

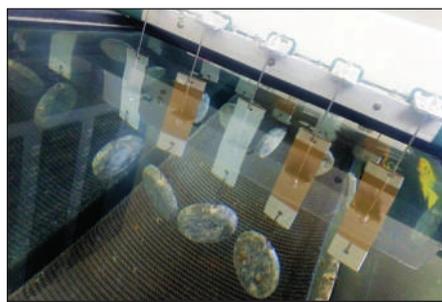
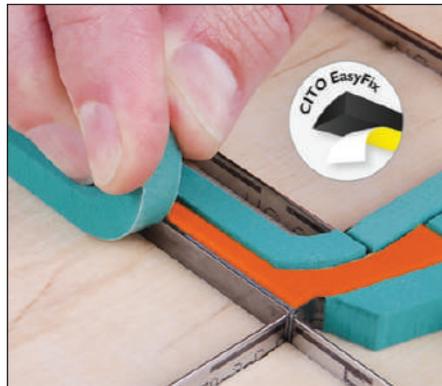
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The Corrugator

OFFICIAL MAGAZINE OF FEDERATION OF CORRUGATED BOX MANUFACTURERS OF INDIA

October - December 2019



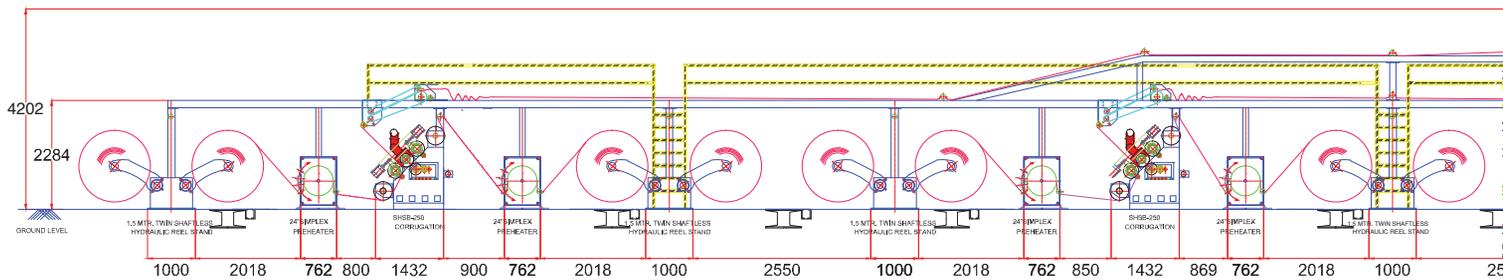
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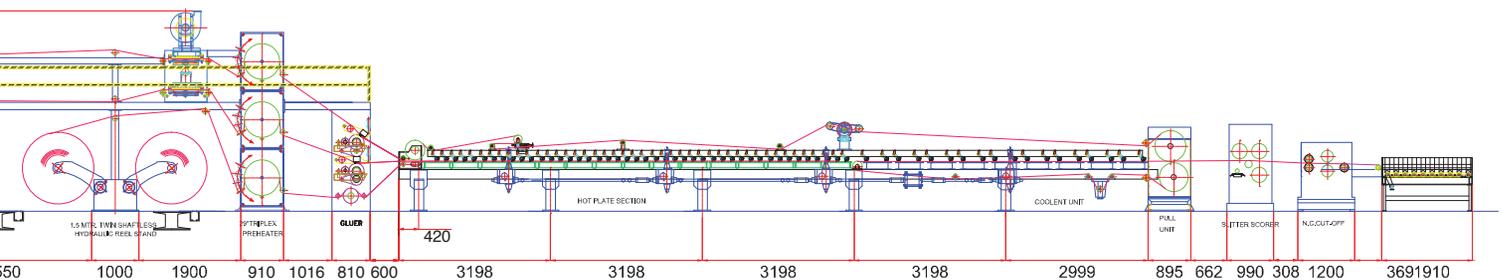
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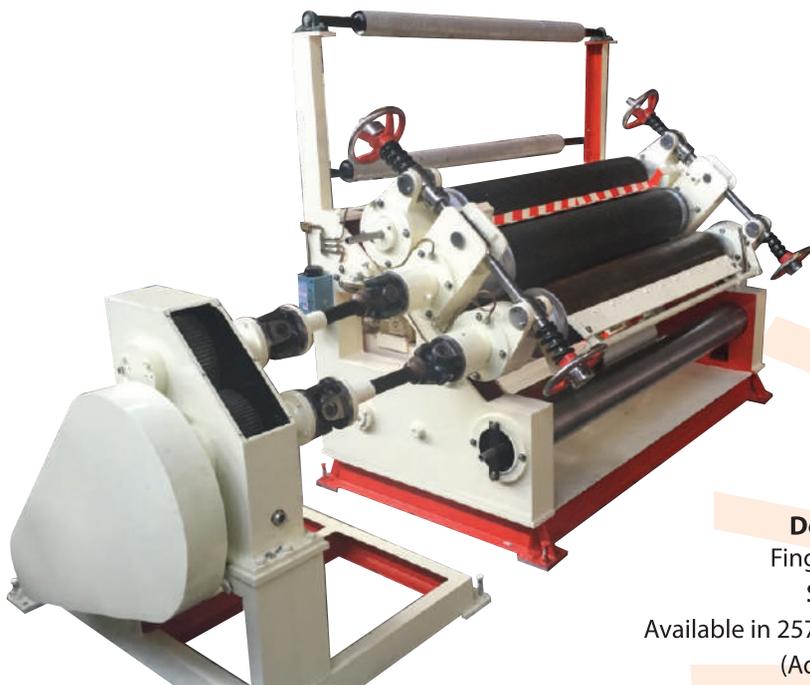
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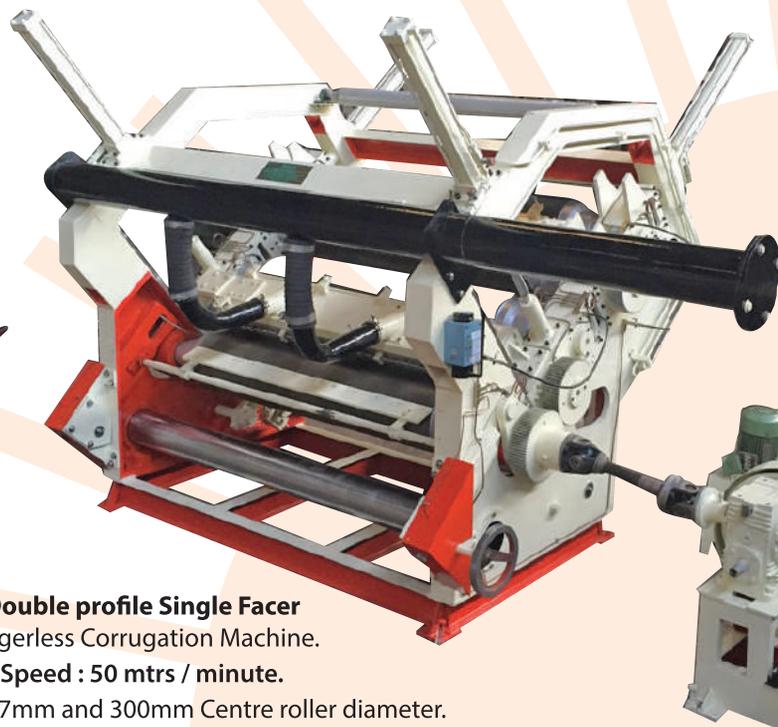
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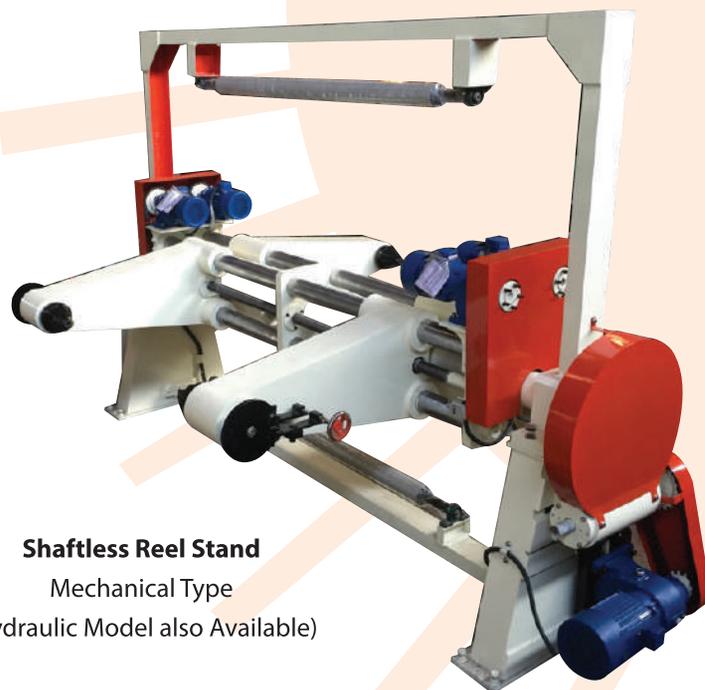
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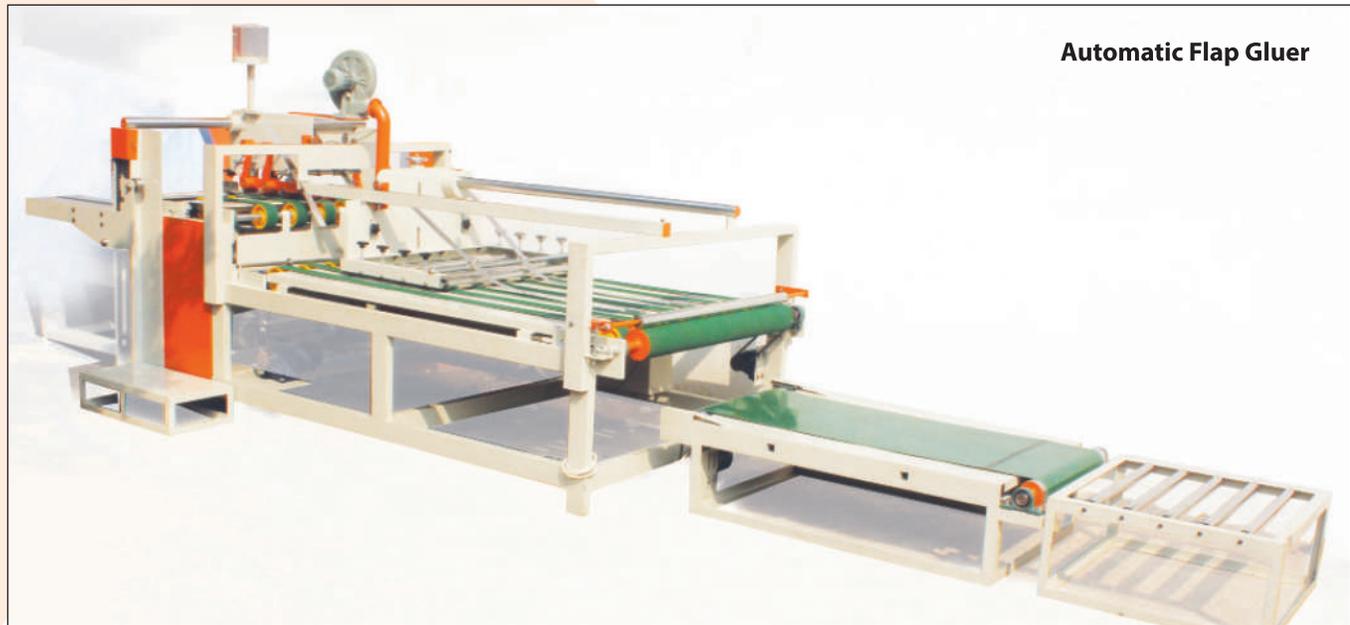
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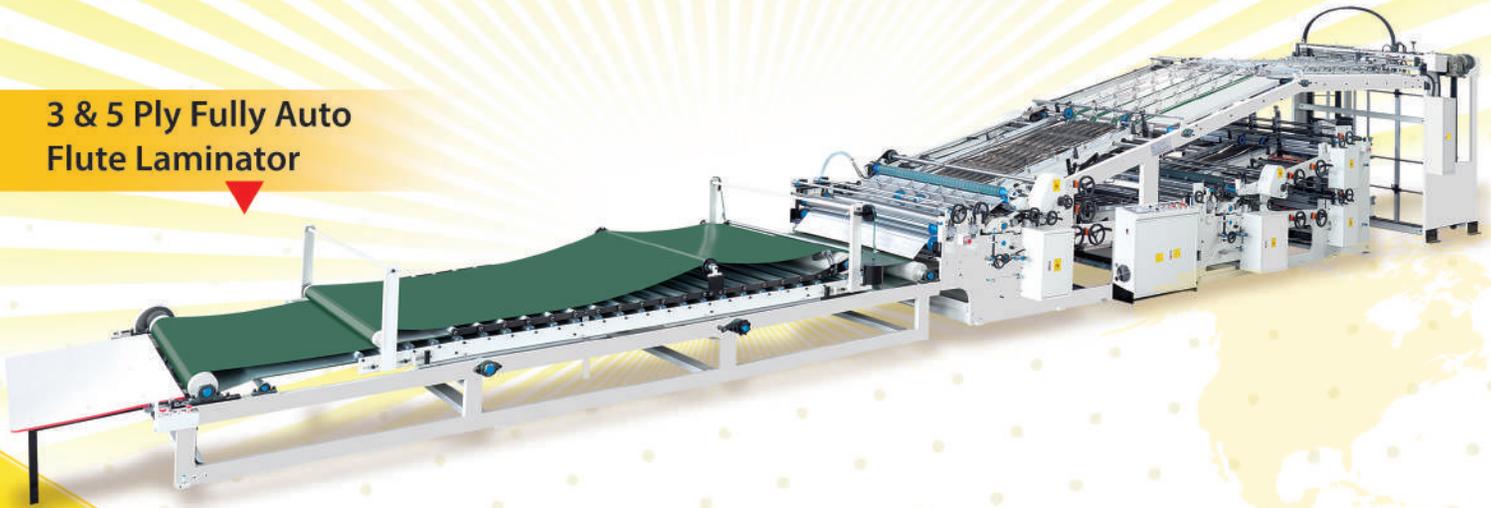
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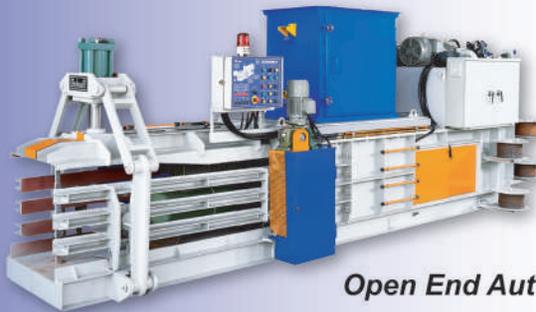
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THE EDITORS' PAGE



Ashok Vyas



Haresh Mehta



Hemant Saraogi

The year that has just got over stood out significant as the year of 'India's Great Economic Slowdown.'

While the GDP came down to 4% or less the Industrial Production showed no signs of growth.

The latest annual report of the [RBI](#) for the fiscal year 2018-19 (or FY19) confirmed that the Indian economy has indeed hit a rough patch.

Like all other industries, our industry also saw the signs of dormant growth. Corrugated Machinery Manufacturers were perhaps badly hit with low demand.

The Government has taken some drastic measures, albeit too late, to shore up the economy. The signs of resurgence, although faintly seen will perhaps take the whole year to spring back to near normal.

Amidst the news of slowdown, rise in FDI inflows from \$12.7bn (FY19) to \$16.3 bn (Q1 FY20) brought respite for the government. In a welcoming move, the Government revised GST for the automobile sector; opened up FDI in contract manufacturing sector; and even announced the recapitalization of the banking sector.

Together with these, it should also focus on optimum utilization of funds granted by RBI and direct them to boost

investment in the economy - both infrastructural and research investment.

Let us hope the New year will accelerate the process of revival.



It was a highly active year for FCBM Seminars, Educational Courses; Events etc. were organized by almost all regional associations taking the members along the Learning curve and enhancing the fraternal feeling among them.

KeCBMA Conducted the comprehensive Course in Corrugated Packaging. President K. Arunachalam made his gracious presence and shared his wisdom with the participants.

KCBMA Conducted Comprehensive Course 2.0. WICMA organized its Annual Symposium in Goa – which again was a great success.

Earlier in the quarter, GCBMA held its Conference and AGM at Udaipur.

All these are covered under FCBM News.

Punjab Corrugated Box Manufacturers Association (PCBMA) was officially welcomed into the fold of FCBM at the 4th MC meeting held at Goa.

This issue carries interesting and informative articles by renowned authors. The new RCT (not Ring Crush Test) but a new concept on the lines of the Nobel winning concept developed by Prof. Abhijeet Banerjee and his team makes interesting reading

The year ended with the crowning event – 48th FCBM Conference – organized and hosted in a grandiose manner by RCBMA. Kudos to RCBMA for so successfully holding their debut FCBM Conference.

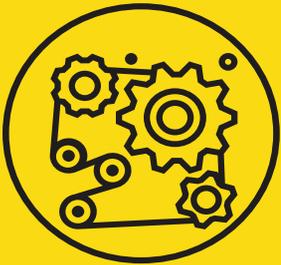
Glimpses of this Annual FCBM event are featured prominently under FCBM News.

The Editors extend their Hearty Greetings to readers and Wish them all A Happy and Prosperous 2020.





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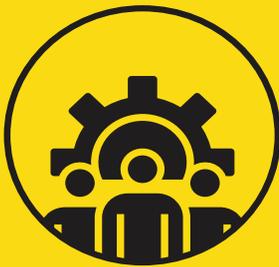
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PRESIDENT'S MESSAGE



K. Arunachalam
President

Dear Readers,

As the year 2019 ends my tenure as President FCBM also draws to a close. I look back with satisfaction of keeping our Federation vibrant and active during the year and look ahead to another great year for FCBM under the leadership of the new President Mr. V. K. Dewan.

For me, it has been a year of fulfillment. I was able to meet and interact with most of FCBM members across the country.

Our Federation and Regional Associations continued the activities of Educational Courses, Seminars, Exhibitions, Meetings etc. with great vigor.

We had the opportunity to visit the famous town of Varanasi, where 2nd MC meeting was held.

I had the opportunity to visit Sino Corr2019 at Shanghai along with one of the largest FCBM delegations to SinoCorr show in April 2019. We were able to carry forward our meetings with Reeds China on the sidelines.

Our KCBMA Members visited South India Paper Mills, Mysore and the trip was very beneficial to the members.

FCBM also participated in the World Orange Festival - where we got an excellent opportunity to interact with Union Minister Hon'ble Mr. Nitin Gadkari and Hon'ble Chief Minister of Maharashtra Mr. Devendra Fadnavis. We were further invited by Union Minister Hon'ble Mr. Nitin Gadkari to visit his office in New Delhi to take the dialogue further.

Print Pack India 2019 - India's Largest Printing & Packaging show at Greater Noida had a Special Corrugation Section which I was invited to inaugurate. Members from FCBM also participated in the show in large numbers.

Our New Market Development Committee (NMDC) brought out a Book on 'Packaging - a vital cog sustenance and growth of Agriculture sector' - which was presented to Union Minister Mr. Nitin Gadakari at his official residence in New Delhi.

The year was filled with such significant events making my tenure memorable.

I have been fortunate to receive advice and suggestions from my seniors and Past Presidents. My colleagues and office bearers always lent excellent support to take me through all the jobs of the Federation.

To crown it all, we had a royal FCBM Conference – hosted by RCBMA @ Jaipur.

This year has been a challenging year for all industries with economic slowdown looming over, it had been a year of low demand and low production for all of us.

I do hope the New year will see revival in all sectors.

The FCBM office and our able Executive Secretary offered great cooperation and support.

I thank all of them for being with me through the year.

During my tenure I have made many good friends across the country and I will cherish their togetherness.

I have enjoyed writing to readers of The Corrugator - a magazine of repute - ably brought out the Editors.

I am sure The Corrugator will continue to be a Classy magazine of the Corrugated Packaging Industry.

Wishing all of you a Happy & Prosperous New Year.



MESSAGE from Mr. V.K. Dewan



V. K. DEWAN
Incoming President 2019

I wish to thank each and every member of FCBM for reposing faith in me and electing me as the President of FCBM.

Looking at the current market scenario where all the sectors are performing low, this is the time we need to realise the power of this association in a better manner, FCBM equips us to have latest technological know how in the industry with the best of training courses started by our esteemed Seminar & Workshop Committee team which is headed by Shri RamKumar Sunkara.

Our Level 1 course which was initiated in the term of Shri Pradip Bosmaya has already flourished its wings majorly in all the regions and infact the team has even come up with further enriching Level 2 course which takes the duty of FCBM of imparting education to even a higher level.

I wish to see in my tenure that 100% regions should get to finish both the levels simultaneously. And we'll make full effort to even start level 3 & level 4 in some of the regions.

As I mentioned in my speech in the AGM that I wish to kick start some programmes with respect to skill

development of our labour with the help of Shri RamKumar Sunkara and other senior members of FCBM, so that it could deep down help each and every member of our association to streamline their production activities in a better productive manner.

Wish to see that avenues for income of FCBM should also increase whether it is from efforts of our website team or even from the way of collaboration with associations like IPAMA, Reeds India and many more possible associations still to get associated with our esteemed Federation FCBM.

Since we are about to enter in our golden jubilee year celebrations and with continual efforts put in by our membership drive committee we wish to add maximum number of new members and even pursue the options to get our association connected to newer regions(states) which still haven't got connected with FCBM.

In the end, I would like to request all the members of FCBM to whole heartedly give their support with respect to their working in different committees and help our Federation reach greater heights.





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Safety Techniques

In my last article, I spent time reviewing the subject of SAFETY and the importance of having a proven safety program in every plant. I discussed specific points and observations with which I have been personally involved in as I have traveled and worked in plants around the world. I have been very fortunate to have had the opportunity to experience many different ways of doing the same thing in both large integrated companies as well as smaller independent, privately owned box and sheet plants. It was always interesting to me to experience box plants where there is little or no regards for employee safety to the other extreme where SAFETY is the number one priority, as it should be!

Last month, I discussed Lock Out / Tag Out Procedures and now I would like to further discuss this important subject in further detail.

