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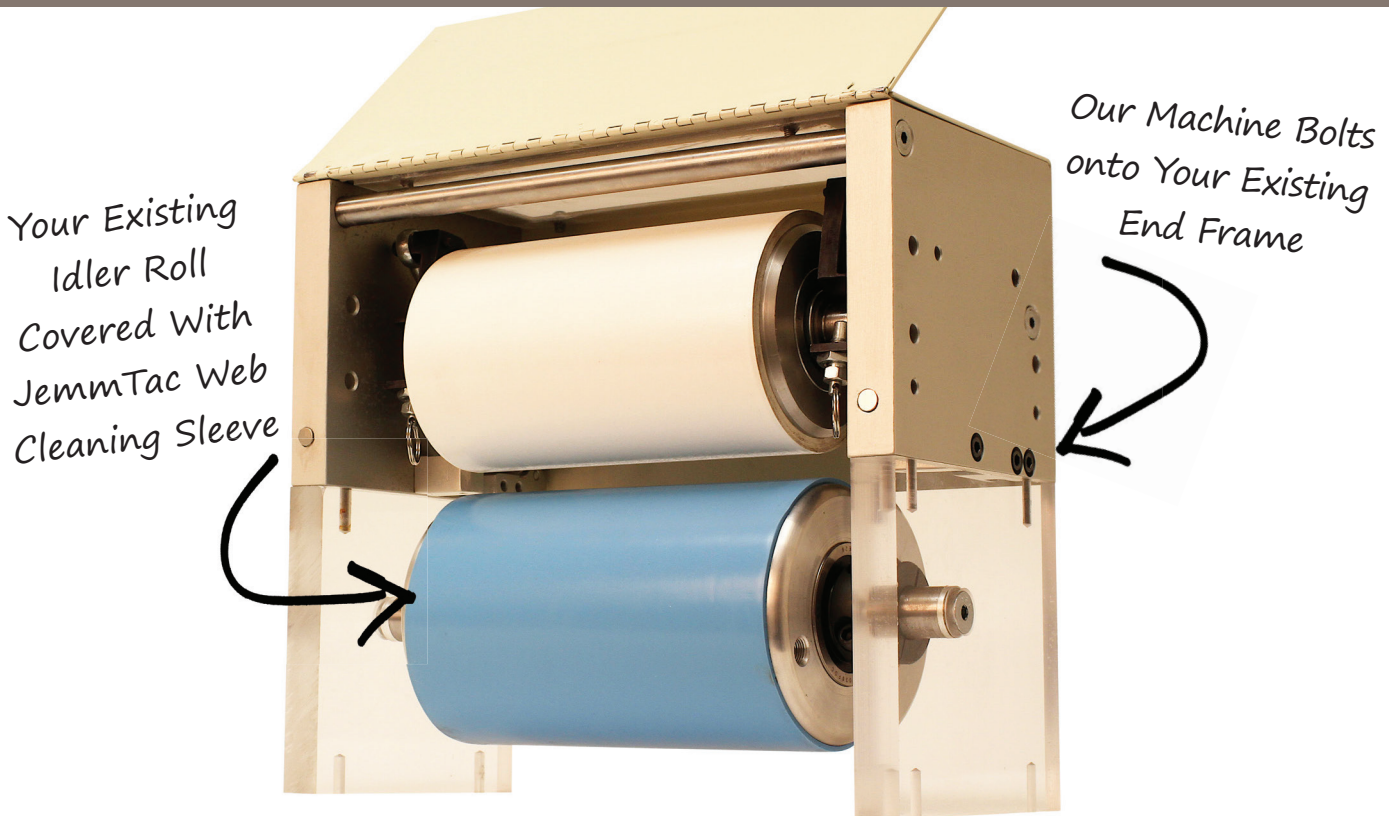
**SMART MOISTURE
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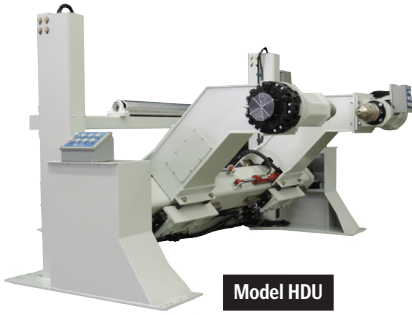
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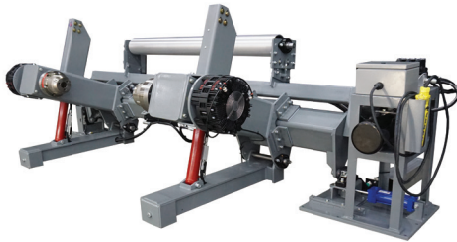
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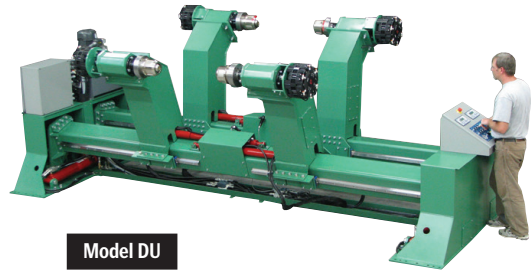
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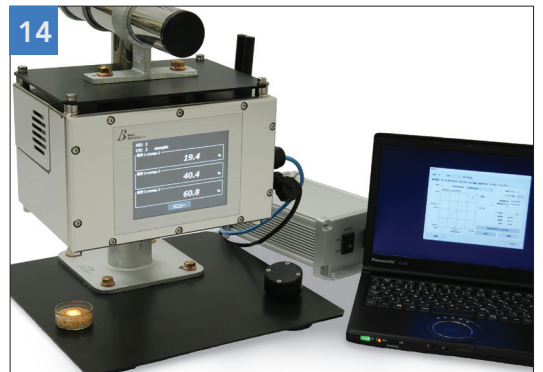
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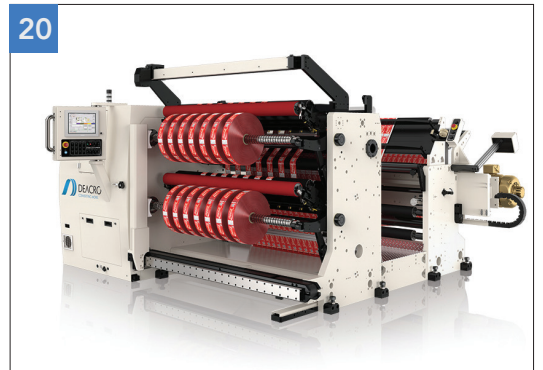
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It All Adds Up



Joan Mantini
Editor

Overcoming challenges has indeed been the trend these last several months, and one of the biggest challenges companies are facing as we remain in a global pandemic status is the lack of supply and demand balance. As the demand increases, supply is not keeping up quite as well, and manufacturers are feeling the pressure to make more adjustments in their supply chains. With that also comes the increase in prices across the board.

