THE AUTHORITATIVE VOICE OF THE CONVERTING COMMUNITY

PFFC
PAPER, FILM & FOIL CONVERTER

96th ANNIVERSARY

www.PFFC-Online.com

rdgmedia PUBLICATION

FEBRUARY 2023

THE WOVEN PLASTIC BAG OF THE FUTURE 6

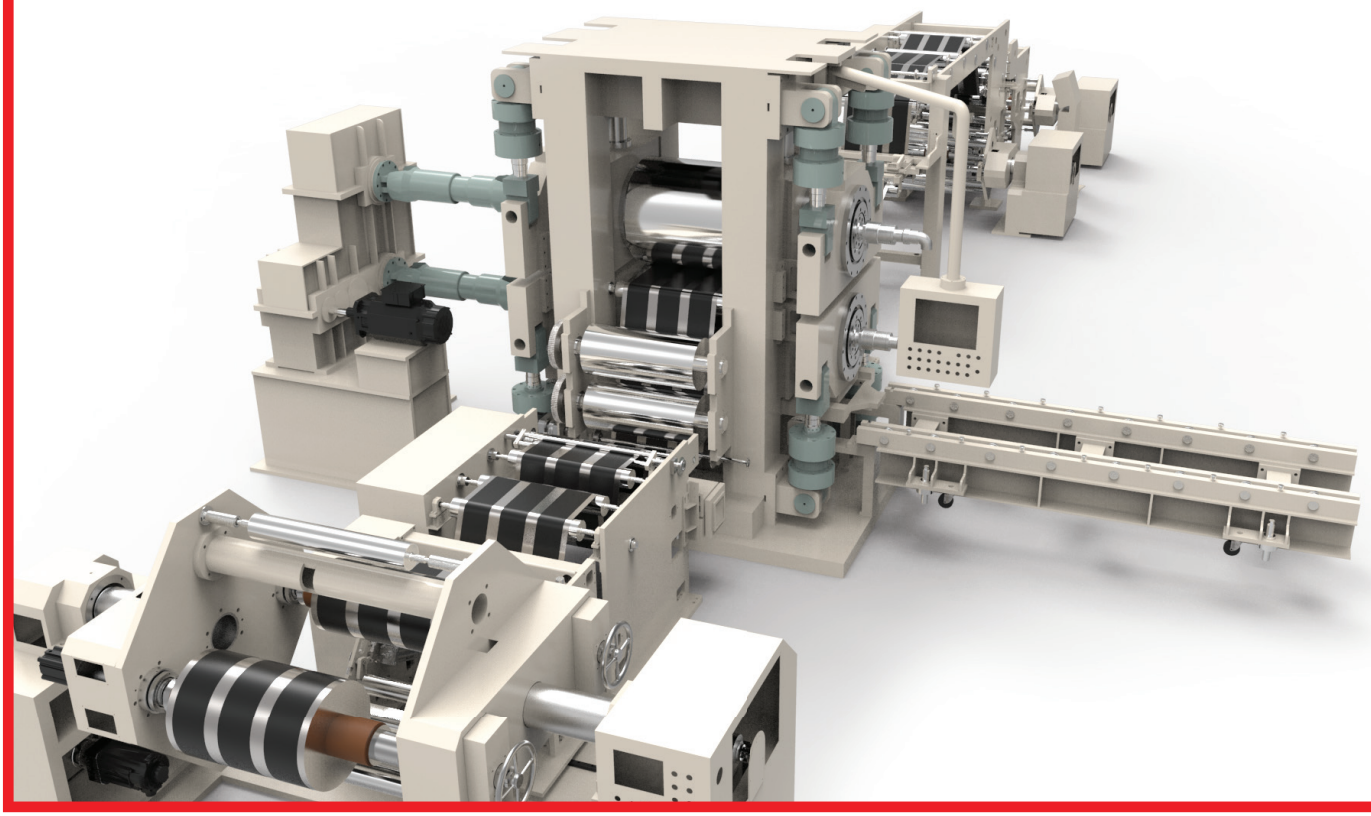
ALSO IN THIS ISSUE

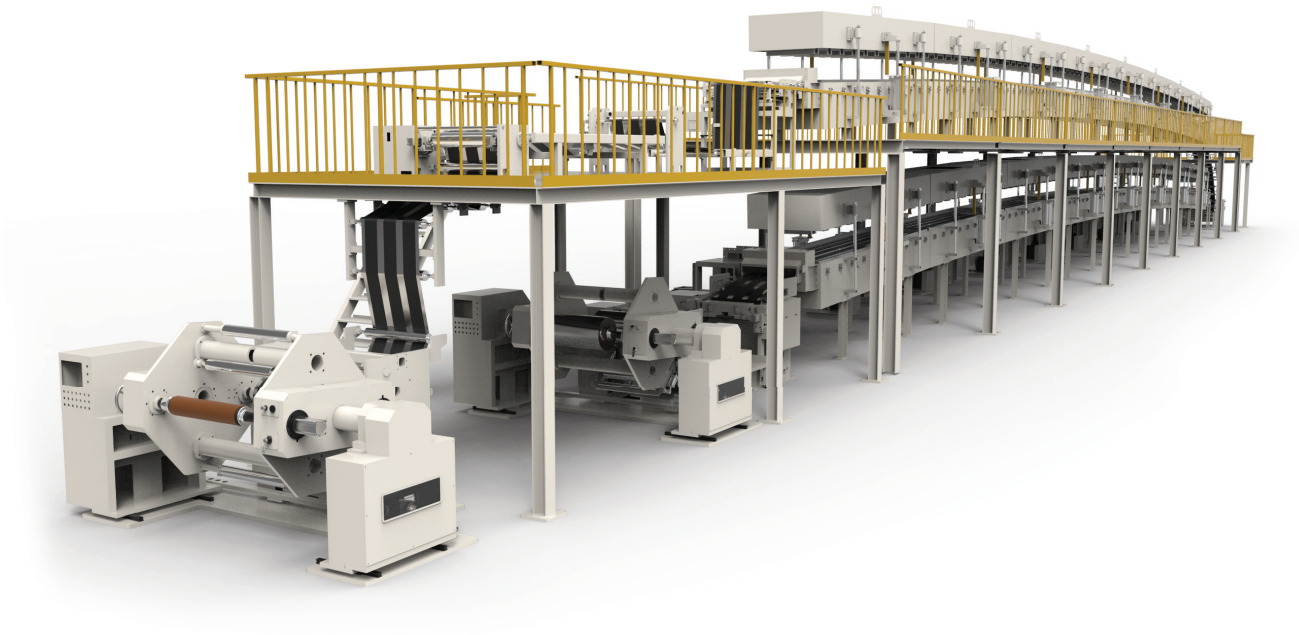
People & Technology

PNT Meets Market Demands Today and in the Future.

World class experts in roll-to-roll converting machinery

PNT, founded on 30 December 2003, is a Korean machine manufacturer specializing in roll-to-roll converting machines and automation machines.





PNT makes a wide variety of equipment: display optical film and composite sheet production equipment, roll-to-roll screen printing machine, secondary battery electrode wide coating equipment and pressing equipment, membrane coating equipment and slitting equipment, copper foil equipment, FPCB and flexible printed