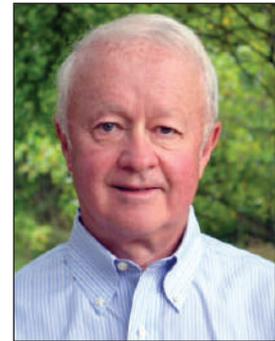
Lock Out / Tag Out means that every individual who enters a Flexo, Die Cutter or any part of the Corrugator and their components must first engage the E Stop or STOP BUTTON and attach a properly identified "Lock Out" lock to the location. Note: we must remember not to lock out the main disconnect for the whole drive, just the start/stop or E Stop button control.



I would suggest that everyone uses a Lock Out HASP. This will enable you to have multiple locks on one location at any given time. These suggestions also apply to any folder gluer, band saw, shredder or any piece of operating equipment in the building. The HASP enables several people to be properly locked out in the machine center at the same time. This then enables maintenance to have productive conversations with the crews in the machine as they trouble shoot the process.

Each key must be properly identified with the employee's name so that if any of the crew or maintenance people need to run the machine they will know whom to contact to remove the lock. Remember, it is a violation for someone other than the owner of the key to remove it. [There are times at the end of the shift, operators go home and they have forgotten to take their locks off the machine center. Plant management can then contact the individual and have them return to the plant and properly remove their own lock!]

Note: In the case of visitors, customers or any of the office staff, they all will need to have properly identified locks labeled VISITOR, OFFICE STAFF OR CUSTOMER. All of these suggestions will keep the



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"On Target Consultants"

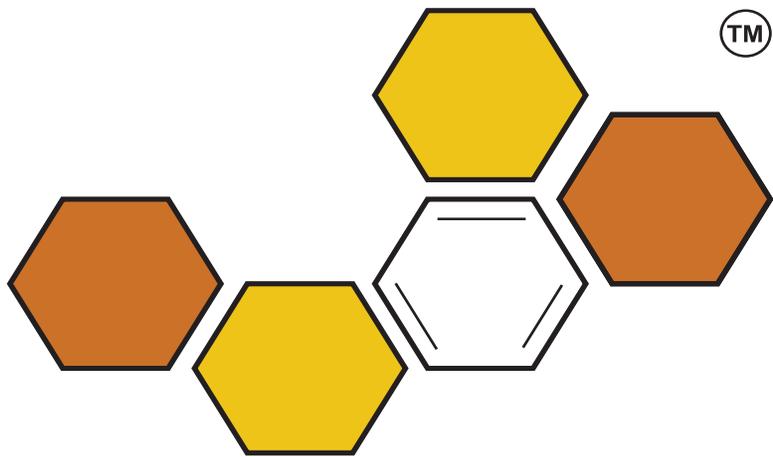
process going and keep unnecessary downtime to a minimum.

Again, once the lock is attached and secured to the equipment, the individual must always keep the key and put it in his or her pocket. The key must stay with that employee or visitor until such time as when that individual removes the lock himself or herself. There can be no exceptions! It is also a good idea to have a centrally located lock station near each machine so that it is easy for everyone to access their own lock and follow the rules.

Many companies have a written and posted policy whereby if an employee enters any piece of equipment without properly locking out, they will be put on probation (normally for six months), disciplined, suspended or terminated. All well managed companies enforce this rule to the letter.



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Also, it is not an acceptable practice for one individual to put their lock on the machine and one lock for the other two employees on the team and then keep the three keys in his or her pocket until such time as when the machine turned back on and operational. This is very dangerous situation and I have witnessed serious injuries as a result of this activity.

Another area that we should also consider is the fact that we as an industry, we employ a significant number of “ESL” employees. They are people whose primary language is not English. The plant must be sure that all the employees have a complete and accurate understanding of the rules and guidelines in both their own language and English. [They must also understand the unique terminology that we use in the box industry.] These employees should

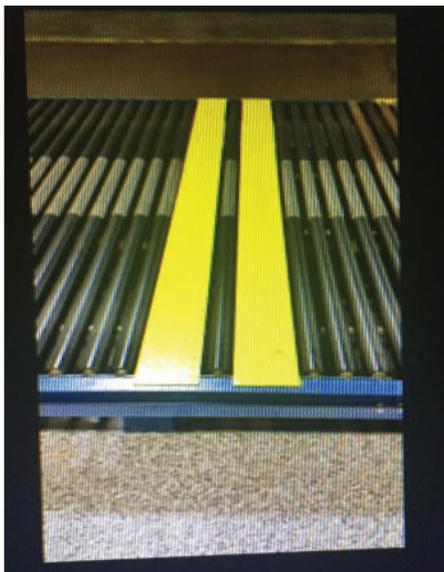
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			2	6	12+
H-3426	Small Steel	1"	\$7.20	\$6.70	\$6.20
H-3427	Medium Steel	1 1/2"	8.20	7.70	7.20
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ELECTRICAL PLUG LOCKOUTS
Prevent accidental plug-in of machinery equipment.
during service and repair.



also be able to communicate with each other while operating the equipment. In the Canadian provinces of Quebec and New Brunswick, French is the primary language. Employees from English speaking Provinces or other foreign countries must be able to understand and communicate in French with all the crews.

Crossing “Live and Static Conveyors”. First of all, it is a safety violation to walk on or run across conveyors anywhere in the plant. This practice has caused many serious injuries including broken bones to

include knees, ankles, arms and parts of the hand. The consequential damages result in serious, long lasting and sometimes permanent disabilities.

There are locations in every plant where controlled crossings are permitted. They are generally marked with bright yellow flat sections of steel located between two rollers. Generally, there is ONE flat piece of yellow steel three inches (8 cm) wide located at the desired crossing point. I would strongly suggest that the plant install TWO appropriate flat pieces of yellow steel shoulder width apart on the conveyor line. One piece of yellow flat steel means that the employee must do a balancing act as he or she crossed the conveyor. If there are two appropriate pieces of yellow flat steel, shoulder width apart, it becomes a much safer crossing point. I would like the SAFETY team in each plant review this subject in detail in order to fix and improve this situation. Also, it is a good idea to locate handrails at strategic places in the plant for safe conveyor crossings. One place is the entry point from the office into the production area. This is a subtle note that you must be careful crossing the conveyors at the specified crossing points. A warning sign is also appropriate.

Regarding the entire area around any piece of operating equipment in the plant, there should be yellow stripes on the floor showing the area for safety purposes. Many plants today use light curtains as I mentioned in my previous article.

Yellow plastic chains next to danger points are also a good idea. I would suggest that the plant safety team evaluate each machine center individually and position the proper safety signs, light curtains or markers that are machine specific.

Please locate signs around the plant reminding all employees and visitors that they are in a SAFE plant.

We should remind everyone to wear proper safety glasses and properly fitted earplugs. We only have two eyes and they are very necessary tools in our lives. There are frequently scrap pieces of paper; lots of paper dust in the area around all machine centers. The corrugator can have metal fragments that are airborne. Regular glasses are not enough. Unless they are real safety glasses, the individual should put the proper safety glass over their regular glasses. It may be an inconvenience but it is only for a short plant visit and could prevent a serious accident.



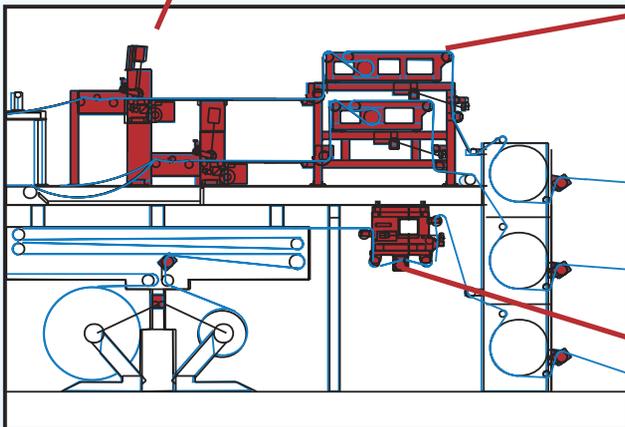
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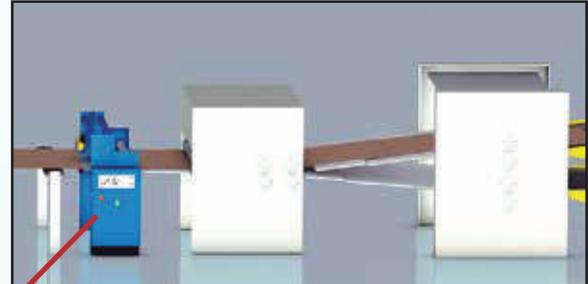
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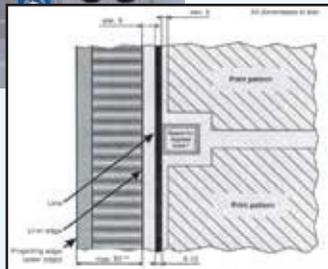
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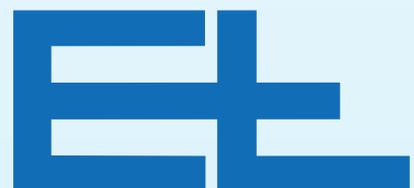
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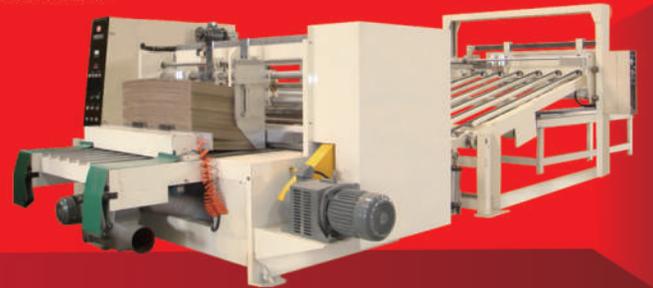
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Earplugs are not only important but also necessary! The area around the corrugator has a DBA rating of over 120 decibels. Any DBA rating over 92 will negatively affect you hearing after 5 minutes of exposure. That damage is not repairable. The area around the converting equipment has a DBA rating of 95 to 100 depending upon the speed of the press and your proximity to the scrap exhaust system. Many plant in Europe have below the floor scrap removal systems just for this reason. The Hogger

in the plant is over 125 DBA and the opportunities for hearing damage are real.

Please focus on managing your tooling, specifically the printing plates (Cliché's) and cutting dies. Offer a proactive plan so that these tools are properly maintained and offer your employees the best opportunity for a quality-manufacturing environment. Replace worn anvil covers both on the die cut drums and the female scoring heads. The less they have to stop the press and fix quality issues due to worn tooling, the safer it will be.

I would like to ask the management team to review all the points that I have discussed in these last two articles and take them seriously. Protect your valued employees and offer them a world-class safe work environment.

As also, 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.

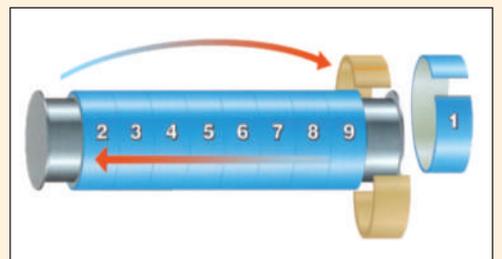
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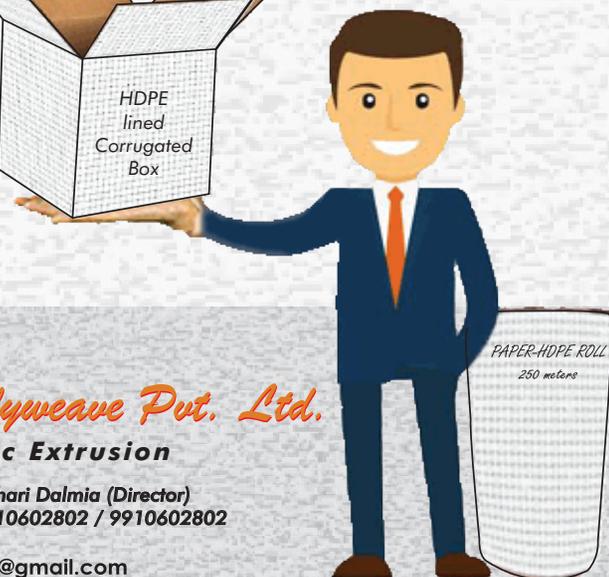
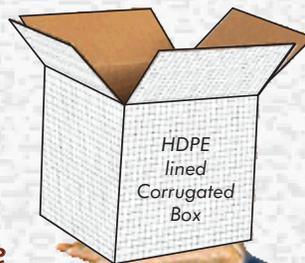
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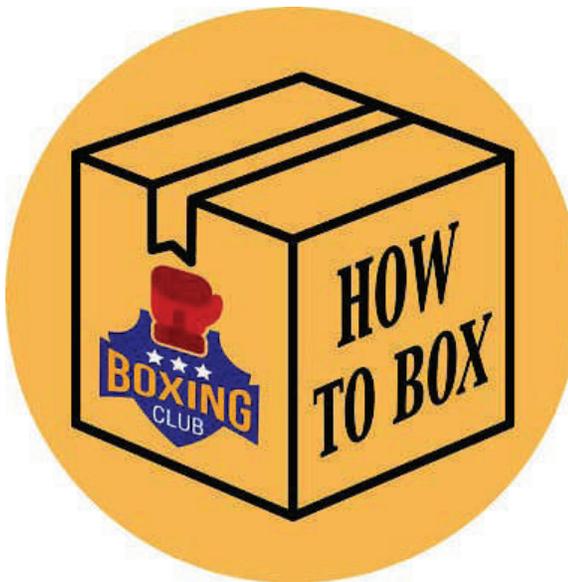
How To Box

Series Introduction

Please join me as we take a closer look at the making of a corrugated (fluted) box. Particularly, we will venture across four primary topic areas that together are the essential disciplines of “boxing.” Each primary topic area will be broken into subcategories of further explanation that will then be further dissected to refine and reinforce a thorough comprehension of the topics. The goal is for the reader to gain a much more fundamental understanding of what it takes to successfully “box” upon completion of this article series. Let the coach guide you through this fully integrated series aimed to empower. Classes begin with:

The primary topic areas of boxing The Boxing Machine 101 (the machinery, the press, the printer, the diecutter)

We all understand that without the proper equipment, a boxer would be exposed to serious injury or potentially a short-lived bout. The best offense is a good defense.



Equipment is what takes the professional beyond ordinary skills by enhancing the capabilities to box. Equipment also protects the boxer from the eminent “low blow.”

The Cut Man 102 (the tooling, print plates and cutting dies)

No boxer would be successful without the aid of an experienced support team. The trainer considers the equipment limitations, contenders’ attributes and previous experience and works to prepare the best possible tools that will compliment the equipment and crew.

The Ring Announcer 103 (communication and collaborateion)

The excitement of boxing would pale without the rich context and thorough delivery of the blow-by-blow strategy visualized for the fight. Every piece of needed information is researched, planned, articulated and presented accurately and in detail to assure everyone is on the same page and integral to success.

The Final Decision 104 (aka performance)

When the fight is all over, a team of judges who closely scrutinized the fight in its entirety renders the final decision. The winner is always determined through a



Kevin Koelsch,
Dynamic Dies, Inc.,
Holland, OH, USA

superior optimization of the equipment, trainer and manager as one team supporting the boxer with one goal in mind—to win the fight.

Inline flexo printer rotary diecutter

Obviously, there are many machines and processes regarding boxing. However, for simplicity’s sake we will concentrate on one. The machine to be covered will be a typical style of machine used in the box converting industry. It has a long name so bear with me. The machine is referred to as the inline flexo printer rotary diecutter. This machine skirted the joy of a simplified name mostly due to the à la carte nature of the unit. The box maker says, “I wanna make a box.” The machine people say, “What all do you need it to do?” And that is the beginning.

The “inline” part means I want to start at one end with a stack of paper and go to the other end and get a finished box. This is contrary to having independent steps for the entire process. An example of that would be if we print the box over here and when done we take it to the diecutter and cut it over there. The inline system does make sense—don’t you think so, Frederick?



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“Frederick Winslow Taylor (March 20, 1856 – March 21, 1915) was an American mechanical engineer who sought to improve industrial efficiency. He was one of the first management consultants. Taylor was one of the intellectual leaders of the Efficiency Movement. . . One of his most famous studies involved shovels.” Source: Wikipedia, https://en.wikipedia.org/wiki/Frederick_Winslow_Taylor



Feed section

This is the place where it all starts. This is where you pile the paper. The 101 article will discuss the different style mechanisms used to introduce a single sheet into the machine for further treatments.

Print section(s)

Ok, you get it. However, there is more to know about the print section and flexo than you might guess (or want to know). This section will take you through the needed components required to draw in the ink, carry it, distribute it, apply it to the plate and then transfer it directly to the paper. There is a lot to it and there are a lot of choices to make. If you want, you

can have a machine that prints up to six or seven colors all with unique printing characteristics.

“Flexography (often abbreviated to flexo) is a form of printing process which utilizes a flexible relief plate. It is essentially a modern version of letterpress which can be used for printing on almost any type of substrate, including plastic, metallic films, cellophane and

paper. It is widely used for printing on the non-porous substrates required for various types of food packaging (it is also well suited for printing large areas of solid color.” Source: Wikipedia, <https://en.wikipedia.org/wiki/Flexography>

Slotting and scoring section

Basic containers commonly referred to as RSCs (regular slotted cartons) are just a cube comprised of fold lines (called creases) and cut away strips of paper (called slots) that enable the formation from a flat sheet into a cubed structure—otherwise known as a box.

Diecutter

This piece will discuss the actual tool that converts the plain sheet into a tailored part. The diecutting process includes cutting, creasing and perforating. Since we will be discussing the rotary version of this, a good deal of the conversation will include rubber, sheet speed, waste separation and part delivery.



Contd. on - 31





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



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



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

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Puncture Resistance Tester (Digital Model)

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

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Cobb Tester

Determining water absorptiveness of papers, boards etc.



Short Span Compression Tester (Sct Tester)

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Stacker

Once a part is rotary diecut, it must be handled. If you can visualize a deck of playing cards arched in your hand between your thumb and forefingers to the point where they begin to fly out of their tensioned position into the air in all directions...this is why we need a stacker. There are many choices for handling the parts as they exit the final converting station and the mission is to cover many of those.

And that's just an overview of The Boxing Machine 101. After that, the subsequent articles will be:

- Tooling (The Trainer) (The Cut Man 102)
- Communication (The Manager) (The Ring Announcer 103)
- Performance (The Final Decision 104)

If you are printing, diecutting, diemaking or just interested in boxing a good balance of knowledge and information, this IADD article series will provide the foundation needed. So grab your gloves, pull up your red, white and blue Apollo Creed boxing shorts and step in to the ring for our exciting enterprise to learn about boxing. Don't miss the bell!

How to Box

The Boxing Machine 101

Fundamentally, we can't box without equipment. Well, we could, but it likely will end up with someone getting hurt! In the context of the "how to box" theme here, we will pick back up on discussing the inline flexo printer rotary diecutter machinery used to box (or for the layman, to convert corrugated paper sheets into boxes).

The previous article left us with five sections (see Diagram 1) that operate in unison:

- 1 Feed section
- 2 Print section(s)
- 3 Slotting and scoring section
- 4 Diecutter
- 5 Stacker

Feed section

The feed section delivers one sheet at a time into the machine to be processed. That seems rather slow—one sheet at a time—doesn't it? However, what if I told you the latest machines do this at a rate of 350 times a minute or just under six sheets a SECOND?! That's like a punching combo from Sugar Ray Leonard! Are you impressed yet? Now, on the other hand, when you are making refrigerator or washing machine boxes, it takes giant, heavy sheets and the feeding rate may only be—wait for it—one sheet every two seconds. I encourage you to stop and let that soak in: 350 sheets per minute (SPM) or 30 SPM. That represents an increased rate differential of 10x. What I find particularly interesting is that both machines are ultimately doing the same thing: making a box.

I digress. Let's get back to the feeder.

There are two types of feed systems in general (see Diagram 2). These likely have super technical terms to define them but I will give you the Rocky Balboa/street version. For our discussion, we will call



one the "kick feed" (see Diagram 3) and the other the "lead edge feed."

The kick feed does just exactly that. A bar or a pair of thin, steel guide plates come from the back of the sheet stack at the bottom and push one sheet into the machine. This poses some issues the minute you try to speed the process up by stacking the paper into a pile to feed it. The kicker pushes the bottom sheet in, so if you have a pile, you need to feather the stack down at the rear of the pile so the kicker plates only push one sheet at a time. The kicker bar slides under the rest of the stack to complete its delivery. Therefore, you can't stack the paper too high as that translates into weight on the bottom sheet and consequently resistance to the bottom sheet and the kicker bar going past.

It works, especially when the sheet size is super large and you're only able to present one sheet at a time anyway, and there are still plenty of kick feed machines still out there in use today. The main issue with kick feeds is the time it takes the kicker bar to travel back to get another sheet.

The lead edge feed is a vacuum table engineered up close to the first set of wheels or rolls into the machine. The stack of paper is piled onto the vacuum table and included within the vacuum table are rows of small wheels alternating like





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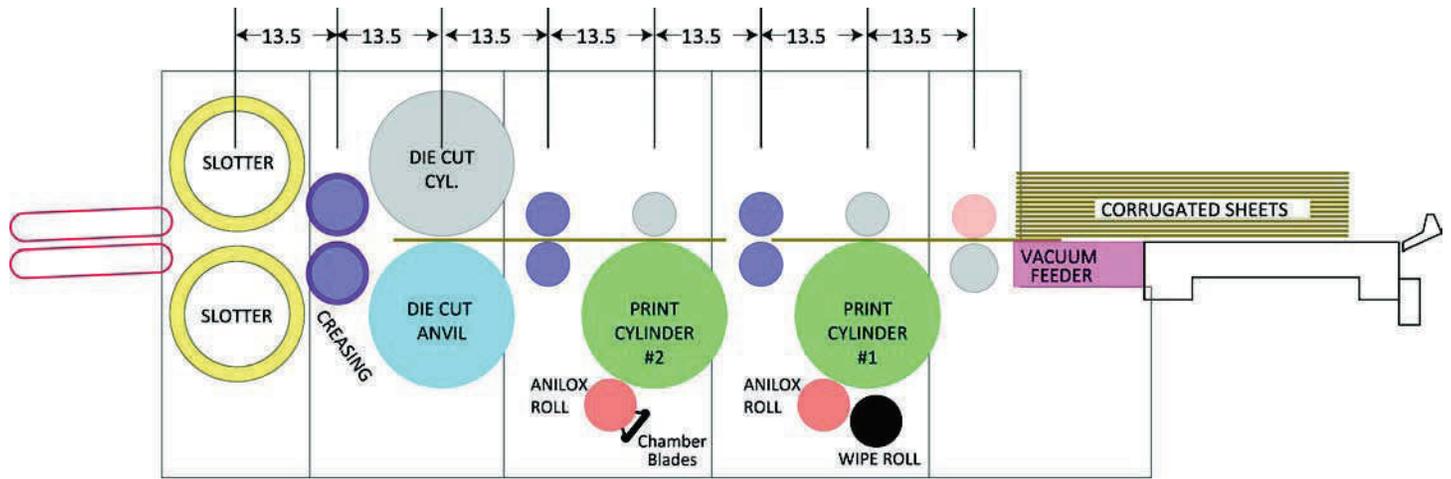
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a checkerboard about the vacuum holes. These wheels will pop up and down like the penny arcade game whack-a-mole. When they are up, they spin forward into the machine. This “lift and spin” technique advances the bottom sheet into the machine. About six inches (15.24cm) in the first set of wheels (also referred to as feed rolls) take over. Since the vacuum feed table is close to the feed rolls, the small feed wheels only need to move the sheet a short distance to get the lead edge of the sheet to the nip of the feed rolls. After the trail edge of the bottom sheet passes, the vacuum sucks the pile down for the next sheet to be fed. Of course, the lift and send of the feed wheels is timed precisely to the running rate of the machine.