Looking at the paper industry solely, we are seeing a unique combination of events that are constraining paper supplies and leading to price increases. According to the US Producer Price Index, “woodpulp is at a current level of 216.90, up from 207.90 last month and up from 145.50 one year ago. This is a change of 4.33 percent from last month and 49.07 percent from one year ago.”

A few of the factors driving these price increases include:

- Increased pulp prices;
- Mills being closed, scaled production or lack of workers;
- The increase in transportation costs; and
- The lack of balance in supply and demand.

We also cannot exclude the fact that after the Chinese Ministry of Ecology and Environment banned the import of waste paper in January, the short supply of raw materials for papermaking worsened. The plastic restriction order in Beijing is sending consumers and companies rushing to switch to paper packaging. This switch does not go without increased pressure on its already stressed paper-based food packaging and packing bags supply.

Indeed, paper prices have been on the rise since mid-2020, and there is no sign of a this slowing down. However, the paper industry is just one of many that are being challenged by the 2020 conditions.

We have also witnessed one supplier after another in the print industry announcing their price hikes in recent months. All of which have also attributed the price spikes to the costs of raw materials, freight, logistics, and procurement due to pandemic-related restrictions.

The increasingly falling supply plus the rising demand, equals inevitable price increases. We can also add in the unpredictable supply-chain disruptions across the globe that we are still seeing frequently, and the equation worsens.

Speaking of adding... on a more positive note, I wanted to let our *PFFC* readers know that we will be adding a new editor to the magazine. I will be working with her in the next few weeks while she becomes acquainted with the magazine and its supporters, so stay tuned for a further (more formal) introduction in the upcoming weeks.

Signing off,

Joan Mantini
Joan Mantini
586.295.1888 | joanm@rdgmedia.net



A RDG Media, Inc. Publication
P.O. Box 80915
Rochester, MI 48308
586.227.9344
www.pffc-online.com

President/Group Publisher
Randy Green
randy@rdgmedia.net

Editor
Joan Mantini
joanm@rdgmedia.net

Publisher
Lori Pisano
lori@rdgmedia.net
814.616.8380

Accounting Manager
Kristin Green

Systems Administrator
Angi Hiesterman

Operations/Customer Service
Jody Kirchoff

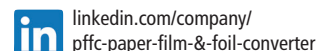
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The Key Contribution of Increasingly Advanced and Automated Converting Technologies to the Flexible Packaging Industry

The TR 4 slitter rewinder by LAEM IMS, integrated with an automated end-of-line packing system, helps to make the entire production process more efficient.

Contributed by **LAEM IMS – a brand of IMS Technologies**

High-tech, efficiency, quality and safety are the features that today's converters are looking for. Therefore, they prefer machines that contribute to cost savings, improved processes and productivity.

At LAEM IMS - a brand of IMS TECHNOLOGIES Group that designs and manufactures machines and automated systems for the flexible packaging industry and the converting sector - the latest solution developed perfectly meets these requirements. The line consists of a TR 4 slitter rewinder integrated with a fully automated end-of-line packing system.

A complete line, from slitting of mother rolls to positioning of finished reels on the shipping pallets.

The high level of automation in the TR 4 design allows the slitter rewinder to achieve excellent performance both in case of continuous production and very long production batches and in the reverse conditions, i.e. when production batches are small - a very frequent situation in the flexible packaging market.

To address this fluctuation in the production requirements, the LAEM IMS design team first focused on streamlining the preliminary setting operations, with the aim of minimizing downtime.

Moreover, several crucial phases in the production cycle have been automated, such as loading



The quality of finished reels is strictly related to the quality of slitting and rewinding.

and unloading operations, core positioning, reel closing operations, control of the double-sided tape guide. In addition, the machine has been equipped with a simple and user-friendly HMI that facilitates the operator in the production batch launch phases, where 90 percent of the parameters are set remotely, thanks to the direct connection of the machine PLC with the company ERP.

The high-level of automation results in a significant reduction of human intervention, which translates into production cost savings: a converting line usually requires two operators, one for machine operation supervision and the other for packing phases. With TR4, human

intervention is halved: considering that this reduction is spread over five working shifts. The machine is designed for continuous cycle operation. Considering only the purchase cost of the machine and the annual staff costs, the return on investment is achieved after a very short time.

Automation also reduces the possibility of errors, another key factor for an efficient, high-quality production. This is an end-of-line system, the end products are the reels ready to be shipped to the customer. Therefore, it is very important that any discrepancies are identified and corrected during the reel converting phase. In this regard, another distinctive feature of TR4 is essential: the automatic traceability of every single finished reel. The slitter rewinder communicates with the company's ERP, from which it receives the recipe and to which it communicates the unique code of every reel produced. This code contains an information history on compliance of product characteristics related to the quality of slitting, tensioning, printing and more.

The quality of finished reels is strictly related to the quality of slitting and rewinding. With regard to the slitting quality, the machine features a fully automated system for positioning of knives and counter-knives and for micrometric adjustment of knife insertion values. The slitting system is a



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A high-level of automation results in a significant reduction of human intervention, which translates into production cost savings.

heap of technology - from the type of materials to the internal and surface treatments used for steels, from the extremely tight tolerance of the slitting tools to the rigid structure of the system itself.

On the other hand, with regard to the quality of reel rewinding, the success of this operation depends on the very short distance between the slitting area and the winding area, which moves away along linear guides, according to the reel diameter increase.

This prevents the material from swerving and keeps the material entry angle with the contact roller constant, thus ensuring, in combination with a controlled pressure, very high-quality standards even when processing very delicate materials at high speed.

In order to ensure the same rewinding quality for a wide range of materials, state-of-the-art friction shafts and a closed-loop control are provided, allowing

It is very important that any discrepancies are identified and corrected during the reel converting phase.

separate management of single reel rewinding and remedying the problem of different thicknesses.

At the end of the rewinding phase, the reels are ready to be unloaded and enter the automatic packing system, where they are labelled, packed and loaded on pallets thanks to a robotic arm.

The line described above, conceived, developed, and designed according to the specific customer requirements, demonstrates the customer-oriented approach of LAEM IMS. Every aspect of the

system has been developed in close and continuous cooperation with the customer.

