries for not only automatic plants but also medium sized plants looking for faster production at reasonable costs.

It gives me immense happiness and pride to inform you all that we have already got registrations for more than 350+ delegates from all over the country. We have already booked more than half of our premium venue - Fairmont hotel. It is also a matter of delight for us that most of the members are booking with their families and we are expecting a huge gathering of respected females this year around. Accordingly, we are planning special arrangements to keep the families busy and involved.

Along with the regular Cultural Programmes, we have also planned a special gala night that will give you a glimpse of traditional Rajasthani hospitality witnessed in the very famous destination weddings of Rajasthan.

We have also booked more than 50 stalls already and are in advanced negotiations for the remaining one's. We expect to exceed our targets for the exhibition.

This is an advance invitation to request you to block the dates of 20th, 21st and 22nd December 2019 for participating in the events and enjoying our hospitality. For this purpose, there is a table of registration charges overleaf to help you understand the tariff. We have also made our conference website [conference.rcbma.com](http://conference.rcbma.com) where you can visit and know more about our conference as well as register and make payment online with a few clicks of the mouse.

On behalf of RCBMA – the host association, I solicit the privilege and pleasure of your presence at the 48th FCBM Conference.

Yours truly,

**SUMIT GOEL**

Conference Chairman

**Rajasthan Beckons You !**

*Padharo Mhare Desh*



**48<sup>th</sup> Conference of Federation  
of Corrugated Box  
Manufacturers of India**

**20 -22 DECEMBER 2019**



All Rajasthan Corrugated Board &  
Box Manufacturers Association



Venue :

*Fairmont*  
JAIPUR

For online registration, Please log on to  
[www.rcbma.com](http://www.rcbma.com)



**Registration Committee:**

**Shiv Prakash Gupta**

Chairman  
+91 93145-07360  
hocijp@gmail.com

**Vijay Gurbani**

Co-Chairman  
+91 98290-53901  
vijaygurbani@rediffmail.com

E-mail : [conference@rcbma.com](mailto:conference@rcbma.com)

Members

**Apoorv Agarwal** - +91 99299 03799  
**Mohit Jain** - +91 99830 53754  
**Nitish Chugh** - +91 98291 21314  
**Sudhir Dange** - +91 94145 23603  
**Vinod Garg** - +91 98285 54909

**Hospitality Committee**

**Vivek Agarwal**

Chairman  
+91 98290 12583  
laxmipackagings@yahoo.in

**Gaurav Mangal**

Co-Chairman  
+91 96948 88868  
ompacks@gmail.com

E-mail : [conference@rcbma.com](mailto:conference@rcbma.com)

Members

**Anand Khandelwal** - +91 97994 96112  
**Anil Agarwal** - +91 93145 28940  
**Kartik Jain** - +91 99820 73073  
**Mukesh Garg** - +91 98292 79563  
**Navratan Jain** - +91 94143 59386  
**Rohit Agarwal** - +91 99291 65765

**DELEGATE REGISTRATION FORM**

Name of the Participant : ..... Mob. No. ....

Name of Spouse : ..... Mob. No. ....

Name of Child (Above 12 Years): .....

Organisation : .....

Address: .....

Legal Name of Tax Payer .....

GSTIN No. ....Email: .....

Food Preference :- Vegetarian  Non Vegetarian  Jain Food

**\*Attach Legal Photo ID Proof & 2 Passport Size Photo**

**NOTE**

1. Booking Form for rooms will be processed on receiving Registration confirmation only.
2. Please send your photo ID along with your Registration Form for easy check in at hotel.
3. For Registrations received after 1st November 2019, Registration kit will be given subject to availability.
4. Cancellation policy Registration : Fee is non-refundable.
5. For single/triple occupancy kindly contact hospitality committee.
6. Extended night before and after kindly contact hospitality committee.

**Organizer :**



**All Rajasthan Corrugated Board &  
Box Manufacturers Association**

Address -D-1, Sudershan Pura Ind. Area,  
Bais Godown, JAIPUR-302006  
Cell. : +91 - 98290 16240  
E-mail : [conference@rcbma.com](mailto:conference@rcbma.com), URL : [www.rcbma.com](http://www.rcbma.com)

**Please See overleaf for Registration Charges.**

Conference Chairman

**Sumit Goel**

+91 98290 69467

Conference Co-Chairman

**Hemendra Agarwal**

+91 94140 66965

President

**Rajeev Katta**

+91 98290 16240



पधारो म्हारे देश ....

Payment details: Please ( ✓ ) below

For more than one participant please make photo copies to fill details of each participant

<b>REGISTRATION FEES</b>				
* All Rates are two nights twin Sharing basis inclusive of buffet breakfast.				
<b>PARTICULARS</b>	<b>Fairmont TWIN SHARING</b>	<b>Registration</b>	<b>GST (18%)</b>	<b>TOTAL</b>
<input type="checkbox"/> FCBM Member (Upto 30 June 2019)	8500	6000	2610	17110
<input type="checkbox"/> Spouse or child>12 yrs(Upto 30 June 2019)	8500	4000	2250	14750
<input type="checkbox"/> FCBM Member (Upto 30 nov 2019)	9500	7000	2970	19470
<input type="checkbox"/> Spouse or child>12 yrs(Upto 30 nov 2019)	9500	5000	2520	16520
<input type="checkbox"/> Spot (After 30 nov 2019)	10000	9000	3330	21830
<input type="checkbox"/> Spot Spouse (After 30 nov 2019)	10000	6000	2700	17700
<input type="checkbox"/> FCBM Non-Member	10000	10000	3600	23600
<input type="checkbox"/> Non-member Spouse	10000	7500	3150	20650
<input type="checkbox"/> Foreign Delegate	USD 150	USD 250	USD 72	USD 472

<b>REGISTRATION FEES</b>				
* All Rates are two nights twin Sharing basis inclusive of buffet breakfast.				
<b>PARTICULARS</b>	<b>Clarion TWIN SHARING</b>	<b>Registration</b>	<b>GST (18%)</b>	<b>TOTAL</b>
<input type="checkbox"/> FCBM Member (Upto 30 June 2019)	5000	6000	1980	12980
<input type="checkbox"/> Spouse or child>12 yrs(Upto 30 June 2019)	5000	4000	1620	10620
<input type="checkbox"/> FCBM Member (Upto 30 nov 2019)	6000	7000	2340	15340
<input type="checkbox"/> Spouse or child>12 yrs(Upto 30 nov 2019)	6000	5000	1980	12980
<input type="checkbox"/> Spot (After 30 nov 2019)	6500	9000	2790	18290
<input type="checkbox"/> Spot Spouse (After 30 nov 2019)	6500	6000	2250	14750
<input type="checkbox"/> Non-Member	6500	10000	2970	19470
<input type="checkbox"/> Non-member Spouse	6500	7500	2520	16520
<input type="checkbox"/> Foreign Delegate	USD 125	USD 250	USD 67.5	USD 442.5

<b>REGISTRATION FEES</b>			
<b>PARTICULARS</b>	<b>Registration</b>	<b>GST (18%)</b>	<b>TOTAL</b>
<input type="checkbox"/> FCBM Member (Upto 30 June 2019)	6000	1080	7080
<input type="checkbox"/> Spouse or child>12 yrs(Upto 30 June 2019)	4000	720	4720
<input type="checkbox"/> FCBM Member (Upto 30 nov 2019)	7000	1260	8260
<input type="checkbox"/> Spouse or child>12 yrs(Upto 30 nov 2019)	5000	900	5900

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**Signature**  
 (Please affix your company Seal with Address)



पधारो म्हारे देश ....

# SINO CORRUGATED

8-11 April 2019

Shanghai, China

## SinoCorrugated 2019: Leading International Corrugated Exhibition

### Revealed Industry-Defining Highlights

From April 8 to April 11, 2019, the four-day SinoCorrugated event was held at the Shanghai New International Exhibition Centre. Businesses seeking high quality cutting-edge equipment to facilitate efficient production visit this exceptional platform to fulfill their objectives. In a massive boost to the show's value, SinoCorrugated 2019 ran concurrently with SinoFoldingCarton and PACKCON. A further two new shows were introduced to the global converting community at the same time: SinoPaper and SinoFlexPack. The five events were combine to create one mega expo that brought together over 1,100 established brands to display 1,800+ high-end, cost-effective pieces

of machinery, ancillary equipment and consumables across an exhibition area of over 110,000 sqm.

### SinoCorrugated: A Longstanding Industry Highlight that Continually Drives Growth

SinoCorrugated alternates between Dongguan and Shanghai each year. This event, together with SinoFoldingCarton makes definitive contributions to the development of the global corrugated industry, year after year. 2019 was no different, as over 80,000 local and international visitors descended on Shanghai. Among the visitors there more government figures and industry professionals from the local and international private sector.

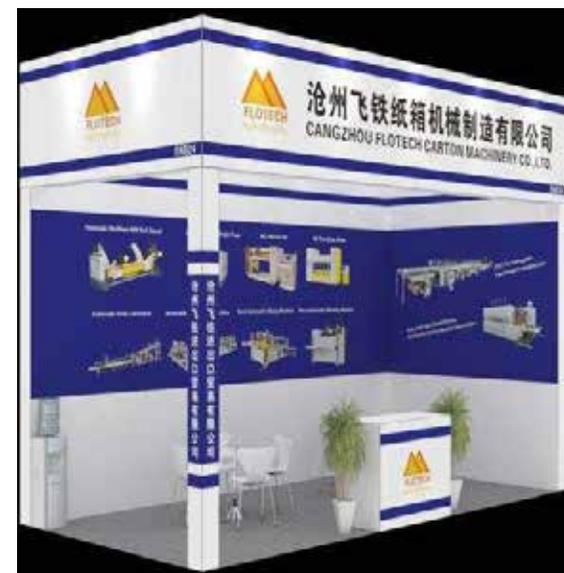
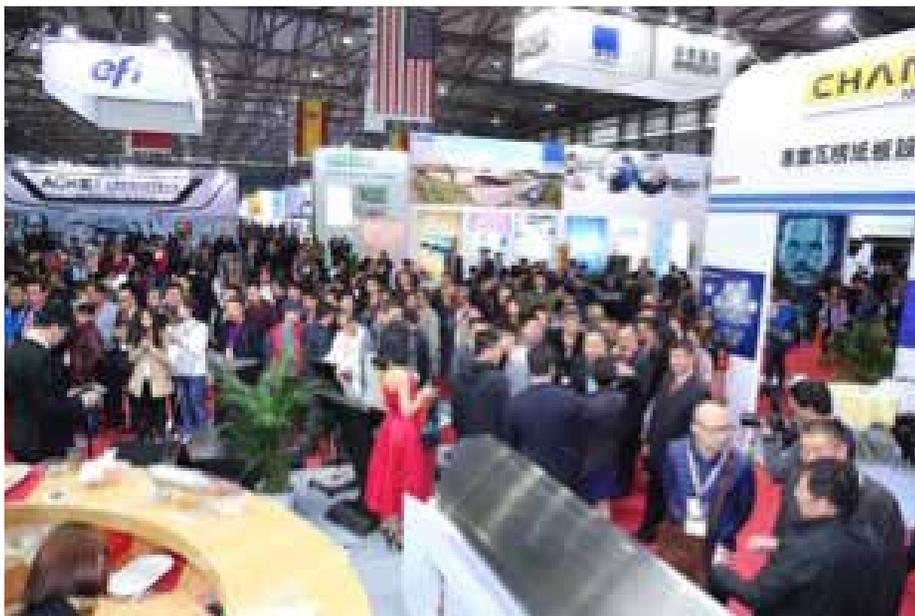
Also an extensive seminar program proved to be an area of great interest for visitors. The free-to-attend sessions explored a diverse mix of key topics central to today's global packaging industry. The meetings

also highlighted innovations and best practices making an impact on converting around the world.

### Industry Authorities Endorse SinoCorrugated 2019

SinoCorrugated is recognized as a key industry authority, backed by some of the world's most influential corrugated industry associations, including the Asian Corrugated Case Association (ACCA), the Federation of Corrugated Box Manufacturers of India (FCBM), the Hong Kong Corrugated Paper Manufacturers' Association (HKCPMA), the Korean Corrugated Packaging Case Industry Association (KCCA), La Cámara Argentina de Fabricantes de Cartón Corrugado (CAFCCO) and the All India Federation of Master Printers (AIFMP). Each of these bodies sent strong delegations to attend the show.