In punching out of our feed section, it is worth adding that with either feed types, there are a pair of receiving rolls just in from the feed stack. These wheels are referred to as (believe it or not) FEED ROLLS. These rolls form a nip point between them and take the sheet that is presented and pass it downstream.

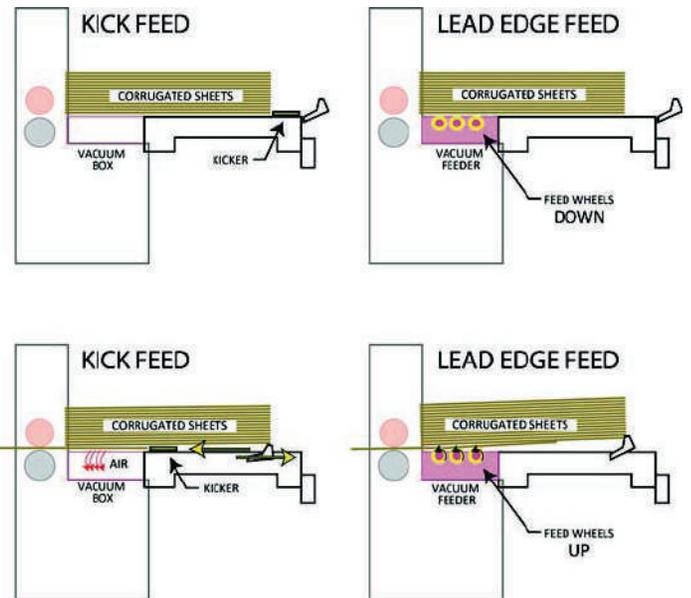
Print section(s)

The print section is self-explanatory in that it is how the ink gets put on the box. There are many ways to print, but with this machine we are discussing the art of flexo printing. This is also referred to as flexography or “direct” print and at times it translates simply into smashing a print image onto a sheet of corrugated, leaving not only a bad image but also an unwanted

embossing of the sheet. That, my friends, is NOT printing.

It doesn't get much more basic than taking a soft rubber or polymer print plate image, pasting it with ink and then delivering a body blow to the part you want to print. Think of an automated hand stamp. It's likely there are some professional flexo printers in the readership that are right at this moment grimacing in disgust over the oversimplified explanation. Oversimplified it is, but my motivation was to retain the non-technical readers, while at the same time interest those technical boxers by poking at their professionalism. I hope it works.

Flexographic print on corrugated can be very crude. In many cases, the print is strictly informational, like “UP” arrows, “FRAGILE” and “NET WT. 8OZ.” markings. However, the print on boxes has also evolved to render some of the most sophisticated “label-like” looking graphics out there! Yes, there are some boxers who print directly to the paper so well that only the most trained observer can differentiate.



Here's what they do it with (basically).

First of all, the ink is pumped from a bucket into a pan. The anilox (ink roll with millions of microscopic buckets) picks up the ink by rolling through the pan. The excess ink is either squeezed off by the wipe roll or skimmed off by the chamber blades (see Diagram 4).

The next step will be for the anilox roll to pass the ink to the rotating print plate on the print cylinder. The print plate presents itself just as the paper is passing between the plate cylinder and the impression roll. The gap here is set to just below the caliper of the paper. The squeeze of the plate to the paper transfers the image. Once complete, the print plate rolls back around for another dose of ink. As shown,





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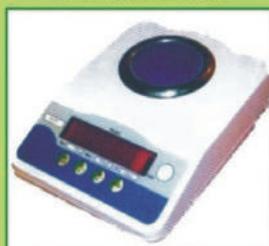
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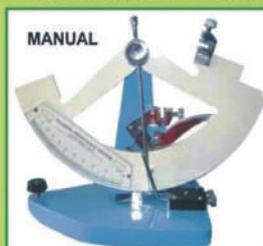
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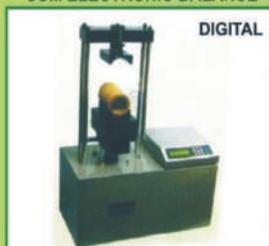
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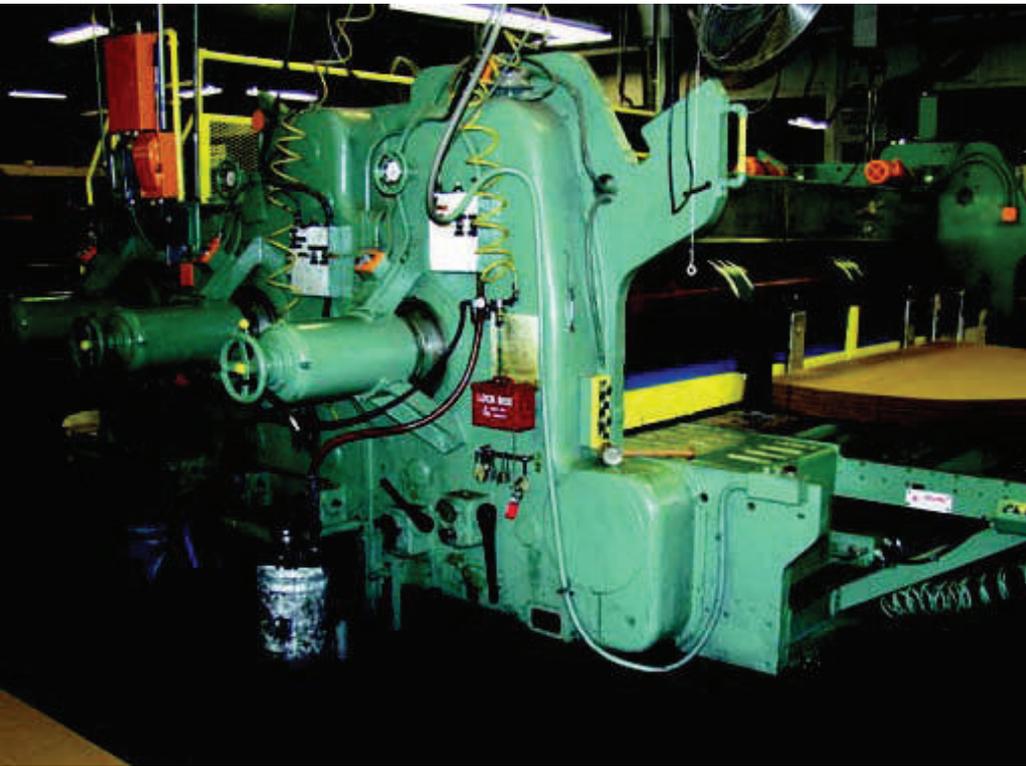


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inch)—the range is from 160 up to 800 (or more).

3. Angle and shape of the cells.
4. Covering or coating of the roll itself.

The wipe roll or doctor blade allows more ink to pass through which generally means the coverage will be thicker. So if you want rich, dark solids, you may want a wipe roll system. Doctor blades are taking over. The doctor blades are generally steel, plastic or composite. These devices angle the sharp edge to skim the anilox rolls for a very precise distribution and delivery of ink. Let's just say you won't be printing the Mona Lisa without using blades.

Diagram 4 demonstrates the transfer of the sheet past the printer as being controlled by the impression roll/print cylinder nip and the pull rolls between stations. If you want to be king of the hill in flexo print, you will change out the pull rolls and install a vacuum transfer system (not illustrated). These high-speed, highly-accurate transfer mechanisms help control color-to-color registration and also flatten out the sheet to be printed for precision impression.

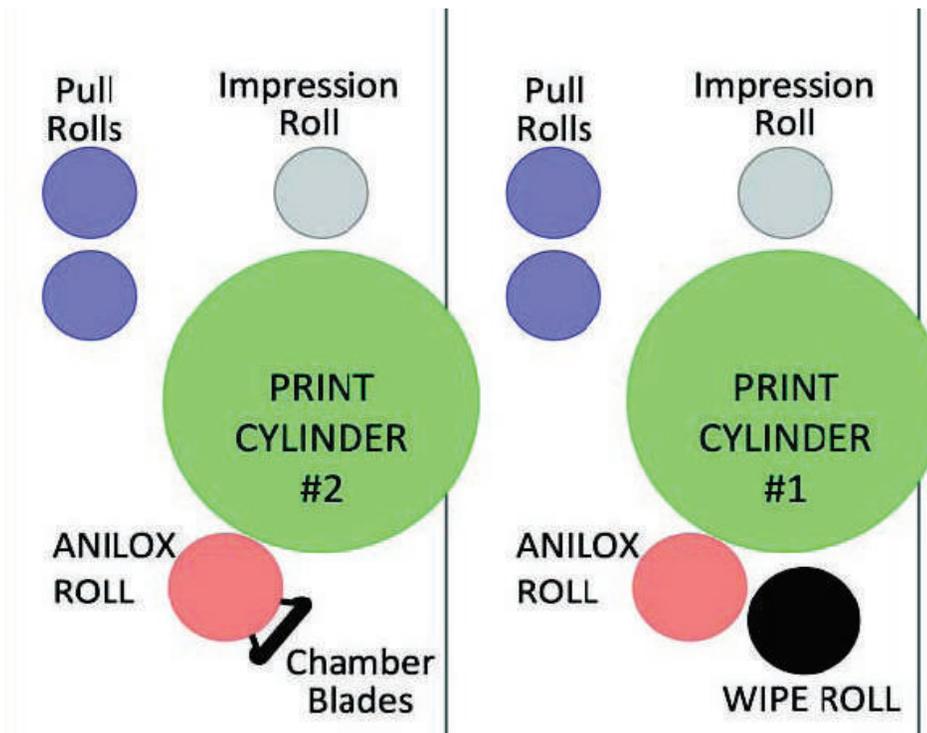
Add all of the variables in these fundamental options together and you can better comprehend the vast range of possible choices and capabilities when you're a boxer.

Slotting and scoring section

If you are making an "RSC" container (regular, slotted carton—see Diagram 5), you can use this section and bypass the cutting die altogether. Boxers love this option and the most common box in the world is the RSC.

This section does exactly what it describes. It scores and slots. The condition to using this section is that the boxer must send a corrugated sheet to the machine with the top and bottom flap crease lines already hammered into the sheet precisely where they go. This is necessary because the creasing wheels of the machine rotate in the same direction the paper is traveling. As the sheet runs through the machine,

Contd. on - 39



the machine can line up multiple stations, one after the other to multiply the colors printed.

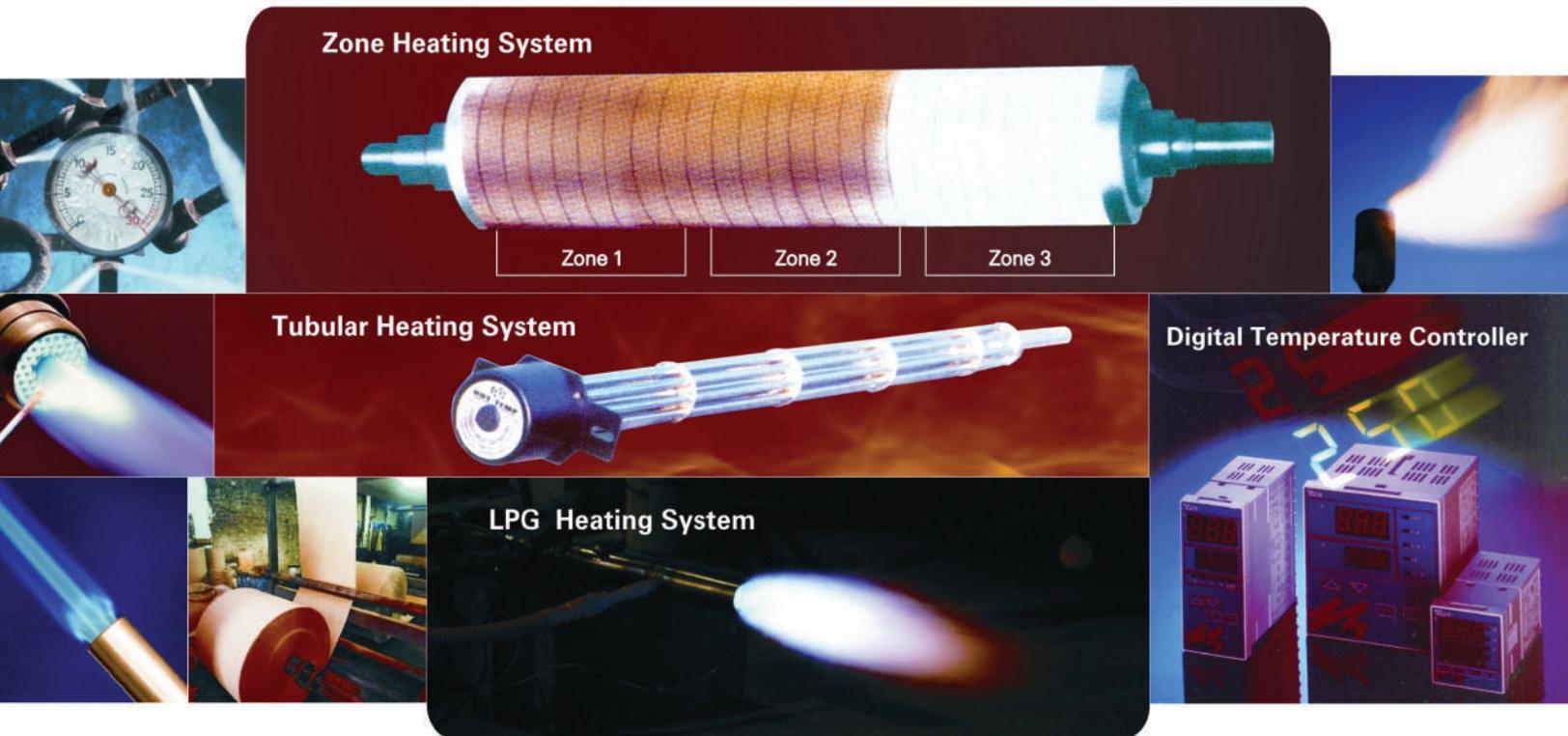
Now that may seem straightforward, but a few key criteria can make the difference between a "wham, bam and slam" printer and a Picasso. The short explanation is:

Anilox rolls have screen patterns etched in the roll to carry ink. The higher the resolution, the finer the print capability. There are four criteria here:

1. Cell volume—how much will the little bucket hold?
2. LPI (lines per inch or buckets per



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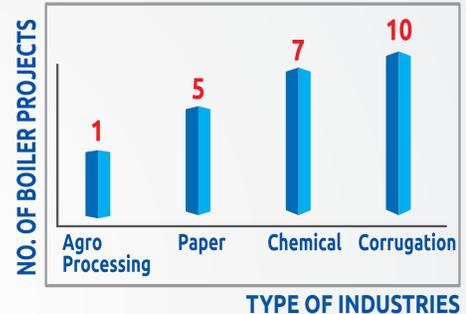
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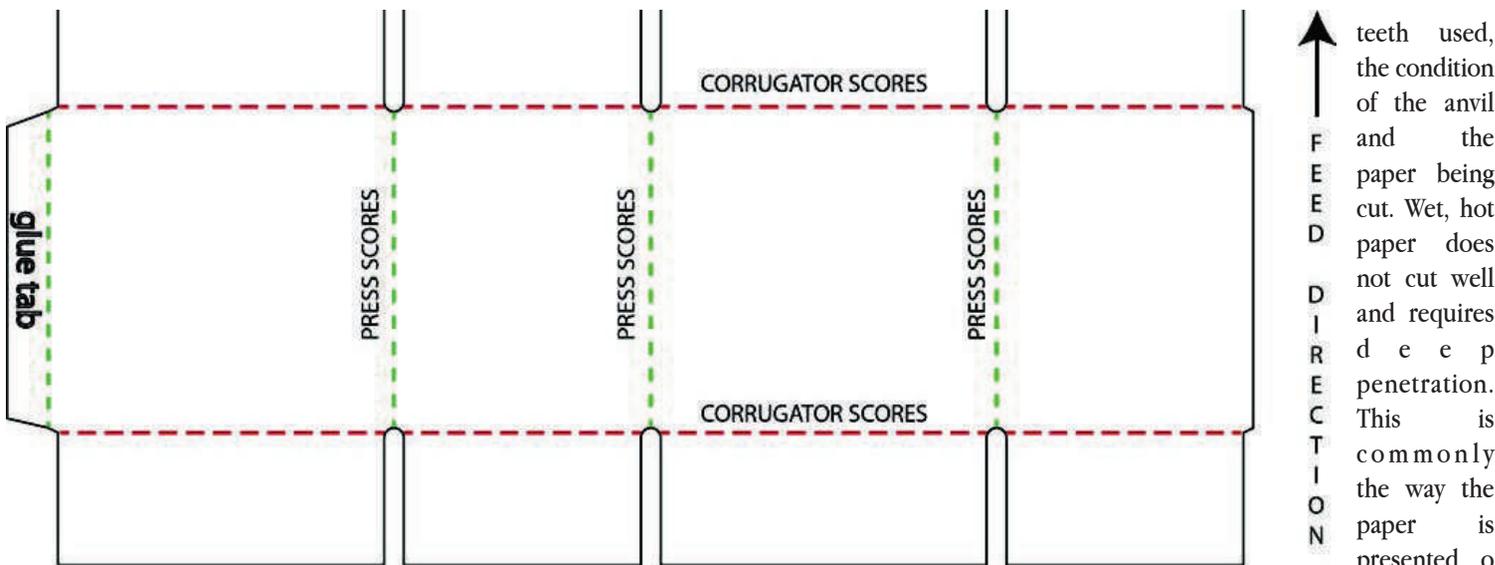


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the creasing wheels make the body panel fold lines. The next section is equipped with special knives that are spaced apart whatever the distance is from the lead corrugator score line to the trail corrugator score line. At those junctions, the sheet is slotted. Voila! You have a box without a cutting die!

Diecutter

Traditional box training techniques include the “bob and weave.” This is where the boxer learns to duck and move to keep from getting a right hook to the chops. Diecutting is similar if we relate the “bob” part to making an impression and the “weave” part to ejecting the sheet from the die. Let’s discuss the machine as it relates to the diecut section first, as the more detailed technical parts about the tooling itself will be in the next article.

The diecut section consists of three components.

Die cylinder

This is where you mount the rotary cutting die. The cylinder (one of a pair of opposing rolls) is usually on top in North America and Europe, but resides on the bottom in many Asian box companies. This primarily has to do with your priorities. Are you interested in viewing the print as it comes through (bottom cutter) or having the waste fall downward using gravity (top cutter)?

Anvil cylinder

This is what the cutting die penetrates to make an impression and ultimately a box. The anvil is usually a urethane covering that is engineered to wear as impressions are made. The anvil cylinder is opposite the die cylinder in whichever position it resides.

The control

I call it the “control” in a general sense because there are only two things to control here:

1. The impression—how deep the die is engaged into the anvil.
2. The register—syncing the rotation of the cutting die to time it with the passing of the sheet.

So here is the story of a rotary cutting die and the boxer. In order to cut cleanly, you need to punch the die through the paper and into the anvil. Doing this puts the knife deeper and deeper into the anvil, thereby wearing it out. You knew you would eventually wear the anvil out, but the challenge is to do it as slowly as possible. The deeper you go, the quicker it wears!

Every boxer wants to make “the perfect impression!” The perfect impression is defined as one that achieves clean cutting with well-defined creases. This is the dilemma. Cutting is all about the knife

in spite of the known negatives.

Creasing is all about the scoring rule height, width and shape. If you are curious about the choices of scoring options, ask a rule supplier to give you a list. If you have an hour or so and are bored, you might make it through the hundreds if not thousands of possibilities in steel rule crease options. Beyond that, all diemakers are using some rubber or plastic strips alongside the curved crease, which multiplies those configurations. If that isn’t enough to manage, know that the ultimate quality of the crease is very much regulated by the condition of the paper.

The paper is a moving target of numerous construction varieties: recycle content, heavy vs. light, size and flute configuration, with or without a label, hot, cold, wet, dry, warped and twisted. If you really think about it, it is amazing the success boxers actually achieve in delivering beautiful, functional product from this process, through this machine!

Stacker

At last, we have reached the end of the machine and we need to do something with the flat, converted sheets. Since they are flat, the first order of business is to “catch” the sheet as it leaves the last section. At this point it is important to note that while this article has followed a certain machine configuration, many



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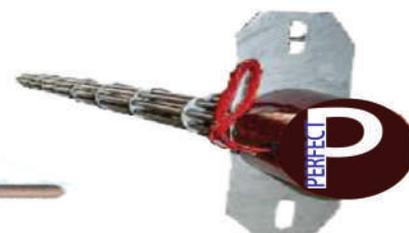
Corrugated Box or Sheet Dryer System

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.
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Corrugation Machine Heaters



configurations are possible—almost whatever you could imagine. For example, we could put the diecutting section at the end. We could eliminate the diecutting section all together and have the machine end with the print section.

In all cases, the sheet is delivered from the machine into a wide, flat conveyor of sorts. The conveyor is generally a platform that has several belts running from the delivery exit of the machine several feet (meters) downstream to a hopper. The hopper is a basket that adjusts to the finished sheet size. The hopper catches and stops the sheet. The hopper then incrementally shifts position by dropping down a fraction of an inch to make way for the next incoming sheet. The ultimate objective is a nice, neat stack of converted sheets. Of course, there are several configurations and controls, both electronic and manual, that make up a stacker. My last remark about the importance of stacking is that this equipment can and will determine the speed of the entire machine. Handling the converted sheets is a big deal!

