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18

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EXTRUSION COATING TRENDS **6**

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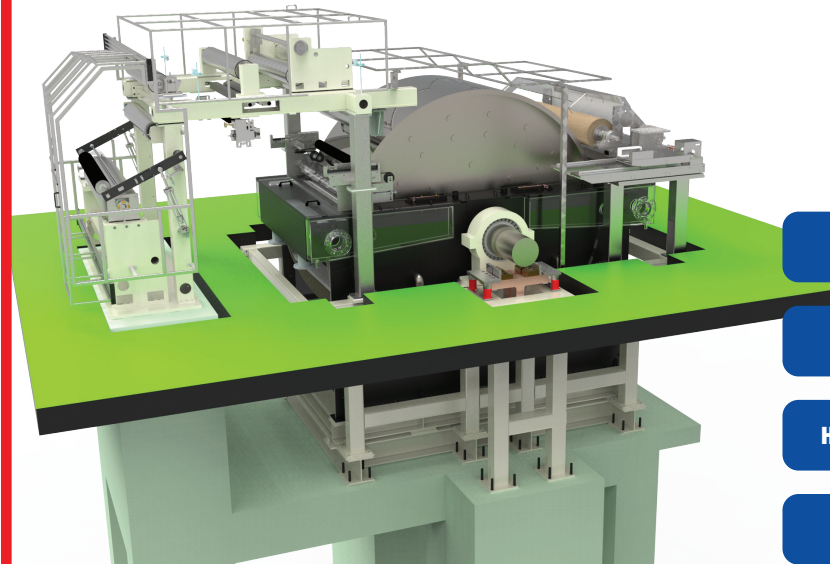
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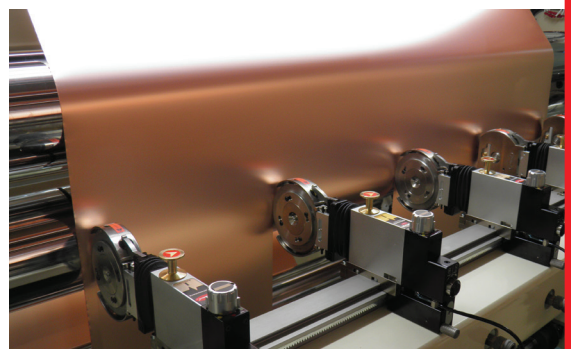
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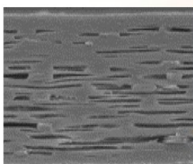
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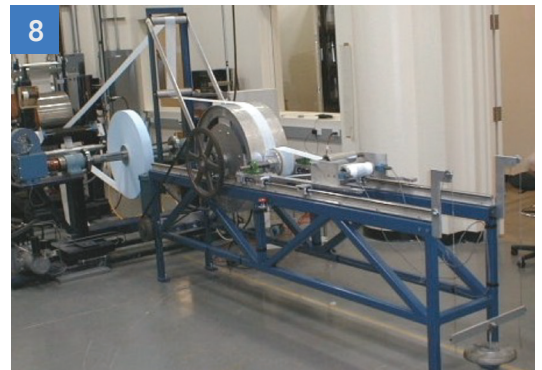
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Joint Resolutions



Angel Morris
Editor

I call myself a planner. Others call me a worrier. Either way, I drive myself nuts with an inability to enjoy the here and now. I can't complete one task before looking to the next. That makes January the perfect month for the planner in me, as I worry with what my perfect resolutions should be.

Of course, I'm not alone in resolution-making this month. Research suggests the tradition began 4,000 years ago in ancient Babylonia, when natives vowed to pay their debts and return things they had borrowed in order to win favor with the gods. The tradition continued in Rome, with emperor Julius

Caesar dubbing January 1 the start of the new year in 46 B.C., when Romans promised good behavior and made sacrifices to Janus — the god of beginnings.

By the mid-1700s, English clergyman John Wesley had started the Covenant Renewal Service, typically held on New Year's Eve or New Year's Day, when Christians would resolve to learn from past mistakes and vow to do better. Today, some churches pray about resolutions on New Year's Eve in "watch night" services.

Despite religious roots, resolutions are now mostly promises people make to themselves. In this issue, our experts offer flexible packaging tips you might resolve to consider this year, plus a summation of filmic substrates to help you better understand the role of corona in flexible packaging lamination. Gaining knowledge is always a great resolution!

At *PFFC*, we look forward to sharing trends that may make your promises to customers easier to keep in 2023. And if you would like to join us by submitting a thought leadership piece to that end, we'd love to hear from you: angelm@rdgmedia.net. Happy New Year!

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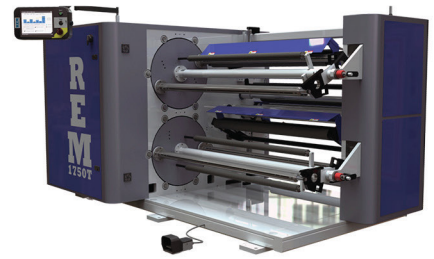
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Three Ways Water-Based Primers are Advancing Extrusion Coating Trends in the Flexible Packaging Industry

By Jeffrey Siegel, President, Mica Corporation



Recycle Ready PE Pouch

The COVID-19 pandemic has changed the way that people around the world live, work and shop. As a result, trends and technologies in packaging are shifting. According to a McKinsey insights report¹, a dramatic shift to online shopping, increased global packaging waste regulations and consumers' concerns about sustainability have been heavily influencing packaging trends since 2020. In response to these trends, the industry is working hard to develop affordable multilayer packages that are ecommerce-friendly, can withstand the product's full lifecycle and contribute to a circular economy.

Not an easy task, to be sure. But if converters want to stay competitive and successfully navigate through this disruption, they will need to be creative and collaborate with companies at every step in the supply chain. Even smaller components of the package, such as water-based primers and coatings, can make a significant impact in the performance and lifecycle of a

package. Here are some ways that converters are using water-based primers and coatings to meet these trends and consumers' demands.

Primers and Coatings can Promote Adhesion and Increase Barrier Properties in Multilayer Recycle-Ready Packaging

If a package is made from a mono-material such as polyethylene or polypropylene it is considered recycle-ready, and can, at least in theory, be recycled with other single-use plastics, such as grocery bags, at a store drop-off location. In addition, these mono-material packages are durable, chemically resistant, lightweight and relatively inexpensive. They can help minimize food waste by extending shelf-life and the fact that they are thin and lightweight makes them easy to ship, thus reducing carbon. So why isn't every converter switching to recycle-ready packages?

Mono-material pouches and packages are ideal for certain products, like fruits and vegetables, but may not be able to afford the barrier or containment properties necessary for aqueous, acidic or oily foods. To enhance oxygen, water or vapor barrier properties, another material often needs to be incorporated to meet the specifications of the consumer and CPG brand. Adding a primer or coating can provide the needed functionality without affecting recyclability.

Primers can Enable Compostability or Recyclability in Paper and Bio-Based Packaging

In recent years, compostable materials such as paper and bio-based resins have increased in popularity among extrusion coaters. However, many converters face the same issues that recycle-ready adopters are trying to overcome. A single layer of compostable paper or bio-

degradable PLA or PHA film will rarely have the barrier properties or the product chemical resistance to withstand the product's entire life-cycle or protect the contents for the duration of its intended shelf-life. Adding in other components to increase barrier properties is not only an added expense, but if the barrier or protective layer that's added in has not passed stringent compostability testing, such as the ASTM D6400 for industrial composting, it can significantly slow down or totally impede a company's ability to obtain compostability certification.

Some converters have been able to create multilayer packages that compost in industrial facilities with the help of commercially compostable adhesion promoters, primers and coatings. Additionally, the development of new specialty resins and coatings may help to accelerate this trend. These specialty resins can be extruded onto paper or paperboard to significantly improve barrier performance and puncture resistance without negatively impacting the recycling stream. Converters have found that applying a layer of water-based primer onto the paper before extrusion coating some of



Compostable Cup

these polymers enhances fiber tear without negatively affecting end-of-life plans for the package.

Primers can Aid in Material Reduction to Promote Sustainability and Reduce Costs

Rising costs of materials, supply chain disruptions and shortages are wreaking havoc in every step of the packaging supply chain. As a result, many converters are looking for ways to use alternate materials that are less expensive or reduce the number or thickness of layers of materials used in the structure. This

is especially important for e-commerce packaging, as it needs to be disposed of responsibly and ship sustainably. Downgauging materials to make the packaging lighter can significantly help reduce carbon expenditure. Applying a thin layer of a water-based primer can improve certain functional properties, which can help produce a thinner, more cost-effective package. ■

1 <https://www.mckinsey.com/industries/paper-forest-products-and-packaging/our-insights/2022-and-beyond-for-the-packaging-industrys-ceos-priorities-for-resilience>

ABOUT THE AUTHOR

Jeffrey Siegel is President of Mica Corporation and has been involved with the flexible packaging industry for more than 35 years. He has been a key driver in the success of water-based primers and coatings used in flexible film converting and has been a featured speaker at industry events in the U.S., Europe and Asia. Siegel served as Chairman of TAPPI's board of directors from 2004-2006. Mica Corporation is the world leader in water-based primers and coatings for flexible packaging and other applications. With headquarters in Connecticut, Mica has global distribution supported by sales offices on four continents.

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Winding: Part 3

Tension, Nip and Torque

By **Neal Michal**, Principal, Converting Expert, LLC

Winder TNTs are the key to winding a good roll. TNTs stand for Tension, Nip and Torque. Tension is the force in the plane of the web. Nip is the force applied against the building roll. Torque is an optional third parameter and is specific to the type of winder.

Tension is the most important factor for most winders. Nip is a close second for most materials. Torque will often extend the useful range of a winder.

A center winder only has tension. A lay on roller adds nip load to a center winder. By definition any surface winder will have both tension and nip. A surface winder with center wind assist adds torque to the coreshaft. Sophisticated belted reels use all three TNTs to build large rolls with consistent properties. Now, let's take a closer look at each TNT.

Tension

The three most common methods to establish tension is closed loop control using load cells, open loop control using an air loaded dancer, and draw (velocity) control. Although not common, some winders run to a defined strain to control web registration. Older paper machine reels often use motors running in torque mode.

One should calculate tension

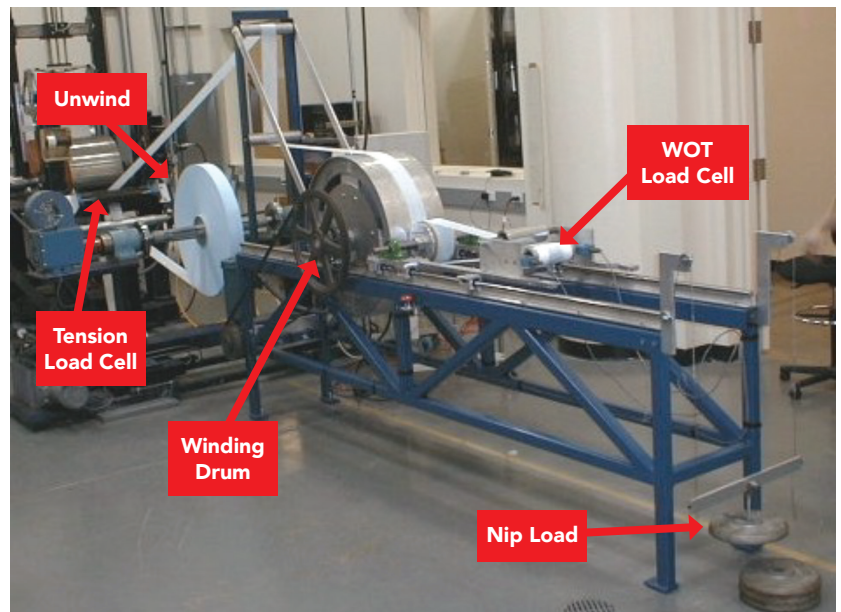


Figure 1 WOT Winder

if no load cells are in place. For a dancer system, solve for the force in the plane of the web based on cylinder area, air pressure and mechanical geometry. In order to calculate tension for draw control (or defined strain), one must have strain entering the winder and material modulus. Tension can be calculated for an older reel based on applied torque, gear train, friction losses and drum radius. Refer to my previous PFFC series on material testing regarding modulus and the equations required to calculate tension.