In the flexible packaging industry, the converter interfaces with a customer base that requires to process materials of different kinds and with different slitting needs. Therefore, it is essential to have technologies in place that are able to meet any type of need.

LAEM IMS has a very diversified portfolio of solutions - available in twin-shaft or turret configurations - to meet a variety of requirements not only in terms of cost, but also machine compactness, automation and technological content:

- The RIBOSLIT series requires a small operating space and a limited investment. It is available in Standard, Plus and Design configurations;
- Thanks to a wide range of accessories and great configuration versatility, the RB series can process many types of materials, ensuring the production of very tight reels with high rewinding quality;
- The modular and compact FLEXISLIT slitter rewinder meets the most varied needs in terms of productivity and is equipped with winding on differential shafts; and
- The TR series, to which the TR 4 described above belongs, perfectly combines quality with slitting and rewinding speed. These machines are able to withstand significant production volumes while preserving the very high-quality standards of the finished product. ■

For more information, visit www.laem-ims.com.

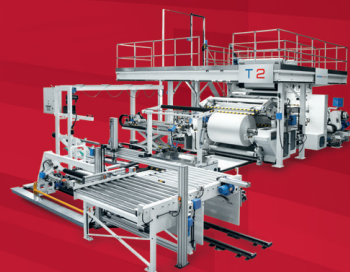
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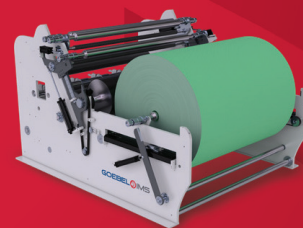
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Innovations in Converting From Mamata

With an installed base of nearly 4,800 machines in more than 78 countries, Mamata is a globally known manufacturer and exporter of plastic bag / pouch making machinery. The company designs systems that are fit for today's market needs, providing machines with improved flexibility, greater productivity, and operator friendliness, giving its customers an edge in today's competitive market.

Recently, Mamata took some time to answer a few questions from PFFC about what makes them stand out.

What two or three converting machines do you want our audience to specifically know about, and what makes them desirable?

Mamata's entire product range is desirable to the audience but if I have to pick and choose three machines, I would pick our pouch makers, Wicketers, and universal bag machines. The amount of flexibility and versatility it offers, no other machine can match that. E.g. our universal machines offers under 10 minute changeovers from side seal to bottom seal or twin seal capability. Our Wicketers offers best outputs on zipper Wicketed bags, square bottom bags, eCommerce bags, etc. The pouch machines we offer are unique in sealing technology, which allows us to run a straight mono-material PE film with same ease as a laminated film and make a stand-up or side gusseted quad seal or flat bottom pouch.

What exciting things have you done with some of your bag and pouch machines for a customer in the last year?



Mamata's Wicketers offers best outputs on zipper Wicketed bags, square bottom bags, eCommerce bags, and more.

We recently delivered a flat bottom pouch machine that is able to run a mono-material PE film and make a flat bottom pouch with or without zipper. We also enhanced speeds on our Wicketers in 2020 from 350 cpm to 425 cpm. Also recently, we introduced our new highspeed bottom seal machines to the converting fraternity giving them option to replace their old systems and enhance their productivity and add flexibility to make a wide variety of bottom seal bags.

Have you seen your machines opened up some new vertical markets if so, which ones?

We opened up the vertical of heavy-duty bottom seal bags with our new bottom seal machines. Our ability to run all PE film structures has opened up the avenues of flat bottom pouch market as well as standup pouch market. With increase of eCommerce business, we sold our Wicketers and Universal machines for making eCommerce mailer bags.

How is Mamata addressing sustainability concerns with its machinery?

We have been working in

this area since 2004. We were the first company in the converting industry to run a PE recyclable film on our pouch machines and show the world that we can offer you solutions for the sustainability and recyclability concerns of the industry. Today, Mamata machines are perhaps the only systems available in the industry that can run mono-material recyclable PE films without any special coating or treatment and convert into a pouch. When we introduced our horizontal form fill and seal pouch machines in 2011, we were the first and the only company to show the capability of running PE recyclable films on a packaging line.

The supply chain has changed quite a bit over the last year, how is this directly affecting Mamata and what processes does the company have in place to help its customers address this issue?

We are aware of disruptions in supply chain from Europe, China, other parts of the world. We are therefore building higher inventory to meet demand of the market and this has resulted in higher inventory cost.

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In 2020, Mamata enhanced speeds on its Wicketers from 350 cpm to 425 cpm.

Have new developments in machinery been developed as a direct effect of the changing needs of customers in recent years?

Our design and development program always works hand-in-hand with its converters and have come up with the solutions to address changing market needs. Any upgrade or enhancement made on our existing product range or new

introduction of product is a result of inputs from our converters, packagers and the changes happening in the market. This is what has made Mamata grow its footprint to over 85 countries globally and has more than 5000 machines working in a span of 31 years.

What new innovations can we anticipate in the near future from Mamata?

Mamata continues to work towards enhancing its existing machines to meet the current and future needs of converting industry. Our Wicketers are now rated at 425 CPM mechanical speeds. We upgraded our pouch machines to 250 cpm mechanical speeds. We enhanced our split draw roll machines to do eCommerce bags in two lanes at high speeds with increasing demand of online retail shopping. With sustainability and recyclability in the center stage now, we have seen a shift in the PET food industry, fertilizer, mulch and garden related packaging. Mamata introduced the new high bottom seal bag machines that allows heavy duty packaging to convert these bags using recyclable PE/PE films instead of PET/PE laminates. ■



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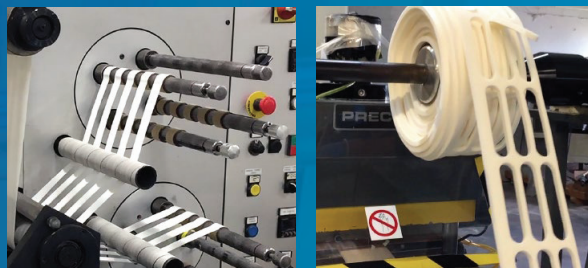
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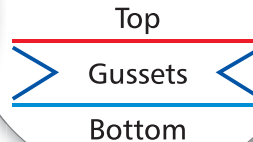
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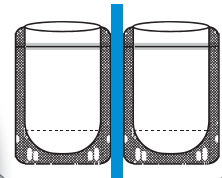
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Smart Moisture Measurement Technology for Quality Pulp/Paper Processing

Instant measurement and production line correction is enabled since calculations are performed in real-time inside the sensor and data is analyzed multiple times per second with integrated software

By **John Bogart**, Managing Director of Kett US

In a world full of “smart” devices (i.e.- smartphones, smart watches, and smart appliances), such technology is increasingly entering pulp/paper processing in forms like condition monitoring, advanced robotics, and Industrial IoT.