Well, as we reach the bell of round one, we only hope that the reader has a better understanding about the inline flexo printer rotary diecutter machine. Moving on, the next article in the series will cover the tooling. That is the printing plates and the cutting dies that are used to make this machine work. They are crucial in the ultimate performance of the system. They are so important, the boxing industry by and large still utilizes technical specialists (trade shops) to produce the tooling—at least the smart ones do. The companies make it their business to understand and master the small differences in machinery, idiosyncrasies and operational objectives. When allowed, a trade house can customize a very unique product made specifically to the machine and the boxer's expectations. In a world of instant gratification and commoditization, this is still a position and talent one is counseled to respect.

How to Box The Cut Man 102

In the last issue, we left the fight at defining the machinery used to make a box in-line style. That is, bringing the pile of paper to the machine, stacking it on the feed table, pushing the "GO" button, feeding, printing, slotting, creasing, diecutting and restacking. Simple, right?

In this edition, we will discuss the equipment that the boxer uses to win. And I mean win. The tools of the trade are more than a frayed jump rope or a beat-up punching bag. Sure, the fighter has to have a big heart and a will to win, but beyond that, the equipment can and will make all the difference.

Before we jab in to the specifics and features fundamentally and conceptually, it is worth mentioning the elephant in the room. Cutting dies, printing plates, anilox rolls, ink, anvil covers and urethane rolls are the short list of the consumables in the process of boxing, at least on the inline flexo printer/slotter/diecutter. All of these items are often treated as commodities, and why not? Countless vendors are providing products. These companies are waiting in line to get a shot at the title to prove their stuff and they are often viewed as insignificant, small-time contenders in the supply chain battle of the big-time boxer. The trade house and sundry supplies companies have little power to resist downward pressures from big box companies to commoditize these essential tools.

None of the tools mentioned above in the short list are cheap or simple widgets off the shelf. Many are custom made for each run. Let's look at these individually:

- Anilox rolls—custom specified for the machine between the boxer and the roll provider based on the intended mix of work.
- Ink—standard formulas for most basic colors are provided by the five-gallon



(18.9-liter) bucket. Occasionally, custom recipes will be required for special brand colors.

- Anvil covers and urethane rolls—numerous durometers (hardness value) and material compositions are employed but are usually focused around wear ability.
- Printing plates—custom made per order. Every trade house has a standard model and a fully-engineered option.
- Cutting dies—also custom made per order. Every trade house has a standard model and a fully-engineered option.

Anilox rolls

The anilox roll has been referred to as the heart of the flexo press. It carries the ink and passes it directly to the print plate. It is made up of thousands of microscopic cells (tiny buckets) that pick up the ink (see Diagram 1). The cells can be mechanically engraved or laser etched. All anilox rolls are coated to protect the cells and ease the release of the ink.

There are four criteria used to define an anilox roll:

1. Cell shape: There are a variety of choices and each offers a unique dispensing characteristic.
2. LPI (lines per inch): How many cells are in a row?
3. Cell volume: How big is the bucket?
4. Screen angle: What is the angle of the

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pattern in relation to the axis of the roll. If the cells rows are not offset and angled around the cylinder, distracting visual patterns will result when transferring ink from the roll to plate and from plate to paper.

Other helpful guidelines

LPI of the pattern is determined when you order. The general rules are:

- Low line counts = more ink = heavier coverage (165–250 CPI) (cells per inch)
- High line count = less ink = finer detail (400–1000 CPI)
- For cell volume, the general rules are:
- Shapes can be diamond, hexagonal or even round.
- The common area that connects one cell to another is called the “land” area.
- Volume is specified in BCM or billion cubic microns.
- A BCM of 8–10 is a lot of ink and is good for solid color; 3.5–6 BCM is less ink and for printing detail work.

For screen angle, the general rules are:

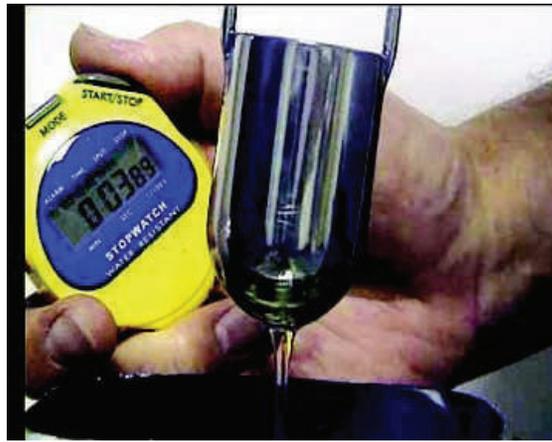
- Forty-five degrees from axis is common.
- The print plate screen angles need to also be different so they don't conflict and cause moiré patterns.

Ink

I don't mean a “MOTHER” tattoo. This is the pigment and vehicle solution that transfers the image from the printing plate to the paper. Flexo ink is usually water-based.

There are three criteria used to define ink:

1. Viscosity: How fluid is the liquid? Is it like water or molasses?
2. pH: How acidic or basic is the chemistry of the solution?



3. Color: Usually red, blue, green, etc.; however, the specific term is generally defined by the LAB scale, PMS or GCMI standard. The LAB color space describes mathematically all perceivable colors in the three dimensions, with “L” standing for lightness and “a” and “b” for the color opponents green/red and blue/yellow.

Other helpful guidelines

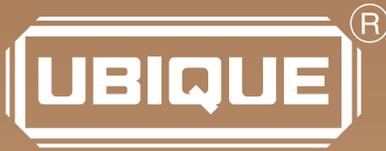
Viscosity is measured with a specific size cup that has a specific hole in the bottom (see Diagram 2). You dunk the cup in the ink bucket to fill it. You lift it out of the ink and time how long it takes to drain. There are several cup styles, but the cups most prevalent in corrugated flexo water-based ink are called Zahn cups. Common viscosity targets for corrugated flexo ink are 19 seconds to 30 seconds with a #2 Zahn. The best print on corrugated occurs when the ink is between 23 and 27 seconds. For more information, see www.gardco.com/pages/viscosity/vi/ez.cfm.

Most people are familiar with pH. For ink, a pH meter can be used. The target is to have the ink pH level adjusted so it dries quickly before subsequent colors over print. The pH of water is around 7 (depending where you live). The pH of ink should be between 8.5 and 9.5. The higher the pH, the faster it dries typically. So, theoretically, you want the ink pH stepped down through the press from color to color.



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- Urethane wears and ultimately will need replacement.

Print plates

The print plates take the ink from the anilox and pass it directly to the paper (or box if you will). Flexographic print plates have a long history. The original plates were made of wood letters, hand carved. Then when rubber was introduced, the plate maker needed to be an artisan because the image or lettering was drawn or transferred to the rubber sheet and then hand engraved very carefully.

After that, the molded rubber plate took hold. Vulcanization of rubber took place after making a master (usually a hand engraving, positive, right-reading image) and pressing it through heat and force into a combination of powder and paperboard to achieve a reverse-reading mold. The mold was loaded with raw, sheet rubber, put to heat and pressure and from that process we are back to a reverse, wrong-reading image. When the plate is inked and applied to paper, we come back to the original, right-reading image. Art > film > master > mold > plate > paper.

Well, that was way too complex, and with every step of that process a level of quality was lost from generation to generation. Film and photopolymer (man-made, photosensitive, plastic-like plate material) was introduced (see Diagram 5). The process then became art > film > plate. The master and the mold were eliminated, thereby increasing the final print quality by two generations. Today, the process is digital; laser imaging directly to the printing plate. Art > plate! This process made plate making very fast, very accurate and very high quality.

Often, print plates are made in pieces by graphic element to save plate material. The group of plates is reassembled together, in position, on a carrier material (see Diagram 6). This assembly of plates and material is commonly referred to as the "mount" or "stereo." The blanket (mount) is strapped, taped or otherwise wrapped and locked in place on the print cylinder.



Anvil covers and urethane rolls

I don't mean blacksmith anvils or jelly rolls. Urethane is a flexible, durable compound like rubber (see Diagram 3). The urethane anvil, as it relates to into diecutting, supports the paper so the cutting and creasing blades can cut or crease the paper.

Urethane rolls are just that. They are urethane tires and/or long covered cylinders that are used throughout the flexo printer diecutter to pass the

corrugated sheet from one station to the next (see Diagram 4). The feed roll discussed in my prior article, "The Boxing Machine 101," is generally a urethane roll.

There are two criteria used to define diecutting anvils:

1. Thickness
2. Durometer: How hard should it be?

Other helpful guidelines

- Corrugated paper is generally rough.





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

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Each color station of the press has its own ink and plate. The paper goes by, gets the first image and then passes to the next station for subsequent images and colors.

There are three criteria used to define a flexographic print plate:

1. Type of material (photopolymer).
2. Thickness (caliper) of the plate and the mount material package.
3. Image reproduction requirement.

Other helpful guidelines

- Rubber print plates are still used, but only in special applications.
- Photopolymer comes in liquid and sheet form.
- Thickness ranges for corrugated flexo plates are from 0.125" to 0.25" (3.175 to 6.35mm) in general.
- Direct imaging gets the best resolution.
- The flexographic printing process is being challenged in smaller run areas by direct digital ink jet-style printing. See a video at www.youtube.com/watch?v=36E-Z4neF3Y.

Cutting dies

The steel rule cutting die is usually the last part of the inline converting process, though not always. The print is completed, and then the box is diecut from the sheet. The rest of the process is transferring the sheet/box downstream and into an organized stack. Some activities beyond that are gluing and palletizing.

Flexo printing is a delicate process. When you print with an elastic, compressible material, the squeeze applied will distort the final image target. Rotary steel rule diecutting is like a mechanical cookie cutter pounding out the impressions one after another. It is a violent process to cut, crease and perforate corrugated. To describe the broad difference between printing and diecutting, I use this analogy: printing is like stroking your favorite cat; diecutting is like kicking the dog!

The rotary cutting die is made from a curved shell of wood. Yes, the wood is already curved to fit the cylinder when the diemaker gets it. The diemaker takes a CAD file of the design and arranges the drawing on the planned wood base. Many times multiple repeats of the

CAD file will appear in an arrangement to maximize the cylinder width and circumference.

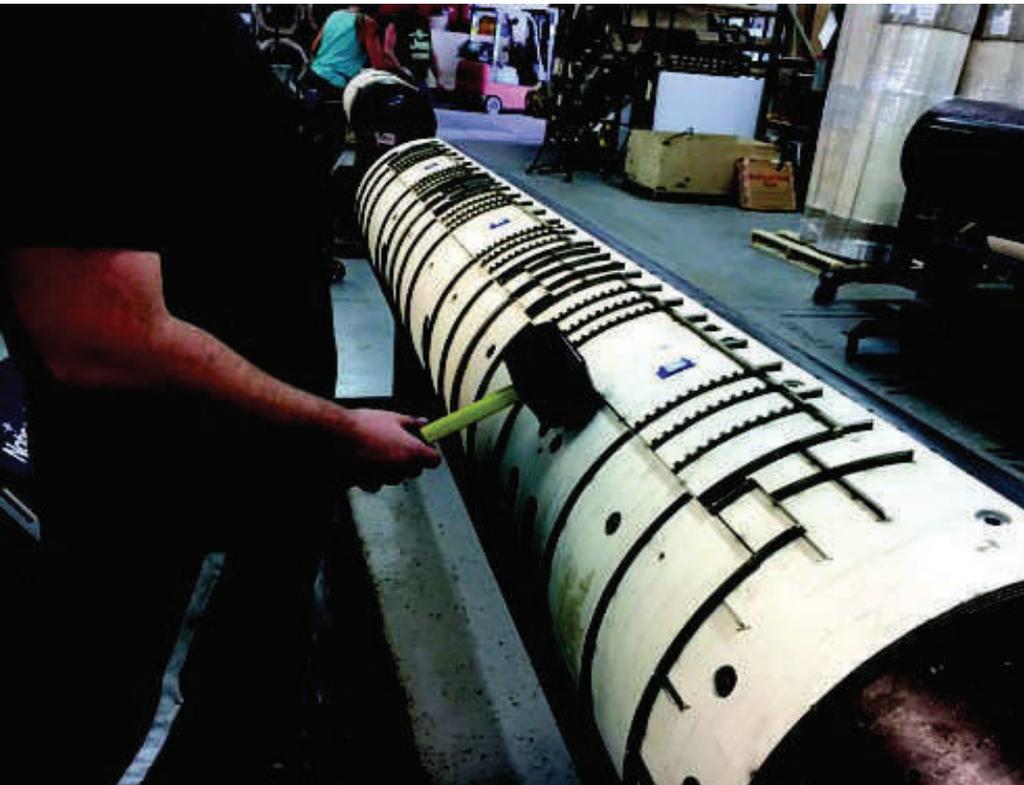
The final design is sawed or laser cut with precise channels called "kerfs." The kerf is set to be slightly narrower than the steel rule blade. The steel rule blades are formed and pressed into the wood shell (see Diagram 7). After that, the dieboard must have rubber sprinkled about to eject the part, transfer the paper, prevent paper fracturing and separate the waste from the part. This practice is not a perfect science and every trade house will utilize slight variations of application to meet the customer's expectations. However, the general dynamics of rotary rubber placement are fairly standard.

For this inexpensive, custom product you get:

- Precise parts with minimal waste.
- Tens of thousands, if not almost a million, impressions.
- Cutting, creasing and perforation of literally any variety.

There are seven primary criteria needed to define a rotary steel rule cutting die:

1. Cylinder size and print/cut repeat of the machine.
2. Design part to die rotational relationship: Which way is it feeding?
3. Feed direction of material to be cut (flutes through or across).
4. Bolt or fastening system that will hold the die to the cylinder and what the part relationship is to the fastening system.
5. Arrangement of parts if more than one out.
6. A CAD file or drawing that designates whether you are looking at the inside or the outside of the box.
7. Defined maximum size appropriate for chopping up the waste for disposal.





STARCH MIXING SYSTEM

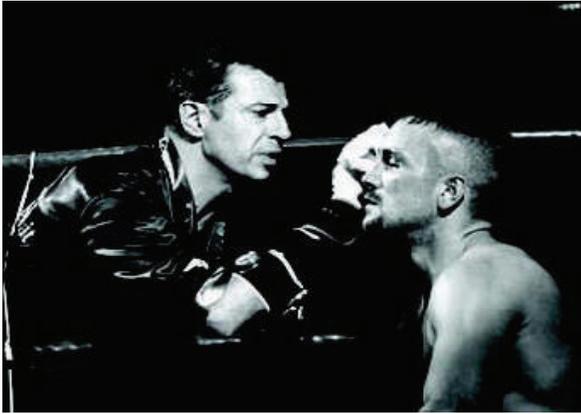
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When the fighter goes to the corner, the trainer (the cut man) does everything possible to rejuvenate the fighter to working condition (see Diagram 8). Vaseline is applied in glops to minor cuts. Steel, cold plates are pressed against swelling cheekbone areas. Water is sponged to the head and neck area. Arm and leg muscles are massaged and vigorously shaken back

into form. All of these techniques are a way to drive the fighter to realize the maximum performance possible within the tumultuous environment of the ring. Every boxer knows that the tooling and machine need to work in harmony to become championship caliber. If there is one simple way the box industry could improve overall performance, it would be to understand how critical the tooling is and employ a comprehensive program for maintenance and best practices.

These articles are reprinted with permission from the International Association of Diecutting and Diemaking's monthly magazine, *The Cutting Edge*, June 2017, July 2017 and August 2017. The IADD is an international trade association serving diecutters, diemakers and industry suppliers worldwide. IADD provides conferences, educational and training programs, a monthly magazine, online resource library of 680+ technical articles, industry experts to answer technical questions, publications and training manuals, recommended specifications, online used equipment marketplace, videos and more. IADD also co-presents *Odyssey*, a bi-annual trade show and innovative concept in technical training featuring a hands-on Techshop where training programs come alive in an actual working diemaking and diecutting facility inside the exhibit area. Visit www.iadd.org or call 1-815-455-7519 for more information.

Kevin Koelsch is Vice President–Operations for Dynamic Dies, Inc. Kevin may be reached at 1-419-865-0249 or by email at kevin_k@dynamicdies.com. For more information, visit www.dynamicdies.com.

Readers should note that this is a series of articles. The remaining part of the articles will be continued in future issues.

Other helpful guidelines

- Rotary cutting dies need to be secured fully to the die cylinder during operation.
- Bouncing dies are broken dies.
- Rotary cutting dies need maintenance. The rubber for managing the parts and waste are subject to wear. Performance will deteriorate in direct relation to the care taken to keep the rubber and joints in good shape.
- Maintaining a smooth and even anvil will allow minimal cut/crease pressure to operate. This will compliment all aspects of not only the final box quality but also the overall cutting die performance.
- Optimal rotary die penetration equals good, complete cutting with well-defined crease lines.

into form. All of these techniques are a way to drive the fighter to realize the maximum performance possible within the tumultuous environment of the ring. Every boxer knows that the tooling and machine need to work in harmony to become championship caliber. If there is one simple way the box industry could improve overall performance, it would be to understand how critical the tooling is and employ a comprehensive program for maintenance and best practices.

In the next article, "The Ring Announcer 103," we will focus on the detail that must take place in communicating and orchestrating a successful alignment of boxer expectation, machine capabilities and the tooling (equipment) requirement to facilitate championship-level performance. Hit the shower...I'll see you next month!

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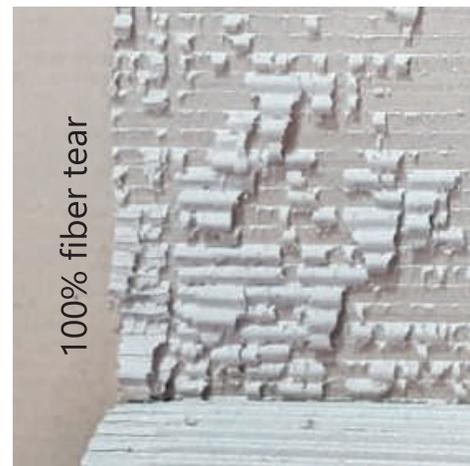
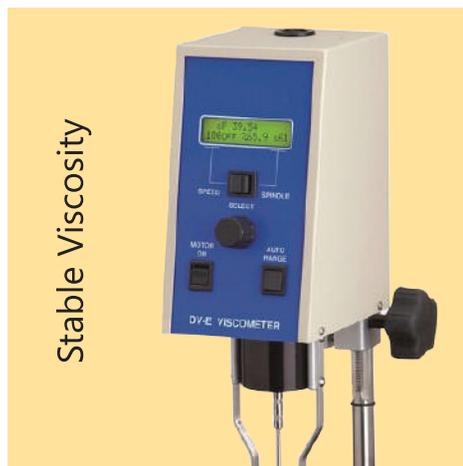
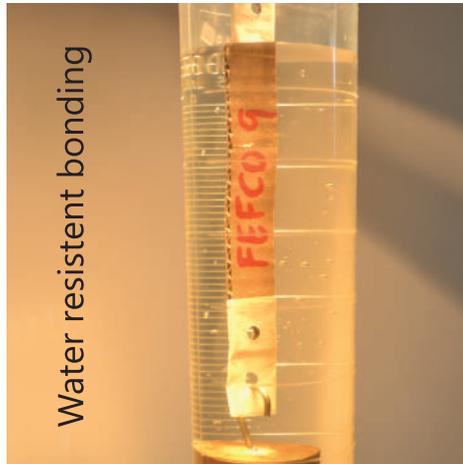
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GCBMA Holds 47th Conference & AGM at Udaipur

GCBMA held its 47th Conference from 20th to 22nd Sep. 2019 at Indra Residency, Udaipur. GCBMA's 47th Annual General Meeting was held on the second day i.e. on 21st September. More than 290 delegates attended the Conference.

Shri P.S. Shah, Past President, FCBM was honored with Lifetime Achievement Award for his invaluable services to GCBMA. Shri Shah received the award from Shri Prahlad Patel, President, GCBMA.

24 new members were enrolled in GCBMA.



In his speech at the conclusion of the AGM, President, Shri Prahlad Patel informed that GCBMA was the number one association of FCBM on the basis of membership strength. GCBMA was ready to host the FCBM Conference in 2022.

Two technical seminars were held after the AGM

1. Dynamics of Entrepreneurship by Prof. Dr. Vikash Arora
2. Payment collection by Chowkidar Vijay Aghara

The seminars were well-received and appreciated by all delegates. They also enjoyed the Cultural programs held on the two evenings of the Conference.



National Congress and Awards for Sustainable Exports and Packaging'

On November 20th, 2019, Mr Sunil Purswani, Vice President - GCBMA was invited as a guest and speaker at 'National Congress and Awards for Sustainable Exports and Packaging'.

The Event was held at Hotel Taj Lands, End Mumbai. Among other things the Congress not only uplifts and honours great businesses but also works towards making the packaging industry more sustainable and ecologically friendly.

He was also honoured with the title 'Most Influential Leader in Packaging Industry'.

National Congress and Awards for Sustainable Exports and Packaging is one of the few conferences where packaging industry experts from around India gather and discuss new and more innovative ideas and he was greatly honoured to be invited.





KCBMA conducts Comprehensive Course on Corrugated packaging 2.0. at Bengaluru

KCBMA Conducted the Full Time Comprehensive Course in Corrugated packaging 2.0 with the blessings of the "Seminar & Workshop Sub-Committee-FCBM" for the first time in India on the 8th and 9th of August 2019 in Bengaluru.



On the faculty were Mr. Ramkumar Sunkara & Mr. Dharmendra Pandya.

The attendance was again a full house of 100 students like the Part I conducted a year before. The topics covered are mentioned below.

Recap of the subjects discussed in Part 1 Course.

30 minutes of recap of what was discussed in Part 1

Formula's relating various strength parameters of corrugated board and boxes.

Formulas for determining various strength properties like CS, FCT, Puncture resistance Bending stiffness based on paper properties will be discussed in this chapter.

Bursting strength Vs Edge crush resistance of corrugated board and their relation to cost Vs strength optimization.

Traditional parameter is BS, new parameter is ECT. What is the correlation between them and how we reduce cost by optimization between BS and ECT?

What is Short column test (SCT or STFI) and its relation to RCT, ECT and BCT.

The new concept is SCT and this is being used more often now. What is this test and how it is related to RCT? What formulas we use to calculate CS using SCT. Video of how this test is done is also shown

Weight ration between liners and medium for optimizing BCT and Cost.

In order to optimize the CS of box in context to cost we must choose our liners

and medium in balanced way. We can learn how to do this.

BCT of multi cornered boxes.

They are boxes with 6 and 8 corners like bulk bins in shape of octa-bin etc. How to evaluate their CS will explained in this chapter.