Nip

“Nip” implies nip load. It is important to understand how the nip load is generated. There are several ways to provide nip load. It is best to sketch the process out and turn it into a statics diagram. One must solve for the force that is perpendicular to the building roll. Some OEMs do not provide the information required to calculate nip. Pressure in psi or nip loading in percent full scale is not nip load. One may be required to install pressure gauges or take direct mea-

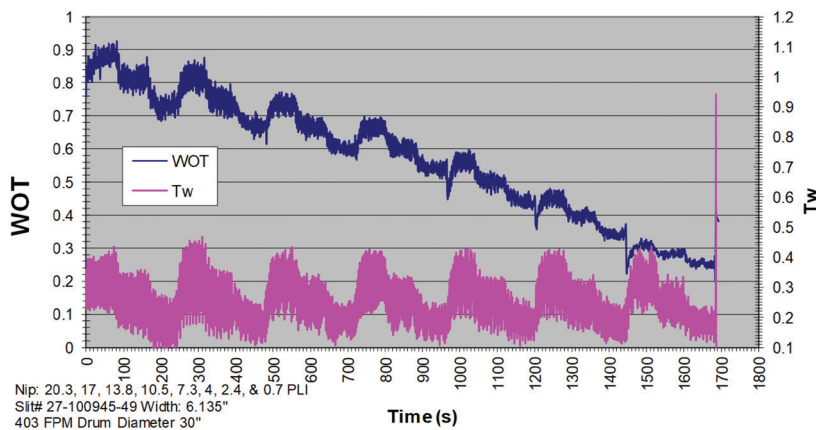


Figure 2 WOT Raw Data

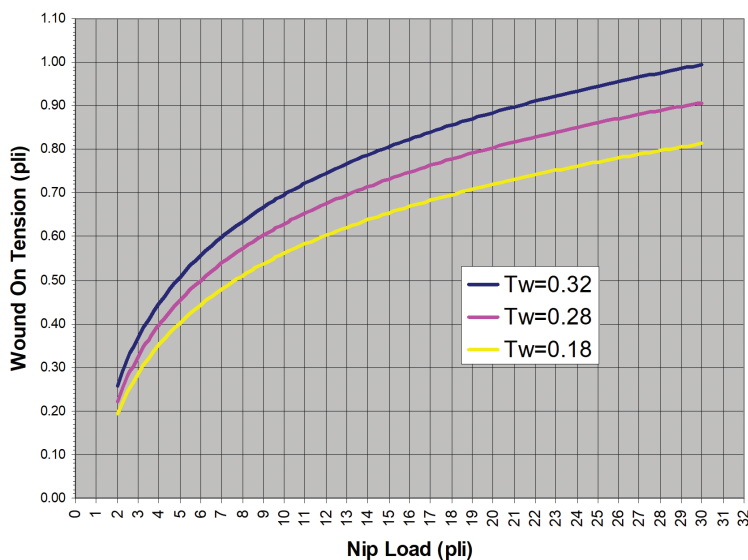


Figure 3 WOT Graph

measurements with load cells or in line force transducers. Please consider safety when documenting nip load on a commercial winder.

Torque

Torque is the force that can cause an object to rotate about an axis. Torque for a center assisted winder is straight forward. Document how much torque the motor applies to the coreshaft. If your winder uses magnetic particle clutches one will

need to calculate torque based on the excitation voltage or current. If your winder uses differential shafts, one will need data from the OEM in combination with roll weight, percent slip, core width and dynamic coefficient of friction between the core and the shaft.

Wound On Tension "WOT"

Wound on tension or "WOT" is the combination of the TNTs that are being used. WOT is the ten-

sion in the outer lap entering the building roll. Dr. David Pfeiffer pioneered the use of a single drum pilot winder to measure WOT in the 1960s. Dr. Keith Good significantly extended this work at the Web Handling Research Center (WHRC). The WHRC WOT winder is shown in Figure 1. The author has conducted WOT studies on more than a dozen materials.

In both cases (Pfeiffer, Good) the combined effect of both tension and nip can be directly measured with load cells. Once the WOT winder is set up for a given material, a series of tests are made while tension and nip load are varied. Figure 2 shows how WOT varies as a function of six decreasing nip loads (20.3 → 0.7 pli) with three tension levels (0.32, 0.28 & 0.18 pli).

Figure 3 summarizes this data using intrinsic units of pli. The three curves represent high, medium and low tension. Note the wide array of settings where the process can be configured. Tension and nip work together.

Note that figure 3 is specific to one drum diameter, drum to web COF, and web COF.

The shape and magnitude of the graph will change as those parameters are altered.

Wound On Tension – Application

Using this info, the following combinations will provide the same Wound On Tension.

$$\text{Tension } 0.32 \text{ pli} + \text{Nip } 7 \text{ pli} = 0.6 \text{ pli WOT}$$

$$\text{Tension } 0.28 \text{ pli} + \text{Nip } 9 \text{ pli} = 0.6 \text{ pli WOT}$$

$$\text{Tension } 0.18 \text{ pli} + \text{Nip } 12 \text{ pli} = 0.6 \text{ pli WOT}$$

One can also determine what happens when tension or nip vary independently. Two real world examples will be provided. Assume Figure #3 applies for both cases.

Center Winder with Lay-on Roller

As the turret indexes forward it is common to see tension increase due to the change in length. That is why one will see a visible signature near the outside of the roll. Assume nip load is constant at 10 pli. Assume tension increases momentarily from 0.18 to 0.32 pli. WOT will increase from 0.55 to 0.70 pli. That represents a 27 percent increase.

Surface Winder

It is common to see double nip loading during the handshake between the first and second wind positions. This results in a “winder signature” which is a visual defect but can cause converting issues if your customer runs to the core. Assume tension is held constant at 0.18 pli. Assume nip loading momentarily spikes from 3 to 6 pli during the handoff from the first to second winding position. WOT will increase from 0.30 to 0.42 pli. That represents a 40 percent increase.

In closing, controlling the TNTs is key to building a good roll. Tension and nip work together. Every winder has known limitations based on their design and how they are controlled. It is

important to determine what the actual tension, nip and torque will be for the entire duration of the winding process. If you control your TNTs, you will improve delivered quality to your customer.

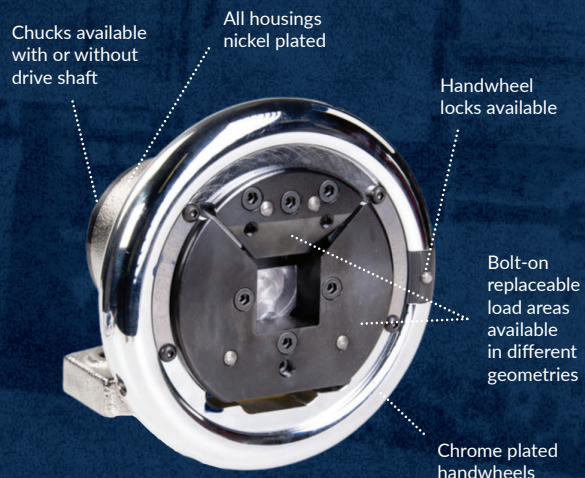
Stay tuned for Winding Part 4 where we will discuss best practices that will improve productivity, safety and delivered quality. ■

ABOUT THE AUTHOR

Neal Michal of Converting Expert is a well-known authority in web handling, process design and optimization. He worked with the Web Handling Research Center for 20 years. Currently serving as a technical advisor with AIMCAL, he can be reached at neal@convertingexpert.com or through www.convertingexpert.com.

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The Role of Corona in Flexible Packaging Lamination Requires an Understanding of Filmic Substrates

By Kirsten Lykke, Consultant in Polymers & Flexible Packaging Technology, Vetaphone A/S

The Basics

All flexible substrates require two basic principles for high-quality lamination: high bond strength and no optical defects. To appreciate this, you need to understand the construction of the material being used to make the end-product, which often consists of several layers of different films (Figure 1).

Each of the layers has a role to play, whether it be sealing, providing rigidity and strength for high-quality printing or stiffness for good barrier properties to keep aroma in, but water vapor, oxygen and light out. Ensuring that all these layers 'stick' together securely will be layers of adhesive to give the final laminate the bond strength it requires — and all this is contained in a thickness of less than 100 micrometers.

Lamination can be achieved with and without solvents, and both methods have advantages and disadvantages (Figures 2 and 3). Solvent-base lamination is typically used for retort applications or for very aggressive filling goods. Its higher initial tack minimizes the risk of telescoping, so it is

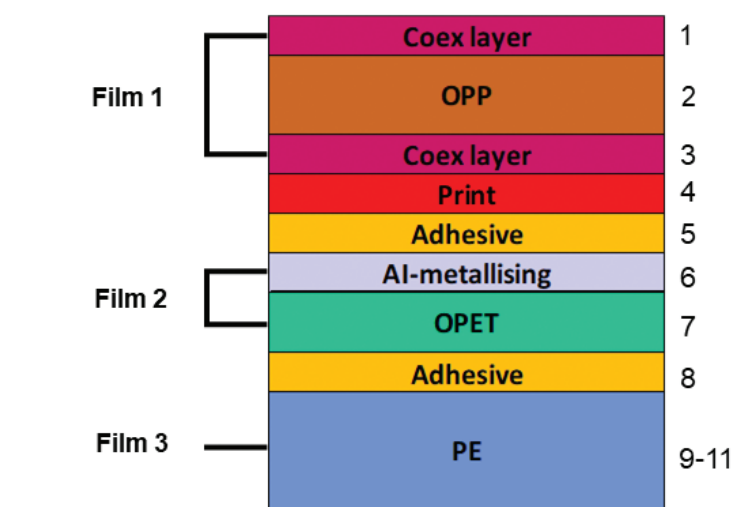


Figure 1: Multi-layer coffee pack laminate

not necessary to adjust the web tension and winding profile.

Solvent-based adhesive has a longer 'pot life' and allows a higher weight of application, allowing you to judge final optics immediately after lamination. The benefits of solvent-free lamination are zero solvent cost, zero energy requirement for drying, zero solvent residuals, a lower CO₂ index and significantly, a lower investment level required for the capital equipment involved.

Adhesion and Cohesion

Often confused and therefore misused, the two terms mean something different. Adhesion is the attraction of different molecules; cohesion is the attraction of identical molecules. For example, adhesion is the attraction of the glue to the film; cohesion is the attraction of the glue to itself.

Bond strength is vital, so when it falls below 1.0 N/15mm, you need to look for the reason. If

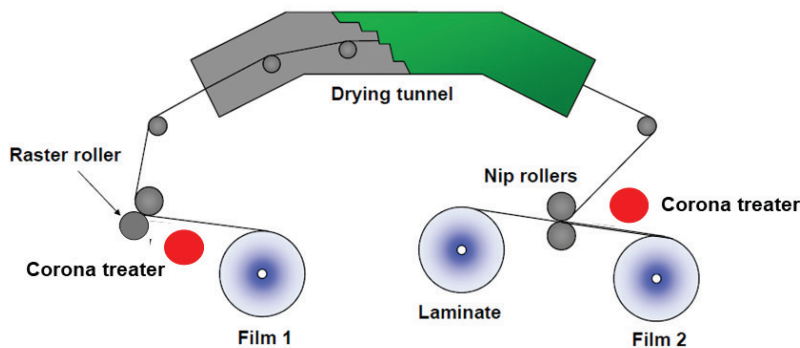


Figure 2: Solvent-based lamination process

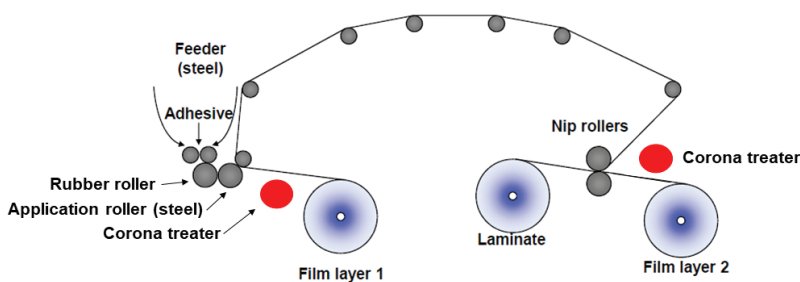
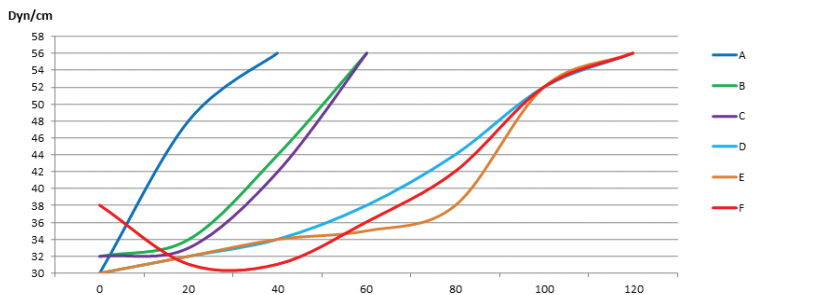


Figure 3: Solvent-free lamination process



A: Fresh PE with low level of slip agents
B: Aged PE with additives migrated to the surface
C: Aged PE with additives migrated to the surface
D: BOPP
E: BOPP with additives migrated to the surface
F: Top-coated BOPP with additives migrated to the surface

Figure 4: Corona treatment of films

the adhesive or ink are separating from the film, it's an adhesion failure often caused by poor wetting of the film surface, due to low surface tension, set off or other impurities on the surface. If there is a cohesive failure in the adhesive, look for an incorrect mixing

ratio of the adhesive and residual solvents from the ink reacting with the adhesive (only if mirror printed). If there is a cohesive failure in the ink, it can be due to the adhesive viscosity being too high, which means the adhesive will not penetrate the ink properly.

Understanding Films

All films have a natural surface tension ranging from 29 to 43 Dyne/cm. Corona treatment can raise these to 40 or even 54 Dyne/cm, which allows improved wetting. But the surface tension of the films can be negatively influenced by impurities on the surface and vary from film to film. They occur when slip additives and processing aids migrate and when there is set-off from the inks and coatings. Corona treatment cleans the surface by modifying its chemical composition and allowing more oxygen molecules to change the functionality of the film. This boosts surface tension and allows better adhesion.