On the production floor, “smart” equates with the ability to continually monitor conditions

such as product and input moisture content in real-time to optimize quality. Assessing proper moisture level in products and processes is essential for many reasons such as meeting regulatory standards, ensuring proper chemical reactions and drying, maximizing shelf life and deterring mold, as well as increasing selling price and

decreasing shipping cost.

Whether pulp and paper producers are mixing, blending, homogenizing, or drying, non-contact, smart inline technology enables the rapid, automatic measuring of moisture in 100 percent of product or inputs, along with the ability to instantly fine-tune the process. This can optimize quality as well

as minimize waste and corrective re-processing.

The technology is smart because all the calculations are performed inside the sensor and measurements are sent on a 24/7 basis to smartphones, PCs, and other devices without having to be connected. If desired, these instruments can prompt operators and managers with alerts as needed. Smart technology enables taking multiple precise moisture measurements each second, sorted within integrated software. This enables not only real-time analysis and error detection, but also more accurate results in products subject to variable, fast-changing conditions and processes.

Continuous moisture monitoring by such smart technology, which is cost-effectively available for about \$10 per month when leased, also allow the tracking of historical performance trends, cyclical rhythms, and periodic failures, so corrective adjustments can be made to enhance production. Such capability also provides product quality and compliance documentation when required.

Breaking from conventional limitations

Unleashing the full potential of smart manufacturing and process technology in terms of moisture measurement, however, is not possible using traditional techniques. Conventional testing methods that require time-consuming weighing and drying are often too time and labor-intensive to be practical, and laboratory testing faces the same drawbacks.

With typical testing, by the time results come back from the lab, any off-spec product can already be processed, packaged,



NIR moisture meters allow very accurate instant measurement of solids, liquids, and slurries without contact or sample preparation.

Industry innovation has developed smart inline technology that can rapidly measure moisture in samples multiple times per second.

and shipped. If manufacturers are not measuring in real-time, inevitably there will be some variation in inputs, process, and quality.

Traditional data collection, in fact, is usually too slow, cumbersome, and chained to cords and cables. Manufacturing floors are already crowded with equipment. So, dealing with bulky cords and connections to PCs, keypads and external switches to transfer data can be too restrictive.

Fitting inline testing equipment into space-restricted

production lines can be difficult when wires, cables, etc. must be run to a variety of peripheral instruments. In such cases, the cost of labor, installation, and system integration can be as much as the device itself.

In response, industry innovation has developed smart inline technology that can rapidly measure moisture in samples multiple times per second. The approach utilizes Near-Infrared (NIR) light in a highly accurate, non-contact secondary measurement method that can deliver immediate, laboratory quality moisture readings without the labor, cost, or delay of conventional techniques.

NIR moisture meters allow very accurate instant measurement of solids, liquids, and slurries without contact or sample preparation, so there is no contamination. Once the meter has been calibrated against the lab or production standard, the calibration is stored in the device

so no additional calibration work is required, and measurements are fully traceable to the original measurement method. Because the process is non-destructive, samples remain unaltered so they can be used for additional tests or put back into the product stream.

NIR moisture and organic composition meters follow the principle that water and other organics absorb certain wavelengths of light. The meter reflects light off the sample, measures how much light has been absorbed, and the result is automatically converted into a moisture (or organic component) content reading.

Smart technology can utilize smart sensor design and enable measurement without connection

Devices with a quick response time can be used to assess extremely variable and rapidly changing products, as well as processes where quality is critical.

to controllers, PCs, or other cumbersome I/O devices. These connections enable local process control and remote integration, and converters can be available for wireless, IP, DeviceNet, and other interconnection and communications protocols.

Such connectivity not only cost-effectively eases installation, integration, and maintenance, but also enables moisture monitoring and necessary corrective action on 24/7 basis. The corrective action can be set up to be accomplished either automatically or via alert and action taken by plant operators, managers, or engineers.

Devices with a quick response time can be used to assess extremely variable and rapidly changing products, as well as processes where quality is critical. The quick response time enables faster production line rates with superior moisture measurement.

When two smart sensors are used to run different production lines at a manufacturer, the devices' real-time capability can



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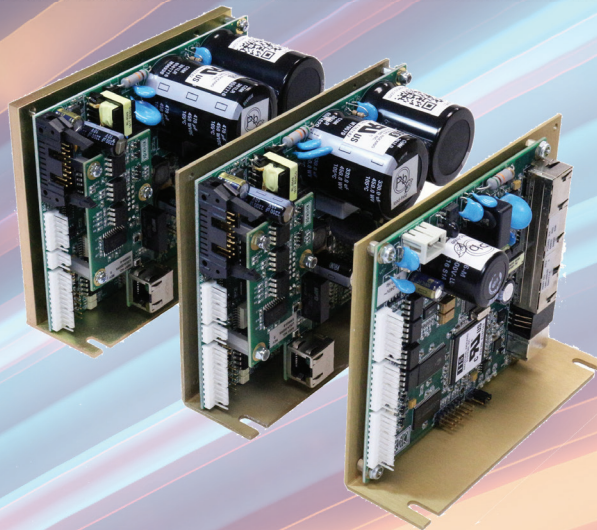
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detect periodic, wildly fluctuating moisture values that can cause extrusion processes to go out of control.

Because moisture control and temperature are closely linked, smart moisture meters also have a temperature compensation loop on the instrument and provide local temperature as part of the data output. Where ambient temperatures change dramatically, this allows simultaneously monitoring of temperature and moisture content to see if process modifications are necessary, depending on daily (i.e.- day/night) or seasonal changes (i.e.- summer/winter).

Ultimately, smart moisture measurement technology translates into superior process control, quality, and production without

Now time for industry professionals to look into the significant benefits of smart moisture measurement technology on the production line – and gain the advantage – before their competitors do.

the inherent drawbacks of slower, labor-intensive lab or batch testing.

Smart devices already dominate the consumer market for good reason and have begun to gain prominence in manufacturing and processing.