Perhaps for the first time an Indian Machinery Manufacturers (Flotech) participated as an exhibitor.



## FCBM @ SinoCorrugated 2019

SinoCorrugated Expo 2019, the global trade show on corrugated packaging organised by Reed Exhibitions was held in Shanghai New International Expo Centre (SNIEC) from 8th to 11th April, 2019. A huge FCBM delegation – the largest ever, led by Shri Arunachallam, President, visited the show this year.



**Shri K. Arunachallam**  
President, FCBM

Spread over 1,10,000 sqm with more than 1100 exhibitors displaying live machineries and consumables and over 80,000 visitors, this was perhaps the biggest show on earth for corrugated packaging. This year along with SinoCorrugated, SinoFoldingCarton, SinoFlexPack, ChinaPackagingContainer and SinoPaper were held at the same venue making the event a 5-in-1 mega event for the packaging industry.

The highlight of this year's event was the "Proud of India Parade", during the opening ceremony of the exhibitions on 8th April, 2019. With the Tri-colour fluttering, amidst chants of Jai Hind and Bharat Mata Ki Jai,

It was indeed a proud moment for the Indian delegation as the parade passed through all the pavilions on its way to the meeting room where the exhibition was formally inaugurated by Shri Anil Kumar Rai, Hon'ble Consul General of India in Shanghai, Ms. Josephine Lee, COO, Reed Exhibitions and Shri K. Arunachallam, President, FCBM.

Following the rendition of the Indian National Anthem, Shri Arunachallam said, "the Indian Corrugated Industry has been able to make the leap into the next generation technology-wise and contribute actively to Make In India with substantial impetus from the corrugated packaging machinery manufacturers from China and SinoCorrugated has been the meeting ground where this partnership has been nurtured and fructified for the benefit of both". The President congratulated the entire team of Reed Exhibitions for their committed effort which helped SinoCorrugated grow in scale and



**Shri Anil Kumar Rai**  
Hon'ble Consul General of  
India in Shanghai

grandeur over the years. "With this synergy between FCBM and Reed, I am confident that our mutually beneficial partnership will set new benchmarks and both of us stand to gain with the resulting volume of business", concluded Shri Arunachallam. The President also, felicitated the dignitaries present at the inauguration.

A specially designed brochure for promoting the FCBM Conference 2019 at Jaipur and FCBM Conference 2020 was distributed in the exhibition seeking the participation in the forthcoming FCBM conference.





## Shaping the future of Corrugated

World Corrugated Awards is an international event co-organised by Reed Exhibitions and corrugated industrial associations from all over the world. This event is designed to select the most pioneering design, marketing, management and social responsibility case of the year to award the teams and individuals who have made outstanding contributions to the development of the global corrugated industry.

### Objective of these awards is

Honoring leadership, vision, innovation and strategic accomplishments of companies, teams and individuals within the corrugated industry!

The grand award ceremony was organised on 7th April 2019 in Shanghai, China.

## Following are the Award Categories

### Innovation Category

- Design Innovation Award
- Material Innovation Award
- Application Innovation Award

### Corporate Management Category

- Risk Management and Control Award
- New Factory Planning Award (Carton factories and equipment factories)
- New-Generation Professional Manager Award

### Social Value Category

- Environment - friendly and Intensive Production Contribution Award
- Humanistic Practice Award



**The winning of awards by Indian Companies is a testimony of the strong growth and professional upgrading of the Indian Corrugated industry.**



1. Velvin Paper Products Mumbai received the 2nd World Corrugated award 2019 in the

### NEW FACTORY Planning Category

Velvin Paper Products was nominated for the category New Factory Planning Award and was the only Indian company in this category. The winner of the award was to be assessed by both – Online voting and review from 14 Professional Industry Judges from all over the world. In online voting round, Velvin was voted into top 3.

Competing with large scale Chinese and Middle East companies, Velvin Paper Products bagged in 2nd Award under the New Factory Planning category.

2. Amit Agarwal of B&B Triplewall Containers Ltd. received in the 3rd prize in the

### New generation Professional Manager Category

Mr. Amit Agarwal (CEO of B&B Triplewall Containers Ltd.) was nominated under “New Generation Professional Manager” category. (“Manager” in China denotes entrepreneur or owner of a business.)

The nominees were chosen among several nominations by way of public voting. The list was narrowed down to three places and then a Jury of 14 eminent judges from all over the world decided on the final First, Second and Third position. Mr. Amit Agarwal was leading in the public voting.





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# Wet-Strength Resins: Cost vs. Quality

## Shaving costs with inferior resins is false economy

The benefits of wet-strength resins are well-known; virtually all box plants use them sometime; some run them continuously. Their use is a given for boxes that will carry produce, meats, or similar products—and wise for any box that could be exposed to a wet or humid environment anywhere in its travel from plant to consumer.

Less well-understood is the fact that wet-strength resins are not all the same, and that how they are used makes a significant difference in the quality and integrity of the final box. These are important issues; boxes that fail can ruin shipments, waste money, and lose customers.

## The evolution of modern wet-strength resins

The level of water resistance needed from a corrugating adhesive varies depending on the box application and the performance requirements of the customer. The resins used to provide wet strength have evolved greatly in the past 60 years.

Originally, plants used a resorcinol-formaldehyde product that was difficult to prepare and had run-speed limitations. Various urea-formaldehyde and melamine-formaldehyde blends were developed that had to be used with low-pH starch adhesive. These caused running limitations due to a high gelatinization temperature and unstable viscosity. In 1950, the ketone-formaldehyde resins were introduced to the corrugating industry and have since become the most widely used waterproofing additive.

Currently available ketone-formaldehyde or ketone-aldehyde resins, although all are derived from the same basic chemistry, differ significantly depending on the manufacturer. All these resins are

thermosetting. They develop wet strength in the same manner by mixing with the starch and hardening (gelling) in the glue line with the heat of the corrugator. However, they vary in the ratios of key raw materials from which they are formulated. They also vary in the crucial characteristics of percent solids content, percent of free formaldehyde present, the length of time to gelatinize, and reactivity with the starch adhesive. All these characteristics are important in a resin so that it will provide

the product. In 1987 OSHA published its Final Rule on occupational exposure to formaldehyde and revised it again in 1992. The rule states that the maximum average exposure to a worker is 0.75 ppm over an 8-hour period.

This ruling, coupled with the requirements of box plants' Air Quality Permits, has forced all resin manufacturers to reduce the amount of free formaldehyde in their products. However, different methods



the best water resistance and overall value to a box plant and its customers.

## Active solids matter

Some resins are 100% active solids. Others have inert ingredients which ultimately boost the solids value of the resin but don't add anything to wet strength performance. You may be sacrificing performance for a low price point.

## Reducing Residual Formaldehyde

Another important issue in considering wet-strength resins is the residual, or unreacted, formaldehyde remaining in

of reducing, cross linking, or scavenging residual formaldehyde produce varying end results. Some formaldehyde reduction methods dramatically reduce the overall ability of the resin to perform at its best. Some methods can actually create an adhesive bond that attracts moisture, defeating the purpose of a wet-strength adhesive.

## Don't Compromise on gel time

The gel time for ketone resins is also affected by the type and amount of raw materials used in manufacturing. The gel time is crucial to a corrugating adhesive since it is directly proportional to the



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ultimate amount of wet strength it can develop. Desirable resins have a short, finite gel time that will deliver higher levels of water resistance. Resins that don't completely gel in a short period of time normally don't develop the same degree of water resistance. Some of the current undesirable resins on the market have very long gel times, with virtually no end point.

All wet-strength board must be allowed to cure in the stack before converting to let the resin finish hardening. While stack-cure time can be increased to compensate somewhat for slower-acting resin formulas, most plants do not have the space, time, or operational flexibility to wait 24 hours to convert board. (See sidebar: Stack cure time: how much is enough?)

### Use enough to do the job

Reducing the application rate of starch adhesive is another way plants try to save a few dollars. The appeal is understandable: by keeping glue gap settings low, or using the same setting for wet-strength board as for regular board, plants can lower their total adhesive cost.

In reality, the gap settings and the overall application rate need to be increased to produce good water-resistant board. By

increasing the amount of adhesive applied, there is a shoulder formed on the flute tip to protect the pressure line (location with the least amount of starch) from water. The finished board made with a lower application rate will be less water resistant than board made with the proper amount

of starch. This will cause the plant to have box failures and additional costs from customer returns.

### Good adhesives: big returns from a small investment

All these issues are part of the perpetual tug-of-war between cost and quality.

The cost of paper alone is two-thirds of the finished box. The cost of the starch adhesive is less than 2 percent of the box, and the resin is only 25 percent of the adhesive cost!

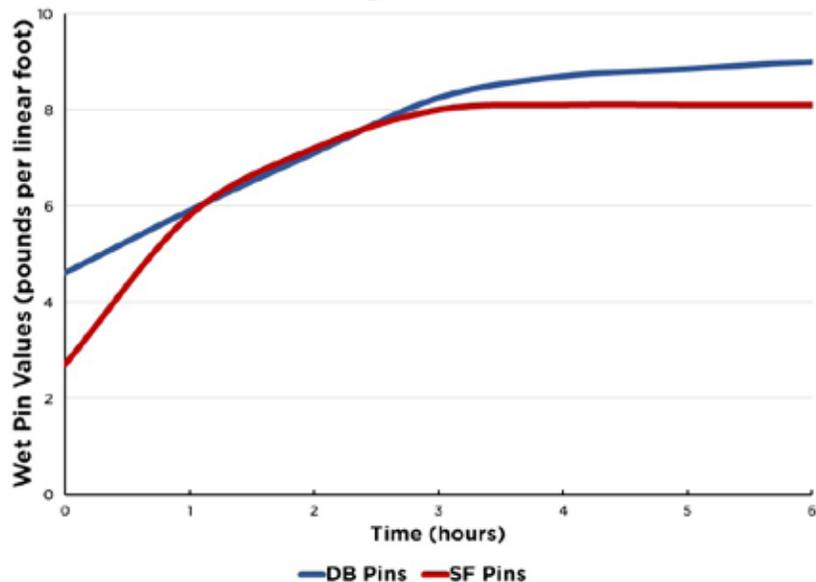
Superior wet-strength resins, such as Aquasel™ W-150, deliver high solids, short gel times, no detectable free formaldehyde, no resin shock, and superior batch-to-batch consistency. The quality and performance of the resin is the foundation of the quality and performance of the box. With so much at stake, shaving cost with inferior resins is clearly false economy. It is far better to invest in—and deliver—higher quality and enjoy the loyalty of satisfied customers.

#### Stack cure time: how much is enough? And what about those fans?

With conveyorized production and customer-driven Just-In-Time (JIT) requirements, there is great urgency to move board from the corrugator to finishing operations as quickly as possible. Some manufacturers force-cool the stacked board with fans, directly off the corrugator, in order to speed things up. This practice compromises the integrity of the bond and the performance of the box in the field.

Wet-strength resins are thermosetting. They need time and heat to fully cure. Even the best resins, cooled too fast, won't cure properly. Good thermosetting resins need 4 - 5 hours before cooling to develop a hard plastic on the glue line. Cooling the stack with fans in less than 4 - 5 hours defeats the purpose of the resin. Your board moves faster, but it won't have a water-resistant bond.

The Effect of Curing Time on Wet Pin Values



Courtesy :



Newsletter - May 2019



# COLD GUM MIXING MACHINE

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# Testing for wet strength

Since there are great differences among wet-strength resins in solids content, chemical make-up, and performance, it is important to evaluate the degree of water resistance of your board. Tests will help you establish benchmarks and monitor the effects of changes in your adhesive formula.

There are several methods of determining how the bond will resist dissolving in the presence of water. All these methods involve placing board samples in water for a time and then subjecting the board to some sort of force.

These methods are differentiated by soak time, the direction they apply the force to the bond, and the manner in which the force is applied. In tests like 24-Hour Soak and Wet Pins, the force is applied in a line that is perpendicular to the liners. Tests like the FEFCO and the MBR Wet Shear apply the force in a direction parallel with the liners.

Wet Pins and the 24-Hour Soak are TAPPI standardized tests, so they are more common in the USA.