Different film materials have different properties and therefore different behavior. Figure 4 shows the various Dyne levels achievable, and the different levels of power required to reach these levels with the different films. It is important to know how to attain a certain Dyne level with each film.

Using PE as an example in both fresh and aged form, we can apply the formula: $P = W \times S \times M$, where 'P' is the power required in Watts at the Corona station, 'W' is the web width in meters, 'S' is the running speed in m/min and 'M' is the material factor. So, running a 1.2m wide web at 250m/min with a material factor for fresh PE of 10W/min/m² you will require 3000 Watts of power. Whereas a similar calculation for aged PE would be 1.2m x 250m/min x 30W/min/m², which needs 9000 Watts of power.

Potential Problems

If the film is being used as a sealing medium, be careful not to Corona treat the reverse side. This happens when small air pockets form caused

by poor web tension and prevent the film from sealing fully. The result is stripes appearing in the running direction and in the case of PE and PP polar groups appearing at the surface to prevent good sealing.

Therefore, wetting is vital for good lamination. It requires the correct level of Corona treatment, correct viscosity of the adhesives (both in solvent and solventless applications) and correct nip temperature and pressure. Wetting failures can result from application of contaminated nip rollers, too low an application weight, too high an adhesive viscosity (in solvent-free it's too low a temperature, in solvent-based it's too low a content of solvents), too low a roller pressure or too low a nip roller temperature. Nip rollers that are hollow or not parallel also cause problems. Regular cleaning and monitoring to assess the need for adjustment is critical to lamination quality.

Simple Tips

Corona treatment is fundamental to the processing of filmic substrates. For this reason, commonly used materials like OPE, PE, OPP and PP should be treated inline at the point of extrusion, and in the case of oriented films, given a Corona refresh before lamination. For chemically treated oriented films, a light Corona refresh may be useful if the material has become contaminated but be very careful not to burn off the chemical coating. With unoriented films, like PE and PP, be careful to avoid reverse side Corona treatment.

As substrates become more complex and market demand changes, it is important to work with experts who have a wealth of knowledge and data at their fingertips that will ensure you have a top-quality product. ■

ABOUT THE AUTHOR

Kirsten Lykke is a consultant in polymers and flexible packaging technology. She has an MSc in Chemical Engineering and has previously worked as a Development Manager for Amcor Flexibles. She has also been a Technical Account Manager for Dow Chemical, where she was responsible for lamination adhesives, and worked as a Senior Manager for Polymer Technology at the LEGO Group.

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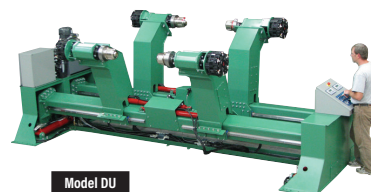
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Making a Case for Single Machine Trim Removal

By **Robert DeHart**, Engineering Manager, AirTrim, Inc.

No matter how you slice it, any-time you cut paper, foil or film, you create waste. Central collection systems for the collection of trim are often the ultimate objective for many facilities. These pneumatic systems have been around for years and offer many advantages.

As a steppingstone to eventually installing a central system, the printing/converting industries have also relied on stationary, single machine trim waste removal systems. However, multiple improvements for single machine trim systems are providing printers/converters a choice between selecting central trim removal or single machine trim removal systems as a longer-term solution to trim removal systems.

Central Trim Removal vs. Single Machine Trim Removal System

When machine speeds produce a volume of trim waste too great for manual or forklift removal, companies have two pneumatic options to consider removing a higher volume of trim waste: central trim removal or single machine trim removal systems. Each approach has its advantages and disadvantages.



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Central Trim Removal System

A CTRS is permanently installed, removes trim from multiple machines and conveys it to a waste collection point elsewhere in the facility (often towards the loading dock area). Material is conveyed via a system of intakes, round galvanized steel duct, through material handling fans or trim cutters. Waste is deposited into an air/material separator mounted above a baler or compactor.

CTRS's are designed specifically for a particular converting/printing process and equipment locations. Each system is designed and custom built for this specific plant layout. Hence, they have long lead times, less production flexibility and a hefty price tag. Depending upon number of pieces of equipment in the system,

central trim removal systems are normally priced much higher and have much longer shipment lead times than single machine trim removal systems.

Single Machine Trim Removal System

An SMTRS on the other hand, includes a self-contained collection device mounted as close to the printing/converting machine as possible. These are standard designs, produced in batches, with reflected pricing. Rather than conveying waste to a central collection point, SMTRS gather the waste into a bag/box close to the machine which must be monitored and emptied as required.

Choppers located within the single machine trim removal systems help to consolidate the waste stream so that more can be

contained within the waste collection system. Price is certainly important, and SMTRS enjoy a clear advantage on this front. However, there are other aspects to consider when weighing collection system options.

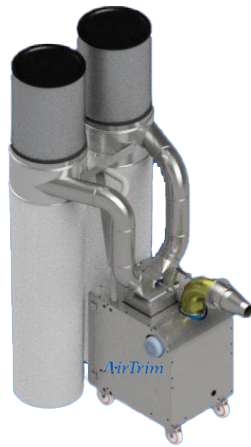
Shipment Lead Time Urgency

With production deadlines ever-present, “How fast can I get this up and running?” is a common and important question for managers considering collection systems. Because CTRS are designed and manufactured specifically for a particular site, their lead times are typically measured in months rather than weeks.

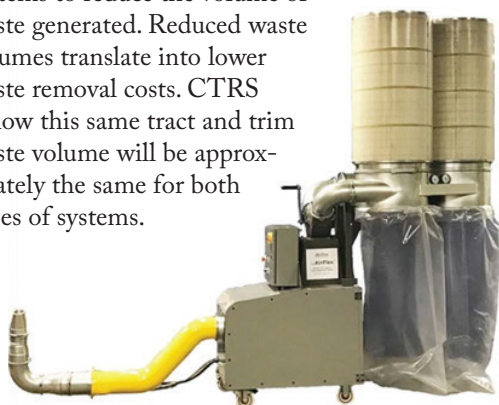
Once on site, they require commissioning and employee training before they are functional. Pre-pandemic delivery schedules of 12-14 weeks were common; they may be markedly longer now. Standard SMTRS, on the other hand, are manufactured in batches rather than one-off, and depending upon current manufacturing back log they are often available with shorter lead times. Because they are essentially “plug and play,” portable units can be put into service upon delivery, yielding instant results.

Trim Waste Volume

SMTRS typically employ through-the-fan systems for paper and trim cutters for plastic, film and foil systems to reduce the volume of waste generated. Reduced waste volumes translate into lower waste removal costs. CTRS follow this same tract and trim waste volume will be approximately the same for both types of systems.



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Batch or Continuous Operations

Some SMTRS designs now feature dual waste collection and provide a second waste bin to permit manual diverting of waste

flow to a second container without stopping the operation. The diverter directs the trim waste into the second container immediately after the first bag or container fills, allowing workers time to dispose of the first filled container.

This eliminates any production shutdowns due to waste removal on continuous operating lines. For batch operations there is a potential for using only one bag, but the second bag is available if needed. CTRS also accommodate both batch and continuous operations.

Portability

Some manufacturers of SMTRS have added portability to their systems. This allows them to be moved to highest value production runs where they will most easily benefit the company production schedules. Each printing/converting machine must have the same voltage to utilize the SMTRS portability feature.

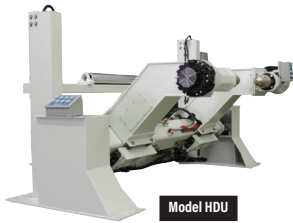
CTRS are not portable, but rather fixed into one location; initial design of system will identify converting printing machines, material and processes for trim removal, both for existing and future equipment.

As more companies are recycling, the dual-bag SMTRS provides a method of separating recyclable material from non-recyclable material. With SMTRS, activating the manual diverter at material change separates the material into the correct category. CTRS deposit all trim waste (both the good and the bad) into the same separator, which prevents recovering the trim waste material eligible for recycling.

Accommodating Available Space

Converting/printing industry applications often work in a compact footprint where space comes at a premium. In these settings the available space plays a big role

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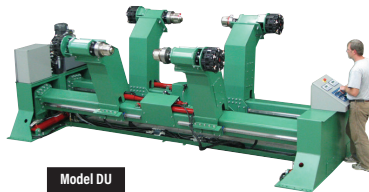
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in the choice of waste collection system. Most facilities are already tight on space, so trying to shoe-horn additional equipment into the mix may be a challenge.

The variety of sizes available and the self-contained design of SMTRS allow them to fit into the layout of existing facilities more easily. Their portability also plays a role here, allowing them to be moved should some component on the line require servicing or attention.

Depending upon the availability of plant space for a central trim removal system with larger components of fans, air/material separators and balers/compactors, CTRS may require more extensive redesign or may simply not be possible in some compact spaces.

Noise Level

SMTRS also keep the noise level down, which for some businesses is an important factor. According to OSHA, facilities operating at or above 85 decibels require ear plugs. SMTRS units often include silencers in their design to further reduce the noise level.

Some SMTRS operate below 80 decibels, so no hearing protection is required. CTRS, depending upon the selected location of fans needed in the system, by comparison may be louder and could cause facilities that have not used ear plugs before to start using them. Additional sound attenuation equipment may be required for central trim removal systems or locating the fans in an area of the plant without employees.

Summary

A variety of factors go into the purchase decision for the

trim waste removal system in a printing/converting environment. For some businesses one or two dominant factors will be the driving force behind their decision. But for others that could utilize either a CTRS or SMTRS, they will need to identify what their waste removal goals are and see if they require a truly customized CTRS solution or if they are better served with a plug-and-play SMTRS. Given the price, lead-time and portability advantages of SMTRS, they are proving to be longer-term solutions to waste removal than just a few years ago. Whether selecting a Single or Central system, prospective purchasers are urged to prove out the

suggested approach by sending samples to the vendor of choice to confirm that their offering achieves the desired objectives. ■

ABOUT THE AUTHOR

As Engineering Manager, Robert DeHart assists AirTrim, Inc., a leader in designing, building and installing pneumatic material handling systems for U.S. and Canadian customers. AirTrim develops systems for a wide range of industries from converting, labeling, non-wovens and textiles, to paper and tissue mills, printing, packaging, pharmaceutical and medical, plastics, recycling and more. For additional information visit www.airtrim.com.

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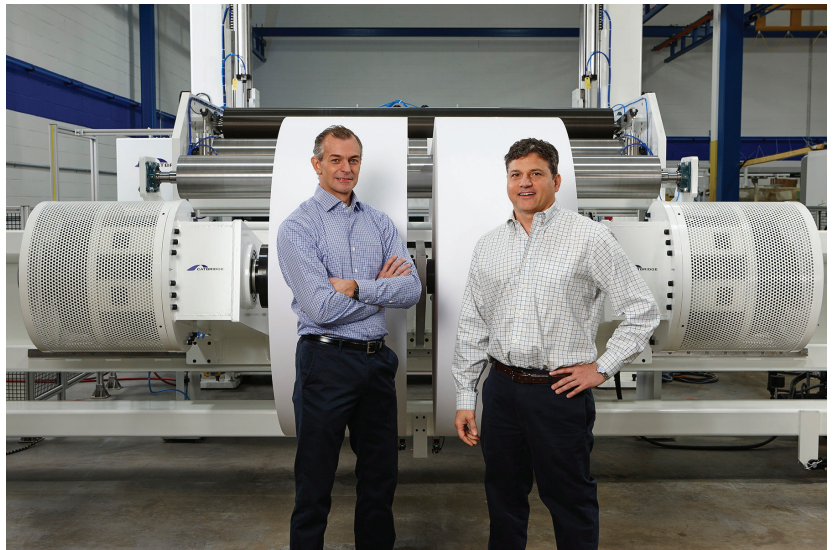
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Catbridge Machinery designs and manufactures innovative, high-performance converting machinery for a wide range of industries including flexible packaging, film, paper, adhesives, nonwovens and building products. In addition to a complete line of slitter rewinders, Catbridge excels at integrating components to build state-of-the-art web converting systems and process lines for coating, laminating and other functions.