So, it is now time for industry professionals to look into the significant benefits of smart moisture measurement technology on the production line – and gain the advantage – before their competitors do. ■

ABOUT THE AUTHOR

John Bogart is the managing director of Kett US (www.kett.com), a manufacturer of a full range of moisture and organic composition analysis, coating thickness measurement, friction, wear, peel, adhesion and other surface property analyses equipment with over 60 years of experience.

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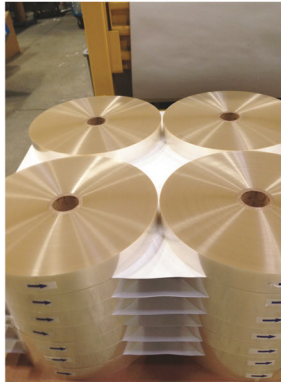
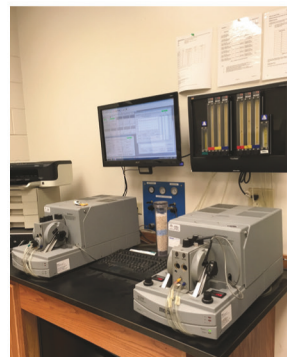
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Protecting Your Slitter Rewinder Investment

By Davis-Standard's Slitter Rewinder Team

In our previous article about slitter rewinding published in the March issue of PFFC, we discussed how to increase productivity with slitter rewinder automation for optimal performance, material savings, and better products. We described key features of slitter rewinders to consider based on your process. This article goes a step further by outlining how you can best protect your slitter rewinder investment from inevitable wear and tear.

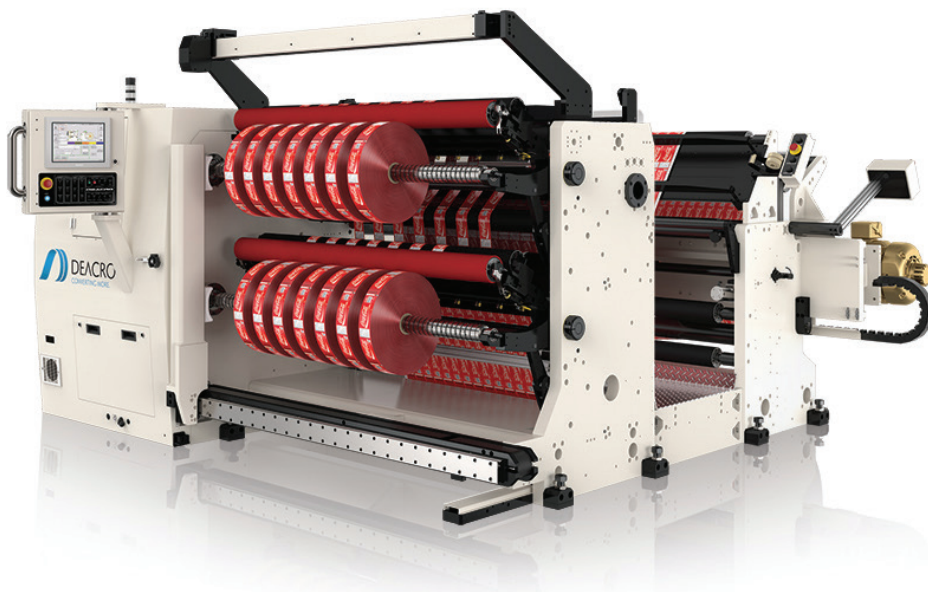
In a dynamic packaging market that demands shorter runs, more frequent tool changes, and multiple substrate requirements,

increased equipment stress is just part of the deal. Slitter rewinders are also built to run at high speeds with frequent cycles. Parts such as brakes, nip rollers, belts, motor drive systems, etc., get an intense workout daily. And then you have electronic components such as controls and touch screens; they need maintenance too.

The bottom line? Preventative and ongoing maintenance is essential, and there's no way around it. Not only does this help you get the most out of your slitter rewinder, but it protects the quality and integrity of your

products. Improved productivity and profitability, more consistent processing, reduced downtime, and the list goes on and on. That adds up quickly!

The good news is, configurable cloud-based platforms are now available to make maintenance and production goals easier. Platform engines deploy analytical tools based on long-term cloud data storage and process technology algorithms to help management and production teams identify and improve product quality and efficiency of equipment. So instead of



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wondering what needs to be done with your slitter rewinder or risking the possibility of a break-down during a production cycle, digital transformation technology provides valuable knowledge on an ongoing basis.

By taking advantage of advances using IIoT, your slitter rewinder and other equipment components can be continuously monitored by a secure, cloud-based system. The real-time operating data includes KPIs (Key Performance Indicators) from the production line PLC or SCADA system, which is sent to a secure server within the plant. The server collects, buffers, and encrypts data before sending the information through a secure firewall.

The production line information can be accessed remotely from anywhere using your smartphone, tablet, or PC with a secure internet connection. And voila! You have improved connectivity, unlimited storage and access, equipment and production line scalability, and real-time analytics. All geared toward improving your bottom line.

To give you an idea of what should be monitored on your slitter rewinder, we've put together a modified list of common items that need your attention, along with basic guidelines. Please reference the manual that came with your slitter rewinder for a complete listing of maintenance items and frequency of service.

Idlers: Monthly

- Check to see if idlers run freely and quietly.
- Verify the condition of the covering. Replace or clean as required.
- Ensure bearing screws are tight and that idlers have not shifted.

Bowed Roller: Every Three Months

- Make sure it is running smoothly at high speeds, that the sleeve has not separated from the bearings, and that the bowed roller has not shifted laterally - causing a drive belt misalignment.

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WHAT'S NEW AT ICEC USA?

CO-LOCATION WITH AIMCAL's R2R CONFERENCE ICEC USA will be co-located with AIMCAL's Roll 2 Roll Conference (R2R) in October at the Orange County Center in Orlando, Florida. The R2R Conference has been a champion of roll-to-roll processing, and the converting industry for many years and has steadily grown by delivering solid technical programming and valuable networking opportunities to attendees.

RETURNING TO ORLANDO Now under new management by leading global events organizer Reed Exhibitions, ICEC USA will return to the OCCC in 2021! The OCCC is leading the way to provide safe events and you can view their health & safety guidelines and the ICEC USA guidelines at our website: www.convertingshow.com

NEW FALL DATE PATTERN In a strategic decision that creates greater timing between June's Munich event, ICEC USA's move to Fall will allow manufacturers, suppliers and buyers an opportunity to attend both events and stay more aware of innovation and best practices throughout the year.

VIP BUYER PROGRAM ICEC USA will introduce a hosted buyer program that will identify key decision makers with open projects who are actively looking to purchase new products and services at the show.