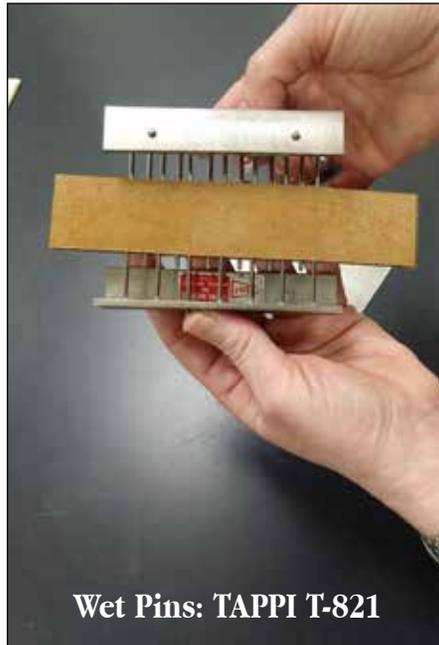
Here are the four most widely used wet-strength tests.

## Wet Pins: TAPPI T-821

This test is the same as the common dry-pins test except the sample is first soaked in room temperature water for one hour. A set of combs with pins appropriately spaced to fit in between the flutes is placed in the sample, which is then pulled apart on a scale that records the amount of force that it withstood.

## 24-Hour Soak: TAPPI T-812

This is a popular test since it does not require sophisticated testing equipment, but the results are fairly subjective. A sample of board is soaked in room temperature water for 24 hours and then pulled apart by hand. If the sample floated



Wet Pins: TAPPI T-821

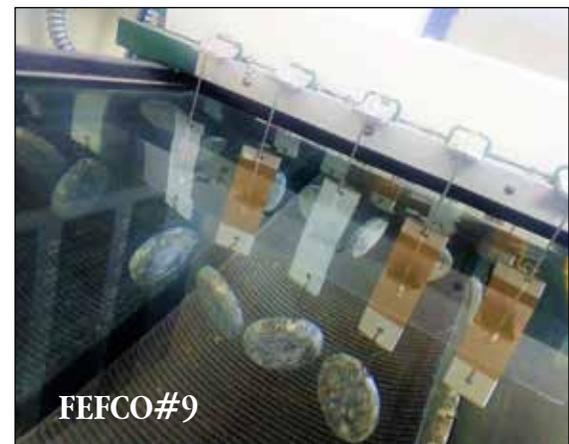


24-Hour Soak: TAPPI T-812

apart during the soaking period, it fails the test. The sample is then evaluated by how much force, called suction, it takes to pull it apart. Samples that held together with a stronger bond are then evaluated for the percent of fiber tear that they generated. The best results are obtained when there is ply separation or medium decapping.

## FEFCO #9

Often referred to as the fish tank test, samples are hung in a tank containing water. Weights are attached to the bottom of the sample. The samples have their liners cut through so that only the starch adhesive is supporting the weight. To pass the test, the samples have to endure 72 hours without letting the weight drop.



FEFCO#9

## MBR Wet Shear

This test is similar to the FEFCO #9 test in the way that it applies a force to the sample as it is being soaked underwater and measures the amount of time to failure. The main difference between the MBR and the FEFCO is that the MBR uses a much heavier weight for faster results.

Courtesy :



Newsletter - May 2019

# INTEGRATED AUTOMATIC CORRUGATION GUM CIRCULATING SYSTEM

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# Five Key Trends that are Changing the Future of the Corrugated Packaging Market

The corrugated packaging market is growing quickly, helped by the explosion of e-commerce and developments in digital printing technologies.

The global corrugated packaging market is growing faster than expected, confounding some predictions that forecast a slowdown in corrugated consumption. A downturn in demand in China and the banning of contaminated recycled paper stocks has not fully materialised.

Smithers Pira's new report - The Future of Corrugated Packaging to 2023 – offers exclusive analysis on how this market is increasing, growing around 3.7% annually to reach \$300 billion in 2023. The report also reveals that the electrical goods end-use sector will see the highest levels of growth.

Global online sales are expected to be over \$5.5 trillion in 2023. This will have a profound impact on packaging demand, especially in the corrugated industry as it represents 80% of demand in e-commerce.

The increasingly complex logistics chain for direct to consumer delivery – e-commerce

Demands from brand owners are now being felt by the converting industry as many brands now require the secondary pack to carry their image into the home, not just the retail outlet. This increases the need for converters to produce high-quality graphic designs on the shippers themselves.

## Fit-to-product

Born out of e-commerce has been the advent of fit-to-product (FtP) or box-on-demand systems, driven in particular by the needs of dedicated e-commerce sellers such as Amazon and Staples. This technology enables the production of customised secondary packaging based on the exact size of the product being packed, including irregular shapes. For the end-user this eliminates the need for large inventories of standard-sized boxes which often require copious amounts of filler material.

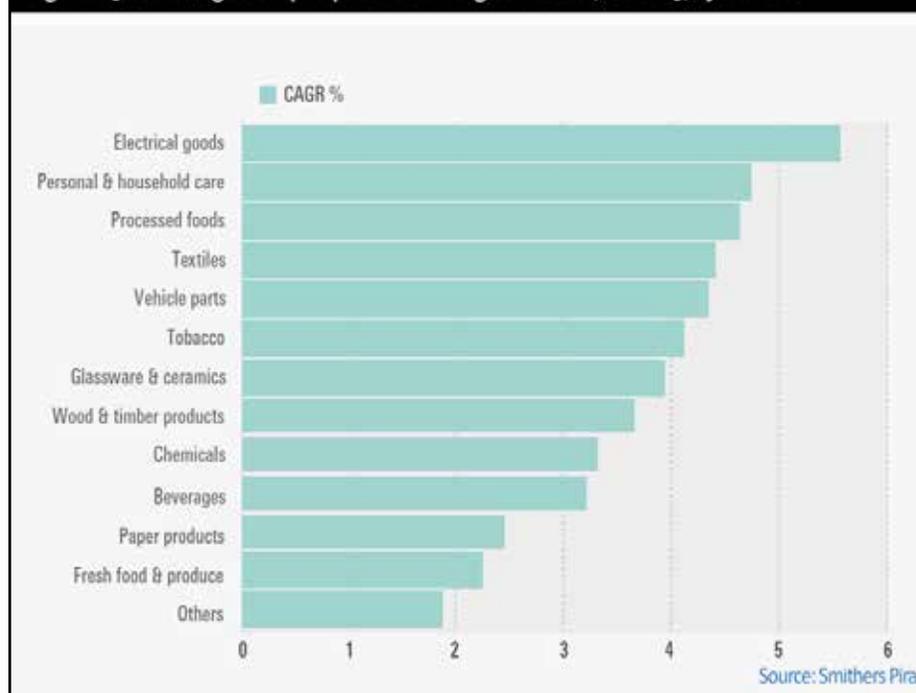
As FtP platforms become more popular, there will be more demand for boards sold as fanfold, as well as finishing equipment, such as printers, that can operate with them.

Major moves are being undertaken to capitalise on this growth market. WestRock for example acquired Plymouth Packaging. Based in Michigan it derives 70% of its sales from its BoD systems and corrugated fanfold, together with its equity interest in Panotec and exclusive right to distribute Panotec's equipment in the US and Canada.

## Sustainability

Corrugated board is proving popular in packaging as sustainability becomes a more important issue across the value chain – it is easy to recycle and the pulp and paper industry is already adept at converting these into new generations of containerboard. These qualities mean there has been a rise in popularity of corrugated

Figure E.3 CAGR % growth prospects for corrugated board, 2018–23, by end use



## E-commerce

E-commerce retail sales are continuing to rocket, with estimates of around 20% annual growth in e-commerce trade in Europe.

packages are expected to be handled up to 20 times or more during standard distribution – means there is new demand for cost-effective secondary corrugated board packaging.



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box@creativegraphics.net.in

#### HYDERABAD UNIT-III

Tanushii Industries Pvt. Ltd.  
Plot No.7-66/11A, Ground & First Floor,  
Survey No.242, Shivalayam Road, Subhash Nagar, IDA  
Jeedimetla-500055, Quthbullapur circle, Hyd. Telangana  
Phone:9032430949  
Email:mumbai@creativegraphics.net.in

#### BADDHIMACHAL UNIT-V

Tanushii Industries Pvt. Ltd.  
14 & 15, M1 Plaza, Jharmajari, Baddi,  
Barotiwala Industrial Area-174103  
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Email:creativegraphicsbaddi@gmail.com

#### MUMBAI UNIT-II

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Tungareashwar Phata, Salivali, Vasai, Dist.  
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Tanushii Industries Pvt. Ltd.  
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protective formats over polymer based alternatives, such as expanded polystyrene (EPS) foams.

While lightweighting of board has long been affecting the corrugated industry, rightweighting, and rightsizing are playing an increasingly important role in this market, not only in response to consumer demand for efficient packaging, but also in response to the logistics chain's adoption of dimensional weight (DIM) pricing. In some instances substituting to a heavier board grade can have a beneficial impact overall as it allows for the elimination of additional protective elements,

The desire to minimise the volume of air being shipped within all delivery channels means that in some instances there have been significant cost increases. For example a 32-pack of toilet rolls costs an estimated 37% more to ship using charges based on dimensions, rather than simple weight.

Lightweighting has been particularly successful in Western Europe, where box weights are now typically about 80% of US weights. The importance of lightweighting will continue to be felt over the coming years as retailers look to save costs as well as appealing to end users.

### Retail changes

Retail-ready packaging has established itself as a major cost saver for retailers, especially in Western Europe. This ongoing profit pressure is providing an impetus to use more retail ready formats as a labour-

saving solution, as it is estimated that these secondary packaging formats can reduce shelf restocking and handling costs by up to 50%. It is also particularly popular with sales into convenience stores or discount retailers such as Aldi and Walmart. For brands it gives the added bonus of giving them greater control over the presentation of their goods within the retail space.



The expansion of e-commerce trade into the grocery sector is likely to have a slight impact on retail-ready packaging use as online sales do not require these pack types.

Corrugated cases will still be used to ship goods to an online retailers warehouse or 'fulfilment centre' but these do not need to be retail-ready formats. The emergence of subscription box and meal kit services – which offer direct-to-consumer delivery of specialist food using a weekly or monthly

subscription – are providing some new opportunity for corrugated board suppliers with delivery-friendly formats containing goods within a die-cut interior.

### Digital printing advancements

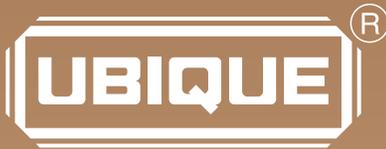
As the digital print market matures, the corrugated sector, while still in its infancy, has developed a growing appetite for adoption of the process, and systems are now being developed to address the demands of the high-volume liner and post-print markets.

The flexibility of run-lengths, savings in set-up costs, the ability to personalise either relating to brands, regions, stores or individuals, and the level of quality now available through the latest technologies all combine to create a 'perfect storm' of growth opportunities for converters and printers.

Brand owners are recognising the opportunities to grow dwindling brand loyalty through greater engagement with their customer base provided by these technological developments, and industry leaders see packaging as an important component in the creation of a memorable shopping experience that users will want to share via social media, which can drive marketing, encourage repeat business and attract new customers.

Source: [www.smitherspira.com](http://www.smitherspira.com)





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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
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M/C Dimension	2,800 x 12,000 mm	3,100 x 13,000 mm	3,500 x 13,000 mm
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# Has Online Shopping Changed How Much Cardboard We Use?

Has the increase in e-commerce had an impact on the corrugated industry

BY LAURIE L. DOVE

From groceries to gadgets, the home delivery of goods is depositing cardboard boxes on doorsteps across the nation, and we've collectively fallen in love with the convenience of it all. But what about the consequences of all that packing material?



The number of e-commerce transactions increased by more than 15 percent in 2016, according to the U.S. Census Bureau, and the e-commerce industry has doubled in the last five years to \$350 billion annually. It's a trend that predicts deliveries from online purchases will continue to rise, and at least for now, you'd think this probably means the use of more cardboard. Or does it?

## Cardboard Aplenty

The amount of cardboard shipped by U.S. companies has actually decreased since 1995, according to the Fibre Box Association (FBA), the trade group for the cardboard — or corrugated knockdown box material, if you want to get fancy — industry. FBA member businesses are responsible for 95 percent of wholesale, industrial shipments of new or recycled

cardboard made in the U.S. It's important to note that imported cardboard comprises only about 3 percent of the cardboard used in the U.S.