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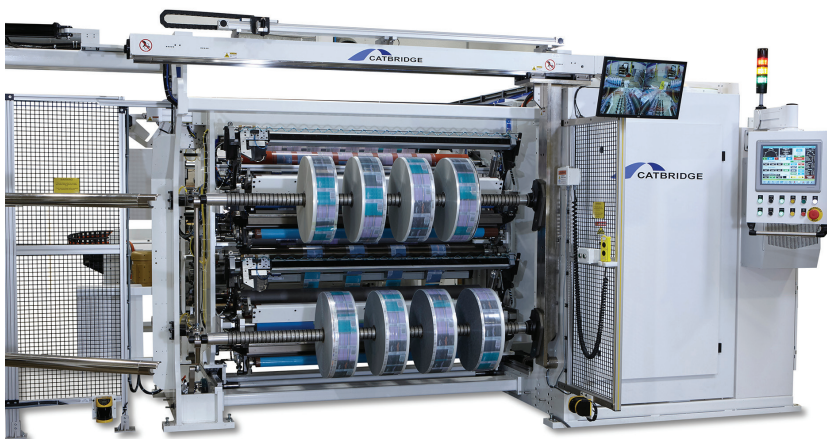
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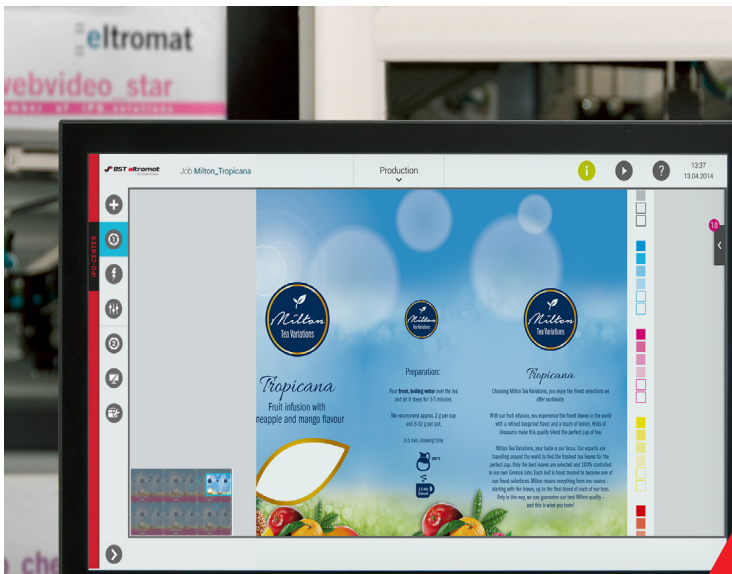
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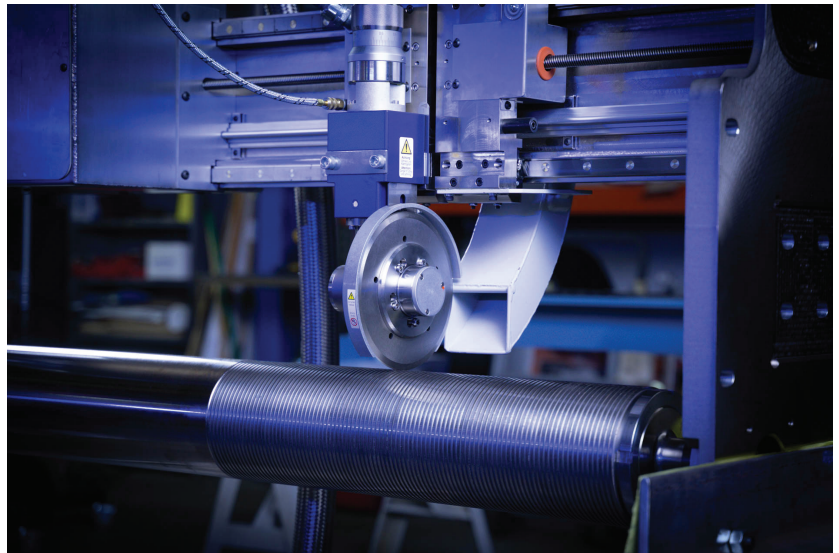
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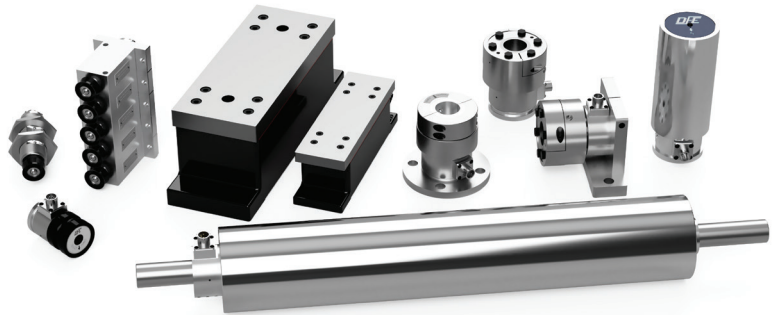
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In 2021 DFE launched the TA500-EIP tension amplifier. This new flagship signal-conditioner features simultaneous EtherNet/IP™ and analog connections for compatibility with current and next-generation PLC systems.

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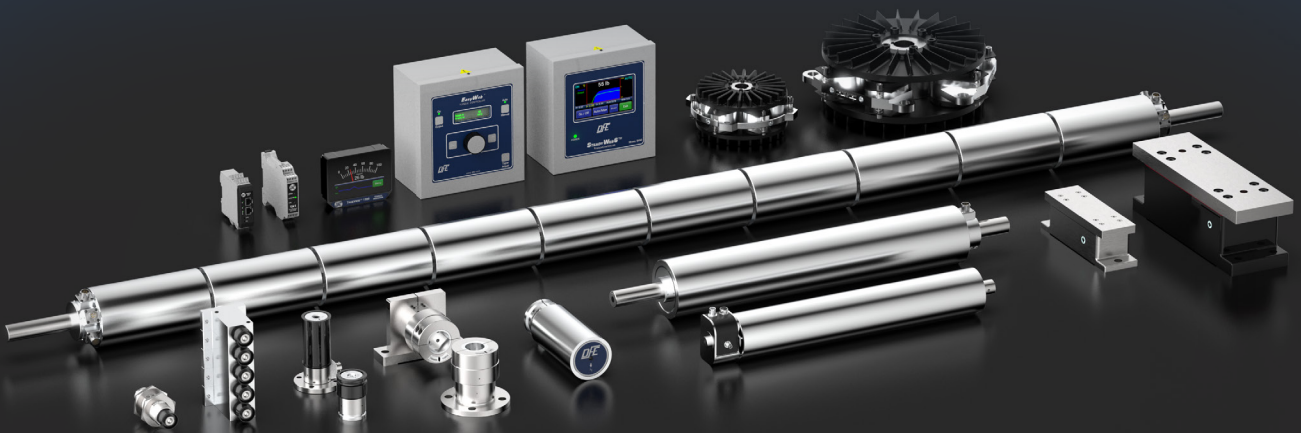
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The transition from product development to production can be difficult, and this is the challenge Faustel's engineers are uniquely equipped to address. Inside the Technology Center, Faustel's process team works alongside customers to innovate the converting processes used to create the latest products, including filtration membrane, aircraft insulation, Li-ion batteries, and so much more. There is a good reason that Faustel is trusted by major brands to develop the high-performance converting machinery their success depends on. With multiple pilot lines that include limitless configuration possibilities for coating, drying, and curing, the Technology Center is well equipped for virtually any product development project.

Through effective collaboration with the customer's in-house team of scientists, chemists, and engineers, Faustel can further enhance the R&D process and improve the outcome. To facilitate continued process development as more people are working remotely, Faustel created Tech Connect, a



unique program that provides customers an interactive online interface which allows the conducting of remote lab trials, saving time and eliminating travel costs.

The Proof is in the ROI

This synergistic partnership results in better designed equipment and improved converted products through an efficient process which maximizes resources. Faustel is recognized globally for high performance and exceptionally reliable converting equipment, but the ability to support the entire R&D process is the key reason we rise above the competition. The long-term ROI of Faustel's equipment

is remarkable, especially when working with expensive substrates, such as battery foils and optical quality laminates. Additionally, Faustel's converting lines have industry leading reliability, producing consistently superior results for many decades into the future. Ultimately, an investment with Faustel is so much more than a simple equipment purchase. It is an assurance of continued success for your unique process, from beginning to end. ■

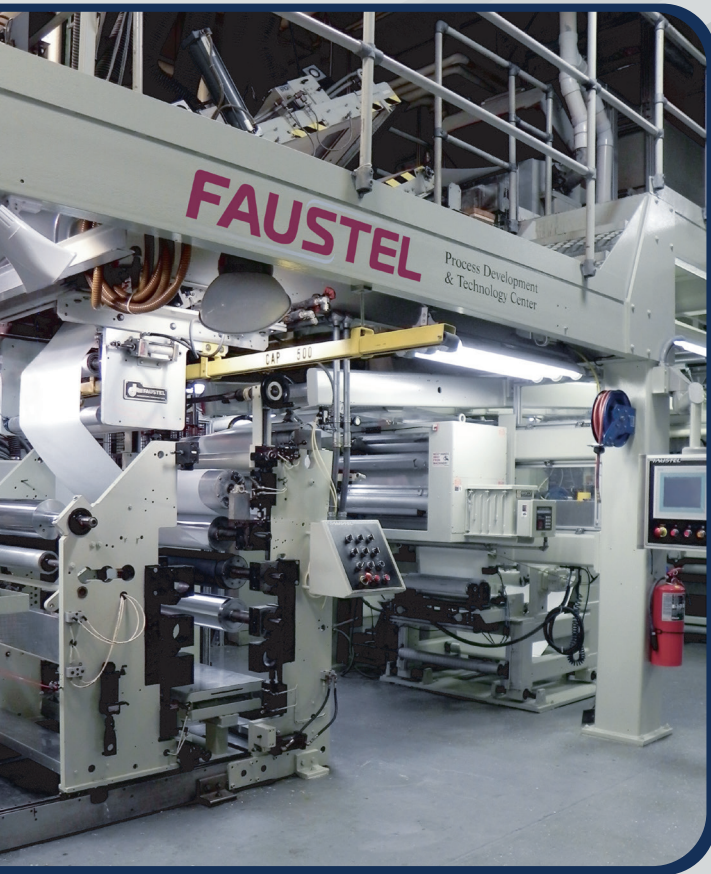
FAUSTEL

For more information on the Technology Center, contact a Faustel sales engineer at (262) 253-3333, or visit our website at www.faustel.com.



FAUSTEL

The Global Leader in
Custom Converting Technology



You Have Ideas, We Can Help

Save Time, Money, & Resources
with the **FAUSTEL**

Technology Center

COATING

CURING

DRYING

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A leader in bag converting equipment

Hudson-Sharp, part of BW Converting Solutions, is a global leader in the design, manufacture, and service of plastic bag-making equipment, pouch-making equipment, and recloseable solutions for the bag-converting industry worldwide. With more than 100 years of experience, Hudson-Sharp sets the standard for high-performance equipment, including wicketers and stand-up pouch machines, as well as industry-leading technology and innovation as demonstrated by our revolutionary INNO-LOK® and POUR & LOK™ pre-applied closure products. Our innovative team of engineers can custom design machinery for all your flexible packaging applications and our dedicated support staff is here to provide world-renowned customer service.

ARES 400-SUP

Hudson-Sharp has been leading the way on polybag machines and polyethylene (PE) pouches for years and continues to do so with our innovative Ares 400-SUP pouch machine. It was created from listening to our clients' changing needs and is the perfect complement to label and narrow web printers. The Ares 400-SUP stand up pouch machine is a compact, efficient, easy-to-operate, quick-changeover machine designed for short to medium production runs. And to help customers meet sustainability goals and mandates, it runs recycle-ready PE, paper, and biofilms, in addition to laminated films, with ease and a low scrap rate.

INNO-LOK®/EZ-STAND/ POUR & LOK™

Innovative flexible packaging solutions are a hallmark of Hudson-Sharp's legacy as demonstrated by our INNO-LOK®, EZ-STAND and POUR & LOK™ contributions. Our INNO-LOK machine provides the flexibility to run either recloseable or regular bags on any packaging lines without additional capital expenditures. Our EZ-STAND innovation is a pre-applied bottom gusset on a roll that can easily produce



stand-up pouches on a VFFS machine. The EZ-STAND pouch is made by utilizing an INNO-LOK machine along with a universal applicator which allows VFFS pillow packs to stand up with the same efficiency and economy. And our highly innovative POUR & LOK feature produces resealable side-gusseted bags and pouches ideal for pet food, lawn and garden, and snack applications. Utilizing roll stock with pre-applied closures creates value by providing higher production rates, no reduction in processing speeds, less scrap, and less down time.

INDUSTRY 4.0

Through options like video troubleshooting and data monitoring, our Accelerate™ services minimize down time for our customers around the world. We can offer maintenance alerts, quicker response times, and immediate recommendations that can prevent costly equipment failures.

SERVICE & SUPPORT

We know you rely on our machines to keep your business moving forward and we stand behind our equipment. We offer a variety of services including installation, start-up, training, and maintenance performed by a global team of highly trained service technicians. We also have multiple spare parts stocking locations around the world to keep your business up and running.



Scott Romenesko

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 +1 (920) 491-6138 | m +1 (920) 366-9258

They're not machines, they're solutions.



Built for speed, flexibility
and high output

The APOLLO series
of wicket machines

Easy to operate, quick
changes, and ideal for
recycle-ready pouches

The ARES series of
stand-up pouch machines



Equipment designed
to help solve problems

Let us help you maximize efficiency, reduce waste, deliver quality,
increase productivity, and ease the strain of labor shortages.

WICKET MACHINES | BAG & POUCH-MAKING MACHINES | RECLOSABLE SOLUTIONS

HUDSON-SHARP | 

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Jemmco, LLC: Leading Provider of Equipment and Supplies for Film Extruders and Web Converters

Your Source for Corona Treating: Rollers & Coverings, Accessories, Equipment & More!