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- Check the drive assist belt for tension and wear, and replace as needed.

Drive Train: Every Three Months

- Inspect all drive belts for proper tension per your datasheets, including excessive wear and alignment problems.
- Check the alignment and condition of the nip roller. There should be adequate contact with the driven roller at the ends and in the middle.
- Check for excessive wear and coating integrity of the driven roller, and clean as needed. This includes checking for run-out and vibration.

Slitting System: Frequently

There is a lot going on with the slitting system! Some items need to be checked weekly, while others, such as position system functions, knife settings, and alignment of knife shafts, can be checked every three months. Following are items that need to be checked weekly.

Mechanical, Shear, Razor:

- Check shear holders for adequate clamping on the dovetail and the condition of the shear blades.
- Ensure knife spindle bearings are in good condition with proper angular clearance.
- Check the lower shear knives for sharpness and damage.

- Change razor blades as required.

Score System:

- Check score knives for wear and replace as needed.
- Ensure adequate cutting pressure.
- If there is excessive wear or grooving on the score anvils, replace as needed.

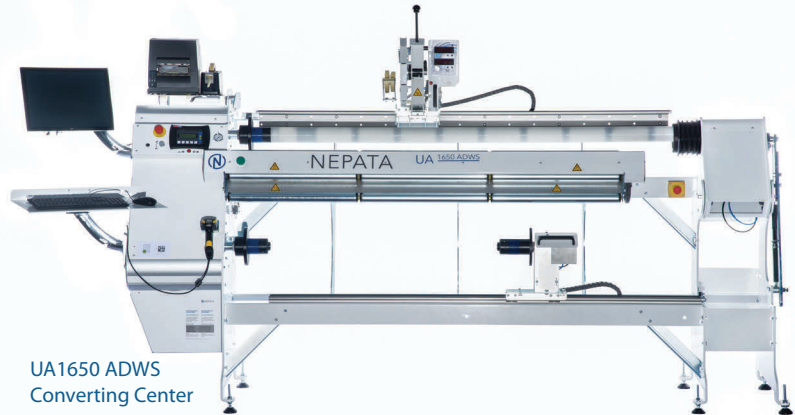
Knife Position Feedback Devices:

- Calibrate the home position and verify accuracy of the read-out.

Lay-on: Monthly

- Ensure proper clamping by checking mechanical systems.

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- Identify any damage and check bearings for smooth operation.
- If applicable, check the servo drive components for excessive wear.
- Every six months, be sure to lubricate pivot points and grease the actuator gearbox and actuator rods.

Support Arms: Every Three Months

- Check for proper alignment, lubricate various pivot points, and the sliding barrel latch. Confirm arm side-play for the main pivot joint is minimal.

Rewind Shafts: Every Three Months

- Inspect the shaft alignment and adjust as needed.
- Check for shaft damage and evidence of overload.
- Make sure the fit of the removable end support pin has sufficient clearance.
- Replace the locking set screw for correct torque transfer through the hex socket.

Roll Lock Tooling: Frequently

- At least monthly or weekly, remove and clean the tooling of residue and core dust. Re-oil according to your equipment's recommended procedures.
- Every week, check and re-oil the driving felts and replace them as required.

Shaft Supports: Monthly

- Check for proper function and alignment.

Once again, reference the manual that came with your slitter rewinder to ensure you are doing everything possible to maintain and/or strengthen performance. We also encourage you to look into digital transformation options that could replace the manual work and time required to protect not only your slitter rewinder investment but the rest of your equipment. Smart manufacturing is the path forward in better efficiency, improved performance, higher quality products, and long-term sustainability. ■

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Non-Contact Laser Gauges Pave the Way for Higher Accuracy Length and Speed Measurements at Converting Plants

Precision speed and length measurements are critical for controlling manufacturing production costs and improving process control.

By **Jerome Dapore**, Technical Product Manager at NDC Technologies

More than ever before, converters are being pressured to deliver higher quality products faster while continuously reducing production costs in order to remain economically competitive. But this is not so easy if you're using a contact-type measurement system to control the length and speed of web-based products. A contact gauge with inaccuracies as much as 2 percent can cost your organization a significant amount of money in unnecessary expense due to product give-away, waste, maintenance and system downtime.

This has led manufacturers to look at non-contact laser measurement techniques to accurately monitor the length and speed of products in converting applications involving continuous length measurement, differential speed control, cut-to-length control and product positioning,

to name a few. Non-contact laser measurement technology is enabling converters to realize real production gains by significantly reducing measurement errors and improving process control.

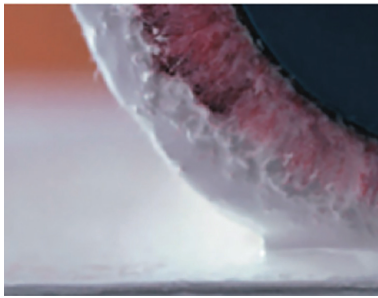
Demanding production environments pose real measurement challenges

Depending on the application, converting plant environments can be very tough on measurement devices used to control processing operations. Currently, most length and speed measurements are made using contact methods such as tachometers and wheel/roller encoders. All contact length and speed measurements are indirect measurements relying on physical contact and friction between the product surface and another surface which turns an encoder

that increments a counter. Length is calculated from the amount of rotation of the contact wheel as measured by an encoder. However, contact wheel encoder systems by their very nature have several fundamental flaws that make them prone to measurement errors. These include:

- The amount of slippage or jitter between the wheel and the measurement surface;
- Day-to-day wear of the contact wheel, causing the radius to change; and
- Build-up of product material, debris or other material between the wheel and product.

Also, many products are marked, scored or creased by the contact of a measurement device, possibly resulting in damaged product.



Typical contact length and speed measurement methods are problematic.

In general, most contact wheel encoder systems provide a length error of 0.5 percent or higher; greater than 1.0 percent error is common. A contact encoder attached to the drive roller or capturing pulses off the drive roller encoder has the same problems. From a quality standpoint, contact tachometers have the potential to mark the product, thereby creating a defect. From a maintenance perspective, contact measurement systems require periodic calibration and service. The ideal length and speed measurement technique is a non-contact method that directly measures the material length and speed.

Non-contact approach eliminates errors

Non-contact length and speed measurement systems avoid the measurement pitfalls encountered by mechanical contact systems. For example, non-contact encoders use a unique, laser-based measurement technique that does not make contact with the product. How it works is that the laser velocimeter encoder projects a unique laser-based pattern on the surface of the product. As the product moves, light is scattered back to the instrument. This information is translated into product speed and pulses are produced to determine

the product length. In many cases, non-contact laser encoders can measure any type of product, regardless of color, shape or texture. Length and speed measurements are captured with high accuracy and repeatability.