CS of internal fitments

Many internal fitments being used inside the box. These fitments do add value to CS. How do we calculate these additions will be shown in this chapter.

Cost reduction without affecting the quality

Efforts are always made for increasing the performance standards of boxes at reduced cost. How we can do this using various case studies will be shown in this chapter

Packaging of FFV and flowers

Fresh fruits and vegetables are being increasingly packed in boxes. Also export of flowers is on raise in last few years. In this chapter you learn how to make boxes for this industry

Dimensioning of Primary packaging

In this chapter one will learn how to do dimensioning of inner boxes (Primary packaging) in order to reduce cost

Dimensioning of secondary packaging

In this chapter participants will learn how to do dimensioning of secondary packaging to reduce cost



International fibre-board case codes

There are various designs of corrugated boxes. These designs are codified in numeric system. For example, 0201 stands for RSC box. In this chapter you will learn about these coding.

Global Packaging requirements and laws.

There are laws and regulations regarding packing world-wide. In this chapter you will learn all about the laws that govern the packaging use.

A Mini Exhibition was also conducted along with the course.

The exhibitors were carefully chosen keeping in mind the needs of the members.

- Consumables
- Adhesives
- Material Movement Equipment
- Imported paper
- Imported Machinery
- Stereo
- Heating solutions
- Corrugating Rolls.

The feedback received from the members was very encouraging.

Thank you
For KACBMA
Manish Bothra
President



International rules and standards on corrugated boxes.

World-wide there are rules and standards for strength properties in terms of BS, ECT and PR of boxes based on weight of contents that these boxes have to carry and dimensions of the box. You will learn all of these in this chapter

The students wrote a test at the end of the course and were awarded a certificate for successful completion by our FCBM president Mr. Arunachalam who was kind enough to grace the occasion.

Each student was given their individual framed photograph of the Certificate at distribution ceremony on completion.





KeCBMA Conducts a Workshop On Comprehensive Course In Corrugated Packaging

Two day Workshop on Comprehensive Course in Corrugated Packaging was organised on 11th and 12th October at Olive Downtown Hotel, Ernakulam.



Many of KeCBMA members attended and benefited. A few entrepreneurs who had shown interest to establish packaging units, also attend.

Totally sixty-eight registrations were their out of which nine were new and rest existing units across Kerala.

In general, Lectures by Mr Ramkumar Sunkara and his team were well appreciated and feedback from the members was very encouraging. The manual brought out by the association is very useful and many requests are being we are receiving for copies.



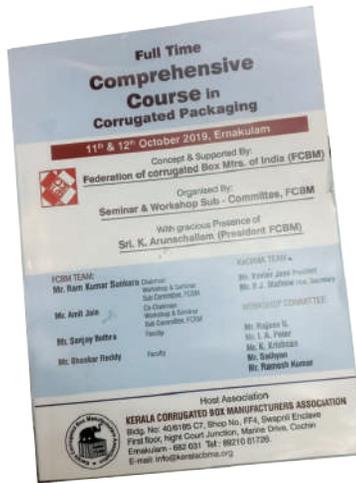
Our FCBM president Mr Arunachallam had taken special interest to be with us during second day session and he was kind enough to distribute certificates to our participants.

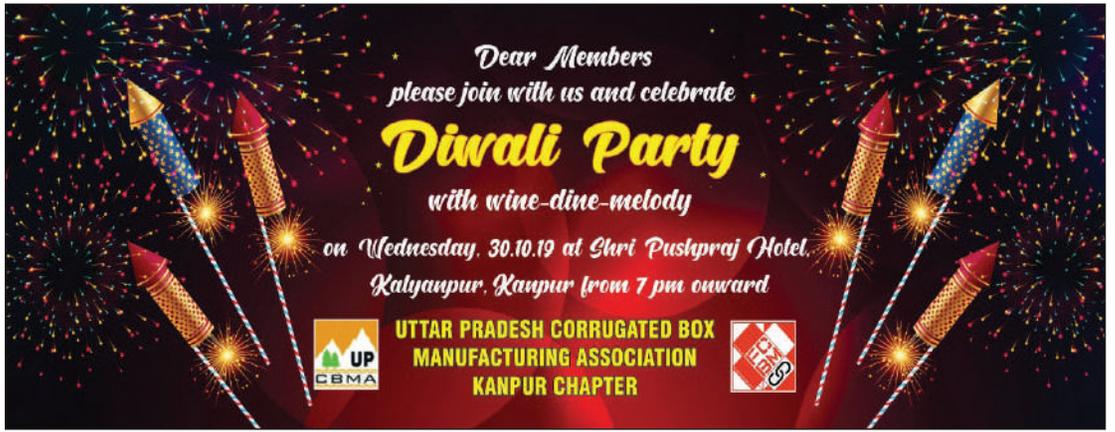
This was well covered by all major dailies and in media.

We appreciate efforts taken by FCBM team and our special thanks to Mr Ramkumar , Mr. Sanjay Bothra Mr. Bhaskar Reddy.

A workshop Manual was published on this occasion and distributed to all participants.

The manual was quite popular and the association received enquirers for copies of manual.





“UPCBMA – Kanpur Chapter had a feast for Deepawali Celebration on 30th October – 2019. It was a family get together which was hosted by Mr. Sandeep Arora (President) & his team members Mr. Anand Bhatia, Mr. Vivek Kanodia, Mr. A. S. Dhawan, Mr. Vikas Agarwal and Mr. Amithabh Tewari.

Members came with their families and the program started with a singing competition which was anchored by a person who owns a sweet voice, the Past President Mr. S. K. Singh.

Some games were also organized in which everyone participated with full enthusiasm and won the attractive prizes.

All the members who were present with their families appreciated the way the program was organized.



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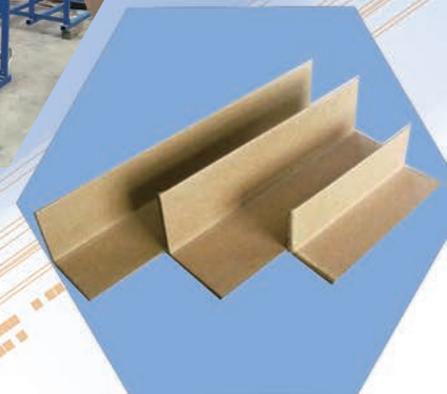
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The Grandiose Conference



True to being the capital of the Royal State of Rajasthan, Jaipur witnessed the 48th FCBM Conference organized in a Grandiose manner on 20th, 21st and 22nd December 2019.

While the numbers created a record – with over **1200 Registrations, 125 Exhibitors**, the Conference stood out as the biggest FCBM Conference to date.

The delegates were in for a grand welcome in a royal style with umbrellas, drums and bugles and dancers.



Presidents of the Regional Associations were welcomed in a procession with Presidents holding along the association flags





FCBM CorruMach Auto Expo was inaugurated by Past Presidents led by Mr. Ashok Vyas, Mr. Deepak Killawala and others.

The well organized and professionally built exhibition stalls welcomed the visitors to witness the latest materials, processes and technologies on display.



5th Managing Committee of FCBM



The Motivation session had a unique subject – ‘Supplying Tiffin Boxes In Time All the Time’.

The well-known and now famous story of Mumbai’s Dabbawallas was presented by Dr. Pawan Agarwal – a highly qualified person and TED Speaker. Mumbai Dabbawalas operations have become a Management subject and the importance of Delivery in Time – All the Time is illustrated interestingly by the Mumbai Dabbawallas operation.

After Tea Break, the Inauguration of Conference was done in great style.



The Chief Guest Dr. Subhodh Agarwal – Addl. Chief Secretary, Industries MSME & State Enterprises and the Guest of Honour. Mr. K. L. Jain, General Secretary, Rajasthan Chamber of Commerce graced the occasion.

After the traditional prayer, Lighting of lamp was done by all dignitaries marking the Inauguration of the Conference.





After the Welcome address by Mr. Rajeev Katta, President RCBMA; Mr. Sumit Goel Conference Chairman, addressed the audience.

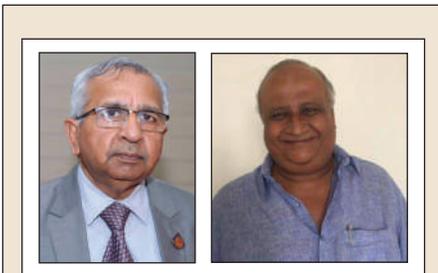


Mr. K. Arunachallam, President FCBM delivered the Presidential Address, in his typical eloquent style.



Mr. K. L. Jain, Guest of Honour delivered his address explaining the role of Rajasthan Chamber of Commerce

Consumer Pack	: Packers Product (New Delhi)
Material & Fitment	: Harsh Packaging (Jaipur)
Transport Pack	: Devashish Food Packaging & Research P. Ltd. (Solan H. P.)
Innovation Pack	: Packers Products (New Delhi)
Beyond Packaging	: Viva Packaging (Gujarat)



Harlalka Award was presented to Mr. Pradip Bosmaya Past President FCBM and Mr. Dilip Patel of WICMA.



BK Doshi Award was presented to Omega Squarmatic Systems Pvt. Ltd.



This year, Special Achievement Awards were presented to KCBMA for the Best organized Comprehensive Course in Corrugated Packaging

Eskay Award for the Best Regional Association of the year was presented to WICMA.





Conference Souvenir displayed by all dignitaries

Presentation of Mementoes



Inaugural Address by Chief Guest
Mr. Subodh Agarwal

He touched upon the various activities of Federation and how they help members conduct their businesses efficiently.

The Chief Guest Mr. Subodh Agarwal was all praise for the meticulously organized Conference.

He spoke elaborately on the importance of Corrugated Packaging and how it is contributing significantly to the nation's economy.

The Inaugural Programme ended with the National Anthem

The delegates enjoyed the cultural Programme and Cocktails in the evening.



Mr. Milan Dey, VP II
Addressing the Audience



Mr. Deenu Shetty Hon. Secretary
FCBM Speaking at the Conference



RCBMA Life Time Achievement
Award to Mr. V. K. Dewan





Day 2 was dedicated Technical Sessions.

Interesting subjects ranging from RCT SCT, Management and Planning use of IT, RRP and SRP Next Generation Adhesives etc. were elaborately covered by eminent speakers.

The evening was a Bollywood Night at Gulmohar Garden where enjoyed Cocktails & Dinners while watching Songs & Dance.

<p>Tech Sess. II RCT Vs SCT - Which is better for Box Compression Strength Optimization?</p>	<p>- Mr. Ram Kumar Sunkara</p>
<p>Sales & Operations Planning</p>	<p>- Mr. Arvind Navadikar</p>
<p>Tech Sess. III Growth in Corrugated Boxes usage vis-a-vis Growth in Flexible Packaging Industry</p>	<p>- Dr. N. C. Saha</p>
<p>Ready to Mount Stereos for high Productivity and Quality Flexo Printing</p>	<p>- Mr. Depanshu Goel</p>
<p>Managing your Business, Small or Big using Information Technology</p>	<p>- Mr. Sangeet Gupta</p>



Tech Sess. IV Next Generation Adhesives: Hybrid, Green and Special Additives	- Mr. Bhaskar Reddy
Retail Ready Packaging (RRP) and Shelf Ready Packaging (SRP)	- Mr. Amit Chaudhry
Benefits of Kraft Paper Standardization	- Mr. Kunj Peety
Tech Sess. V Price is not the only way to Compete	- Mr. Sorav Jhawar
Flexo Inks- Product Safety	- Mr. Rajkumar Lodha

The Inaugural Programme ended with the National Anthem
The delegates enjoyed the Cultural Programme and Cocktails in the evening.







48th Conference of Federation of Corrugated Box Manufacturers of India

20th - 22nd December 2019, Hotel Fairmont, Jaipur

WELCOME TO ANNUAL GENERAL MEETING



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Pinning the New President



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Vice President II : Mr. Vineet Jain

Ex – Officio : Mr. K. Arunachallam





Feedback received by RCBMA was phenomenal - reflecting the immense praise and adulation on the excellent way the 48th FCBM Conference was organised.

Here are just a few Feedback received.

Our sincere thanks to RCBMA TEAM for the amazing hospitality and unforgettable Event. We enjoyed every single moment of this event . It was an absolutely incredible experience. You deserve so much more than just a thank you. You took the common courtesy to an uncommon level.

Keep Shining Team RCBMA.

Regards
Rohit Thapar (CEO)
 Arjun Industries

48th FCBM Events and Exhibition of Jaipur was one of the Best Exhibition. We have ever Visited and the arrangement was so good and huge .

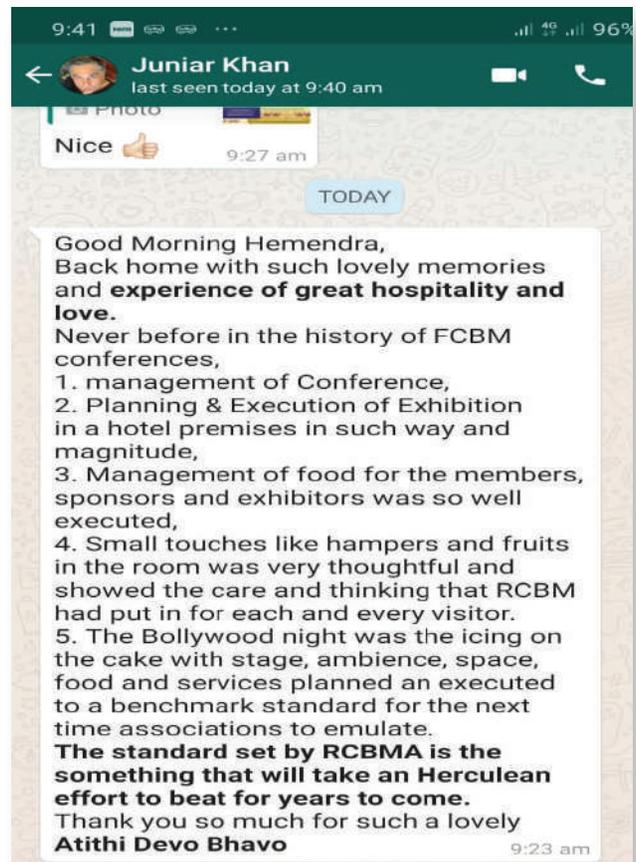
We felt like we have come to attend a marriage function and the service was so good that We felt like a groom's procession because we received the full of attention.

We are thankful for such a wonderful service.

CORRU MACHAUTO is the one of the best host.

We are grateful for such a wonderful arrangement and for all support.

Regards
Rajkumar Lodha
 Seven 11 Industries, Daman



The New RCT Not For The Boxes But For NMDC

It's been a proud moment for Indians for Professor Abhijit Banerjee to have received the Nobel Prize for economics for 2019. Now what is interesting is the reason for Professor Banerjee and his team of Esther Duflo and Michael Kremer to have received their award. They had actually created a new field of experimental economics defined as "randomised controlled trials" (RCT).

RCT was so far known for drug authorities of all countries insist on randomised clinical trials to test the efficacy of any new drug. Banerjee and his team had hit on the idea of using similar RCT to evaluate economic development programs on which billions of dollars are spent globally but often fail.

It's a fact that the NMDC has been practicing RCT procedure over last few years on the packaging of fruits and vegetables which was initiated by the preceding Chairman Shri Milan Dey. Although it holds no prospect of any awards but the initiative taken could be a game changer for the national economy in the years to come.

The NMDC first conducted training and usage of corrugated boxes for fruits and vegetables at Haldibari, West Bengal. They even conducted field trials of truck load of tomatoes transported from Haldibari to New Delhi. The trials and studies continued for the next few years at Malda, Bankura, Nagpur, Bangalore, Arunachal Pradesh, Bhagalpur and even Nagpur. But not to be demoralised as trials and studies are never a waste. The compilation of all studies, researches and trials last couple of years by the NMDC has culminated into the NMDC Report. Data of all these experience and experiments and could act as guidance to any administration or governance. The day the report is acknowledged by the government in terms of policy would be the award for the NMDC which has been working hard for last few years on this RCT.

The facts of the NMDC report has recently been vindicated by a report released by

the Fibre Box Association, USA dated 19th September, 2019. According to the report the US Centre for Disease Control has estimated 1 in 6 Americans (or 48 million people) get sick, 128,000 are hospitalized, and 3,000 die from eating contaminated food each year. To help prevent food borne illnesses, also called food poisoning, President Obama signed into law the US Food and Drug Administration's Food Safety Modernization Act (FSMA) in early 2011. The act became the most sweeping change in food safety in 70 years and is aimed at shifting the focus from responding to food borne illness to preventing it.

In 2014, Dr Trevor Suslow, formerly of the University of California-Davis and currently Vice President of food safety at the produce Marketing Association, developed sampling and testing protocols used by independent labs to verify the cleanliness of corrugated shipping containers upon arrival at customer locations. The latest study, the fourth in a series, performed by Primus Laboratories of Santa Maria, CA at an industrial location in Tennessee confirmed that corrugated containers used to transport fresh produce are safe and clean.

A total of 48 containers were selected for evaluation from the top, middle and bottom of eight different pallets, and two sponge samples, one of the interior bottom and one of the interior sides and hinges, were collected for a total of 96 samples. Each sample was assessed for the presence of thermotolerant coliforms and Enterobacteriaceae; these organisms are often used as indicator organisms



Achyut Chandra

for the presence of E.coli and Salmonella spp., respectively. The microbial levels on the interior surfaces of the containers were determined and assessed against the acceptable limits as specified by Warriner (Warriner, 2013). All (100%) of the corrugated containers sampled in this 2018 annual survey showed that the levels of Enterobacteriaceae and thermotolerant coliforms were well within acceptable limits.

In fact, no organisms at all were detected on 40 of the 48 tested containers.

The study verifies the cleanliness of corrugated shipping containers and the processes used to make them. Corrugated containers are used, and then recovered for recycling, which eliminates the potential for lingering contamination that can result from reusing a shipping container like returnable plastic containers. After they are used, more than 90 percent of corrugated containers are returned to the paper mill to be made into new boxes, where high temperatures in the manufacturing process effectively kill any remaining bacteria.

We look forward to the day when NMDC "RCT report" draws some attention from the government which would be its award.

(For the NMDC report refer <http://www.fcbm.org/pdf/FCBM-report-2019.pdf>)



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Understanding Starch

As they have been for 80-plus years, today's corrugator adhesives are made up primarily of water, starch (typically corn, wheat, pea, or tapioca), caustic soda, and borax (in powdered, liquid, or boric acid form). While the basic method of making starch has remained the same for 80-plus years, automated starch mixing systems and modern polymers and resins have greatly improved the starch's consistency and performance characteristics. Lower gel points, better control of viscosity and temperature, and specialty liquid additives are enabling corrugator speeds to continue to reach new highs.



Wayne Porell
Senior Technical Representative,
HarperLove

In 1934, Jordan C. Bauer of the Stein-Hall Company developed a starch-based adhesive using cooked starch as a carrier agent to keep the remaining starch suspended. Today, this Stein-Hall method continues to be the basis of modern starch adhesives.

In a completed batch of starch, the cooked or "carrier" portion of the batch acts as a suspending agent for the raw uncooked starch and prevents it from settling out. It, therefore, helps control the viscosity. Caustic soda is added to control the gel point and provides the chemical energy to dissolve and cook the carrier starch. Borax is needed to impart viscosity and tack, to improve film properties, and to control slinging. Along with caustic, borax determines the penetration into both the liners and medium.

Performance Additives

Liquid performance enhancement products have been advancing to help bond papers at higher speeds on today's

newer machines. Products have been developed to improve penetration and adhesion on high compression liners and wax replacement papers. Other products improve drying, water hold out, retack, and other properties to meet the needs of the specific application and equipment characteristics. Specialty products and additives maximize corrugator performance and quality under a broad range of operating conditions.



Moisture and Water Resistance

Moisture resistant adhesive (MRA) and water-resistant adhesive (WRA) are easily attained with the addition of a soluble resin which crosslinks the starch molecules. Depending on the specific resin, water

resistance can generally be achieved by adding approximately 1.5% resin by volume to the starch adhesive; moisture resistance typically requires approximately 0.8% resin by volume. When running MRA, the glue lines should be between 0.060" and 0.070"; WRA typically requires glue lines to be between 0.080" and 0.100". To a point, running wider glue lines by increasing the glue application rate will generally improve the overall water resistance.

There are several recognized tests for evaluating the water resistance of combined board. The most frequently used is a 24-hour soak test, performed by soaking a combined board sample in room temperature water for 24 hours and then pulling the liners away from the medium. The amount of fiber tear determines the degree of wet strength. There are other more objective tests,

such as the FEFCO Wet Shear test, and the Linke™ test developed by HarperLove. These tests provide quantitative results which can be evaluated and compared, but they require testing equipment that some plants do not have. Plants that run a lot

Contd. on - 79





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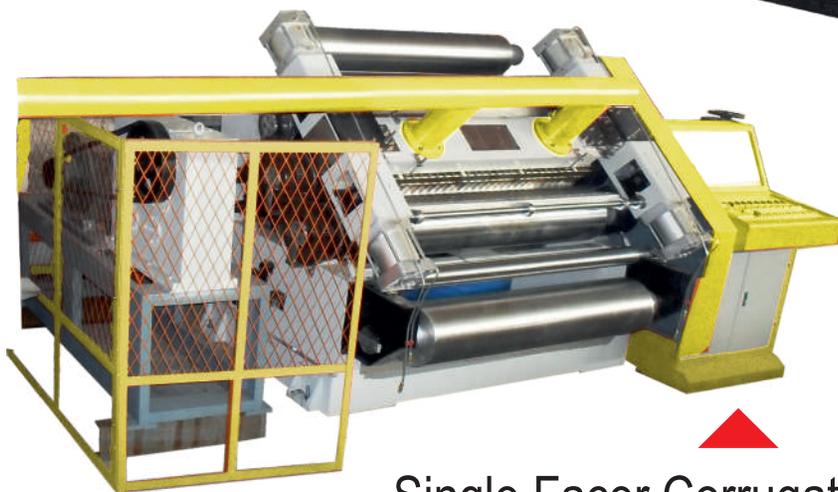


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by changing the film on the glue roll and the flow in the adhesive pans on the corrugator. This ultimately leads to inconsistencies on the corrugator which limits the corrugator speeds and produces a poor-quality bond.

of water resistant boxes generally have the equipment to perform wet pin testing to ensure their boxes are meeting the customers' specifications and to minimize box failures in the field.