Whether you have a bare roll, hybrid roll or covered roll style corona treater, Jemmco has a roller covering for you! Jemmco is proud to provide customers with everything from dielectric and conductive corona treater sleeves to Ceramic and Epoxy Bonded Roller Coverings. As one of the largest suppliers of Silicone Treater Sleeves in North America, Jemmco's FDA-approved JemmTron™ SRS Corona Treater Sleeve is integral for most domestic and international OEM's. The JemmTron™ SRS Corona Treater Sleeve is offered in 1.5-10 inch diameters.

Jemmco also offers a full line of Corona Treater Accessories, including Dyne Test Products, High Voltage Wire, Treater Roll Cleaner, Copper Mesh, Die Soap, Anti-Static Products, Ceramic Electrodes, and more.

Looking for a new corona treater? We can help with that, too! We are your one-stop-shop.

Ceramic, Epoxy & Rubber Bonded Roller Coverings

You might know Jemmco for our rubber roller sleeves, but Jemmco's company history is backed by decades of experience in bonded coverings. Let us be your one source, whether you're looking for a conductive, semi-conductive or dielectric ceramic roller covering, a durable Epoxy covering, or a bonded rubber covering. At Jemmco, we've got you (and your rollers) covered!

Made-to-Order Dyne Test Products

Our line of Dyne Test Products contains the largest variety, including Accu-Flo™ Felt Tip



Dyne Pens, Accu-Flo™ Jumbo Dyne Markers and EZ-Read™ Poly Test Dyne Pens, which enables us to meet the wide range of applications of our customers. Our pens and solutions are mixed to order and manually tested by our on-site experts to ensure our customers receive the most accurate and highest quality product with every order.

High Release Roller Sleeves to Keep Rollers Clean & Running Smoothly

Jemmco's full line of JemmSil™ High Release Sleeves have become a cost-effective staple in hot melt, pressure sensitive, labels, label stock and non-stick applications. With excellent release properties, great temperature resistance and easy on-site installation, the popular JemmSil™ RS200 High Release Sleeve has quickly become

a vital part of the converting process for countless manufacturers.

Rubber Roller Sleeves for Web Cleaning, Traction, Anti-Static & More!

Jemmco's unique, rubber sleeves offer a cost-effective alternative to traditional bonded coverings and have changed the roller covering environment over the past 24 years. Whether you're looking for cost-effective web cleaning, increased traction, dielectric coverings for corona treating, high release or reduced static, Jemmco has a cost-effective roller covering solution for you!

When Quality, Affordability & Timeliness Matter...

- High Quality Equipment and Supplies
- Prompt, Friendly Service
- Competitive Prices and Quick Delivery
- Expert Technical Support



Jemmco, LLC

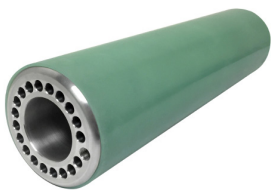
Phone: (262) 512-9559

Website: www.jemmco.com

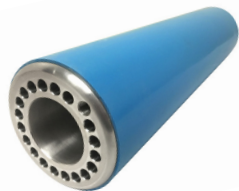
ROLLER COVERINGS THAT FIT YOUR BUDGET



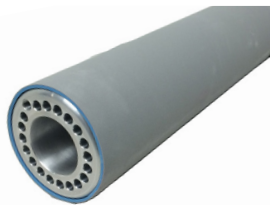
JemmTron™
CORONA TREATER
ROLLER COVERINGS



JemmTrac™
TRACTION
ROLLER COVERINGS



JemmTac™
WEB CLEANING
ROLLER COVERINGS



JemmSil™
HIGH RELEASE
ROLLER COVERINGS



JemmStat™
ANTI-STATIC
ROLLER COVERINGS

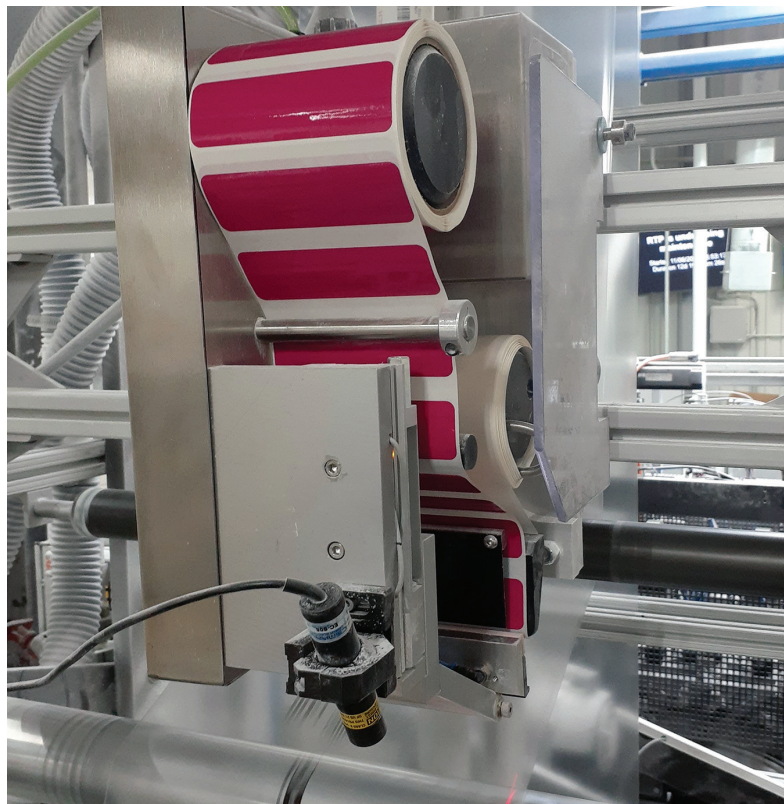
World Leader in Defect Marking

Throughout the 1980's and 1990's a number of companies marketed numerous styles of web flagging devices. They were met with varying degrees of success and much greater degrees of disappointment. Most were notorious for not performing as promised. They were simply variations of label applicators. None of the web flagging devices at that time were designed specifically to address the challenges that come with applying labels to moving webs—especially webs moving at high speeds. Some of these machines attempted to dispense a label off the liner directly onto the moving web. Some tried to accelerate the label to match the web speed before applying. And others used air jets to blow a flag onto the web.

As a result of these shoehorned applications, maintenance shop “bone-yards” started to fill up with web flagging machines sold, installed, and subsequently removed when they failed to perform reliably. Like the famous line from the movie “Anchorman” sixty percent of the time, they worked every time. And converters and printers one after another adopted the opinion that all WebFlaggers were doomed to fail.

This changed in 2002 when Alfonso Novelli founded Novation, Inc. It began with his efforts to find a reliable web-flagging device to pair with his ScrapTracker system. ScrapTracker was Novation's initial product. It was a roll mapping program which required a bar coded flag to be placed on webs moving at any process speed. The bar coded flag would have unique ID number which would then correlate to a location within a roll, and a data point in the roll map created. However, Novelli soon realized that there were no machines available that were specifically designed for his application—and certainly none reliable enough to pair with ScrapTracker.

Necessity being the mother of invention, Novelli put his 25 plus years of converting machinery design experience to



work to design his own machine. The result was the AF2 WebFlagger. The AF2 was designed for no other purpose than to apply pressure sensitive labels onto any type of web traveling at any process speed.

It accomplished this feat by first transferring the flag completely off of its carrier onto a vacuum applicator head. The applicator head then transferred the flag to the moving web by pressing the leading edge of the flag against the web where it is supported by a roller. “Nipping” an already dispensed label to a moving web in this fashion was a game changer. Novation's AF2 WebFlagger was marketed at that time as “The First WebFlagger that Actually Works.”

Novelli realized the AF2 could meet the need for a reliable web flagging machine in the converting and printing world, with or without the ScrapTracker system, and Novation began to market the AF2 as a stand-alone WebFlagger. As they say, the

rest is history. Since 2002, Novation has sold over 1,500 WebFlaggers which have marked over 50 million defects, etching their place in converting history as the market leader in web flagging.

In 2018 the battle-proven AF2 was retired and replaced by the much smaller and robust AF3 model which has options such as applying different color flags on demand, wireless remote control, and a slide base used to adjust the WebFlagger for web width changes.

Novation has built a reputation for excellent customer service, and thrives on problem-solving and innovating to improve safety and efficiency in the converting and printing industries.

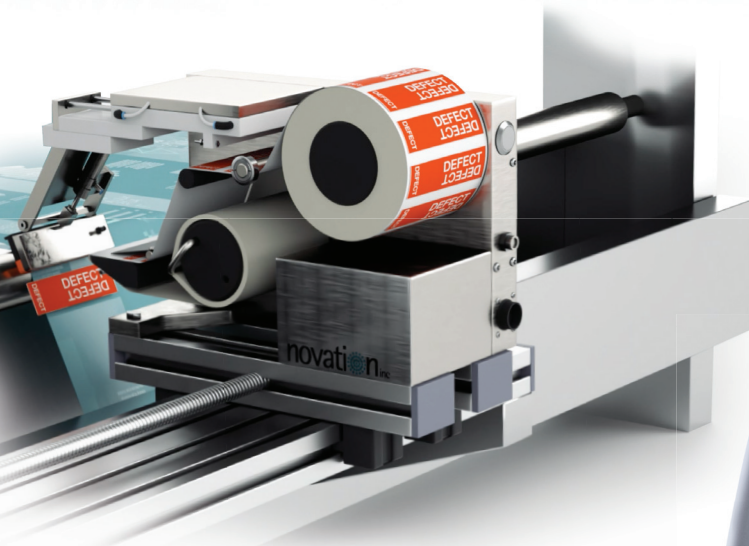
novation

NOVATION-INC.COM
(610) 837-5026



STOP HAND FLAGGING! **AUTOMATE YOUR DEFECT MARKING AND TRACKING**

Finding and removing defects downstream is safe and easy with the Novation AF3 WebFlagger. With the push of a button, the AF3 accurately marks webs moving at speeds up to 4,000 fpm (1,200 mpm). Flag options include solid, multicolor, and barcoded for tracking and reporting—so now you can leave flaws on the floor, not out the door!



MADE IN THE U.S.A.

novation inc

The printing and converting industry standard in defect marking and tracking

NOVATION-INC.COM (610) 837-5026



**STOP HAND
FLAGGING!**

A leader in printing equipment

Paper Converting Machine Company (PCMC), part of BW Converting Solutions, specializes in the design, manufacture, and service of high-performance converting machinery for the printing, tissue, and hygiene industries worldwide. Our comprehensive print industry products include a complete range of central impression, in-line, and offset printing presses; digital hybrids and conversions; and award-winning laser anilox cleaners for the flexible-packaging, prime-label, and carton-converting industries.

LASER ANILOX CLEANER

The Meridian Elite's patented laser technology deep cleans engravings of any line screen without increased surface temperature or hot spots. The deep cleaning allows the anilox to perform at correct volumes – saving time, ink, and waste. The fastest cleaning cycles in the industry along with smart and connected features keep your shop operating at peak efficiency. Winner of the 2020 FTA Technical Innovation Award and 2020 Label Industry Global Award.

FUSION C

The Fusion C central impression presses were developed to meet the demands of short length runs that require more efficient changeovers and setups with high repeatability and maximum uptime. Features such as TruePrint, a camera-based impression and registration system, and SteadyPrint anti-bounce technology further enhance the Fusion C's ability to produce high-quality output through a wide speed range.

DIGITAL

Our ION digital conversion system and hybrid press options offer flexible inkjet printing for many platforms including labels, folding cartons, wide web packaging and other specialty printing markets. The industry leading 1600x1585 dpi native resolution is one of the highest in the industry and can print in different print modes pushing print speeds up to 668 ft/min. Powered by Memjet's



drop-on-demand thermal inkjet technology, each print head fires more than 3 billion dots per second. The new aqueous pigmented ink set offers a durable, lightfast solution to your digital print needs, and can be configured from 8.5-inch print width up to 60 inches. ION digital print technology is available as a mono-color print bar and full color printing platform with expanded gamut printing.

ELS-MAX

The ELS-MAX has taken inline printing to a new level. It is the first inline press to incorporate the features and advantages of both CI and inline presses. The register tolerance is the best in the inline industry and matches what CI presses can hold. Our True Print Plus option auto sets registration and impressions from a PDF file - saving time, material and ink. Operators simply press one button to start the make-ready process. The ELS-MAX can be customized

with additional features such as inline lamination, UV curing, backside printing without a turn bar, rail system and more. The print stations are fully servo-driven with direct drive, eliminating all gears and most common wear parts. A variety of unwinds and rewinds are available for all applications from short run to continuous run. The ELS-MAX can run a wide range of material types and thicknesses ranging from thin films to board stock.



Rodney Pennings

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They're not machines, they're solutions.

Where
technology,
reliability and
performance meet

The FUSION series of
central impression printing presses



Where fastest,
smartest and safest
come together

The MERIDIAN Elite
laser anilox cleaner

Equipment designed to help solve problems

Let us help you maximize efficiency, reduce waste, deliver quality,
increase productivity, and ease the strain of labor shortages.