Common measurement applications at converting plants

Non-contact laser encoders have been successfully used in a wide range of industries for a broad scope of length and speed measurement applications. The following illustrates some challenging length and speed applications where manufacturers were able to improve process control and realize production savings.

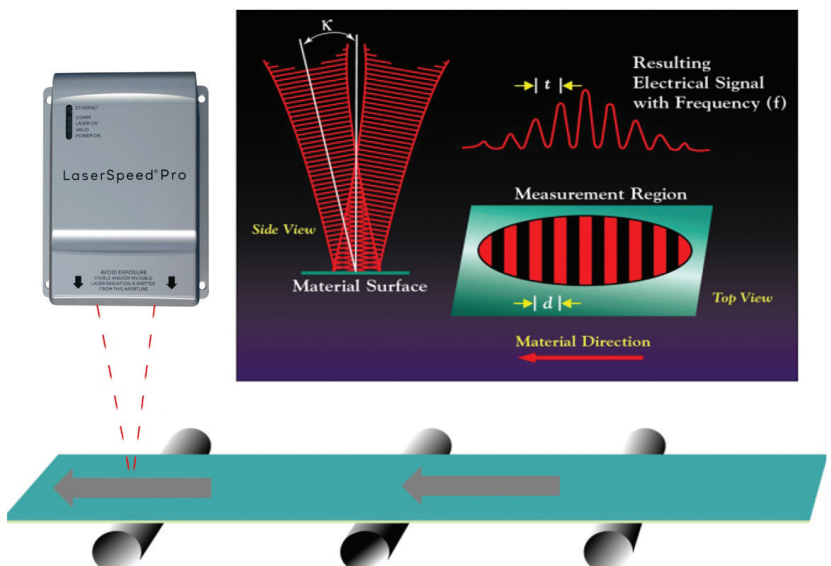
Continuous length at slitter/rewinder

A manufacturer of sanitary products had problems with

inconsistent length measurements at the slitter/rewind station. The installed mechanical encoder wheel experienced slippage errors of up to 2.5 percent caused by lubricants on the product. The slippage errors produced a product length longer than the target length. This resulted in shipping too much product to customers. By installing the non-contact laser encoder, the manufacturer reduced the length error by greater than 2.0 percent, saved approximately \$40,000 per year and realized a ROI in less than three months.

Cut control in corrugated packaging

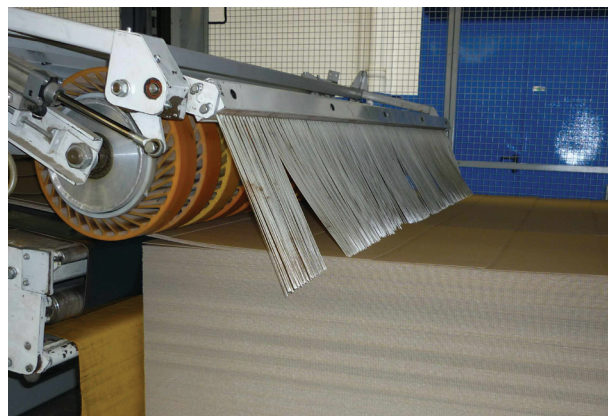
A manufacturer of corrugated boxes needed to accurately control the speed of product during normal production and “tail-out” situations. Slippage from contact encoders and “out-of-calibration” pull rolls created variances in the cut which ultimately resulted in material



Non-contact laser encoders, such as NDC Technologies’ LaserSpeed Pro, measure product length and speed with better than +/-0.03 percent accuracy and +/-0.02 percent repeatability.



LaserSpeed Pro non-contact laser gauge at slitter/rewinder in sanitary product manufacturing plant.



Corrugated box plant accurately measures board speed and reduces scrap.

scrap. By using a non-contact laser encoder to accurately measure the actual board's speed as the product enters the cutting knives, the speed signals from the unit provided the control system with precise pulse

counts to control the cross cutter. This accuracy helped to significantly reduce scrap and increase product quality. The company realized savings greater than \$200,000 per year.

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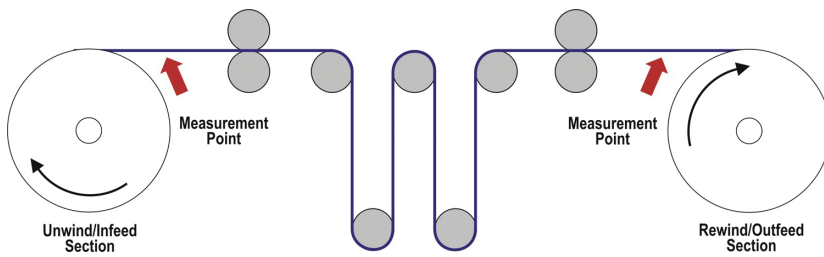
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Placing the non-contact laser encoder at two different measurement points accurately monitors the differential speed.

draw down or stretch products to very specific and accurate thicknesses. Most manufacturers depend on the accuracy of their drive speeds or contact encoders. Products typically exhibit a certain amount of slippage on the drive roller based on texture, product composition or tension at other points on the line. A contact encoder attached to the

drive roller exhibits the same problems. A contact encoder riding on the product reveals wheel wear, slippage and calibration issues. Placing one non-contact laser encoder at each critical measurement point along the line enables the manufacturer to accurately determine the amount of stretch or draw down of the product.

The future for converters looks laser bright

Converters across a spectrum of manufacturing sectors now have a high-precision measurement solution for their production needs. The advantages of non-contact laser length and speed measurement has been proven on all types of applications including continuous length, cut control and speed control, to name a few. This advanced and affordable technology eliminates the measurement errors associated with contact wheel tachometers and drive systems as a result of slippage and mechanical wear. Non-contact laser measurement gives converters the competitive edge, enabling them to control product quality while realizing significant production savings. ■

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PACK EXPO Las Vegas at a Glance

Live, in-person technology in action for the first time in 18 months is just one of the many features of PACK EXPO Las Vegas and Healthcare Packaging EXPO, taking place September 27-29 at the Las Vegas Convention Center. Show producer PMMI, The Association for Packaging and Processing Technologies, plans to reunite the packaging and processing community with over 1,500 exhibitors, targeted, world-class education and countless networking opportunities spread across four expansive halls at the Las Vegas Convention Center.