Application

The starch application system is critical in producing consistent, flat, well-bonded, dry sheets. On today's modern machines, operators rely on digital readouts to tell the gap between the metering and glue roll and the gap between the glue roll and the corrugator roll. These gauges must be checked and calibrated weekly to ensure accuracy. Metering rolls and glue rolls that are out of parallel or out of round can cause inconsistent or excessive starch application. In most instances, the

variation in starch application will lead to warp and delamination. Variations in starch viscosity can also change the amount applied to the flute tips—lighter starch will transfer less and heavier starch will apply more at the same gap.

Storage

Starch storage is the final critical component of running an efficient corrugator. After a batch of starch is made, it is transferred to a storage tank. It is very important that the storage tank have a properly functioning Temperature Variance Control (TVC) system to maintain the adhesive at a pre-set temperature. Changes in the temperature of the starch will have a direct effect on the viscosity. The resulting viscosity change can lead to inconsistent starch application

One of the keys to successful storage is to make no more adhesive than is needed.

If not used promptly, the starch viscosity can change due to temperature variances and shear from the agitator in the storage tank. The gel point will also increase over time, which can all lead to slower speeds and bonding issues on the corrugator.

Conclusion

While the basic formula for making starch-based adhesive has been around since early in the last century, chemical additives and automated starch mixing systems have improved the consistency and performance characteristics of the finished adhesive. Combined with modern corrugator technology and sound operating practices, today's starch adhesives can deliver unprecedented quality and speed.

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.

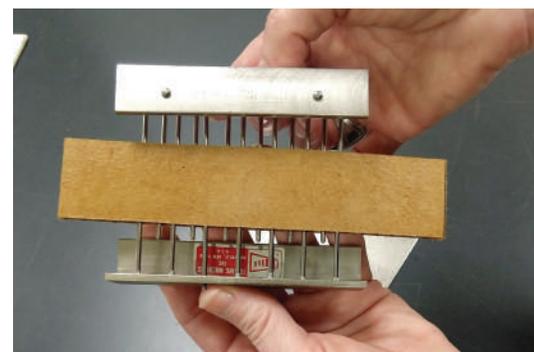
There are several methods of determining how the bond will resist dissolving in the presence of water. All these methods involve placing board samples in water for a time and then subjecting the board to some sort of force.

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





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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 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



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.

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

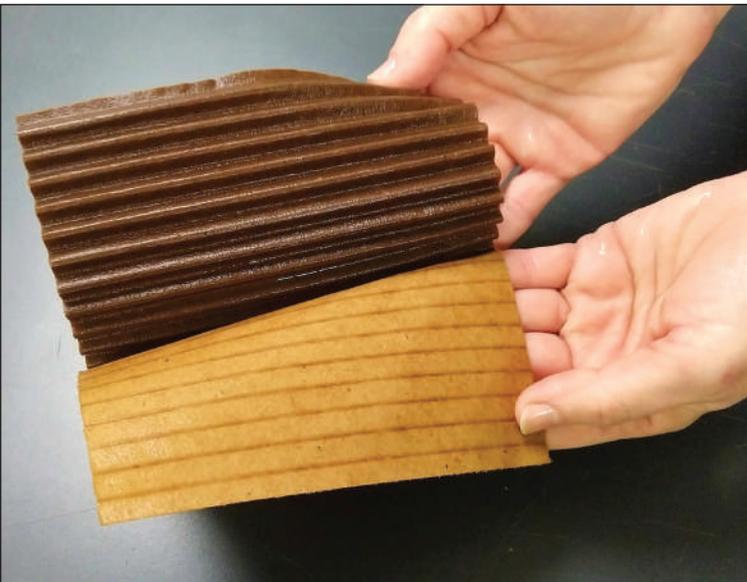
Often referred to as the fish tank test, samples are hung in a tank containing water. Weights are attached to the bottom of the sample. The samples have their liners cut through so that only the starch adhesive is supporting the weight. To pass the test, the samples have to endure 72 hours without letting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

This Article is reprinted here, with the permission of the author Wayne Porell. Our thanks to Harperlove for allowing us to print the article.

Wayne has 40 years of experience in the corrugated box business. He started with Baltimore Box in 1977 as a corrugator operator and worked in maintenance for 11 years before being promoted to a supervisory role.

He then worked for Westvaco for 10 years as a Corrugator Supervisor and Corrugator Superintendent.

Wayne joined HarperLove in 1998 and is a Senior Technical Representative serving customers primarily in the northeast where he has helped numerous plants troubleshooting corrugator issues and improve their waste, productivity and quality.



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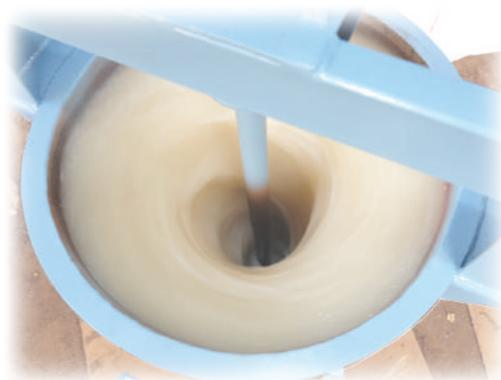
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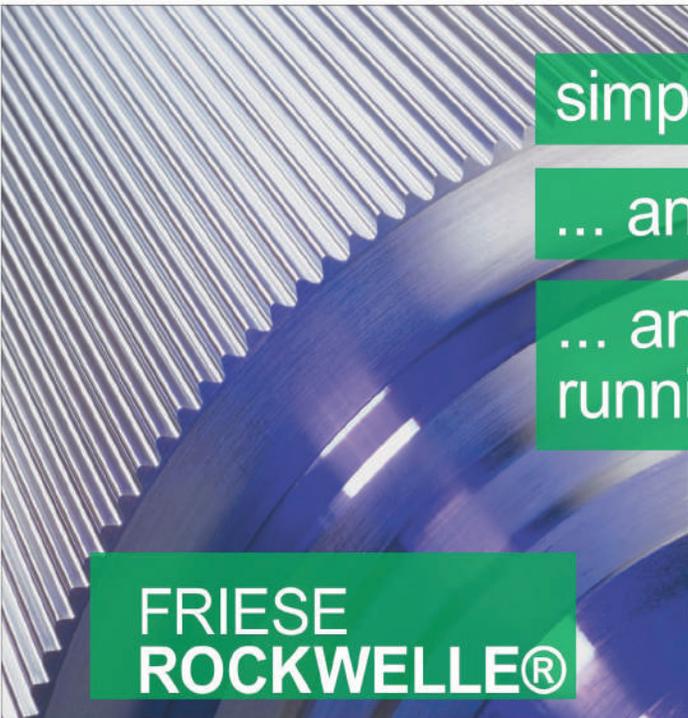


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Guidelines for storing and handling corrugated

Advice for deriving the most from corrugated packaging According to industry numbers, corrugated is utilized for 95% of packaged goods, with boxes (i.e. shippers) accounting for the overwhelmingly majority of that volume. This article will use the word “corrugated” to refer to boxes in the KD (knocked-down) position, in contrast to the erected box.

Corrugated is an engineered material, specified by paper grade, flute, style, manufacturer’s joint, and adhesive—mainly Engineering, however, does not solve every problem that can be encountered with corrugated. Some easy-to-overlook culprits are storage and handling practices.

Weather or not

Because corrugated is hygroscopic, the relative humidity of the storage area should be maintained within favorable tolerances. That doesn’t automatically mean that a company needs to go an energy-intensive route via ambient-control devices.

A simple, effective solution can be to choose an area within the facility that is least susceptible to high-humidity conditions; for example, rather than an area close to the loading docks, with their routine raising of doors and the ingress of

humidity, a better area is one that is farther into the interior of the facility. Better yet is to select a location close to where the corrugated is set up and filled.

Humidity varies by region and season, a fact intuitively grasped by all. Those variables aside, if high humidity is harmful, water is ruinous; therefore, under no circumstances should corrugated be stored outdoors, no matter the overhead protection.

What are some specific problems caused by moisture? There are those owing to dimensional changes: the corrugated absorbs moisture causing

it to swell, warp, or distort to whatever degree. All of these cause problems as the corrugated is erected into boxes, whether the operation is manual or automated. Manual operations are slowed and automated case erectors are jammed.

Another set of problems relate to unitizing. Whether the unit load is columnar or interlocking, what’s desired is that the boxes stack in aligned fashion, something



made less probable by boxes that are out-of-square. Those unit loads can be unstable and therefore hazardous, since they can collapse on their own and more probably under a superimposed load.

High-humidity conditions can weaken the adhesive that bonds the fluted medium to the liners, enough, in fact, that the corrugated can delaminate. The typical adhesive used for corrugated is of a starch composition, not known for being moisture-resistant (there are moisture-resistant formulations but they are more expensive).

Moisture not only affects corrugated functionally, it also diminishes the appearance of the container. Moisture produces unsightly staining. That’s bad under all circumstances but worse when



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- Improve B.F. by 10 to 12% of Original B.F.
- Coated Film Flexible does not crack by Folding.
- Printing can be done after coating or Coating can be done after Printing.
- Very Fast drying, Cost effective coating for paper water proofing.
- Product Conforms to IS-17072 : 2019

Applications

- Soap wrapper • Corrugated boxes meant for fruits, vegetables, flowers exports.
- Boxes for tea, ice cream, butter, milk powder, paneer, cheese, Dahi etc.
- Corrugated boxes for Bidi, Cigarettes, Tobacco, Soap and other moisture sensitive products, Garments, Fabrics, Yarn, Fish, Meat, frozen food exports, electronic and electrical goods which are moisture sensitive, Industrial goods packing in Rainy season.
- Multiwall paper bags for moisture sensitive products.
- Water proofing of all paper Pouches.
- Replacement of tar coating, Waxing and plastic coating by this biodegradable coating.

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- Cobb value can be brought down even to zero by increasing coating level.
- Improve B.F. by 15 to 20% of Original B.F.
- Coating is flexible does not crack by folding.
- Printing can be done after Coating or Coating can be done after Printing.
- Direct contact with food has no problem.
- Coated paper is heat sealable & Microwave Resistant.
- Very Fast drying, Cost effective coating for paper.
- Product Conforms to IS-17072 : 2019.

Applications

- Wrapper for Butter, Sweet, Snacks, any other milk products.
- Corrugated boxes for Fish, Meat and other frozen food exports.
- Paper Cups & Paper Plates.
- Food Boxes.
- Multiwall paper bags for moisture sensitive products.
- Ice Cream Cups & Pouches
- Paper Pouches for Food & Non Food Products.
- Replacement of tar coating, waxing and plastic coating by this biodegradable coating.
- Coating on duplex board in place of PE coating.
- Soap wrapper • Coating for mono- cartons.
- Paper Bags for all purpose.
- Paper Pouch for different products.

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the corrugated serves as a retail unit, sold from shelves or from pallets.

Whereas too much moisture is problematic, so too is too little. Functionally, corrugated becomes brittle and crinkly. Aesthetically, corrugated takes on a faded, dried-out appearance, even through kraft-brown liners. Some regions are arid year-round but those that aren't still can experience periods of low humidity, either from wintry cold or summer heat. Fortunately, combating the harmful effects of low humidity need not be complicated or expensive. In addition to any aforementioned approaches that can be modified for low humidity, inventory control can be effective, utilizing FIFO (first-in-first-out). That way, the oldest inventory is used rather than remaining around and becoming more compromised.

Good things in store

Corrugated never should be stored in direct contact with the floor as that invites contamination and damage from a variety of sources. Corrugated should be stored on pallets, ideally, which avoids direct contact with the floor and retains the means for mechanical handling (caution: forklifts, if operated carelessly, can damage corrugated). Pallets should be of quality construction; otherwise, splinters, protruding nails, and other defects can inflict damage.

As much as can be said about the benefits of using mechanical means to get corrugated in and out of storage, there are times when corrugated is handled manually, for example, a worker carrying a bundle (perhaps held together by plastic straps).



That worker should be trained to never toss, drag, or drop that bundle.

Throughout its time in storage and up to the time it's erected into a box, corrugated should remain flat and never stored on its edge. A property of corrugated is flat-crush resistance; even so, that property should not be exceeded by superimposed weights. The stacking of unit loads saves space; however, some type of flat cover should be placed on the top of a unit load in order to evenly distribute the superimposed weight.

Incidentally, superimposed weight should be like-on-like, meaning, weights other than corrugated should not be superimposed on unit loads of corrugated. A solution for avoiding direct contact with the floor and for avoiding superimposed weights is storage racks, especially if the facility already is so equipped. And if there has to be an investment in storage racks, a favorable tradeoff is that the specified heights of unit loads can be increased, leading to increased storage densities, and later, increased handling efficiencies.

Recycled content is an X-factor

Sustainability has increased the popularity of corrugated comprising recycled content. Regardless of the percent of recycled content, the resulting corrugated is not as strong as its counterpart comprised of virgin material. So whereas the guidelines presented in this article are relevant for virgin corrugated, they are more so for recycled corrugated. Restated: what can compromise virgin corrugated can compromise recycled-content corrugated more easily.

Returning to the 95% statistic that opened this article, its division among the versions of corrugated might vary; however, corrugated, as an overall category, will retain its dominance. In establishing practices meant to assure that corrugated is fit for its intended purposes, the guidelines are, "Keep out of reach of hazardous conditions," and, "Handle with care."

Source: Packworld.com



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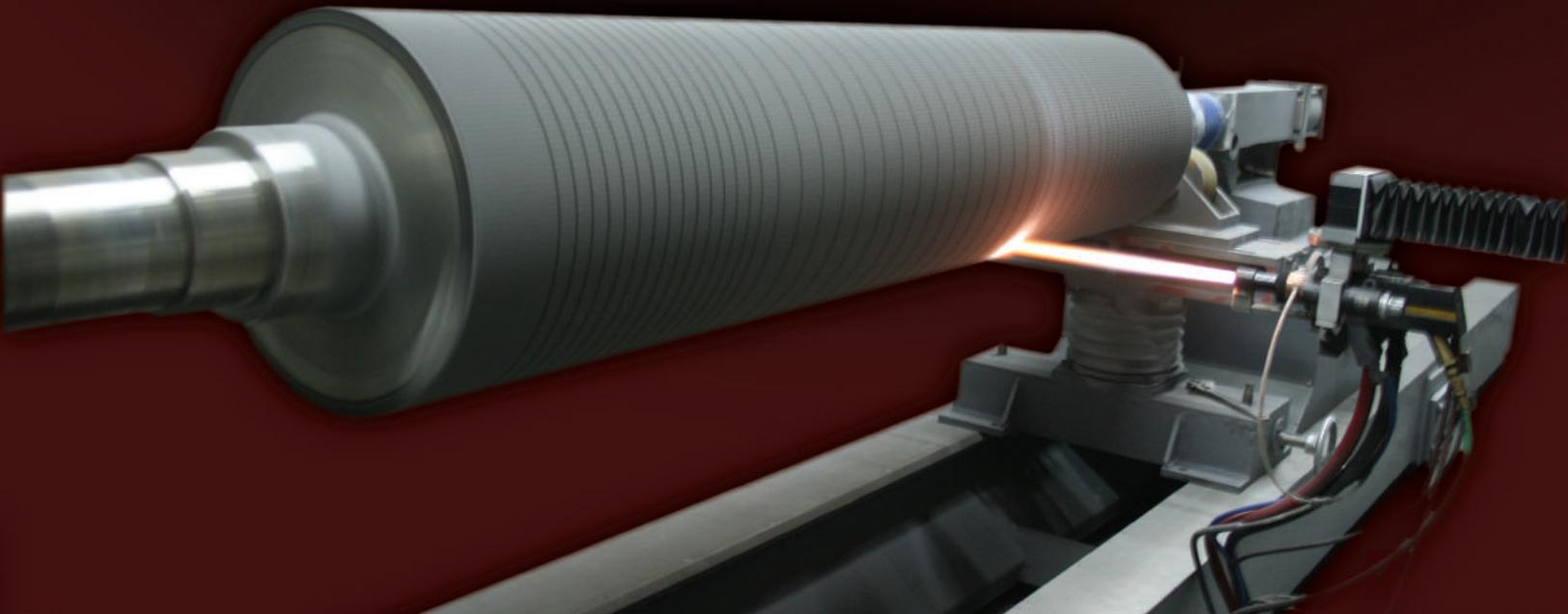
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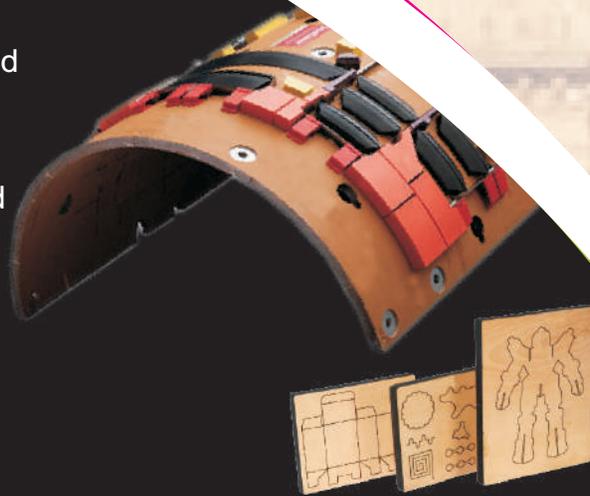
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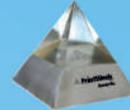
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Smurfit Kappa combines expertise with Mitsubishi HiTec Paper to create innovative food packaging

As part of its ongoing Better Planet Packaging initiative, Smurfit Kappa has collaborated with one of its partners, Mitsubishi HiTec Paper, to create a new type of innovative and recyclable food-safe packaging.

A combination of Smurfit Kappa's expertise in paper-based packaging and Mitsubishi HiTec Paper's strength in coated papers has led to the first product in the new range being shortlisted as a finalist in the Swiss Packaging Awards.

The outer board-based packaging was made from Smurfit Kappa's ground-breaking MB12 packaging solution which has unique, built-in adsorption technology which protects against aromas and possible migration of substances. The inner packaging, which contains Mitsubishi HiTec Paper's BARRICOTE barrier paper, offers protection against moisture and grease



and has heat-sealing properties. This unique solution demonstrates the possibility to create functional board-based packaging that is fully recyclable thanks to the optimised use of renewable raw materials in the barrier.

"It has been a very interesting and collaborative process for us working with Mitsubishi HiTec Paper on this project," said Lars Henriksson, VP of Product Development of the Smurfit Kappa Paper Division.

"The fibres that our industry-leading paper is made from are an excellent solution for a huge range of products due to a range of attributes, not least their inherent sustainability."

Dr. Dieter Becker, Director of New Business Development & CSR at Mitsubishi HiTec Paper added: "As experts in specialty paper coatings, we brought our know-how in barrier and protective coatings to this process.

"Our solutions are completely free from foil, laminates, aluminium and fluorocarbons. Instead, we rely on the highest possible percentage of biodegradable resources which is why Smurfit Kappa's MB12 solution was the right one."

HOBAKO AG, a Swiss producer of chocolate products, together with SCHELLING AG, its Swiss packaging provider, were the first to use the new board-based packaging solution which was shortlisted as a finalist in both the sustainability and technology categories of the Swiss Packaging Awards earlier this year

Source: www.smurfitkappa.com

Imports of paper & paperboard up 29.5% in Q1

India's imports of paper and paperboard (excluding newsprint) grew by 29.50 per cent in Q1FY20 to \$360 million. The development comes at a time, when despite a growing demand in the domestic market, rising imports have reduced paper manufacturers' capacity utilisation to around 75-80 per cent. According to Central Pulp & Paper Research Institute (CPPRI) data, out of 861 paper mills in the Country, only 497 are operational, showing the stress in the industry.

Successful Coffee Cup Recycling Scheme Exported to Europe

DS Smith, the leading sustainable packaging company, announces today that it is expanding its coffee cup recycling programme to Europe through its De Hoop Mill in the Netherlands.



The launch, which follows a successful trial at the mill, aims to tackle the 4.5 billion disposable coffee cups currently used by coffee lovers in Benelux annually and stop them ending up in landfill or incineration.

The recycler first introduced a bespoke recycling approach for cups at its Kemsley Paper Mill in the UK. As a result of efforts by DS Smith and others in the industry,

Contd. on - 103



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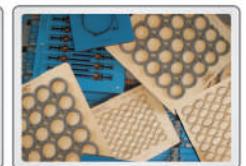
Rotary plywood shells, flat plywood, cutting & creasing steel rules, ejection rubber, special-steel counter plates, embossing Die plates and other accessories are imported from Europe.

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DS Smith has fourteen mills across Europe and has the capacity to tackle Europe's coffee cup waste problem. Recycling used coffee cups is just one example of DS Smith's commitment to a circular business model and its unique industry-leading position as a net recycler. With the support of Governments and consumers, it is possible to ensure that Europeans can continue to drink coffee guilt-free.

Source: www.dssmith.com

DS Smith trading update shows high expectations for global growth

DS Smith has issued a pre-close trading update stating expectations for overall financial performance for the period remain unchanged.

Reporting on the half year ending 31 October 2019, the corrugated packaging giant said industry and business trends have remained consistent with its trading update of 3 September 2019.

The company anticipates good margin progression in the period, consistent with the upgraded target of 10% to 12% return on sales. This reflects strong pricing discipline and cost improvements together with modest box volume growth, as ongoing macro-economic uncertainty continues to impact volumes in some markets, in particular those economies

with significant export-led market exposure such as Germany.

The company pointed to new business wins in Europe and the US, together with FMCG and e-commerce customer focus, giving it confidence in progressive volume growth during H2.

Its greenfield packaging plant in Indiana is set to begin production by the end of the year and will significantly enhance its packaging customer offering and result in a more balanced paper position in the US. DS Smith said the plant will also support improved profitability by reducing sales to the export market, which is currently experiencing lower pricing.

The update also mentioned "excellent" progress with the integration of Europac and the expected completion of the disposal of its plastics division with anticipated net proceeds of £400m around the end of the year.

Miles Roberts, group chief executive, said: "I am pleased with the performance of the Group in the first half, demonstrating the resilience of the business. We remain excited by the medium-term underlying drivers of demand for our sustainable corrugated packaging and our leading offerings for FMCG and e-commerce customers give us confidence of volume and market share growth going forward."

coffee cup recycling has increased from 1 in 400 to 1 in 25 cups over the past two years in the UK1.

It is determined to see an equally powerful impact in Europe, which is the largest market of coffee drinkers on the planet, representing 30% of the global coffee market.