INLINE, CI, DIGITAL & OFFSET PRESSES | LASER ANILOX CLEANERS



Paper Converting
Machine Company



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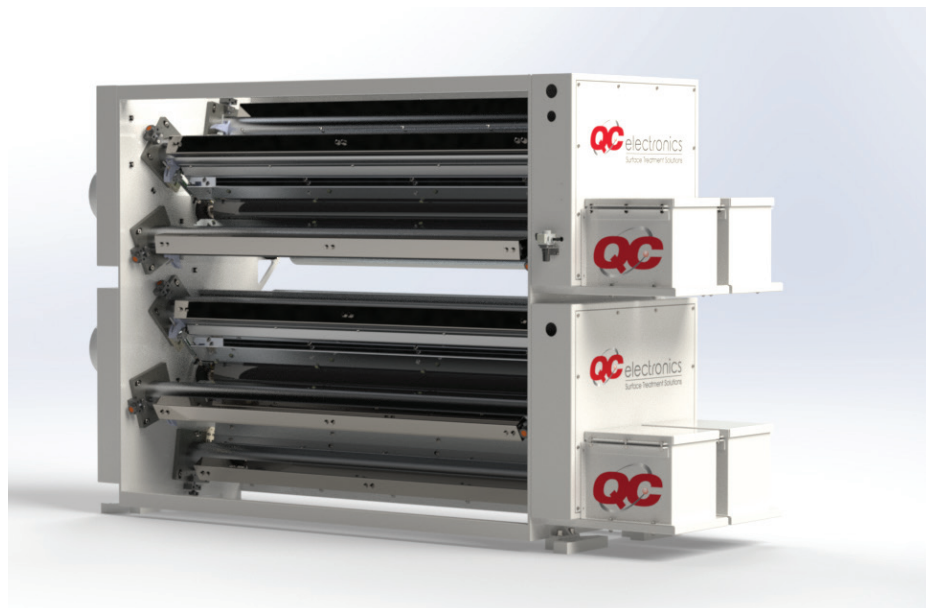
QC Electronics, Inc. – Trusted Corona Treatment Experts

QC is a family owned and operated company dedicated to providing top-quality corona treatment equipment and solutions. Our team works tirelessly to research and develop powerful technologies in the field, ensuring that our products are at the forefront of the industry. We are proud to offer a wide range of corona treatment equipment and specialized systems. Our commitment to innovation and customer satisfaction has earned us a reputation as a trusted provider of corona treatment equipment.

Ken Klein, QC's President and founder, comments, "QC's foundation was built on expertise of corona treatment, with an emphasis on custom systems for difficult applications. It is wondrous to see our younger talent overcoming the challenges of these unique designs and processes."

QC Electronics, Inc. has a bright vision for the future. We continuously assess and adapt to market conditions and customer needs. Our dedication to quality, expertise, and customer satisfaction continues to set us apart and drives our success. With a focus on problem solving, we are confident that we will continue to thrive and be a leader in the corona treatment equipment market for years to come.

We are committed to continuing our growth pattern and pushing the boundaries of innovation in the corona treatment industry. To help us achieve these goals, we have formed partnerships with leading scientists and engineering firms. These collaborations allow us to bring together a diverse range of expertise and perspectives, which helps us to develop new technologies and approaches that drive growth and set us apart from our competitors. We believe that these partnerships are a key part of our success and are committed to continuing to seek out new opportunities to work with top-tier partners in the indus-



try. We are confident that these collaborations will help us to continue to innovate and excel in the corona treatment market.

Carl Klein, QC's Product Development Engineer, comments, "Adapting and overcoming the constant changes and demands of the industry have been proven challenges, both giving a great deal of reward when completed, and most importantly leaving the customer pleased with QC's proposals and resolutions. QC is constantly morphing and adapting to market changes and requests. I am pleased to be part of such a driven and knowledgeable team that has proven themselves capable of resolving any issue, future or present, for the benefit of QC customers."

As we celebrate 35 years in business, we are truly grateful for the support and loyalty of our customers, partners, and employees. Over the past three and a half decades, we have seen many changes and challenges in the industry, but we have always remained focused on our mission of providing the highest quality products and services. We are proud of the strong foundation we have built and the lasting relationships we have formed over the years. We look forward to continuing to serve our customers and the industry for many more years to come. Thank you for helping us reach this milestone and for being a part of our journey.



QC Electronics, Inc.
www.qcelectronics.com
sales@qcelectronics.com
+1-608-742-1661

CORONA TREATMENT

FOR GUARANTEED ADHESION



QC is dedicated to providing top-quality corona treatment and adhesion solutions for our customers. Our commitment to innovation and customer satisfaction has earned us a reputation as a trusted provider of corona treatment solutions, and we are committed to continuing to set the standard in the industry.

As we celebrate 35 years in business, we are truly grateful for the support and loyalty of our customers, partners, and employees. We are proud of the strong foundation we have built and the lasting relationships we have formed over the years. Thank you for helping us reach this milestone and for being a part of our journey. Contact sales@qcelectronics.com to get in touch with a representative.

Leader in Anilox Roll and Sleeve Cleaning

Sonic Solutions has been a leader in the converting industry for nearly 23 years. They first started because a printer was having problems with their water based inks ruining their anilox rolls. Sonic Solutions provides ultrasonic cleaning systems for any sized anilox roll or sleeve. From 6 inches to over 10 feet. Today, thousands of printers throughout the world rely on Sonic Solutions anilox cleaning systems. The current family-owned business developed a wide range of cleaning systems for printers ranging from the narrowest of anilox rolls to the largest possible anilox sleeves.

Joe and Marie Walczak personally talk to printers every day and help them solve their printing problems. When a printer has problems matching or maintaining their densities it's usually caused by a dirty roll. So then the press needs to stop and no one wants that. A stopped press adds up to thousands of dollars of lost revenue. No one can afford this!

Coming to the rescue is Sonic Solutions. They can provide the best system for your needs. Sonic Solutions uses ultrasonics to gently and safely clean your anilox. It's really the perfect way to clean them. The tiniest of crevices of the ceramics are subject to the cleaning strength of ultrasonics. In their cleaning systems the ultrasonic power gently vacuums the anilox of any built up dirt and debris. Ultrasonics isn't a wash or a blasting system. It's better and safer. Ultrasonics is the same technology used to steril-



ize medical instruments in hospital operating rooms as well as components used in space by NASA. Shouldn't your anilox's be cleaned in the same safe and thorough manner?

Sonic Solutions has evolved their systems to be one of the safest in the industry using the most recent developments in the ultrasonic industry. While others still use lower frequencies, Sonic Solutions has standardized all of their equipment to utilize ultrasonics at 68 kHz. The smaller bubbles are able to go into the smallest of cells and clean the anilox safely and completely. No need to worry about the highest of line counts you have. The company has also made the equipment more durable, reliable and serviceable. The plug and play power generators can quickly be replaced with loaner generators to keep the systems and your cleaning operations up and running. No waiting for a month or more for replacement parts or repairs with some international companies.

Want to kick the tires a bit? Sonic Solutions has the ability to prove to you that the system will work with YOUR very own rolls and sleeves. You can send your rolls to the company and they will clean them for you and send them back. Or they can even offer a demo of the equipment directly at your plant. Keep the system for a week or so and see what kind of an impact it has on your business. Just to warn you though, once you have a demo in your plant you won't want to give it up. Customers usually buy the system because they are already saving money on using it.

Call or email Joe Walczak today to see how they can start making your company more money. He can be reached toll free at 877/654-7800 or emailed at Joe_Walczak@SonicSolutionsUSA.com.

He'll be happy to chat with you to learn more about your company and how Sonic Solutions can make a difference in your company's profits today.



Sonic Solutions
1-877-654-7800
www.SonicSolutionsUSA.com



BIG

System that can clean sleeves up to 70" long

or

SMALL....

System that cleans narrow and medium web rolls



All our anilox roll and sleeve cleaning systems reflect:

- Preset functions that allow you to safely clean the highest line count anilox.
- Plug and play external power generators that can be easily replaced
- Stainless steel construction for longest durability
- Over 20 years of proven industry experience
- Fast friendly service that only a family run business can provide

...we can clean them all!



Call or e-mail us for more information

877.654.7800

customer_service@sonicsolutionsusa.com

www.SonicSolutionsUSA.com



Sonic Kleen - The original and still the best.

Vetaphone – the first and best in surface treatment

Vetaphone has more knowledge and experience of surface treatment than any other manufacture in the industry. Since Verner Eisby invented corona treatment in 1951, we have continued to develop technology that meets the requirements of a changing market. This passion for solving adhesion problems, part of the company's DNA, is vital if you are involved in printing, laminating, or lacquering, because Vetaphone can tailor-make a solution to meet your specific requirements.

Using cutting-edge technology in partnership with our customers, Vetaphone continues to pioneer surface treatment with its unique technical knowhow. We design and build systems that are innovative, highly functional, and ultra-reliable, because we know that no ancillary process can afford to be a weak link in the overall production chain. That's why many international OEMs name Vetaphone as their preferred supplier.

The key to our success is the willingness to share knowledge and expertise, and to expedite this we have opened a high-tech Test Lab and a fully equipped showroom and demonstration facility at our HQ in Denmark.

Our unique Test Lab allows converters to trial their substrates prior to full commercial production, and is also available to manufacturers of substrates, inks, and lacquers. All have full access to cutting-edge corona and plasma surface treatment technology to test, monitor, and analyze performance under true simulated production conditions. Fine tuning in the Test Lab prevents costly errors later.

The showroom houses a selection of corona treaters for wide and narrow web print applications as well as units specially designed for the laminating, converting, and extruding sectors. Unlike display equipment at a trade show, each unit is powered to enable us to carry out full customer demonstrations either online or in-person, wherever they are in the world.

Like all market leaders, we know the



importance of service and support. Our global network of agents ensures users are never far from technical back-up and a comprehensive stock of parts. We also have a 24-hour online support team, while in key markets like the US, we have our own sales and support company to service our customers there.

Whether it's corona treatment or the latest generation of Plasma technology for use with today's increasingly complex substrates, Vetaphone has the answer. Our aim is to be your perfect business partner by providing a seamless operation from initial brief to installation and commission-

ing, and then to provide support for all the years that follow.

When it comes to surface treatment, Vetaphone is the first and only choice you will ever need to make.

VETAPHONE
Corona & Plasma

Vetaphone North America

155 North Wacker Drive, Suite 4250

Chicago, IL 60606

E-Mail: sales@vetaphone.com

Phone: (312) 803-3691

Web: www.vetaphone.com

THE IMPORTANCE OF CORRECT

SURFACE TREATMENT

As the inventor of the
Corona technology...

..Vetaphone offers vast knowledge and experience with surface treatment and has an extensive portfolio of solutions for any type of application in the web processing industry.

Our expertise ensures the perfect surface adhesion – so you can deliver the perfect end result.



LOCAL SUPPORT



OPTIMAL ADHESION



LOW COST OF OWNERSHIP

www.vetaphone.com
sales@vetaphone.com

VETAPHONE
Corona & Plasma

VETAPHONE
Corona & Plasma



Next Generation Flexible Packaging Solutions from Mamata

Mamata serves the plastics and packaging industry for over 31 years offering equipment for film extrusion, converting, and packaging.

Globally, our footprint expands to over 90 countries with more than 5000 converting machines working in the field. In North America, we have over 500 installations and are growing.

We offer state of the art mono & multilayer blown film lines, high speed side seal and Bottom seal poly bag machines, Wicketers, pouch machines for a wide range of applications and HFFS rollstock pouch packaging machines and premade pouch filling systems for end user flexible packaging market.

The Flexible Packaging / Converting Markets are ever changing. At Mamata, we have always designed systems that are fit for today's market needs and capable to see the road ahead, transform the course and win the Race for our Customers.

Our philosophy of providing machines with improved flexibility, operator friendliness with greater productivity has given our customers a vital edge in today's competitive market.

Recently at K 2022, Mamata introduced the shortest footprint pouch machine in the industry. With 22 ft. footprint, 150 cpm speeds, and under 20 minutes fully automated changeovers, it is the game changer in the Pouch converting industry and an ideal machine for digital printers, narrow web printers and short job run applications.

At this show, Mamata also introduced Robotic Pick & Place systems on it's Wicketers. This system will allow the wicketer users to run their machines at high speeds with minimal labor involvement. It enhances their production capabilities and increases their overall productivity.

Our converting machines offer best value for money proposition to the converters. Mamata offers capability to process Recyclable mono-material film structure and make wide variety of pouches like



stand-up Zipper Pouches, side gusseted Quad seal Pouches, Flat Bottom Pouches, etc. since 2004. At 70 ft. length, our Flat bottom Pouch machine offers shortest footprint in the Industry and is the most flexible pouch machine available to the converters.

Mamata's solutions on its Flat Bed Poly Bag Machines & Wicketers for applications like E-commerce mailer bags, diaper / hygiene bags, heavy duty fertilizer / salt / potting mix bags, string & flange zippered bags makes it unique in the industry.

Our high-speed bottom seal machines offer flexibility to run a wide variety of bottom seal bags.

Our special application converting machines include surgical mask machines, non-woven fabric bag machines, flower/ candy sleeve machines, laminated back seam woven sack machines, etc.