How can cardboard production possibly decrease in the midst of an e-commerce shipping boom? Manufacturers, including e-commerce retailers, are reducing packaging in an effort to reduce costs. Some forego cardboard for shrink-wrap, like bottle water bound by plastic film instead of cardboard. When cardboard is used, fewer shippers are using the “Russian doll” method of product transit, in which a series of smaller boxes are inside a large box. And, because more items are being shipped directly to consumers, fewer items are being boxed and shipped to retail stores inside of larger boxes, which may help explain the FBA's stance that cardboard consumption is down — or at least, holding steady — as e-commerce is up.

Unfolded cardboard boxes sit stacked in an Amazon fulfillment center in Robbinsville, New Jersey.

The steady and potentially increasing use of corrugated boards & boxes is a boon for the corrugated manufacturing industry, but leaves many of us grappling with the long-term effects of an increasingly e-commerce-driven economy.



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FBA president Dennis Colley told *The New York Times* in 2016 that the use of e-commerce boxes was growing faster than most other market segments in the paper industry. This translates into more than 35 million tons (31.8 million metric tons) of containerboard produced in the U.S. each year, and while some boxes are reused by the recipients, others are destined for the waste bin.

But wait — don't the majority of boxes get recycled? Yes, but of the cardboard that is discarded each year, 10 percent ends up discarded in the trash, and experts predict that number may continue to grow because cardboard recycling has hit a plateau.

### Can't We Recycle It All?

For nearly three decades, the percentage of boxes that Americans recycle has increased. For example, in 1993, about 55 percent of cardboard in the U.S. made its way into the recycling bin. By 2011, that number had risen to 91 percent, but by 2013, only 89 percent of cardboard was

recycled, a rate that held steady in 2014 — and, as the Pew Research Center reports, continues to remain flat. This means more than 10 percent of consumer cardboard is thrown away each year in the U.S., to the tune of about 350,000 tons (317,500 metric tons) of boxes in landfills.

A worker at a British Amazon fulfillment center opens one of thousands of cardboard storage boxes which hold goods to be shipped all over the world.

Making cardboard products with recycled materials uses less energy and creates fewer greenhouse-gas emissions. According to the EPA, in 2014, the most recent year for which data is available, 89 million tons (80.7 million metric tons) of materials from cardboard to plastics were recycled or composted. Doing so reduced greenhouse-gas emissions in a move equivalent to eliminating the annual emissions of 38 million passenger cars.

Unfortunately, cardboard can't be recycled indefinitely. Every time it's remade, the

fibers get shorter. After five to seven recycling loops, the fibers become too short to bond together into cardboard. By adding new pulp during the recycling process, any remaining usable fibers can still be incorporated into a new product — paper, for instance. In this way, a portion of every cardboard box lives on.

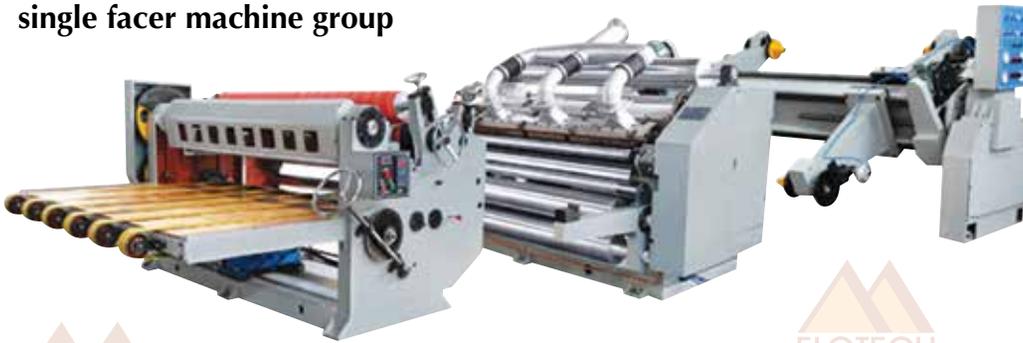
Even so, some experts say recycling alone won't be enough to keep considerable amounts of cardboard out of the waste stream, and ultimately, U.S. landfills. And, with an economy increasingly fueled by the immediacy of home delivery, we may have some difficult decisions to make about consumerism. Then again, a 2012 study compared the environmental impact of individual consumers who make eco-friendly choices with those of consumers who don't, and found no meaningful difference between the two.

Source: <https://science.howstuffworks.com>



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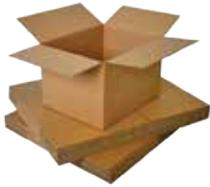


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# A train made of corrugation board: An engine for creativity

Amit Shah of Spectrum Scan showcased the 50+ feet Spectrum Express steam engine created with corrugation board at the In-Store Asia show hosted in Mumbai.

It's a robust piece of work, eco-friendly, and the centre of attraction during the three-day show. Shah says, "The thought process for the creation of the corrugated train was inspired by the traditional way of living in India which is in harmony with nature."

In this Sunday Column, Amit Shah recounts the making of the Spectrum Express

Brief description of the Spectrum Express in terms of length / weight and tech specs. Plus the number of pieces that built the whole.

The thought process for creating corrugated train: We wanted to showcase something eco-friendly / sustainable / reusable material which can be used in POP/POSM items. We have gone back to our traditional way of living in India which is living in Harmony with Nature. The Train gives nostalgic positive emotions which have emotional connect with most of us. Since many years its connecting Indian people and culture, and I think we are successful in this creation.

## Whose concept?

I happened to see a movie, Murder on the Orient Express. The train became a positive memory. We had been mulling over the orientation of our business – of hopping on to the corrugation segment. The concept of doing something different, using corrugation came to my mind. That it will have to be at a level higher than anything that has been done so far in India, was a criterion. The idea of Spectrum Express was born. With the sheer scale of Spectrum Express's design, we became our own challenger.

## You created a mini model, first?

Yes, we have created a model, which was of 2x0.5ft size. It gave us the confidence that we can do corrugation train, but there was a huge challenge in front of us, that



**Amit Shah**  
Spectrum Scan India Pvt. Ltd.

of creating the engine and a bogey with dimension 50x10x14ft.

Design to Train, you achieved 90% (more or less) of the vision?

We first created a 2x0.5ft prototype, which looked brilliant. Once the prototype was approved, the requirements of creating the Spectrum Express multiplied in that ratio. So we had to make space, arrange for the corrugated sheets, and rest of the supplies and logistics. After looking at the way the Spectrum Express has turned out, we have achieved 90% from concept visualisation to prototype to final production.





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## Any example?

Right from the beginning, we were clear that we would make a coal-pit-fired engine. We needed a steam whistle that sounded like the original. After a three-week trial, which involved creating a whistle, the pulling mechanism so that the air can be released, to create the whistle-sound. I think we achieved a near 100% result.



## How many staff members worked on it?

The production of the Express was divided into different parts. We did not have the space to install it in one place. While the bogey was produced on the terrace of our building, the engine was being produced on the third floor.

There were teams – design, CAD, Esko software, carpentry, electrician, pasting and fabricator.

The development team was also part of the project because we wanted to also showcase some of our new offerings during



In-Store Asia. So it is difficult to point out which staff or team, but I would say it was one team, comprising of smaller ones, who worked with complete purpose and clarity.

## When did the work begin?

The work on the project of the Spectrum Express had started three months back, where apart from the corrugation board, metal and wooden materials were used to set up the base. It took about three days to re-assemble the Spectrum Express for the In-Store Asia show.

## Which are the materials deployed?

Mainly paper corrugation is used but we have used metal and wooden platform for the base as we have created a conference room in the area of a coal pit.

## Why corrugation board?

Spectrum specialises in mid- and long-term solutions. India is growing, and the aspirations of its people are changing. The POPs in the developed countries are made out of corrugation. It was not an option in India because of the durability factor and more importantly the weather. The quality of the corrugation was not great, nor was the life-cycle of the material. There are advancements in material and process involved now. And then, there's the sustainability factor.

Considering all this, we are entering into corrugated displays and we wanted to showcase something unique and challenging.

## How many visits to Chor Bazar - and why?

Five to six visits to buy British era lantern and Number Plate for Steam Engine. It was part of the detailing required to create the Spectrum Express. Fortunately, we were lucky to find them.

When the team from railways came to the Spectrum stand, they were amazed at the size and detail that went into the

making. They were surprised to find an old number plate 795/5 adorn the Express. They revealed the story behind the number plate. There was a class of steam engine which was 795, and 5 denoted that it was the fifth in the series.

We looked for the old clock and the wooden indicators, but couldn't find it.



## You remember Day One of work?

Not really but I do remember to discuss with the team to make the corrugated engine for the show.

My favourite thing in the Spectrum Express is the fire chamber. What is yours?

The whistle ...

What's the USP of this creation according to you?

The size and complexity, which was achieved by a paper medium.

Your company's motto while they created the Spectrum Express?

Be Innovative ...

Is this your proudest achievement in the past few years?

Yes. And we are honoured to display this train in CST (V.T Station) Heritage Museum.

What's your team's favourite train song to be sung on the Spectrum Express?

***"Gaadi Bula Rabi Hai,  
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# Product Profile

## Asahi Photoproducts Announces New FlatTop Flexographic Plates

Asahi Photoproducts has announced the launch of the AFP™-BFTH plate in the first half of 2019, the only out-of-the-box built-in FlatTop plate in the market that features premium Clean Transfer Technology, which is designed to facilitate kiss touch printing pressure. This new plate, available in hard, fits into any workflow and requires no special equipment.



“The AFP™-BFTH plate is the first plate with Clean Transfer Technology to boost solid ink homogeneity in printing,” says Dieter Niederstadt, Technical Marketing Manager at Asahi Photoproducts. “It also delivers consistent print quality throughout the run, with fewer press stops for plate cleaning. This adds up to increased productivity and throughput while significantly reducing waste. Asahi’s Clean Transfer Technology has found great market reception in our line of water-washable plates, and we are now excited to be extending this capability to other plate categories in our portfolio. Not only will this help flexographic printers increase productivity, but it will also extend the range of applications they can offer to their customers, including the ability to transfer more work from offset to flexo.”

### AFP™

Asahi’s AFP™-BFTH digital flexo plate is the first built-in FlatTop plate to include

Clean Transfer Technology, and it is available in hard (H). Benefits include:

Printing plates remain clean during print production runs for consistent print quality and fewer press stops for plate cleaning.

Plates are available in 1,14 and 1,7 mm.

BFTH plates have been developed for water-based, solvent-based, and UV ink systems.

Source : [packagingeurope.com](http://packagingeurope.com)

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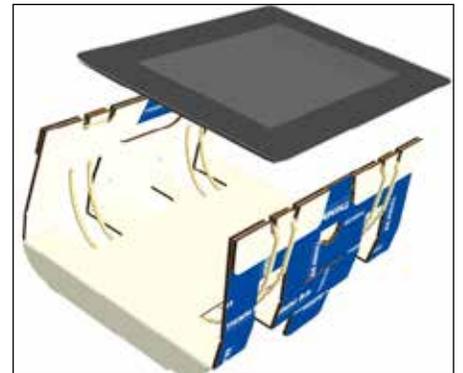
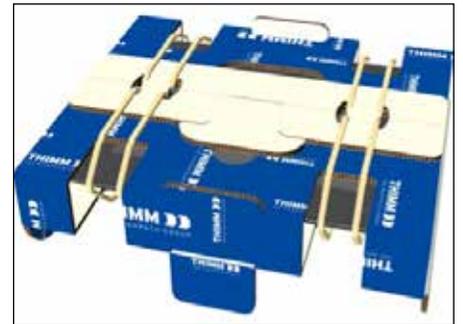
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Thimm Group is the leading solutions provider for the packaging and distribution of goods. Its portfolio includes corrugated cardboard transportation and sales packaging, high-quality promotional displays, packaging systems combining a range of materials and print products for further industrial processing. The company’s product offerings are further enhanced by a wide range of associated packaging services covering the entire supply chain. Its customers include

prestigious branded product groups from across all sectors.

Thimm has won the WorldStar Award, the highest award in the worldwide packaging sector.

The packaging is particularly suitable for the safe transportation of sensitive products such as high-grade electronics.