While we're a continent of coffee lovers, we need to work together to ensure that we are not negatively impacting the environment and single-use coffee cups do not end up in landfill. We're proud to be able to export our successful recycling formula to Europe. But we need help: our biggest challenge remains getting hold of the cups. We're calling on Governments to work closely with us to solve the problem of supply and ensure consumers put cups in separate recycling bins, knowing that they aren't just recycled in theory, but in practise too.— Miles Roberts, Group CEO of DS Smith

At the initial De Hoop Mill trial in the Netherlands, DS Smith worked alongside Renewi, its collection partner, to successfully recycle over a 100,000 disposable coffee cups and further trials are underway ahead of a launch later this year.

Prior to DS Smith's commitment to tackle the issue of coffee cup recycling, used coffee cups presented significant challenges to paper mills, due in part to their plastic lining. Many people do not realise that coffee cups contain plastic, or that coffee cups are notoriously difficult to recycle.



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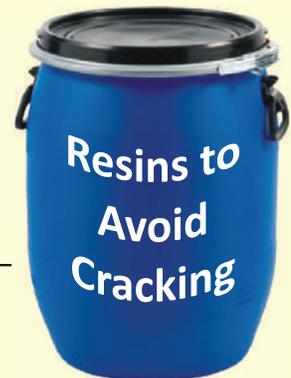


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Amazon launches Storyboxes to bring its sellers closer to customers

There's nothing like that moment, when your Amazon delivery has been made and you excitedly unpack your Amazon box. The crisp cardboard is a promise of an enticing product but did you know, your Amazon box holds a lot more?

Each Amazon box carries the stories of the dreams, hard work and ambition of the Amazon sellers. These stories are a testimony to the grit and passion of more



than 5,00,000 Amazon sellers that we are so fiercely proud of. With Amazon Storyboxes, we invite you to take a deeper look at the stories behind the box and meet our sellers. After all, when you meet our sellers, you meet Amazon.

Amazon India launched Storyboxes to bring its 5.5 lakh sellers closer to its customers.

An India-first innovation, Amazon Storyboxes is a packaging initiative that aims at showcasing inspiring stories of its sellers to millions of people who shop on the Amazon.in marketplace. With every delivery, Amazon brings these stories, narrated by the sellers themselves to the customers' doorstep, giving sellers an opportunity to interact with customers and share their success stories on Amazon.

More than 50 per cent of customers received the first set Amazon storyboxes when they shopped during the recent Great Indian Festival sale. Along with stories, the boxes also contain an asset in the form of the face of the seller illustrated using QR code elements, that can be scanned. Customers can directly scan the face, which will lead them to the dedicated micro site to explore more stories.

Currently, success stories of six key sellers have been captured on the boxes as part of Storyboxes. Vijaya Rajan, 46, who joined the Amazon Saheli programme in 2017, created Sirimiri, a brand of nutrition products which offers 8 variants of energy bars and 6 variants of muesli and sells 1,000 units a month on Amazon.in.



a Tier 4 town, Periyakulam sells wooden toys and cotton pillows on Amazon. Biswajit Swain, a software professional who works to revive lost arts and crafts of his home town Odisha sells crafts of local artisans on Amazon. Abdul Gafoor Khatri, yet another seller who keeps his family's 300 year old Rogan art painting alive and is a recipient of the Padma Shri award. He created an art piece for former US President Barack Obama. Ibanshara Shullai, who works with farmers of Meghalaya to sell Lakadong turmeric and Wildflower honey on Amazon. Ashwin Sokke who sells on Amazon's India marketplace and is also a Global Seller, who has built a million-dollar consumer brand WOW! is also part of Storyboxes.

Gopal Pillai, Vice President, Seller Services, Amazon India, said, "Our entrepreneurial culture and initiatives have always been aligned with our vision of transforming the way India buys and sells. We have launched a campaign - #IamAmazon which highlights the strong connection between sellers and customers, with an intent to show the role customers play in transforming the lives of the sellers. The stories featured on the package gives the customer a glimpse into the person who made the product for them, giving them a deeper understanding of what lies inside the box."

Source: - Internet



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BW Papersystems announces its partnership with Infinity Solutions

India's rapidly growing economy is shining a bright light on the corrugated box industry. India's demand for consumer goods and premium products is one of many factors forming the basis of this growth in India's ever widening middle class. Higher incomes, a greater awareness of the benefits of sustainable packaging; and growth of the e-commerce industry has propelled India's corrugated box market. The demand for corrugated boxes in the food, beverage and electronic goods industries is expected to increase providing great growth opportunities for the print publishing and print packaging industry.

said, "For some time, we had been looking for a reliable and knowledgeable local partner. Reputable sources in the Indian industry suggested we contact Infinity Solutions. The professional approach of Infinity Solutions with their strong customer support focus gave BWP the confidence to develop the relationship and create a strong partnership representing BWP Corrugated products in India, Nepal, Sri Lanka and Bangladesh."

BW Papersystems is a combination of companies and brands that offer solutions to paper industries. Various International

BW Papersystems and Infinity Solutions are building a strong and knowledgeable process to provide complete corrugated machinery and optimum solutions to the evolving Indian marketplace. Together with the combined talents of customer support, strong brands, innovative technologies and long-standing global experience in the corrugating industry, BWP is pleased to extend themselves into the Indian corrugated market.

ABOUT BW PAPERSYSTEMS

BW Papersystems, part of Barry-Wehmiller, combines extremely strong brands, innovative technologies and long-standing global experience in the corrugating and finishing, sheeting and packaging, and stationery, book-binding and security-documents industries.

ABOUT BARRY-WEHMILLER

Barry-Wehmiller is a diversified global supplier of engineering consulting and manufacturing technology for the packaging, corrugating, sheeting and paper-converting industries. By blending people-centric leadership with disciplined operational strategies and purpose-driven growth, Barry-Wehmiller has become a \$3 billion organization with nearly 12,000 team members united by a common belief: to use the power of business to build a better world.

ABOUT INFINITY SOLUTIONS

Founded in 2016, representing 8 global leaders and successfully completed over 55+ installations across the Indian subcontinent. With 20+ years of combined experience handling the entire corrugated factory equipment, both main and ancillary, Infinity Solutions take complete ownership right from pre-installation meetings to design, implementation and post-sales support in countries across the Indian Subcontinent. The solutions that we provide is Greenfield projects, capacity addition, factory layout, corrugator, flexo printing, glue kitchen, waste baler, conveyor, folder gluer, corrugating rolls etc.



Martin McTigue - BW Papersystems



Tufan Kumar Saba & Sarfaraz Pathan, Infinity Solutions

In view of the rising consumption of corrugated boxes across the booming economies of the Indian subcontinent, Infinity Solutions and BW Papersystems have decided to create a partnership to expand their reach the ever-expanding Indian market. Infinity Solutions brings professionalism and transparency to the corrugating industry, while offering complete packaging solutions for greenfield projects and existing corrugated packaging factories.

Martin McTigue, VP of International Customer Service and Peter Lapins, Sr. VP of Sales at BW Papersystems recognized the technological evolution of the Indian corrugated market and were looking for ways that BWP could contribute. McTigue

are all reputable BW Papersystems brands. BWP offers market-leading technology for full corrugators in a variety of configurations, rugged rotary die cutters and flexo folder gluers, as well as starch-mixing systems.

Barry Wehmiller, the parent company of BWP, has been operating in India for decades with a design office located in Chennai, and has contributed to many installations in other fields of the paper industry. With the acquisition of K&H Machinery an extra dimension has been added to the BWP portfolio. BWP now manufactures corrugators in the USA, Europe, China and Taiwan ranging in width from 1800 mm to 2800 and in speeds from 200 mpm to 450 mpm.



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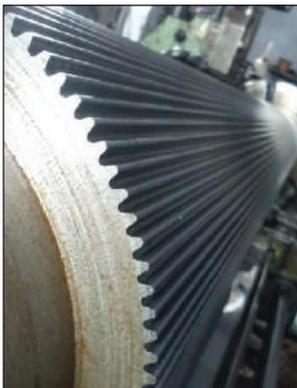
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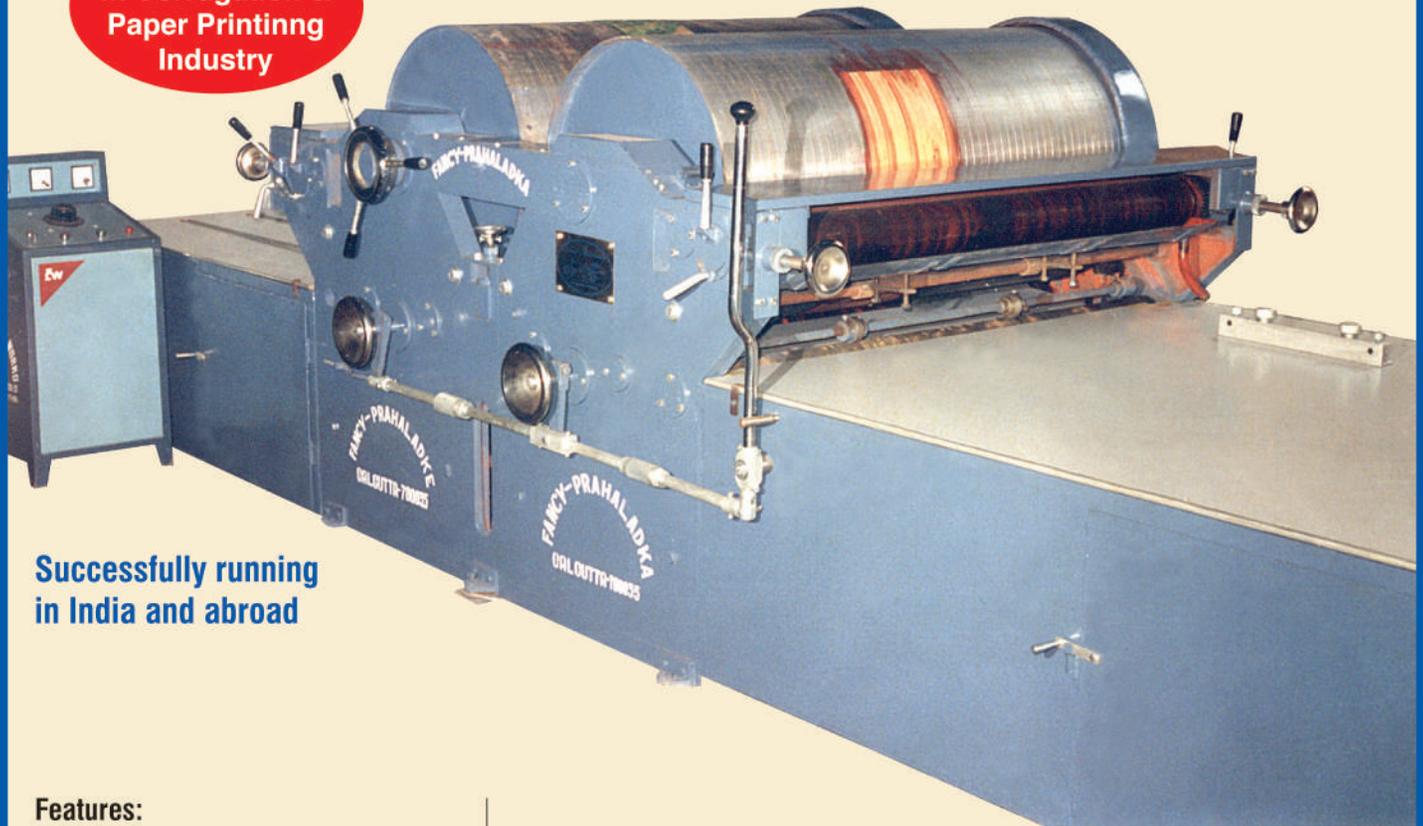
The maximum flute roller diameter and flute length that can be done on the machine is 410mm and 2200mm respectively.

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Product Profile

Sustainable cardboard shoe box

Here's a creative design for a shoe box that occupies less volume than a traditional shoe box. The packaging is designed so that the shoes are placed inside the box in a completely new way, saving up to 50% of space. Less packaging material is used and the added bonus is that the shipping costs also go down. The box was developed to be used with any type of shoe. The box also takes on a new life as a toy after use.



E-commerce inner packaging stretches to secure the product

Designing both functional and environmentally friendly packaging is one of the biggest challenges for the packaging



industry today. One of the best ways to reduce waste is to use less. That's exactly what this packaging does, the inside layer stretches to fit to and protect the product inside. The inventive design, cutting incisions onto paperboard in a triangular pattern which form inserts that store and protect items of various shapes and sizes. The product cannot move because an identical insert as the one the product is placed on lies on top, the lid of the box then holds the two inserts tightly together. No need for plastic bubble wrap anymore !

Players assemble own corrugated cardboard VR headset

Nintendo LABO, a toys to life concept from Nintendo, have created a line of corrugated cardboard accessories for the Nintendo Switch, a video game console. There are six different toy creations that can be made to construct a virtual reality headset. The games have been especially designed for children so they are shorter than regular games and are aimed at getting multiple people interacting.



Players build their own kit from the corrugated cardboard that represent animals such as elephants, birds or objects such as a camera. The games are played with the headset held to the face and passed around from one player to the next.

“My home is my castle”

Did you ever wonder why cats seem to love cardboard boxes so much? Seeking out enclosed spaces is instinctual behaviour from which they derive comfort and security. Hiding in order to ambush their prey is also instinctual behaviour even for domesticated cats and they love hiding in a box. Another reason cats especially



like cardboard is because the insulating properties of cardboard help regulate the cat's body temperature, which is naturally higher than the human body temperature. This box transformed into a castle provides lots of opportunity for the curious cat to play, explore, scratch, ambush, climb, jump... and then repeat.

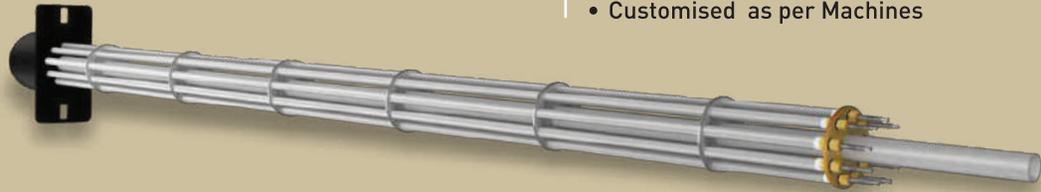
Source: <http://www.corrugated-ofcourse.eu/>

Press Cutting Tool – PCT

High processing speeds and high-quality results equal to die cutting: The PCT tool cuts corrugated cardboard up to 7 mm thick and simultaneously compresses the material with a special glide shoe.

The Press Cutting Tool has been developed for economical cutting of corrugated cardboard up to a thickness of 7 mm. During

- 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.

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- Zonal Heaters
- Power Saving Heater Control Panels
- Drying Systems

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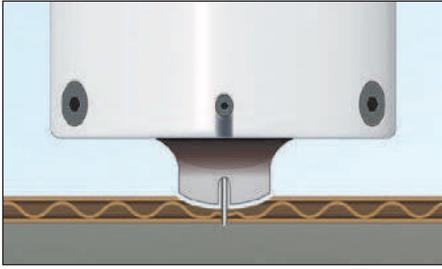
- STURDY SPIRAL RESISTIVE WINDING in 80/20 or Kanthal with resultant low level specific load.
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- Proper Assembly of unit prevents frequent burning.
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- We also manufacture Infra Red (I.R.) Glass heaters for high speed imported corrugation machines

Salient features of Hotron Control Panels:

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into the material to achieve the desired amount of compression.

As an additional benefit, the PCT, compared to powered tools, is very quiet and cost effective to purchase and maintain.

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If your product mix calls for multi-ups and outs, high quality graphics, full stacks and bundles, quick setups, short runs or just hard performing 24/7 operation, the Martin Select-LCS Rotary Diecutter



the cutting process, a specially designed glide shoe compresses the material along the cut lines. The pressure exerted on the corrugated cardboard enables the use of drag knives and facilitates high processing speeds.

At the same time, this processing method effectively prevents the raised edges and ridges that can occur when using an oscillating tool for cutting corrugated cardboard.

The resulting cut quality equals that of die cutting, which makes the PCT ideal for creating premium folded packaging and POP displays from corrugated cardboard.

An adjustment screw on the tool shaft allows for quick, easy, and very precise settings for how far the glide shoe presses



Stacker will meet and exceed the call to perform. The Select isn't the stacker the industry grew up on. With standard features such as the state-of-the-art 'Smart-Stak' Order Entry System, EZ-Set Layboy Section, proportional hydraulics, Pozi-Level, Pozi-Stack II front end system with Access Style Backstop, EZ-Adjust Cross Rail, and LCS safety system, the Select combines safety, versatility, durability and high performance to be the industry's leader in rotary diecutter stackers. A full list of quality, labor reducing, productivity enhancing options, allow you to customize the Select to exactly meet your specific production needs. Like all Martin stackers, the Select is designed for easy field upgrading and conversion to keep your company at the forefront of an ever-changing market.

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Rubber makes the champions

How high-quality materials reduce diecutting costs

Modern day reports on Formula 1 racing discuss the tyres more than the engines, aerodynamics or even the drivers. Why? It's quite simple: the specialists know that the condition of the tyres decides whether a race can be won or not. So what has that got to do with us? The question about the situation of the rubber on the cutting die leads to exactly the same statement: "Rubber makes the champions".

A Formula 1 racer without high-tech tyres makes no sense, and the same applies to a cutting die with poor rubbering. The performance of your diecutting machines is highly dependent on the quality of the cutting die, and this in turn is substantially

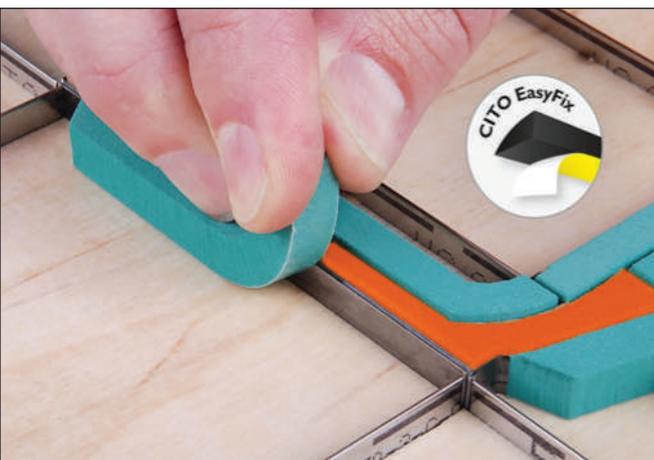
dependent on the type of rubbering ejection material. In the past, it was worked with machines that achieved an output of 4,000 to 5,000 sheets per hour. Nowadays, up to 11,000 sheets per hour are expected. It is quite clear that twice the productivity cannot be achieved with outdated tooling and substandard rubbering. Mechanical engineers can build diecutting machines, in which two tool tables move towards each other at high speed. The problem in our industry is that we place board and paper between these tool tables. Materials that pose new challenges for us again and again. There is simply no consistency in this material. This is why it is absolutely necessary to avoid any further fluctuations in the tools used.

In the past, most rubbering materials used were neither developed for their purpose nor are they physically suitable for such use. In general, the material is intended for use as insulation and shock absorption. Sponge rubber is still widely used; a material with largely uncontrolled pores of different size. Sponge rubber is mainly used for sealing purposes. Propellant gas is widely used in its production. The use of EPDM is also widespread. It was also developed as a sealant against moisture. The list could be continued ad infinitum because, in the past, the ejection materials for cutting dies were chosen rather for cost reasons than for

their technical and physical suitability. A development, for which the paper processing industry is not fully blameless. Because increasing price pressure on the tool producers automatically led to them searching for even cheaper materials. In the case of cutting rules made of steel, all stakeholders have long since recognised that the use of cheap rules does not pay. At least in the industrial countries, quality rules with high consistency and durability are now used. In the case of rubbering, we are still far from achieving such standards.