electronic equipment, MLCC manufacturing, water treatment equipment, and semiconductor automation module in-line assembly equipment, etc. We are leading the design and manufacturing paradigm of roll-to-roll equipment throughout the whole machine industry.

PNT's machines are used by more than 500 companies in 20 countries. We provide the best customer service with human networks and more than 10 years of experience in technical sales.

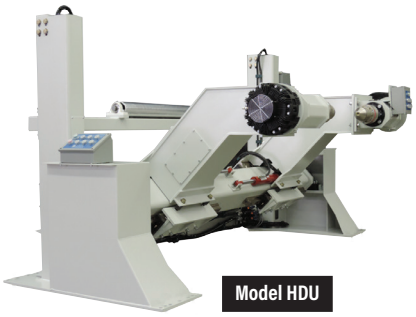
- **Expertise in mass production process**
- **Latest trends in secondary battery industry**
- **World class production capacity**
- **Continuous investment in R&D**

CONTACT INFORMATION
E-mail: pnt@epnt.co.kr
Web: epnt.co.kr/en
Phone: +82 31 627 5874
Address: 33 Cheomdangieop-ro, Gumi-si, Gyeongsangbuk-do, 39422 South Korea

TABLE OF CONTENTS

DEPARTMENTS

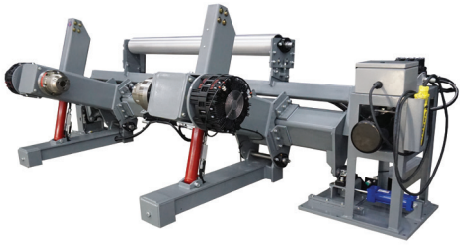
Want More Production?