“Registration is already exceeding expectations, and we anticipate well over 20,000 packaging and processing professionals in attendance this September,” said Jim Pittas, president and CEO, PMMI in July. “These numbers indicate an industry eager and more ready than ever to get back together. With thousands of attendees from CPGs and pharma companies already registered to attend and 1,500 exhibiting companies, this



September 27-29, 2021
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is the one place that will unite the entire industry this year.”

A few pavilions include the PACKage Printing Pavilion, showcasing the latest in cost-effective digital printing solutions; The Containers and Materials Pavilion, displaying the latest in new recyclables and bio-based materials, printable films, flexible, resealable and plant-based packaging; The Reusable Packaging Pavilion: sponsored by the Reusable Packaging Association (RPA), highlighting sustainable packaging solutions and the Confectionery Pavilion, home of the Candy Bar Lounge, sponsored by Syntegon Packaging Technology and hosted by the National Confectioners Association (NCA).

The brand-new PACK to the Future exhibit takes attendees on

a journey through the evolution of packaging and processing, how the industrial and scientific revolutions led to rapid innovations and mass production and how the digital revolution is shaping the future. This curated exhibit includes nearly 30 historic packaging and processing machines dating from the late 1890s to the late 1970s with imagery supplied by museums and instantly recognizable consumer packaged goods brands including Coca-Cola, General Mills, Kellogg, Hormel, Anheuser-Busch and Merck.

The Technology Excellence Awards allow attendees to recognize and vote on innovative exhibitor technology new to PACK EXPO Las Vegas and Healthcare Packaging EXPO. Winners will be announced at the show on Tuesday, Sept. 28. Additional packaging award winners from the past year-plus will reside at The Showcase of Packaging Innovations®, sponsored by WestRock, and located within The Containers and Materials Pavilion.

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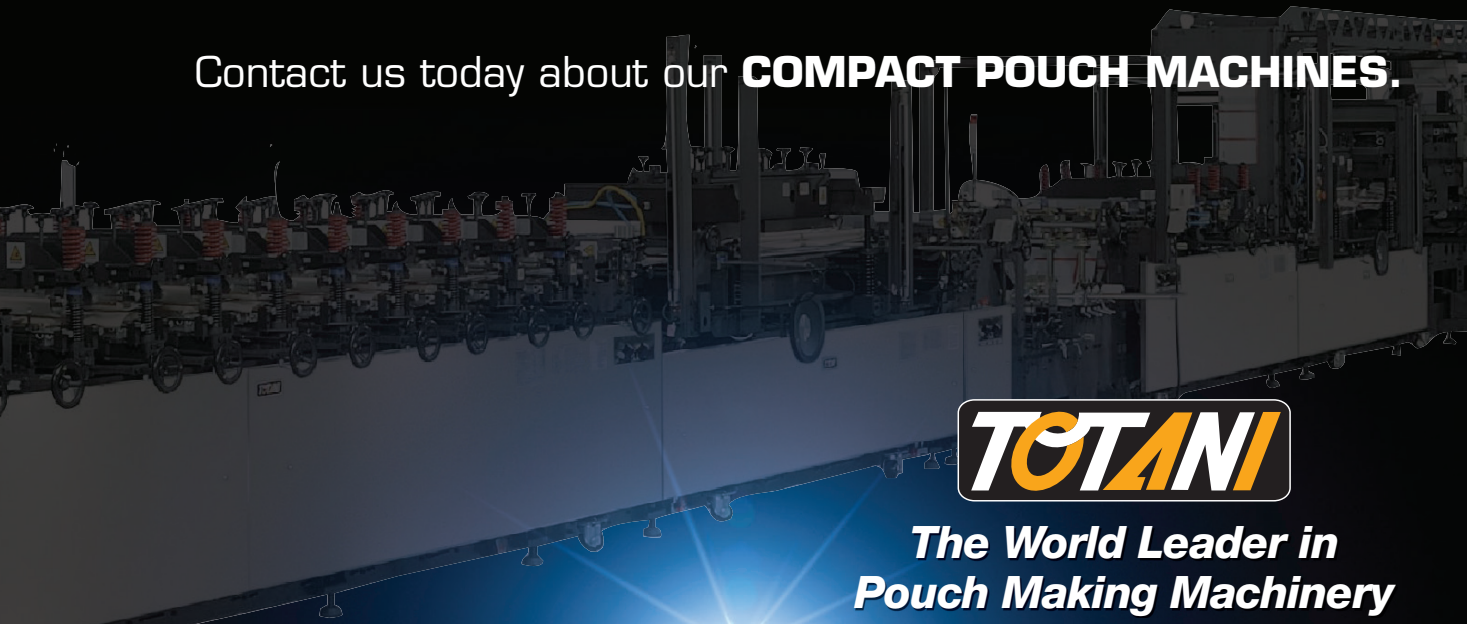
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Education is a hallmark of any PACK EXPO event, with PACK EXPO Las Vegas and Healthcare Packaging EXPO once again featuring free 30-minute exhibitor-hosted seminars on breakthroughs and best practices at The Innovation Stages. The Forum offers free, 45-minute learning sessions on the latest industry trends, including hands-on activities, small group discussions and Q&As with leading organizations like the OpX Leadership Network, CPA, the Association for Contract Packagers and Manufacturers, The Organization for Automation and Control (OMAC) and PMMI Business Intelligence. Attendees can also learn the latest trends and benefits of reusable packaging in the Reusable Packaging Learning Center.

To keep track of all the new additions as well as old favorites, attendees can use My Show Planner to check the schedule of booth activities, add education sessions, plan routes around the show floor and even schedule meetings in advance with exhibitors to maximize time in Las Vegas.

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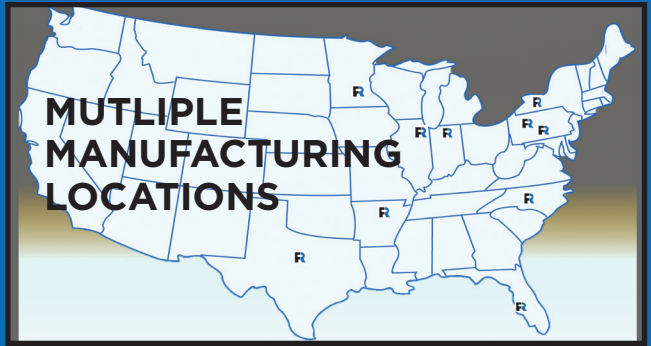
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