Repeatable precise compression behaviour

Is there such a thing as an ejection material that was developed especially for use on cutting dies? Luckily, this question can be answered with a clear Yes! Examples are [CITObject F](#) and the high-end product [Polytop MX®](#). Their physical and mechanical properties, such as repeatable precise compression behaviour with maximum consistency and speed, meet the challenges faced in the cutting process. Hysteresis tests demonstrate the frequency with which the material restores itself to its exact original height after compression. Speeds of up to 5 Hz, equivalent to a real speed of around 18,000 sheets per hour, are achieved. Another important issue is how long the material returns to its original height. Tests of the named products have shown that the physical and mechanical properties remain constant for more than 5 million compressions. The life of these



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Certified material on flatbed cutting die

Contd. on - 121



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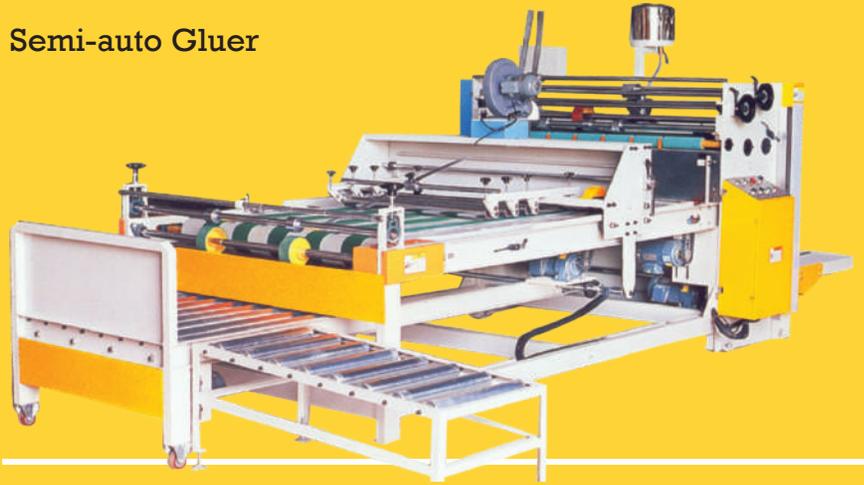
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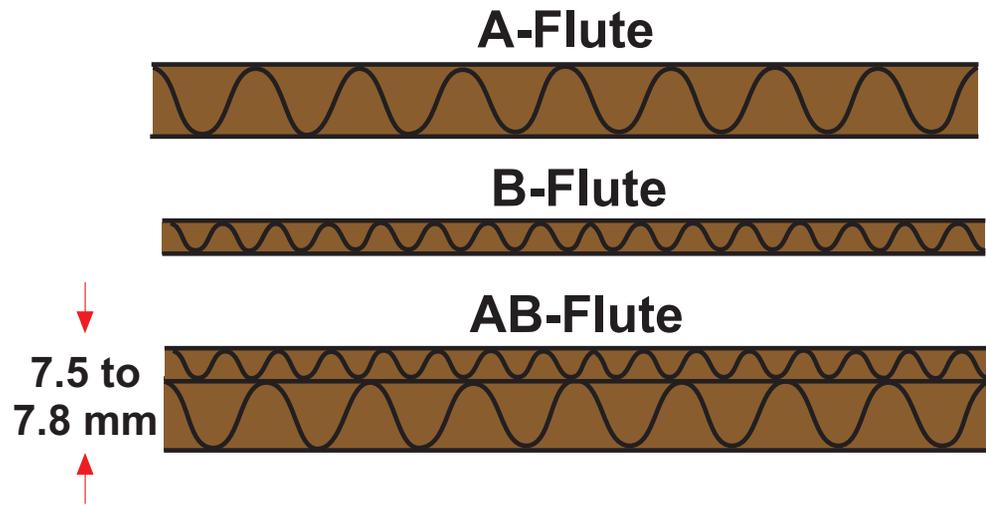
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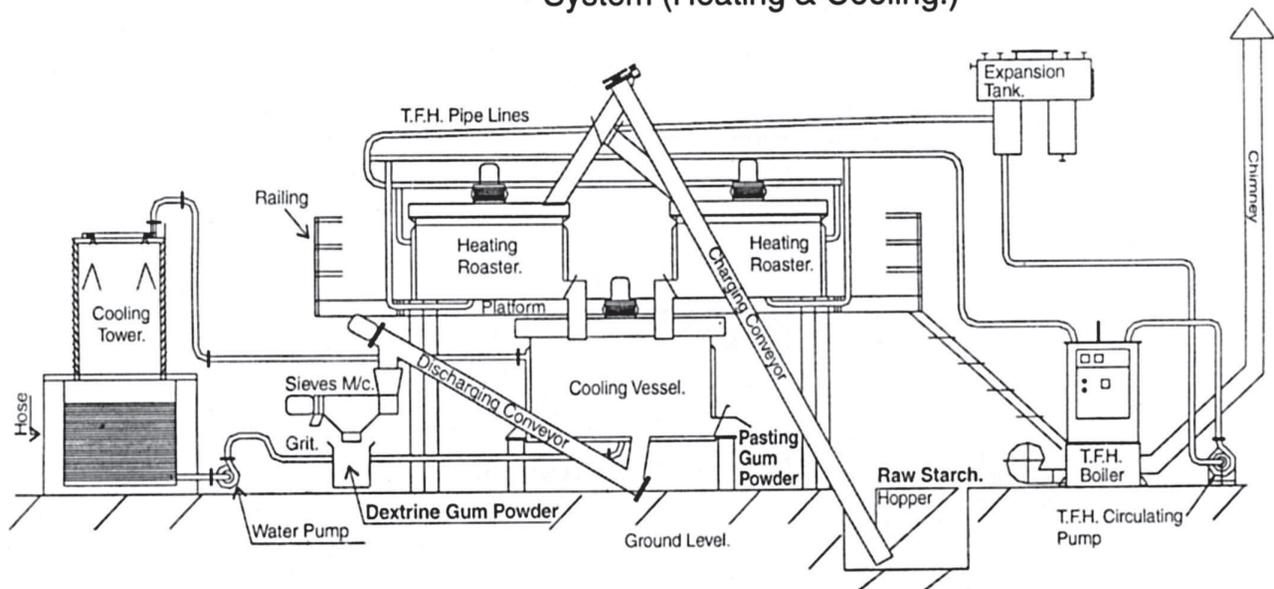
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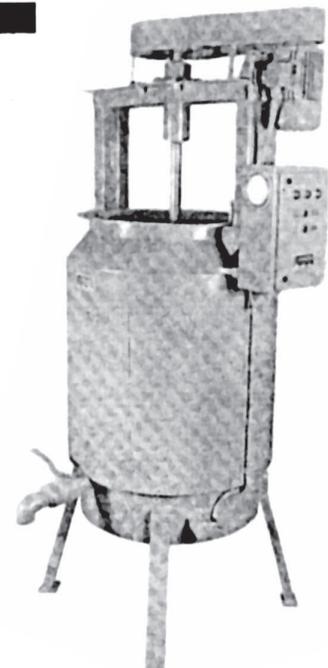
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Next 65"×126" Under Process



EVEREST-GIANT
65" x 110"

About SOND

Our Group is a well established business of more than 45 years. We are engaged in the manufacturing of superior quality EVEREST brand heavy duty Cutting & Creasing Platens. We pride ourselves in being a pioneer manufacturers of large format Platens for the domestic and international market. Our Machines have been exported to various countries worldwide and enjoy a large degree of notoriety in the international market. The Machines have been duly approved and certified with the European CE Standards. EVEREST brand Machines are designed to cut, crease and emboss Paper, Solid Boards, Corrugated Board, Micro Flute, Rubber, Linolieum, Plastic, Leather etc., with the use of a FLAT DIE. The body structure is so designed to withstand the heaviest loads, while maintaining unsurpassed cutting precision. These Machines are designed to give maximum years of reliable services.



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materials therefore far exceeds the tool life of cutting rules made of steel.

What else has to be considered when choosing the rubbering for the cutting die? A clear colour code, with which it can be immediately and easily checked whether the right ejector is installed in the right place. Here it is not a matter of using the company colour of the respective tool manufacturer in the colour of the ejection materials. The purpose of the colour code is to enable fast and easy checking, to avoid the installation of poor quality tools in the machine from the outset.

Influence on the necessary cutting pressure

The ejection material also has an enormous influence on the necessary cutting pressure. Conventional products, which were not developed for the cutting process, do not take this into account at all. The wrong material on the cutting die makes higher cutting pressure necessary. This impacts the diecutting machines and thus also the tool. In simple terms: An extremely high cutting pressure means unnecessary cost. It is important to ensure that complete systems are used for the rubbering. Such a system not only includes using the right high-quality material, but also the assembly system, with which the appropriate material is mounted on the cutting die.

Such systems can be identified by the name "EasyFix". EasyFix is not simply a self-adhesive tape. In addition to the material for the general rubbering uses, appropriate special profiles also exist for special tasks on the cutting die. Here it is essential for the gluing technique to be precisely matched to the mechanical impact of the process. Because, depending on their use, shear or peeling forces act on the ejection materials. It is definitely an advantage if profiles are equipped with a fingerlift system. This simplifies the detaching of the protective paper from the glue enormously and this in turn has a positive effect on the gumming process.

www.cito.de

Timesaver® Anvil Covers

C.U.E.'s Timesaver Anvil Covers are designed to be the premier urethane cover available for the Corrugated Industry to improve productivity with their rotary die cutting equipment.

Unique anvil cover design advantages include:

Reduce Die-Cutter Downtime: Timesaver's unique solid steel lock bar and exclusive pry bar tool allow for the industry's fastest anvil cover installation and rotation times. This equates to less costly die cutter downtime. Click to see a Rotation Demo Video



Improve Cut and Score Quality: A consistent surface is required for good cut and score quality with a soft anvil system. Timesaver anvil covers are molded in-the-round and precision ground to thickness. The solid steel backing guarantees dimensional stability throughout the life of the anvil cover. Timesaver's solid steel lock bar eliminates the soft spot over the keyway for consistent cutting around the entire circumference of the cylinder.

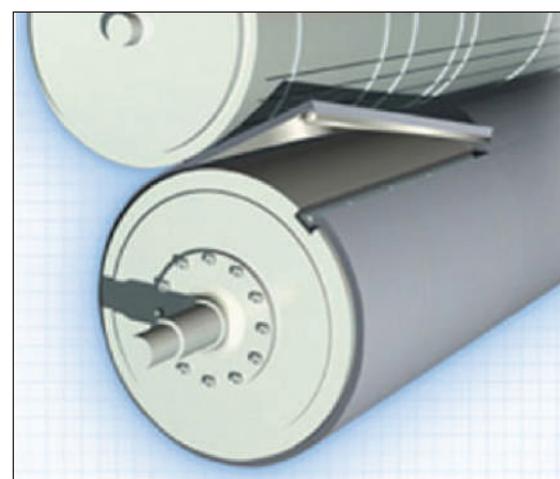
Maximize Anvil Cover Life: Timesaver's drastically reduced rotation time allows for more frequent cover rotations, maximizing cover life. C.U.E.'s proprietary urethane formulation is engineered to withstand even the harshest die cutting applications.

Exclusive Dual-Width Design Available: C.U.E. is the only manufacturer of Dual-Width anvil covers. Dual-Width Timesavers

are twice as wide as standard anvil covers. This design reduces the number of seams across the cylinder for improved cut quality. Installation and rotation time is cut in half with Dual-Width Timesavers. A built in cost savings also makes Dual-Width Timesaver an outstanding anvil cover value.

Manufactured to Precise OEM Specifications: All Timesaver anvil covers are produced to exact original equipment manufacturers' specifications guaranteeing precise fit and performance from every anvil cover.

Stocked by Quality Distributors Worldwide: C.U.E.'s extensive anvil cover



distribution network allows for immediate delivery worldwide. Please contact C.U.E. to find the anvil cover stocking distributor nearest you. Or Email us by clicking here.

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Corrugating Rolls 4.0

With extensive investment and new technical developments, BHS Corrugated has pushed ahead with digitalisation, especially in the area of corrugating roll production. Customers benefit significantly from the higher productivity and quality in the operation of their corrugators. BHS Corrugated was one of the first larger medium-sized industrial companies in Germany which looked closely into Industry 4.0 and how it affected the company's sectors. Digitalisation was defined early on as part of the company's own strategy. Concrete Industry 4.0 projects were implemented just as early and consistently. Under the umbrella of Corrugated 4.0, the company has since set standards in its industry. To meet the increasing demand for corrugating rolls worldwide and to simultaneously further optimise product and production quality, BHS Corrugated has recently made investments in the area of corrugating rolls. Of the total of 65m recently invested in the expansion and modernisation of the company's headquarters at Weiherhammer, Germany, 25m was used for corrugating roll production alone. This included the construction of the new central production plant, which in turn laid the foundation for the expansion of the machine park designed

for corrugating roll production, as well as for the reorientation of production-related processes to Industry 4.0 standards. Internationally, too, technology and capacity have been upgraded in recent years. In November 2018, the market presence in Asia was strengthened with the completion of a new corrugating roll production plant in Kuala Lumpur, which is part of an investment programme for the corrugating roll production worldwide. BHS Corrugated now has six locations worldwide with their CORRUGATING ROLLS 82 INTERNATIONAL PAPER BOARD INDUSTRY » NOVEMBER 2019 own corrugating roll production. In addition to Germany and Malaysia, it operates branches in Italy, the US, Brazil and China. The expansion of manufacturing capacities enables the company to produce more than 2,000 sets of rolls per year. But also individual customers benefit from this extension. Delivery times, for example, have been reduced through the use of new production technologies. Production of corrugating rolls within three to four months after ordering are standard today. The reworking of existing rolls only takes eight to ten weeks. "Generally speaking, we have been able to reduce delivery times to half the previous time by increasing capacity and using state-of-the-art production technology," says

Günter Kick, head of Corrugating Roll Sales at BHS Corrugated. The company's NICE ('Not Included Capital Expenditure') concept plays an important role in speeding up and simplifying the delivery process in the interests of the customer. Customers no longer 'buy' corrugating rolls in the classic sense of the word — they purchase a full supply of rolls as an all-inclusive service, which is paid in the form of an amount measured by

the actual production of corrugated board. This amount includes, among other things, the complete commissioning, assembly and disassembly of the (replacement) corrugating rolls, regular maintenance, as well as training services for the operators of the Modul Facer. At such operational performance-related prices, customers benefit from a consistently high productivity that can be planned over the entire service life, from reduced capital commitment costs and lower operating personnel. Accompanying and complementing the digitalisation process, NICE solutions have more than proven themselves over the past few years, especially in the field of corrugating roll delivery. "We have an increasing share of NICE solutions every year. Today, every third Modul Facer is equipped with NICE Rolls®," says Kick. "That alone shows how well this concept works in our customers' everyday production practices." The new CorruPlus® design has also proved to be a driving force behind further growth in the corrugating roll segment. Since it went into series production at the beginning of 2018 (CorruPlus® is already delivered as standard with the Modul Facer MF-A), BHS Corrugated has sold over 600 CorruPlus® corrugating roll sets. The development engineers have increased the heat transfer to the roll surface, while preserving at least the same corrugated board quality. Improved heat output also accelerates production, increasing not only maximum but also average production speeds. At the same time, a temperature evenly distributed over the entire roll surface ensures a higher quality of glue application, especially when using light grammage paper. Another driving factor for sales of corrugating rolls is the growing proportion of D-flute in the CorruMax® profile family. Similar to CorruPlus®, development engineers have managed to combine multiple benefits without compromising on quality, productivity or process speed. The smaller pitch of D-flute ensures improved ECT values. Its lower height makes for better compressive strength (FCT) — achieved with reduced grammages of fluting (less paper consumption). Furthermore, the



optimised geometry allows savings in terms of shipping and transport costs. Beyond technology, BHS Corrugated also sees the necessity of digital solutions in the implementation of administrative processes, especially in the handling of bid and order processes. Christoph Ringelhan, Sales Engineer Corrugating Rolls, explains, “We are in the process of digitalising the entire corrugating roll ordering process, offering our customers not only increased response speed, but also a straightforward, fully online process.” The obvious next step, according to Ringelhan, is the integration of administrative processes into the iCorr® online shop. This is, above all, supposed to enable customers to quickly and easily create offers and to handle the purchase or order of corrugating rolls. Starting from there, Ringelhan identifies the automatic feed-in of orders into the corrugating roll production as the medium-to-longterm goal. A central function here is the RFID chip integrated in the corrugating roll (currently already available for the Modul Facer MF-A). This chip stores the basic information about the corrugating roll. Finally, complete digitalisation of the entire ordering and delivery process can be accomplished by automatically detecting the state of wear of the corrugating roll, for example, through the exploitation of big data.

bhs-world.com

Enhanced Offering

Tiruna S.L. is proud of the latest developments and milestones they achieved over the last year, not only for quality of corrugating rolls, but also for the service, support and back-up they are able to offer. The company has recently started up a new grinding and polishing machine at its Spanish headquarters, which was installed over the summer. This new line will help the company increase its output in terms of polishing of completed rolls. Tiruna already had two lines that could polish the rolls, but adding the dedicated line frees up the other two machines to focus specifically on grinding. A round of investments at its factory in Lyon, France, were implemented

in 2018 and this now allows Tiruna France to improve output and enhance its service levels for all customers’ needs. Now with operations in Brazil, USA, China and the main production facility in Spain, Tiruna is making a clear statement to customers that they can be close by, in any territory. The manufacturer is aware how corrugated companies are worried about the health and safety of their operators. Tiruna’s latest development is a perfect solution for operators. Safety is most important and because of that, they have developed the Tilub system. It consists of a bar installed in the single facer, with nozzles placed strategically. During the production process, these nozzles spray a special oil onto the roll where paper is not passing. It helps to get the rolls totally cleaned, especially at the edges. This solution ensures total safety of the operators and at the same time, improves the runnability of the rolls. From now on, there is no need



to clean the rolls manually, as remote cleaning is possible whenever customers want, without the need to stop production. Furthermore, Tilub oil meets NSF H1 food grade standards. Several installations in European and North African corrugated plants have already been carried out. In looking to provide a solution for their customers and supply better service, Tiruna has now launched a new division for accessories. The company can now supply spare parts such as bearings, steam parts, grease, among others, for the most commonly used single-facers at competitive prices and with short delivery times.

It is interesting to note that the company has already been promoting a new type of roll within their portfolio – glue and

doctor rolls. They offer an inner layer of stainless steel on the glue roll between the raw material and coating, to offer longer life. This has been proven with excellent results wherever it has been installed. Furthermore, the Spanish manufacturer can supply new cassettes as well as refurbish existing ones. They receive the rolls at their premises and repair not only the corrugating rolls, but also the cassette, making it as good as new. Therefore, customers do not have to worry about dismantling the rolls and re-installing them. Cassettes can be installed in the corrugator upon receipt from Tiruna. Having said this, the company is still focused on what has always been the most important thing – the design of the flute profile. They are well-experienced in the design of flutes and know how this affects the variation of any specifications on the geometry of the rolls. Tiruna has carried out hundreds of studies to offer tailored flute profiles, helping customers save a lot of money by reducing paper consumption and improving board properties. These studies find the balance between paper cost and board strength. Just one example of the outcome of the studies was the design of T flute, the flute profile that is between B and E, that is being run all over the world. The company is environmentally committed to reducing their carbon footprint. Their rolls are efficiently designed to consume less steam with special siphon pipes, for the removal of the condensate but also with peripherally heated rolls. Tiruna offers customers the option to upgrade the design of the rolls from siphon pipe to peripheral heating. Tiruna not only sells and produce corrugating rolls, but offer a global solution to their customers. Before and after the installation, technical visits, audits and services are carried out to follow up and make sure that the customer is achieving the maximum productivity with its rolls. The company has also expanded its sales network, with the addition of several new representatives, including Propco SAS in France and Belgium, as well as North Franco-African countries.

www.tiruna.com



Shear LINE



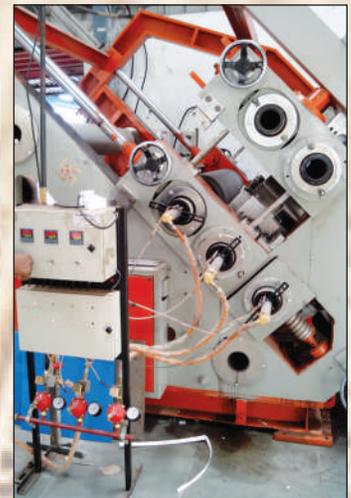
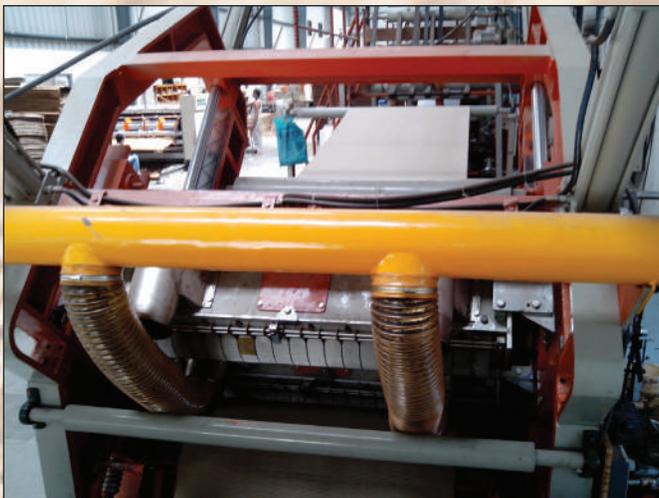
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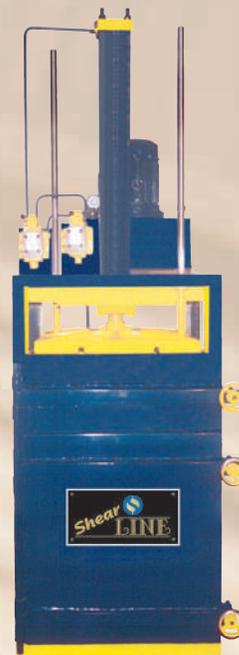
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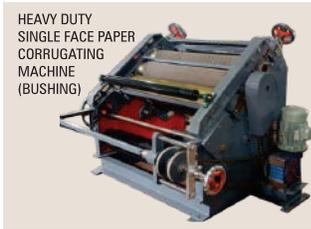
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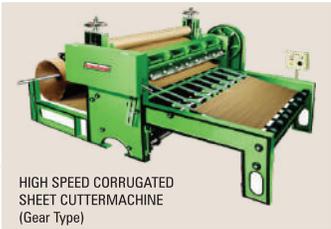
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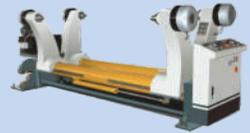
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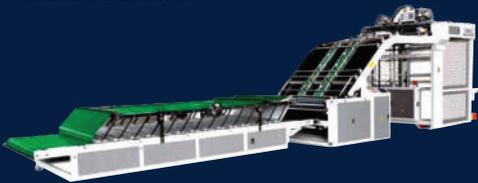
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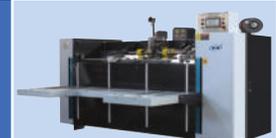


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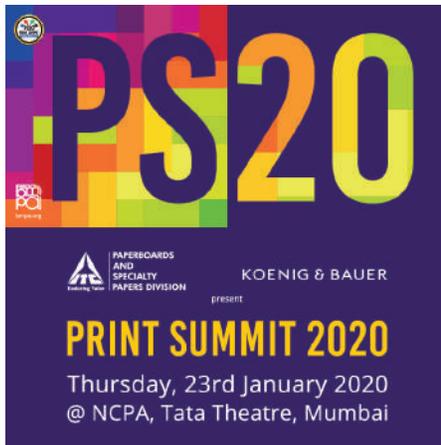
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23 January 2020



Businesses from commercial printing, package printing, labels, POP-POS, wide format printing, on-demand printing, corrugation, creative industry and ad agency. Personalities attending the conference are largely owners, decision makers, technologists, shop floor personnel, marketers, designers, IT & admin folks and students.

13 -16 March 2020



HITEX Exhibition Center,
Hyderabad, Telangana, India

Print Fair expo will facilitate the Printing and print buyers, Publishers and owners of commercial newspapers by giving them an opportunity to share their expertise with the attendees. 275 Exhibitors and over 3000+ Business visitors participated in last edition of this b2b trade shows.

24-26 April 2020



The 15th edition of the Screen Print India will take place from April 24 to 26, 2020, and will showcase the latest textile printing technologies to a business to business audience.

27 - 29 May 2020



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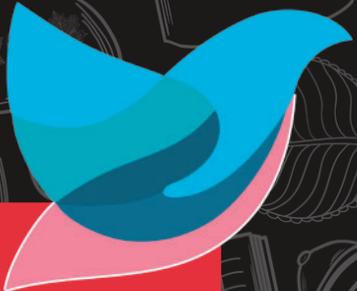


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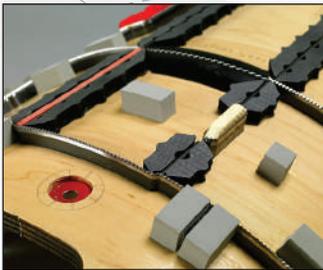
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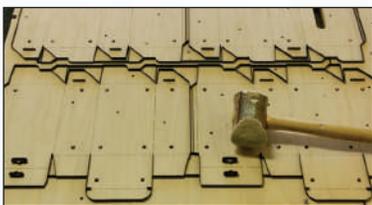
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