For your pre-sales and after-sales support, our Florida and Chicago are at

your service with spare-parts, local technical support, and sales consulting. We have an extensive network spread across 90+ countries around the world.

Our converting & packaging systems are a perfect fit for today's market needs and capable to see the road ahead, transform the course and win the Race for our Customers. This is the key to our success.

For more information on our Products, visit our website www.mamata.com or write to us on sales@mamatausa.com



Contact: Sanjay Amin

(O) 941 205 0227

(M) 630 885 0312

Email: sales@mamatausa.com

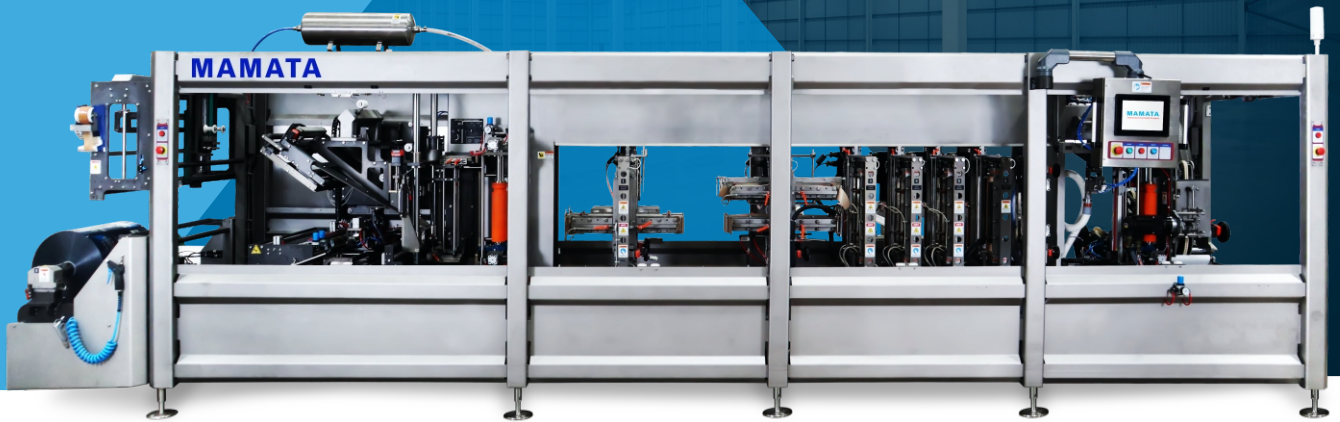
Website: www.mamata.com

MAMATA

Total Solutions For Flexible Packaging

Vega 300 PM

The Shortest footprint
Pouch Machine
in the Industry



~ 22 ft.

Highlighting features of the machine:

- Tool less changeovers
- Lowest setup waste due to short footprint.
- Ability to process Recyclable mono materials / Eco-friendly films
- Servo driven seal time, seal pressure control on each station



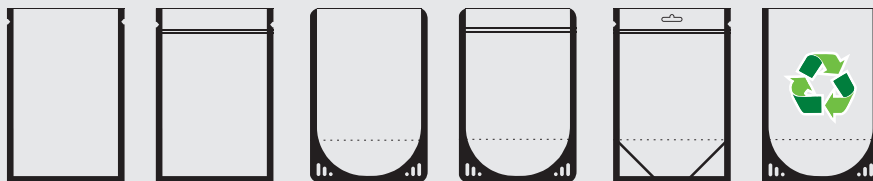
150 ppm
Mechanical speeds



~20 minute
changeovers



Recyclable
pouches



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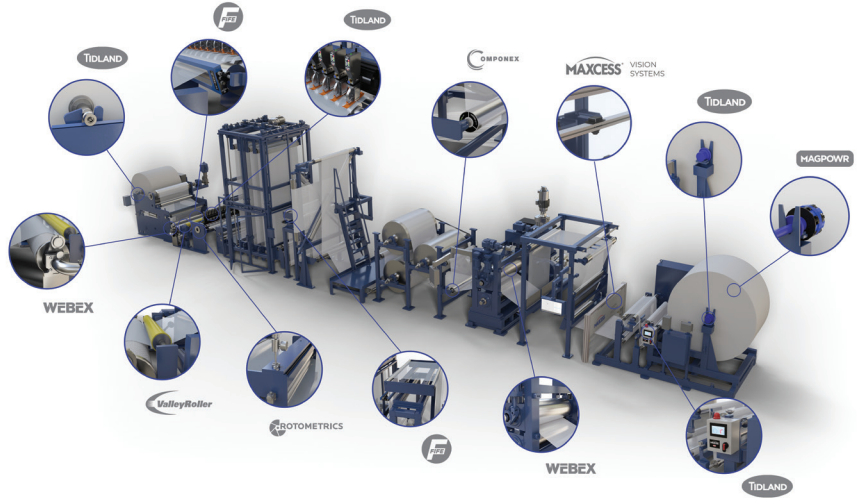
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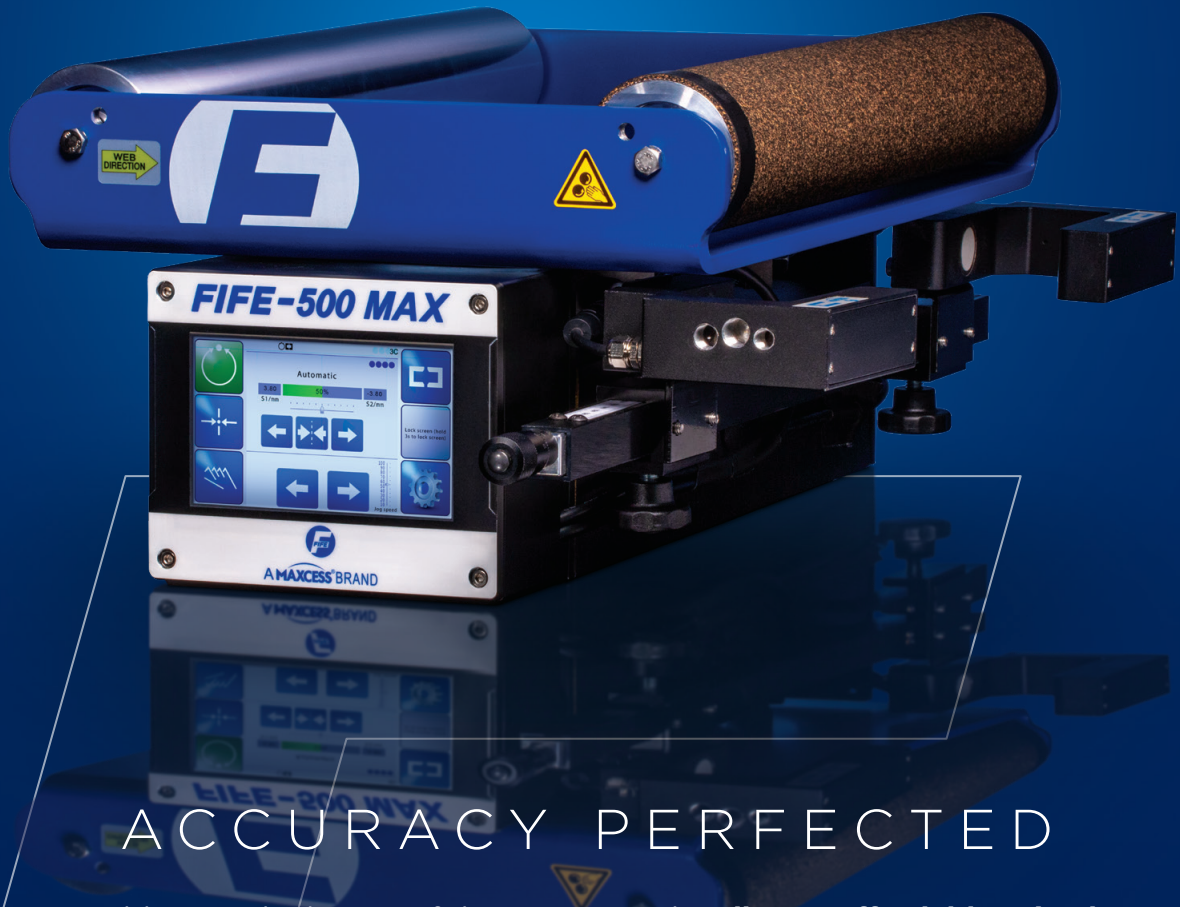
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Nordmeccanica, a story of instinct, innovation and growth

Incorporated in 1977 with over 45 years of uninterrupted service to the industry Nordmeccanica represents a unique case in our industry. Providing the product line of innovative coating and laminators, featuring virtually every innovation brought to the industry since then. The entire list of "first" and patents will be too long to express but it is sufficient to mention just a few of them to give an idea of its contribution: solvent less laminators, 3-ply laminators, 5 rollers coating head, Labo machines, Meter Mixing dispensers, Horizontal ovens, up to the "One Shot" concept released in the Duplex and Triplex configuration.

The evolution from a boutique shop, as Nordmeccanica qualified through the late 90s serving a small range of top converters mainly in Europe, to the largest manufacturer of coating, laminating and metallizing machinery, with an organization that covers the entire globe with service locations and sales offices. A yearly sales exceeding the 100 million euros line with 270-300 new installations. All of this is the result of the vision of Antonio Cerciello, the President and CEO. The initiator of a family business that is projected into the future through the efforts of his two sons. Both solid of 20 plus years of experience in our industry, deeply involved into the day-by-day and well projected into the future.

Currently Nordmeccanica keeps being involved into the continued evolution of the product line looking into the all-times guideline that informed every new release: integration, quality, safety, productivity, service. This is a non-stop effort. The one that allowed for the unique growth and the consolidation of the largest customer base in our industry. Integration and service go hand in hand. Since day one every product has been designed to allow for an efficient service by means of top of the



industry components and the integration around them. The partnership with industry leaders in chemistry and electronics has helped the evolution of the product line. The current example is the participation of Nordmeccanica into the 3 largest cooperations in our industry targeting innovative packaging through recyclability. The most recent example was the mono-material pouch presented at K show in Dusseldorf and Pack Expo Chicago past October.



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For over half a century, Totani Corporation has manufactured pouch and bag making machinery. Since its incorporation in 1961, Totani machines are now located in over 57 countries all over the world and are highly regarded by well-established companies.

Totani Corporation continues to excel in leading the industry in pouch making machinery.

Totani's original idea, technology and development, power change the common sense of pouch making.

Our pouch and bag making machines use various film materials to make pouches with storage stability and heat resistance.

Totani machines make high-speed, high-quality pouches, in various shapes, which can be used in a wide range of fields.

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- Compact Pouch machines means less film waste and Quicker Change-Over.
- The most efficient pouch machines available.
- Totani America has the Best Technical Support.
- Totani is committed to the wise use of our natural resources.
- Recycle-Ready Films Can be produced at high speeds efficiently.

Totani innovations and enhancements have proven effective to improve efficiency in operation of recyclable stand-up pouches.

Dealing with web melt, print variation, shadow seals, and web instability were primary factors that went into Totani's most

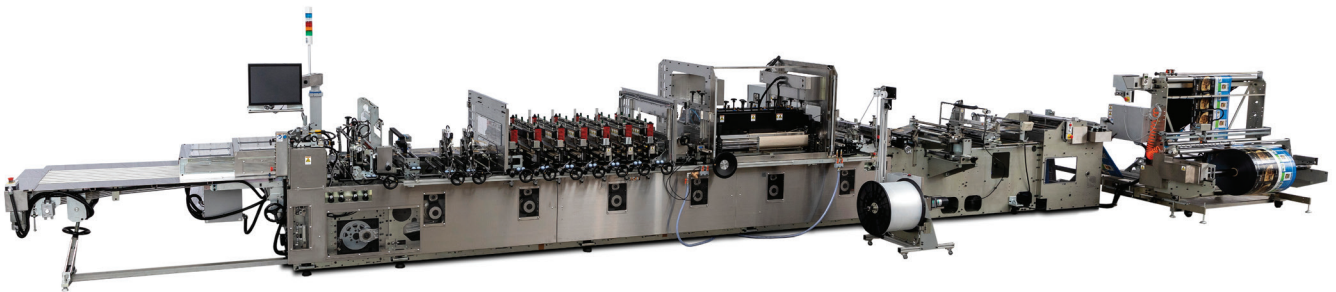
recent pouch machine that features a number of enhancements and new proprietary technology.

Ask Totani innovations and enhancements prove effective in set-up and change over times for stand-up pouches.

Ask us about Totani's most recent pouch machine that features a number of enhancements and new proprietary technology.