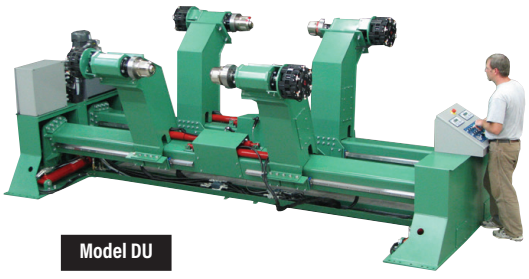
Model HDU

Model EP

Model EP Jr



Model MS2MA



Model DU

Keep your converting machines busy!

See why major corporations, small converters and OEM's prefer the proven and versatile shaftless unwind machines from Powell Engineering, Inc.

- **Proven to increase production**
- **Eliminates shaft related injuries**
- **Lifts rolls from floor or cart**
- **Proven quality and reliability**
- **Easy one-man roll changes**
- **Braked or spindle driven**
- **Widest range of options predesigned and available**
- **Reasonably priced**

ALSO AVAILABLE:

- **In-floor roll trolleys**
- **Splice tables**
- **Dancer units**
- **Cast Grip™ series core chucks**

PEi *Machine design specialists*
POWELL ENGINEERING, INC.

Phone: 205-625-5444 • 800-213-4267
unwind@powellengineering.com
www.powellengineering.com

IN USE WORLDWIDE

Made in USA

Worth Repeating

Angel Morris
Editor

Little did we know this month three years ago that we were on the precipice of a pandemic that would alter the way we live, work and, quite literally, breathe. Even in the midst of it, as masks, hand sanitizer and the Zoom app became our new normal, how many of us dreamed this thing would carry on for more than a year? Two? Even now there's ongoing debate about masks, vaccines, where COVID originated and how we keep something like that from happening again.

I know I'm not the first to compare that time period to the movie *Groundhog's Day,* in which a weary weatherman named Phil, played by actor Bill Murray, finds himself stuck in the same day on repeat. Forget whether the famous groundhog, Punxsutawney Phil (no relation to the weatherman of the same name, of course), saw his shadow … we just hoped for a light at the end of the variant tunnel and began feeling more like Bill Murray desperately seeking a way from one day to the next. While it seems we have settled into a new normal somewhat closer to life pre-pandemic, there are still days (especially this month) when I wake up one eye at a time, wondering if it's safe to come out from under the covers.

I find the best respite is to flip the *Groundhog's Day* script, remembering that going through things again and again can result in valuable outcomes. Like the way this month's cover story explains the woven plastic bag of the future and its move toward circular life. And how the label industry is increasingly addressing that sustainability is no longer a trend, but a way of doing business. This edition also explains how an investment in inspection technology can help converters and printers avoid defects; because while we may learn from mistakes, we can't afford to make them a habit. Like weatherman Phil finally discovers, it's not about rushing through the shadows, but about finding, or being, a light even on dark days. Sometimes that's a hard lesson to learn … but one worth repeating.

Angel Morris
Editor-in-Chief
angelm@rdgmedia.net

PFFC
PAPER, FILM & FOIL CONVERTER

A RDG Media, Inc. Publication
P.O. Box 529
Estero, FL 33929
586.227.9344
www.pffc-online.com

President/Group Publisher
Randy Green
randy@rdgmedia.net

Publisher
Lori Pisano
lori@rdgmedia.net
814.616.8380

Editor
Angel Morris
angelm@rdgmedia.net

Accounting Manager
Kristin Green

Systems Administrator
Angi Hiesterman

Operations/Customer Service
Jody Kirchoff

Web Design
Josh Scanlan

Auctions
Angi Hiesterman

rdgmedia PUBLICATION

facebook.com/PFFConverter
twitter.com/PFFConline
youtube.com/ConvertingHotline
linkedin.com/company/pffc-paper-film-&-foil-converter

ACCU DYNE TEST™ Marker Pens

- ***22 Standard levels, from 30 through 72 dynes/cm***
- ***Specifically designed for fast, accurate on-line use by printers, coaters, and laminators***