Contd. on - 87



Folder Gluer and Stitcher Machine



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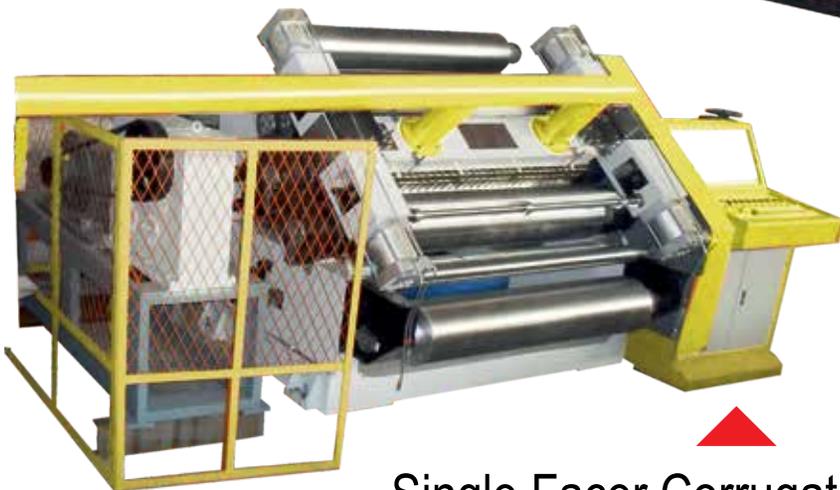


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## E-commerce packaging “Thimm ePack | protect”

This product is the revolutionary packaging system for mail order shipments. Consisting of outer packaging and an additional product fixing designed to simplify handling in the packaging process, it provides reliable product protection throughout the entire delivery process. Elastic bands lock the product to be packaged with flaps and protect it reliably against vibrations and physical stresses of all types. The flexible sizes of the innovative cushioning foam insert has enabled the variety of packaging types to be reduced one standard with which items of different sizes and weight can be shipped.

Source : <https://ifworlddesignguide.com>

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Source: [www.planetpaper.com](http://www.planetpaper.com)



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## Innovative Packaging EPE USA – 10 Reasons to Use theBOX

Some recent stats show that in 2019, around 170 Million laptops will be shipping worldwide, tablets coming in next at 180 Million, and a whopping 1.5 Billion smart phones.

If you are in the business of shipping mobile devices at high volume, and you haven't already heard of theBOX, you should. Here are some reasons to why you need to jump on the bandwagon.

### 1) theBOX is Universal

One concept for all your mobile devices. They have fit tested over 330 laptops from the top brands, 100 tablets, and over 150 smart phones used today to ensure compatibility.

### 2) No Assembly Required

theBOX is frustration free, meaning it comes assembled ready to be shipped. No need to jump through hoops or study an instruction manual to package and ship your device.

### 3) 30 seconds to package your mobile device.

30 seconds. Period. Open theBOX, insert your device, close theBOX. That's it. Yes, that's it.

### 4) theBOX is Reusable

If you are in the business of sending cell phones, tablets or laptops back and forth between multiple locations, then this is the perfect package for that environment. Just remove the insert,



place it in a new theBOX RELF, then ship it out again and again, then recycle it.

### 5) Lower Shipment Costs

Money talks. theBOX dimensional weight is smaller than any other mobile shippers out in the market and this is done on purpose. A smaller package means lower cost to ship.

### 6) There's a reason why the insert is not glued in.

If you are in the market of packaging mobile devices in high volume, you can use the inserts as an internal carrier in an assembly environment.



### 7) theBOX is Sustainable

theBOX is 100% recyclable and sustainable. theBOX insert is made from molded Polypropylene, an extremely environmentally friendly material that is accepted at most curbside recycling programs.

### 8) Provides Higher Protection for Your Gadgets, Gizmos, and Doochiekeys

When designing a package at EPE, they put it through a series of high standard testing requirements to ensure the best protection for your product.

Even if thebox is dropped from 300 ft nothing happen to the mobile device.

### 9) Customisable

theBOX is designed for one purpose, to ship your laptops, tablets and cell phones, but they can brand the package. Brand theBOX with company logo, colors, etc.



### 10) Built-in compartment for other stuff.

All your devices come with some sort of accessory, power supply charger, headphones, etc. Sometimes you may only want to ship the cell phone, but not the charger. They have designed a package that allows you to secure your device and its power cords and there a version for you to ship just your mobile device.

For more details visit <http://epeusa.com>

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## Ducker Robotics in Corrugated Cardboard

Ducker Robotics was created following the acquisition by the Ducker Group of Automation Robotics, an Italian company with a long experience in the use of the robotics in various automated industries.

Today their core business is the supply of Robotic Palletizers and advanced materials handling solutions to the Corrugated Industry.

The Company employs highly skilled, knowledgeable and professional engineers for the electrical, mechanical and software requirements from the original Blue sky thinking stage all the way through the complete process until machine hand-over to the end-user.

Together with the know-how and experience from the technicians of the complete Ducker Group they have an organisation capable of satisfying the most challenging demands known and have provided many companies with class leading/cost effective production lines.

### Robotic palletiser for die cutting lines PAL DC

#### Features

- flexible solution to palletise bundles or layers of die cut sheets.
- Allows semi-automatic mode or fully automatic.
- Integrated layer inverter to alternate layers thereby reducing costs and space.



These Robotic Systems can be developed using Robots, according to the application, of the customers choice. Standard products, together with tailor made solutions are a part of this customer focused and flexible organisation.

- Automatic placement of tie sheets.
- Max speed 180/200 layers/hour
- Option independent bottom sheets device
- Modem connection to enable on-line support



### Robotic prefeeder for die cutting lines ROBOFEED I

#### Features

- Suitable for die cutting lines up to 2100mm x 1300mm
- Fully automatic and simple to use
- Feeding directly in feeding unit
- Special front and lateral pushers fixed in feeding unit for automatic centering of sheets.
- Increased productivity
- Reduced labour costs
- Minimal maintenance
- Touch screen display
- Modem connection to enable on-line support

### Robotic prefeeder for flexo folder gluer lines ROBOFEED II

#### Features

- Suitable for bottom or top printing mini-mid lines
- To suit machine up to 2,5 mt width
- Shingling device with extendo.
- Fully automatic.
- Automatic ejection of the bottom sheets
- Optional continuous shingle system
- Low maintenance costs
- Touch screen display
- Modem connection to enable on-line support

*Contd. on - 99*

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- Reduction in over all electricity load.

### Tubular Heating System

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- Greater operator safety due to Coil Insulation
- Lower break-down times due to easy replaceability of the heating rods

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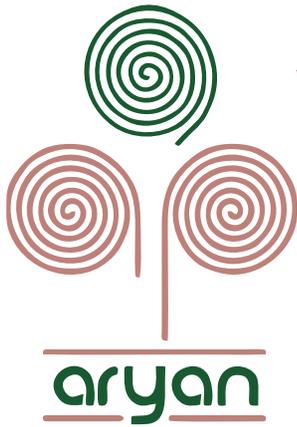
We are Shakti Packaging, Morbi (Gujarat) based company engaged in corrugated box industry since 2003, as a diversification we are entering in to rotary and flat die manufacturing with European technology by laser cutting. Laser cutting machines and highly sophisticated die cutting machinery to give our customers the best possible quality.

The new technology involves innumerable number of innovative techniques to improve the die quality. Immaculate computer aided designing, precision laser cutting, optimum knife joints, perfect rule fit in the Die board, perfect ejection rubber are just a few quality features to mention.

The emphasis is on dimensional accuracy, high cutting performance and long life of the Die for more number of impressions. Technology & training, highest quality standards of raw materials, highly skilled technical man power contribute to an unparalleled perfection and innovation in Die making.

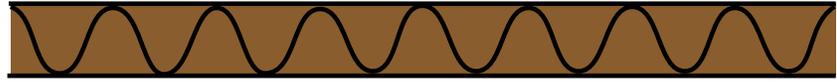
Flexible dies, a revolutionary product for cutting, creasing, perforating and embossing in the printing and packaging industry. All these processes can be done inline in a single pass, which ensures tremendous efforts and time saving.

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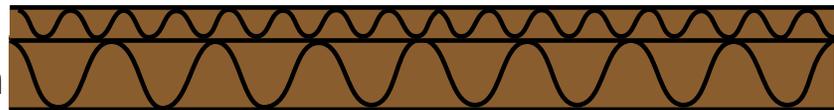


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Supported by state-of-the-art design and testing facilities, our engineers will work closely with you to create the most effective solution.

### Features & Benefits

- Tri-Wall is the leader in triplewall, heavy-duty doublewall, and laminated corrugated packaging.
- Triplewall - Four flat facings of liner with three interleaved and glued corrugated mediums.
- Doublewall - Three flat facings of liner with two interleaved and glued corrugated mediums.

Laminated - Two or three sheets of corrugated board (triplewall or doublewall) glued together to form a thicker structure.

Customizable design solutions

### Notchfold Score

The unique notchfold score, which is a special 45-degree groove cut into the top two layers of the triplewall board, permits the panels to be easily folded to a perfect 90-degree corner. Ideal for oversized items, Notchfold Paks replace the 20-foot-long wire-bound wooden boxes for pipes, rods, conduits and tubing.

### EZ-Score

The exclusive, patented EZ Score has a strip of single face removed on the flange making setup easier. EZ Score provides both strength and easy assembly. The technology may help offset repetitive motion strain on workers because assemblers are only folding doublewall.

## Laminated Bulk Bins

Sheets of corrugated board glued together to form a thicker structure



Designed to transport a variety of solid and dry flowable goods

## Features & Benefits

- Custom design bins to meet your needs with capacities up to 3,000 pounds
- One-piece laminated boxes provide up to 40% more top-to-bottom compression than non-laminated box-in-tube construction 100% recyclable

## CORRDrum Packaging

Corrugated drum alternative that can replace fiber, steel and plastic drums Triplewall Corrugated Technology™

Ideal for a diverse range of industrial products



## Features & Benefits

- Lock to box lid
- Leak proof bottom
- Holds 550 pounds
- Stacks 3 high when full
- Lifts easily with forklift tines
- 100% recyclable

## Wet Application Bulk Bin

EquaBin utilizes the geometry of an equilateral octagon that has been stretched to fit a standard pallet

Reduces sidewall bulking caused by product weight and flow rate of conventional bins





### Features & Benefits

- FDA/USDA approved materials used throughout package
- High performance liners and waterproof adhesives to handle wet environments
- Web-bottom end flaps that stop end panel “blow-outs”
- 2-Ply bottom tape reduces score-line splitting
- Parabolic relief scores to reduce bulge and bin width

### Bulk Packaging for Food

High Performance Tote (HPT) with its pockets for corner posts is built for maximum stacking strength, heavier payloads and reusability

Constructed of double and triple wall corrugated and laminated double and triple wall combinations



### Features & Benefits

- Reusable as packaging
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- Provides high top-to-bottom compression strength
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### SpaceKraft Liquid Bulk Packaging

SpaceKraft® Liquid Bulk Packaging, Ideal for a wide range of food and industrial chemical products

Designed for both domestic and export shipments

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### Features & Benefits

- Supplied knocked down and shipped flat or set-up and ready-to-fill
- Offered in common footprints to match a wide range of pallet and shipping specifications
- Designed to handle capacities between 110 - 330 gallons
- Configured with an inner liner to meet the specific requirements of liquid applications
- Compliant with ISTA, NMFC and IMO protocols

### ReadyFill Liquid Bulk Packaging

ReadyFill™ Liquid Bulk Packaging, arrives set-up and ready-to-fill, like a traditional bottle-in-cage style IBC

Meets the throughput and productivity demands of high-volume food and chemical processors

ReadyFill™ containers require no labor for set-up prior to filling



### Features & Benefits

- ReadyFill arrives pre-banded, ready-to-fill, complete with the new liner and requires no labor for set-up.
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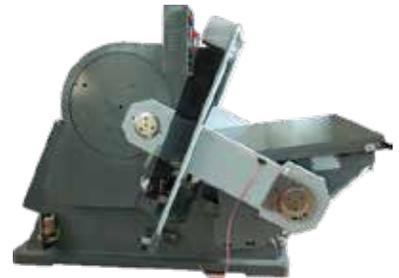
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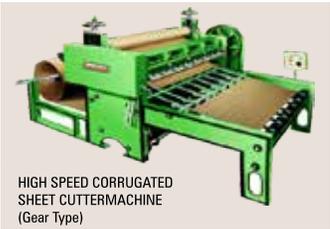
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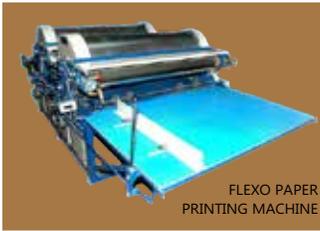
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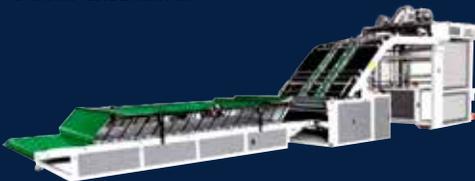
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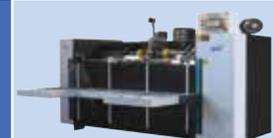