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The Benefits of SOFTAL's Corona Systems

- Corona stations - from 10 inches to

10 meters - with single or multiple electrode assemblies

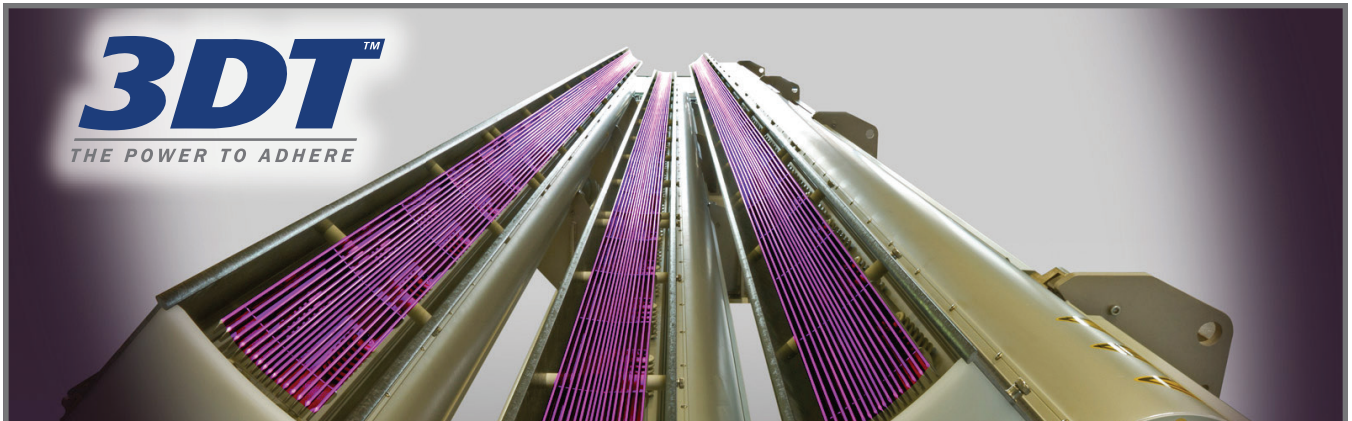
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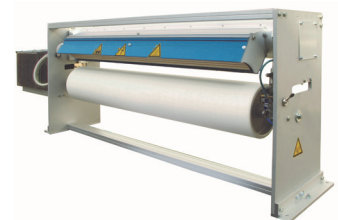
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Applied Rigaku Technologies engineers, manufactures and distributes Rigaku energy dispersive X-ray fluorescence (EDXRF) products worldwide. We specialize in benchtop and process elemental analyzers that serve web applications with the ability to perform at-line or real-time silicone coat weight analysis.

For in-line process control, the **NEX LS** linear scanner offers cross and machine direction Si coat weight profiling of your process. NEX LS helps users make real-time decisions to achieve the control needed to solve the challenges in coating and converting processes.

The advanced NEX LS software is easy to use and helps provide continuous process control from the beginning to the end of the roll. The real-time cross and machine direction data help you make immediate quality control decisions and



address any questions or concerns related to the entire roll.

The intuitive user interface allows users to easily define recipes, including scan speeds and sub-second measurement settings, advanced roll reporting, and raw data logging for traceability and audits.

For at-line solutions, **NEX QC Series** benchtop EDXRF analyzers enable the measurement of very low silicone coating weights and metal catalysts in silicone coatings, all with one instrument. Challenging applications that were either marginal or not possible with earlier technologies are

now a reality. NEX QC Series spectrometers do not require helium or a special sample cup for Si determination. By simply placing a sample in the analysis chamber, NEX QC Series analyzers provide QC technicians with an ideal tool for quickly checking silicone coating thickness and composition.



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Pro Tapes® latest investments are fully automatic G&A FA300 and RTA600 wide web slitters which rounds out our capabilities in our arsenal of state-of-the-art converting equipment. The new G&A FA300 & RTA600 provide Pro Tapes® with the versatility and dexterity to convert the widest possible range of materials of converting equipment available on the market today.

Here are some key features and benefits these new G&A slitters bring to the table:

G&A FA300:

- 2,000mm wide fully automatic turret rewind slitter, score and razor

- Paper tab
- Double sided adhesive tab
- Process liner recovery
- Full width logging system
- Transversal cut off system for converting thicker substrates
- Recipe job PLC storage

G&A RTA600:

- 1,800mm wide fully automatic turret rewind slitter, score and razor
- Automatic score blade positioning
- Automatic turret and cut off system
- Laser core alignment
- Differential winding
- Roll ejecting/off-loading system
- Increased capacity = shorter lead times and better service levels for our customers.
- Increased cycle times = best possible pricing for our customers.

These new wide web converting equipment allow us to convert wider jumbo rolls, faster cycle times equal increased output combined with a programmable PC to store recipes all allow us to service our customers at a very high level with the most competitive pricing possible. Please call to make an appointment and see firsthand why we are the talk of the industry. You will see our new machines as well as a complete plant tour with 12 wide web slitters in operation, 8 of which are fully automatic!



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Reach out to:

Chris Hart
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A New Generation of Hybrid Drive Technology

The RSM-DIGI-VARICUT is equipped with for the rotary converting of digitally printed packaging materials. A combination of continuous & vector drive technology – in re-registration mode – allows format independent converting by the use of a single tool circumference.

The RSM-DIGI-VARICUT is based on modular platform, available for different working width (max. working width currently 850 mm, max. format length 1220 mm).

The standard configuration of the RSM-DIGI-VARICUT includes a vacuum controlled delivery table. A high-speed programmable robot-automated stacking and counting system (Spider) which combines extreme acceleration, velocity and precision at continuous web speed of up to 50 m/min can be added.

The Spider is designed to pile up different types of products combined within the same printing image. They can be heavily nested or combined – i.e. very large/long with small products. Product specific, fast interchangeable pick-up plates take up products at synchronized speed and stack them into a dual piling cassette system – non-stop.

A 100% product inspection system with defective product discharge is available in addition.

The RSM-DIGI-VARICUT is – due to its advanced design – ready to meet the specific demands of the digital market to cope new business challenges.

Short make-ready time, minimum waste & cost-effective cutting technology with maximum lifetime – due to a micro-metric die wear compensation adjustment

– are additional significant benefits of this converting technology.

If you want to experience the latest development of the RSM-DIGI-VARICUT series in action, we recommend our current video of the RSM770-DIGI-VARICUT model.



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Cutting and creasing with maximum efficiency and quality, thanks to Vector Technology



As a manufacturer of digitally printed folding boxes and in-mould labels, your best way into the future is with our new RSM520HD-DIGI-VARICUT. Thanks to our innovative drive technology, continuous and intermittent processes can be combined in the ongoing cutting and creasing process without changing the magnetic cylinder. For you, this means shorter set-up time, minimal tool costs and optimal workflow connection with reduced waste.

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Simco-Ion Continues to Lead the Industry in Static Control for Converters

Simco-Ion's customers rely on today's newest technology that monitors and adjusts real-time ionization, record data, and alert to potential problems. Simco-Ion was the first to market with Common Industrial Protocol communication capabilities and continue to lead the industry in static control innovation. With the development of the IQ Power™ Static Neutralizing System, customers successfully incorporate Industry 4.0 technology with plant operation.

The IQ Power Control Station is the core of the IQ Power System. Full-color, high resolution touch screen is combined with a clear, user-friendly interface. The Control Station communicates with the entire IQ family making it easy to integrate and power multiple static control devices across production lines. This solution offers 24/7 control and comprehensive monitoring. Critical information includes device

name and status, ion current, and real-time web charge using the IQ Sensor Bar.

With the launch of the IQ Easy LP Static Neutralizing Bar, Simco-Ion has increased its product offering to the industry. This revolutionary bar is engineered to be the "one bar that does it all". This compact, low profile bar is not only balanced and optimized for neutralizing on moving webs at close distances, but it also has pulse mode functionality for non-web distance neutralization. It is the one bar that can neutralize in any application.

The recent launch of the IQ Power BPS-C has brought advanced monitoring and control of static eliminators located within trim systems. When con-



nected to the IQ Power Control Station, the BPS-C enables information like bar cleanliness, ion output (in mA) and ionizer status to be reported and recorded at the PLC.

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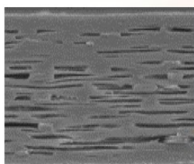
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No Added PFAS Puts Pregis Flexibles Ahead of Environmental Legislation

The U.S. Environmental Protection Agency (EPA) is likely to publish a final ruling this month, requiring manufacturers (including importers) to report information on fluoropolymer process aids (PFAS) manufactured or imported since Jan. 1, 2011. If the rule is finalized as proposed, manufacturers will have to report use of any materials with PFAS and stop using new products containing intentionally added PFAS.

Anticipating these and future legislative limits regarding PFAS, Pregis Flexibles implemented processes in its high-performance blown film operations to ensure they eliminated PFAS from incoming materials and do not include within the manufacturing process.

Because of safety concerns, many states are deploying harsh legislative measures to limit the impact of PFAS on the environment and curb their use especially in food safety. Eleven states have enacted laws that prohibit or will prohibit the use of PFAS in food packaging. PFAS chemicals will continue to be a significant focus of proposed policies throughout the next few years.



TekniPlex Consumer Products to Showcase Expanded "GeoPack" Sustainable Products Portfolio

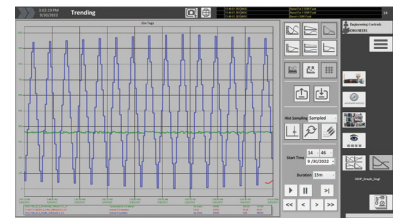
TekniPlex Consumer Products, a globally integrated provider of innovative solutions through materials science and manufacturing technologies, will showcase its significantly expanded selection of GeoPack sustainable packaging products at the International Production &

Processing Expo (IPPE), Booth B6539, January 24-26 in Atlanta.

TekniPlex Consumer Products also will display its broad range of egg cartons, fruit trays, and protein trays, including solutions in molded fiber, recycled and virgin PET, and foam polystyrene. TekniPlex will also display its PET protein trays, which offer premium product display while addressing common packaging challenges prevalent in the poultry industry.

Davis-Standard Announces EPIC IV® Control System

The next generation of Davis-Standard's supervisory control technology is here – introducing the EPIC IV®.



This control system adds connectivity to Davis-Standard's cloud-based solution, DS Activ-Check™. Advantages include improved graphics and symbols, additional diagnostic and efficiency tools, and screens focused on active functions and alerts.

The updates reflect customer feedback and a commitment to digital transformation via DS Activ-Check™, enabling real-time predictive maintenance by providing early notifications of potential machine failures.

The EPIC IV® will replace the EPIC III® as the standard offering for supervisory control on all new Davis-Standard extruders. It will also be available as an upgrade for existing EPIC supervisory control systems.



















American Roller Acquires Big River Roller

American Roller has announced acquisition of Big River Roller in Paris, Arkansas. The acquisition expands American Roller's position in the south and enhances its capabilities in rubber coverings and core design and manufacturing.



American Roller Company


Big River Roller was founded in 2019 by four entrepreneurs who built a successful and growing business during the pandemic. American Roller, the leader in industrial roll design, covering and coatings, represents the only supplier in the industry with in-house cores, covering and coatings capabilities and expands this strategy with the acquisition of Big River. ■

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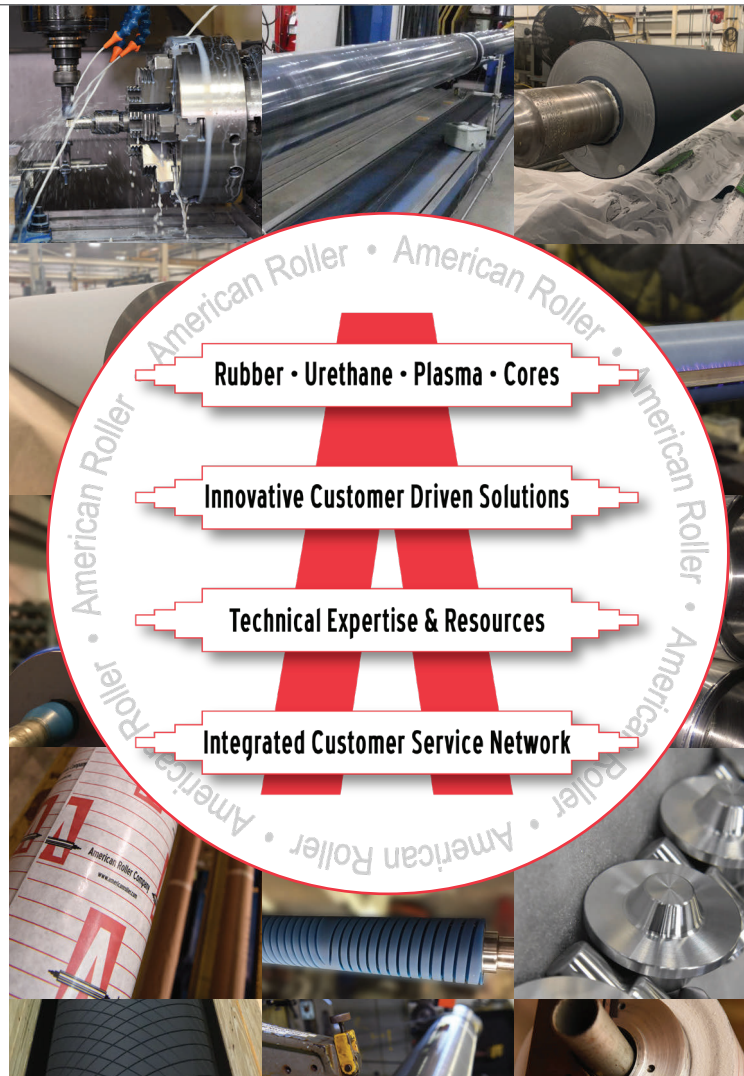
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