Also ideal for process control or field use by suppliers of film, sheet, coated board, inks, coatings, and adhesives

Spring loaded tip meters fluid feed and guards against contamination

Reliable enough for many R & D and lab applications

Hundreds of tests from each marker

Usable on virtually all smooth non-absorptive substrates

Six month shelf life; mix certifications provided with every order

Specify any combination of dyne levels and quantities you require (minimum order four pens)

Conveniently packaged in ready to use setup boxes

Total Qty.	Unit Price	Total Qty.	Unit Price
4-7	$10.80	32-47	$5.90
8-15	$8.20	49-95	$5.20
16-31	$6.80	>96	$4.80

Unit pricing is based on total order quantity. We now ship via ground service prepaid at no charge. Standard dyne levels include all even numbers from 30 through 72 dynes/cm. Free samples available on request.

Diversified Enterprises 101 Mulberry St., Ste 2N, Claremont, NH 03743
800-833-4644 or 603-543-0038; Fax 603-543-1334 www.accudynetest.com

Woven polypropylene sacks are used for packaging all kinds of dry bulk goods, including comestibles. ©Starlinger

Recycled and recyclable:

The Woven plastic bag of the future

By **Sigrid Eder-Ince**, Starlinger & Co GmbH

The circular economy for plastic packaging is on its way: Countries worldwide are adopting measures to reduce or ban single-use plastic packaging and promoting recycled content in and recyclability of the packaging. This also affects woven plastic sacks, a widely used packaging for transporting and storing dry bulk goods. This article looks at some examples of legislative measures for more circularity in plastic packaging and discusses solutions for woven plastic packaging to meet the proposed targets.

Governments in a number of countries are introducing legislative measures to make plastic packaging more sustainable. The EU Plastic Packaging Levy, the UK Plastic Packaging Tax or directives proposed by organizations such as the Global Plastics Pact by the Ellen McArthur Foundation, all target the plastic packaging industry.

The goals of such legislative measures are to provide an economic incentive for businesses to use recycled material in plastic packaging, to create greater demand for recycled materials, and to increase levels of collection and recycling of plastic waste to divert streams from landfill or incineration.

EU Plastics Strategy

The EU plastics strategy was launched in 2018 and defines, among others, the following goals:

- Currently, 25 percent of all plastic waste must be recycled;

- 50 percent of all plastic waste must be recycled by 2025;
- 55 percent of all plastic waste must be recycled by 2030; and
- all plastics packaging placed on the EU market must be either reusable or recyclable by 2030.[1]

In addition, EU member states have to pay a "plastic levy" of EUR 800 ($850 U.S.) per ton of plastic waste that is not recycled since January 2021.[2] Regarding recycled content in plastic packaging, however, no prescribed amounts have been defined yet.

Taxing Plastic Packaging

Independently of the EU Plastics Strategy, countries such as the UK, Spain and Italy have, or are about to introduce, national taxes for plastic packaging. They apply to plastic packaging placed on the markets of these countries, including imports.

In the UK, a plastic packaging tax of GBP 200 ($243 U.S.) per ton took effect on April 1, 2022[3]. It applies to all plastic packaging manufactured in or imported into the UK that does not contain at least 30 percent recycled plastic. Imported plastic packaging is liable to the tax, whether the packaging is unfilled of filled. The tax affects UK manufacturers as well as importers of plastic packaging as soon as they handle more than 10 tons of plastic packaging. The tax does not apply to plastic packaging that has more than 30 percent recycled content, or packaging that is not predominately plastic by weight.[4]

Spain and Italy, on the other hand, are planning to impose a tax on single-use plastics. It focuses on the manufacture, import and intra-community acquisition of non-reusable plastic packaging and will affect producers and importers of plastic packaging in the respective countries. A fee of EUR 450 ($478 U.S.) per ton will apply to all types of single-use plastic packaging used for goods and foodstuffs. In contrast to the UK plastic packaging tax, there is no threshold of recycled content to determine the taxability of the product. In both countries, the legislation went into effect on January 1, 2023.[5] [6]

But not only European countries are taking measures to reduce plastic waste contaminating the environment and to foster recycling rates. Leading economies like the U.S. and China are also introducing legislation or applying directives set up by trade organizations to increase the use of recycled materials and the collection and recycling rates of plastic waste.