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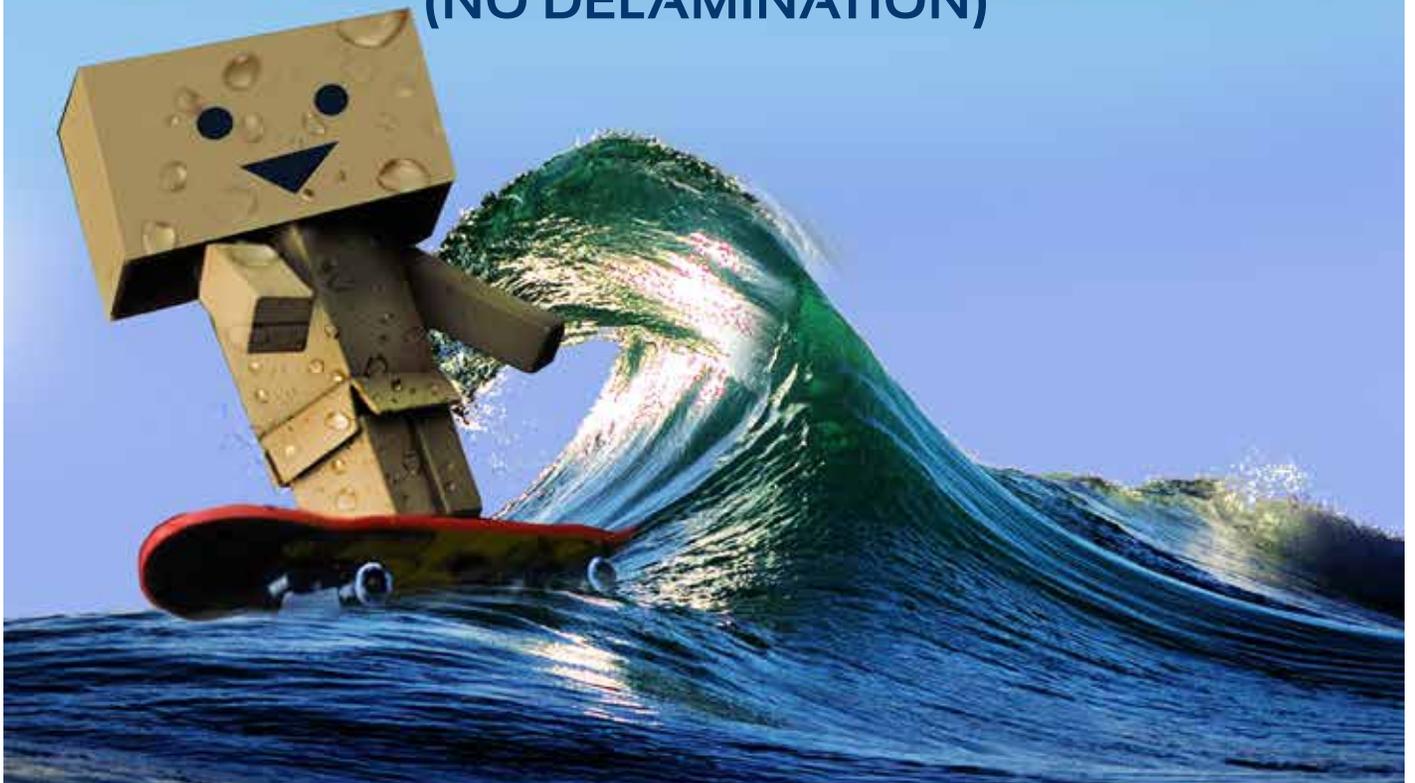
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# GUM POWDER PLANT FOR PASTING & DEXTRINE

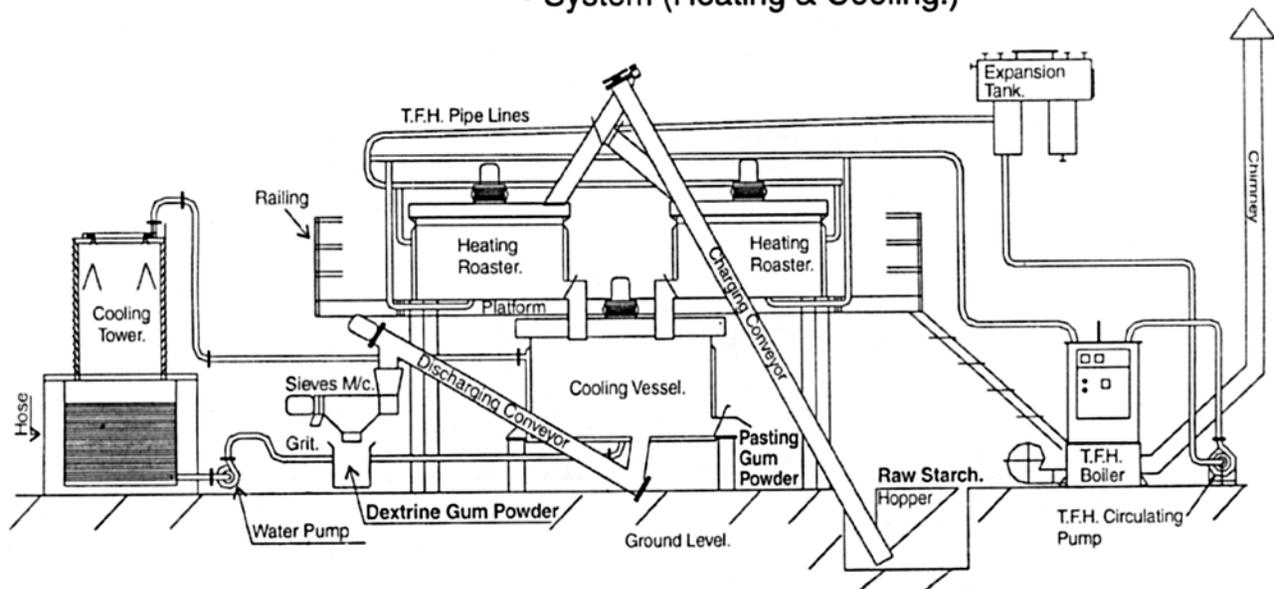
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- low labour Cost.
- Fast & Easy
- Charging & Bag
- Filling System
- Immediate Transferring
- System (Heating & Cooling.)

## OTHER PRODUCTS.

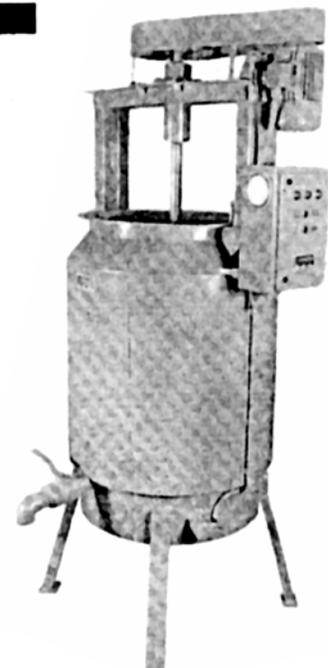
- Liquid Gum mfg. Plant
- Gum Cooking Vessel.
- Synthetic Resin Plants.
- Fast Cooling System.



# GUM MIXING (COOKING) VESSEL

Total solution For Cooking the Gum from powder Adhesives

- APPLICATION :**
- To boil Glue
  - To Cook Gum / starch
- ADVANTAGES :**
- Easy to operate.(Unskilled person can operate)
  - Lower Labour cost / maximum time saving.
  - Produces best quality products.
  - Reduces consumption of gum.
  - No pollution.
  - Low wastage of Raw Material and product.
  - 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.

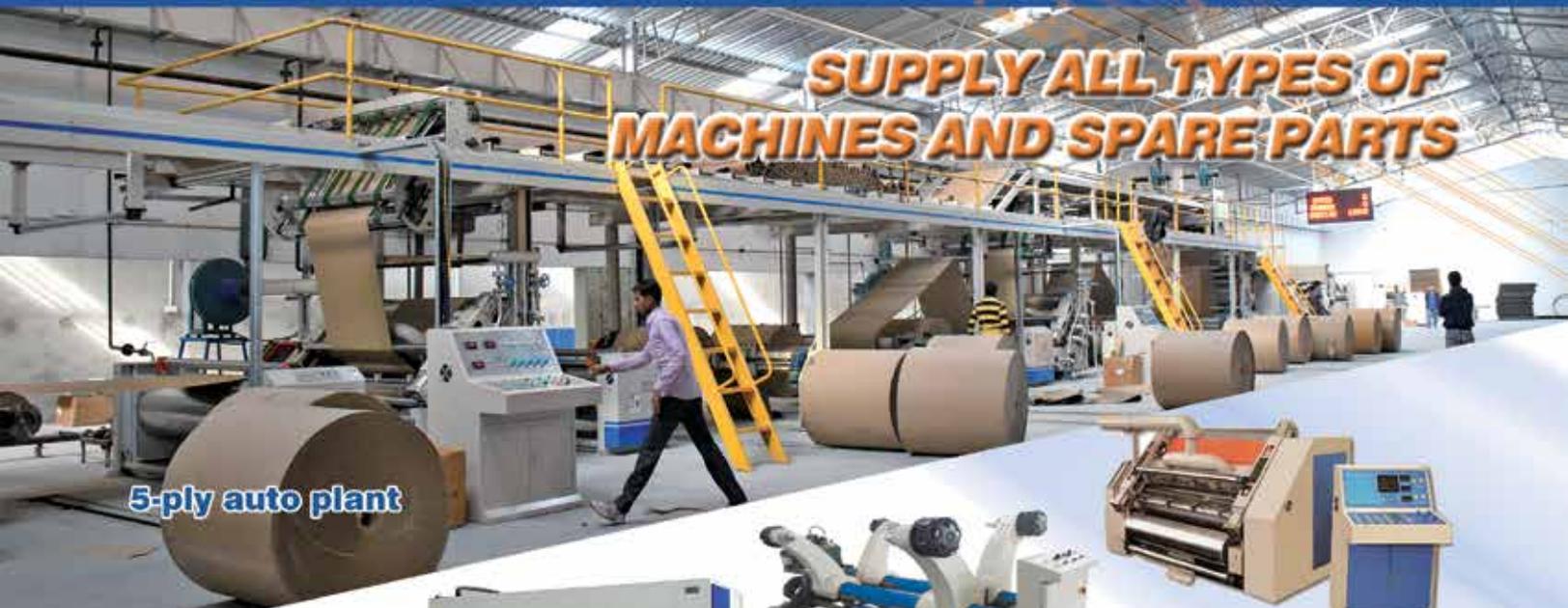


# N P MACHINERY & EQUIPMENTS

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# AMC INDUSTRIAL DEVELOPMENT COMPANY LIMITED



**MCFG Box Maker**



**SYKM-H FLEXO BOX MAKER**  
(VACUUM TRANSFER, TOP PRINTING/BOTTOM PRINTING)



**PAPER SLITTING MACHINE**



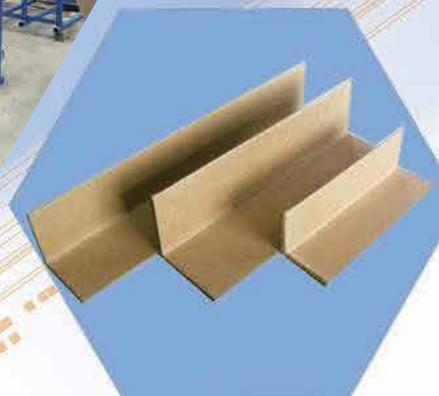
**EDGE PROTECTOR MAKING MACHINE**



**SYKM-M FLEXO BOX MAKER**  
(VACUUM TRANSFER, TOP PRINTING/BOTTOM PRINTING)



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



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# Fancy - Prahladka

## Sheet Fed Flexo Graphic Printing Machine

A Revolution  
in Corrugation &  
Paper Printing  
Industry



Successfully running  
in India and abroad

### Features:

- Most modern and versatile
- All controls of feed paper are grouped together and placed within easy reach of the operator
- Smooth and low noise operation
- Reliable After Sales Service

### Advantages:

- Easy to operate
- Sharp and clear printing
- No folding of paper and board required

- Small sizes can be printed in double and triple ups
- Negligible job setup time
- No drying time required
- Low ink consumption
- Reduces ink, electricity cost substantially
- Variable speed drive
- Can operate both with spirit-based and water-based inks

### We also Manufacture:

- Roto Gravure Printing Machine
- Flexo Graphic Printing Machine
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- Corrugated Sheet Dryer
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# Industry News

## Manufacturing Reliability System

Extensive talent driving a systematic approach to reliability.