Billions of woven sacks and big bags are used worldwide every year. ©Starlinger

Roadmap to More Sustainability in China

The China National Resource Recycling Association (CRRA) and the National development and Reform Commission (NDRC) have set up standards and a roadmap to encourage corporates to improve recycling facilities, use clean production technologies and green designs to contribute to a circular economy by 2025. The measures also target the plastics and packaging sector, e.g. with a nationwide ban of single-use and non-degradable plastics that went into effect in major cities in 2020 and the rest of the country at the beginning of 2022.[7]

The Group Standard released by CRRA in January 2021 defines guidelines for the easy-to-collect and easy-to-recycle design of plastic products. Plastic manufacturers are expected to comply with the standard to help increase

the collection and recycling rate of waste plastic in China.[8]

The measures mentioned above are part of China's 14th Five-Year plan (2021-2025) to cut carbon emissions, consolidate industry structures and boost energy efficiency. Industrials will face higher regulatory pressure to meet sustainability goals. The regulations will also be a key driver of investments in advanced technology to improve efficiency, green product design and recycling infrastructure.[9]

NGOs and Industry Associations Drive Circular Economy in the U.S.

The U.S. Plastics Pact is part of the Ellen MacArthur Foundation's (EMF) Global Plastics Pact network and aims to create a platform for industry-led innovation and a unified national framework for a circular economy for plastics.

The regulations will also be a key driver of investments in advanced technology to improve efficiency, green product design and recycling infrastructure.

Market-leading members of the EMF such as Johnson & Johnson, Mondi, Heineken and Henkel AG have joined the Foundation's New Plastics Economy Initiative and have become powerful industry trendsetters on the road toward a circular economy for plastics.

The roadmap defined by the US Plastics Pact includes four targets:

- The definition of a list of unnecessary or problematic packaging by 2021 and elimination of it by 2025;
- to make 100 percent of plastic packaging reusable, recyclable or compostable by 2025;
- to undertake ambitious actions to effectively recycle or compost 50 percent of plastic packaging by 2025; and

Speed and Innovation

Catbridge surface winders

CATBRIDGE 973.808.0029 | www.catbridge.com | sales@catbridge.com

- to include an average of 30 percent recycled or responsibly-sourced bio-based content by 2025.[10]

The American Chemistry Council (ACC), too, proposed an Action Plan for a circular economy,[11] and the first law on recycled content for plastic packaging in the U.S. went into force at the beginning of January 2022 in the East-Coast State of New Jersey.[12]

Recycled Polypropylene in Woven Sacks and Big Bags

With billions of woven sacks and big bags being produced worldwide every year, the potential to save resources through the use of recycled material is enormous. In the past years, there have been successful efforts in the industry to develop processes for using recycled polypropylene in tape production for woven sacks and big bags without cutting back on quality.

As polypropylene degrades in the recycling process, the high requirements for polypropylene tape production call for best recycle quality to guarantee safe usage and handling of the woven packaging produced. The recycled polypropylene is added in the tape extrusion process – shares of 50 percent rPP and more are possible.

With the correct recycle quality, the properties (e.g. tensile strength, weight and, in case of big bags, safety factor) of woven sacks with rPP content are the same as with virgin material and have been tested using standard testing procedures and certified equipment.

The Ultimate Goal: Woven Sacks Made of up to 100 Percent Recycled Material

An alternative for woven sack producers is tape fabric made from PET. Besides its high strength and form stability, which makes PET fabric perfect also for heavy-duty applications such as big bags, PET can be recycled and refined so that its properties are the same as those of virgin material.

With a method called solid-state polycondensation (SSP), the molecular weight of recycled PET can be restored to its original level, thereby yielding material

www.nordmeccanica.com

nordmeccanica group

triplex SL 1Shot™

Connected Powerful Smart Safe

3-ply lamination for flexible substrates

ZERO ENERGY COST

For drying oven(*)

100% SUSTAINABLE

The only 3-ply Solvent-Less-Only laminator in the industry

(*) and all of the renowned benefits of solvent less lamination expanded to 3-ply lamination.

THE SOURCE for coating, laminating, metallizing machinery

nordmeccanica solutions for a Better Life

Solutions to produce woven sacks and big bags with recycled content that meet the highest quality standards are already available on the market.

that is literally "as good as new," even after having been recycled many times. This means that with PET, the recycled content of woven sacks and big bags can even be up to 100 percent.