The Manufacturing Reliability System is an enterprise-wide process driven by the most extensive group of manufacturing talent in the industry – talent who track key metrics called Special Procedures and Instructions (SPIs).



When an issue occurs, their team uses an electronic tracking system to review customer incidents, credits, and MRS non-conformances. A single member of the team is assigned responsibility for that issue and uses lean tools including RACI charts to investigate the root cause and implement an effective corrective action. The team then communicates the issue's resolution to the customer using the tracking system's standardized reports. Because monitoring drives compliance, auditors from plant management and corporate Blackshirts verify proper and timely root cause analyses and corrective actions.

### Features & Benefits

The extensive talent tracks, audits, and reviews the following SPIs:

- Inspection
- Equipment centerlining
- Maintenance and benchmarking
- Waste tracking and reduction
- Product safety

## Technical Services

Their commitment to service excellence spans a wide range of offerings.



Technical support services and product testing are custom-tailored to meet your needs. Our experienced team can trouble-shoot immediate concerns or offer suggestions for comprehensive improvements to your manufacturing processes and operations.



### Features & Benefits

- Technical support for their fifteen containerboard mills is provided both by mill-site staff and corporate-level technical groups
- Lab and testing facilities are located at each containerboard mill to facilitate development and support projects
- Corrugator and converting audits
- Analysis of various board combinations for optimal packaging efficiency

<http://www.internationalpaper.com>

## Xeikon Digital Press For Corrugated

Drupa 2020 Is The Launch Date

During the recent Xeikon Cafe event in Antwerp, Belgium, Benoit Chatelard, President of Xeikon, talked about the company's development work in the corrugated market.

Although still very much 'under wraps', through the auspices of the Flint Group, which acquired Xeikon in 2015, the company is working on a high-speed inkjet press for the post-print sector of the corrugated market. Offering single-pass production using Flint's specially developed water-based inks, the target is for a 1600mm wide machine capable of running at speeds up to 150m/min and at the same time having an acceptable opex and capex level.

"There is no point in competing directly with existing technology – we need to find and supply niche markets that will benefit from the short lead times and ability to differentiate each box, if required," the President explained.

With Drupa 2020 as an important milestone, Xeikon still has development work to carry out. It is planned to show the machine and this will require establishing working partnerships with ancillary equipment manufacturers. "Our aim is to cater for board from 1.5mm to 11mm thickness, and essential to the whole operation will be installing the right workflow from software to delivery – so we still have plenty to do!" he concluded.

Xeikon is aiming to be one of the major players in digital printing of corrugated board.

Source:  
[www.digitalprintforcorrugated.com](http://www.digitalprintforcorrugated.com)





# PAP-TECH

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For Paper, Packaging, Corrugated Boxes, Plastic & Textiles

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**ELECTRONIC TEAR TESTER**



**BOX COMPRESSION TESTER  
(MICROPROCESSOR BASED)**



**DIGITAL CRUSH TESTER**



**GANN MOISTURE METER**



**PUNCTURE RESISTANCE  
TESTER**



**VIBRATION TESTER**



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E : [pkpaptch@gmail.com](mailto:pkpaptch@gmail.com), W : [www.paptechengineers.com](http://www.paptechengineers.com)

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## JB Machinery Chooses Suba Solutions as their Agent in India

### Signs agency partnership for India

During the recent Sino-Corrugated in Shanghai, China, JB Machinery and Suba Solutions took the opportunity to formalise their agency agreement for Suba's exclusive representation of the complete JB product portfolio for the Indian market.

Warren Bird, President of JB Machinery, stated, "We have been monitoring the Indian market for the last 10 years, but now seems the right time to enter based upon recent purchasing trends, particularly with the market intelligence, success and sound reputation that Suba has demonstrated."



"We are excited to add the JB product range to our comprehensive offerings and look forward to forging a long and successful path that will benefit our ever expanding customer base with leading solutions for optimised productivity and print quality output" says, Naresh Chandru, Director of Suba Solutions.

Source: [www.thepackagingportal.com](http://www.thepackagingportal.com)

## LCA Shows Balanced Environmental Results for Produce Container Systems

The Corrugated Packaging Alliance (CPA) today released a new Life Cycle Assessment (LCA) of produce packaging which shows neither corrugated containers nor reusable plastic containers (RPC), have an advantage in all environmental impact categories.

The LCA compares the environmental impact from extraction of raw materials to end-of-life for the two commonly-used produce container systems across eight of the highest volume produce items. The assessment shows that the two container systems have different environmental impacts which create value-based trade-offs. To minimize the footprint of delivering products to market, grower/shippers and packers should evaluate individual commodities, transport distances and other variables rather than rely on a one system fits all perspective.



Further, impact indicators differ in relative importance. When comparing systems using market-weighted averages, the corrugated container system has an advantage for global warming, eutrophication, and non-renewable resources. RPCs have an advantage for acidification, smog, respiratory effects and ozone depletion. When comparing systems using commodity-specific averages, corrugated containers have an advantage for global warming and non-renewable energy use and RPCs have an advantage for acidification, ozone depletion and respiratory effects.

"The LCA results demonstrate that systems should be evaluated holistically and on a product by product basis," said CPA Executive Director Dennis Colley. "It's not as simple as adding up the number of categories with the lowest impact score and calling one container system the winner. It really does depend on what's being shipped, where it's being shipped and other variables of the supply chain to determine what's the best solution for a particular product."

The LCA examined the effects of each system on seven environmental impact indicators: global warming potential (greenhouse gas emissions), eutrophication, acidification, non-renewable energy, ozone depletion, respiratory effects, and smog formation; and two inventory flows: freshwater consumption and solid waste. Solid waste and water are not included in the comparative statements since they are inventory values, not impacts.

The static comparison shows that corrugated containers have a lower value for solid waste and RPCs have a lower value for freshwater consumption.

The peer-reviewed study, commissioned by the CPA and conducted by Quantis is the latest study in a series of industry LCA's. It was conducted in accordance with ISO 14044 standards and guidelines for life cycle assessment studies.

Source: [www.corrugated.org](http://www.corrugated.org)

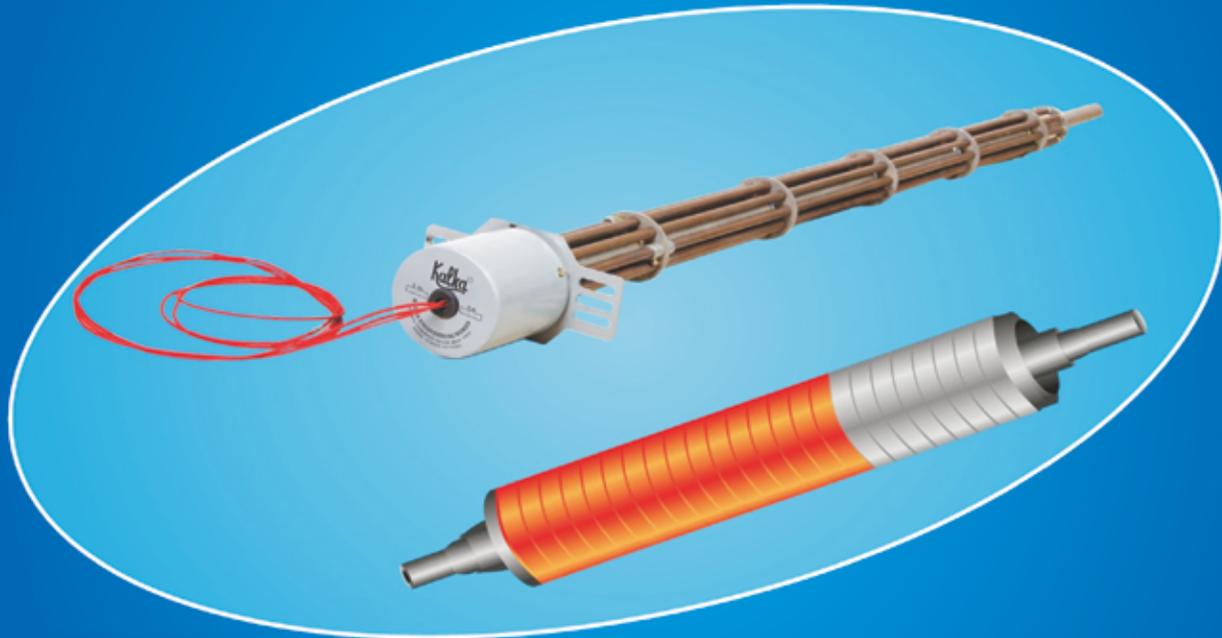
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#### PANEL BOARD WITH TEMPERATURE CONTROLLER

Temperature controller helps in reducing electricity consumption & wastage by automatically switch off the heating after reaching at desired temperature

#### TUBULAR HEATING SYSTEM

- Insulated with Magnesium oxide Powder
- Insulated powder is compressed by swager for long life
- Tube used are SS 304/ Incoloy tube
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#### LPG HEATING SYSTEM

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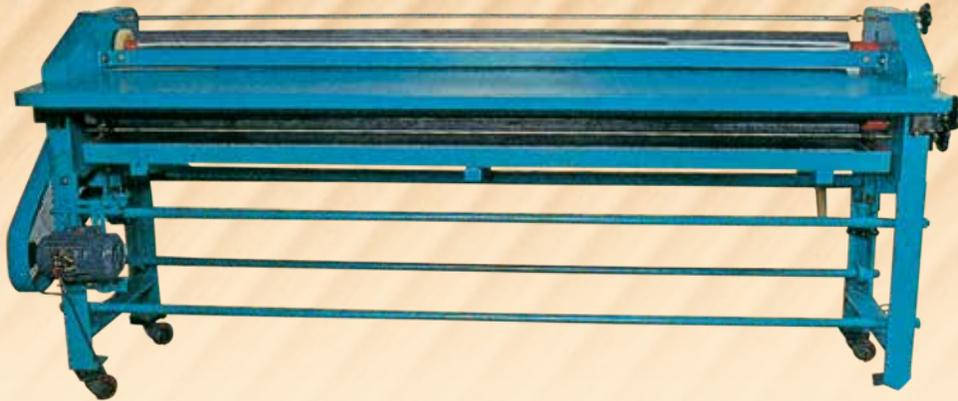
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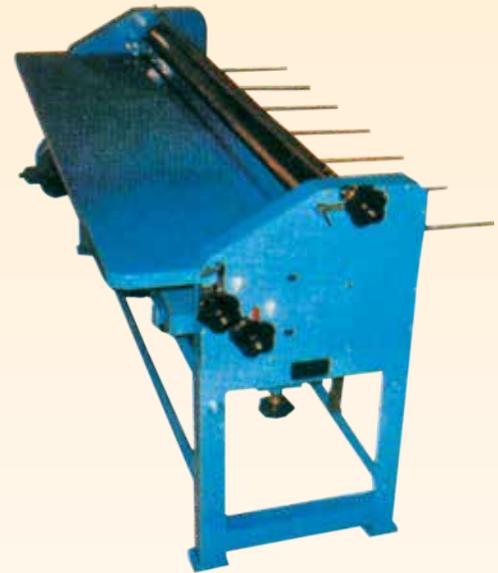
# KESHAKA®

## Corrugated Board Sheet Pasting Machine



### FEATURES

- Only on one side, two hand wheels are provided in the machine for setting gum rollers and pressure rollers instead of 4 hand-wheels provided in conventional machine
- Gum and pressure-rollers automatically set on the other side of the machine. No need to set the roller on the other side.
- Gum and pressure rollers can be set in microns as desired.
- Saves time and gum and the final product dries soon because of the minimum gum application
- All rollers are balanced, ground and hard chrome plated regulating life of the machine
- All rollers are fitted with ball bearings resulting in smooth running
- Rubber seals provided on both sides of the rollers for protection of ball bearings from water while cleaning the machine after the end of shift.
- Robust construction and excellent finish.
- Available in sizes of 65", 75" and 85". Other sizes as required can be supplied on request.



Manufacturers :

## KESHAKA WORKS

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Tel.: 22040083, 25823857, 25837517 TeleFax: 022-22871412

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**JETS300** CORRUGATED BOARD PRODUCTION LINE  
Width : 1800mm / 2200mm / 2500mm  
Design Speed : 300m/min  
DCS intelligent control system

## What ? is the condition ?

Imbalanced paper moisture 6-8%.

Frequent paper breakage.

Limited 5ply running speed.

## Solution-“Design for India”



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# J.S. Machine India

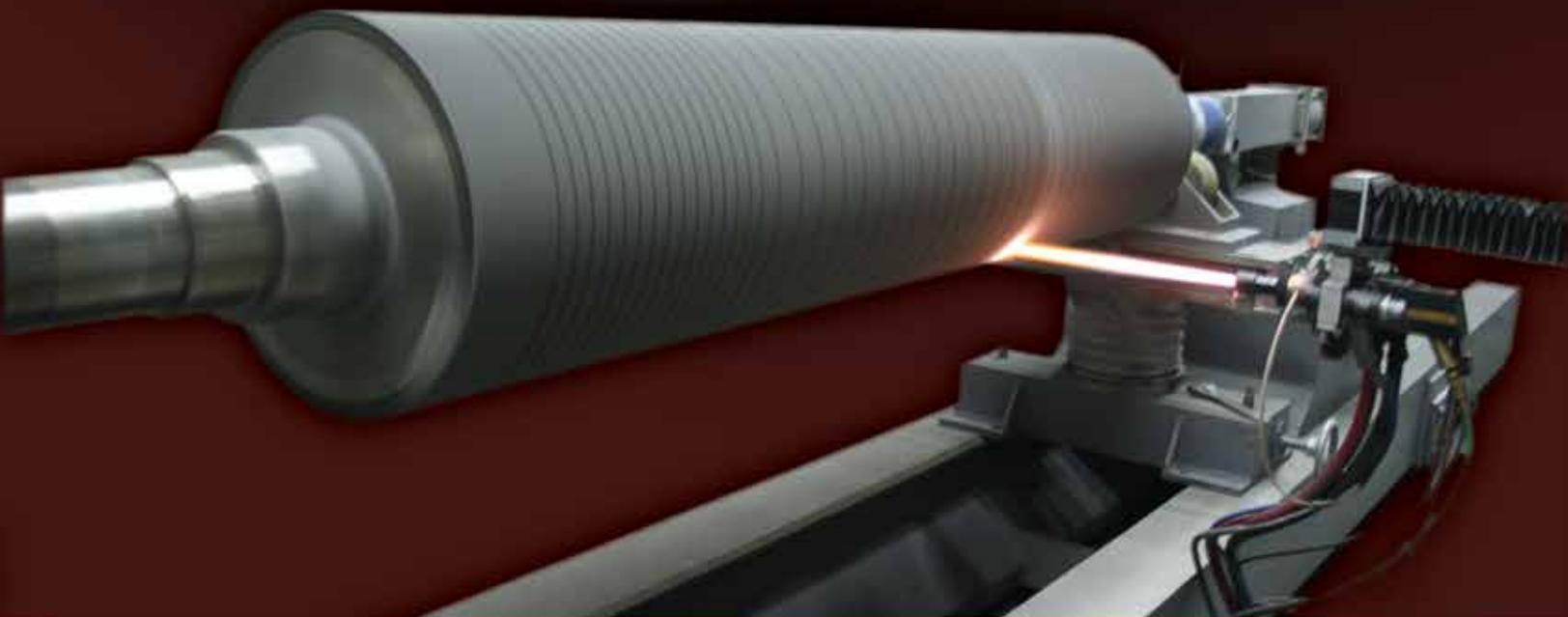
PRODUCTION &  INDIA  
SERVICE BASE

## MANUFACTURING UNIT:

1. **Repair** and **manufacture** rolls for corrugating machines
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## SERVICE UNIT:

Promptly spare parts supplying is supported by newly-built spare parts center.  
Local engineers' timely and overall service is around you all the time.



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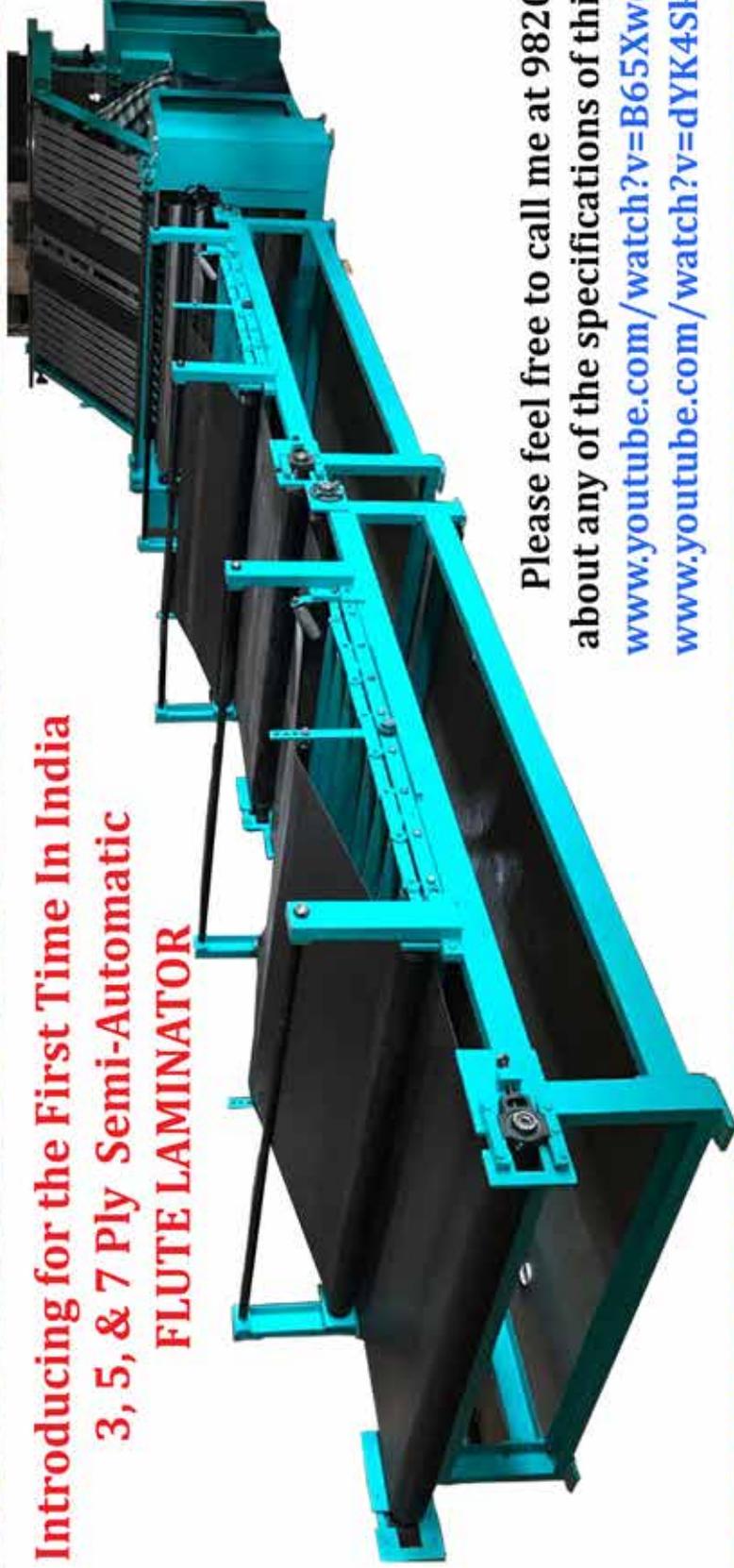
Factory address: Plot No.628, Sector III, Pithampur District Dhar(M.P.)-454775  
Office address: No.302, South Pride Building, 8/3, South Tukoganj, Indore-452001  
Mr. Adam Wang Tel: +919311656580; +8613807121003  
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# Forthcoming Events

05-07 September 2019



## Sino Corrugated 2019

India Expo Centre, Greater Noida,  
Delhi-NCR, INDIA

### “India’s Most Trusted Event on Corrugated Packaging”

SinoCorrugated- IndiaCorr Expo is India’s only business platform for the entire value chain of the corrugated packaging industry. The show forms a vibrant commercial channel through which high-quality equipment suppliers meets global buyers. IndiaCorr Expo offers unparalleled opportunities for the industry players to source machinery, network with business prospects and learns techniques to run business more effectively and develop international footprint.



ICCMA CONGRESS 2019 will be held concurrently with IndiaCorr Expo.

In the Hightech Panel Discussions and Presentations subjects of interest and relevance to the industry will be discussed by eminent Corrugators and other experts who are authorities in their subjects.

13-15 September 2019



## PackEx India 2019

Pragati Maidan - New Delhi

With growing exhibitor and visitor numbers year on year, PackEx India has established itself as the most valuable platform for packaging materials & machinery suppliers and packaging users. In the current market scenario where in ‘New Product Innovations – New Packaging Solutions’ is the success factor, emphasis on packaging has reached a new level.

21-23 October 2019



Bombay Exhibition Centre (BEC),  
Mumbai, India

### “The Premier Processing & Packaging Event for India”

The ProPak India aims to explore the entire range of topics that pertain to processing and packaging industry. The event exhibits film extrusion machinery & complete packaging lines, cartooning machines, corrugated boards & box making machinery, product filling & sealing, capping, strapping equipment, specialty paper, paperboard, corrugated board, flexible packaging material, packaging design & development, and much more.

3-6 October 2019



## 14th International Exhibition & Conference

on Pulp, Paper & Allied Industries  
Pragati Maidan, New Delhi, INDIA

### Benefits of Attending Paperex

The Paperex series of exhibition and conference has always been a gratifying experience in terms of organization, participation, and generation of new business opportunities in the field of Paper, Pulp and allied industries.

20-22 December 2019

Join the Industry Event of the year



## 48<sup>th</sup> Conference of Federation of Corrugated Box Manufacturers of India

20-22, December 2019 - Jaipur, INDIA

Venue: Fairmont Hotel - Jaipur, Rajasthan

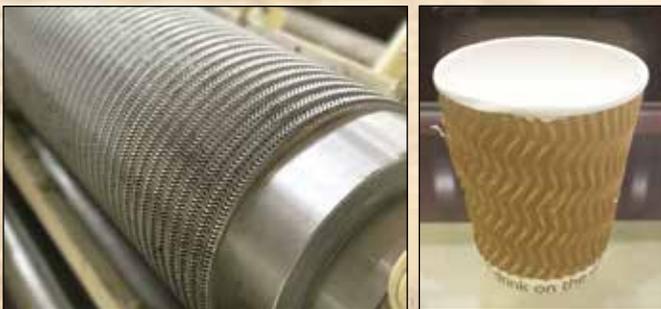


It is the first time in the last 48 years that RCBMA has got this opportunity to host FCBM Conference and showcase the grandeur of culture and hospitality of Rajasthan to all its fellow FCBM members. Therefore, TEAM RCBMA is waiting with folded hands to welcome you alongwith your family with feelings in our DIL - “Athithi Devo Bhava”.



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**First Time in India  
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**Heavy Duty Waste Paper Baling Press**

Bale Weight : 30 - 120Kg.

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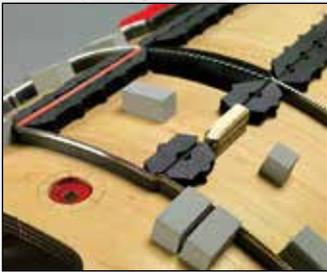
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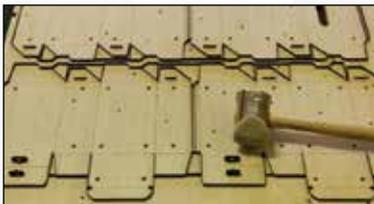
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Our highly experienced technical team along with superior quality raw materials used in each Die, ensures optimum result in output.



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