In addition, the food-grade quality of rPET produced with FDA- and EFSA-approved PET recycling and decontamination processes also opens up multiple possibilities for food-contact packaging, enabling woven sack and big bag manufacturers to broaden their customer base.

Conclusion

The legislative measures outlined before clearly indicate the worldwide trend toward a circular economy for plastic packaging, and this trend will also affect producers of woven plastic sacks and big bags. Within the next years, these types of plastic packaging, together with many others, will have to be either reusable, have a certain content of recycled material, or be recyclable. If not, they might be taxed and lose competitiveness by becoming more expensive.

Design for Recycling (DfR) will play a significant role: Woven plastic sacks and big bags will have to be "easy-to-recycle," i.e. a mono-material packaging without too many dispensable additives such as color or printing. Solutions to produce woven sacks and big bags with recycled content that meet the highest quality standards are already available on the market. ■

1 EU rules on packaging and packaging waste, including design and waste management, European Commission, viewed on 13 December 2022, https://environment.ec.europa.eu/topics/waste-and-recycling/packaging-waste_en
2 *Plastics own resource*, European Commission, viewed 26 January 2022, https://ec.europa.eu/info/strategy/eu-budget/long-term-eu-budget/2021-2027/revenue/own-resources/plastics-own-resource_en
3 *Introduction of Plastic Packaging Tax from April 2022*, 2021, HM Revenue & Customs, viewed on 13 December 2022, https://www.gov.uk/government/publications/introduction-of-plastic-packaging-tax-from-april-2022/introduction-of-plastic-packaging-tax-2021
4 *Are you Plastic Tax Ready?*, 2022, Wastepack Ltd., viewed 07 December 2022, https://www.wastepack.co.uk/plastic-packaging-tax/
5 *Spain: New indirect tax on non-reusable plastic packaging starting 1 January 2023*, Global VAT Compliance, viewed on 15 December 2022, https://www.globalvatcompliance.com/globalvatnews/spain-new-indirect-tax/
6 *Italy's plastic tax will enter into force on 1 January 2023*, 2022, EY Global, viewed 15 December 2022, https://www.ey.com/en_gl/tax-alerts/italy-s-plastic-tax-will-enter-into-force-on-1-january-2023
7 *China: Single-Use Plastic Straw and Bag Ban Takes Effect*, 2021, Library of Congress, viewed 12 December, https://www.loc.gov/item/global-legal-monitor/2021-03-23/china-single-use-plastic-straw-and-bag-ban-takes-effect/
8 Yan, C. *China establishes guidelines for assessing easy-to-collect & easy-to-recycle design of plastic products*, 2021, Enviliance ASIA, viewed 12 December 2022, https://enviliance.com/regions/east-asia/cn/report_2258
9 *China's Circular-Economy Push Addresses Waste Reduction and Overcapacity*, 2021, FitchRatings, viewed 12 December 2022, https://www.fitchratings.com/research/corporate-finance/china-circular-economy-push-addresses-waste-reduction-overcapacity-17-08-2021
10 U.S. Plastics Pact – Our 2025 Targets, U.S. Plastics Pact, viewed 13 December 2022, https://usplasticspact.org/take-action/
11 Circular Economy for Plastics Essential to a More Sustainable Future, 2021, American Chemistry Council, viewed 13 December 2022, https://www.americanchemistry.com/chemistry-in-america/news-trends/press-release/2021/circular-economy-for-plastics-essential-to-a-more-sustainable-future
12 Enck, J. Gov. Murphy Signs Recycled Content for Plastics Bill into Law, 2022, Beyond Plastics, viewed 13 December 2022, https://www.beyondplastics.org/press-releases/nj-gov-signs-recycled-plastic-content-bill

ABOUT THE AUTHOR

Sigrid Eder-Ince handles public relations for Austrian machinery producer Starlinger & Co GmbH. She holds a degree in Translation Sciences and worked as a technical translator for many years, when she built up her technical knowledge in plastics processing. Starlinger & Co GmbH supplies the entire range of machinery for woven plastic sack production – from tape extrusion lines, tape winders, circular looms, coating and printing machines to conversion lines – as well as recycling lines for post-industrial and post-consumer plastic scrap.

Dealing with sticky build-up on your rollers?

With its unmatched release properties, Jemmco's JemmSil™ RS200 High Release Sleeve is the easy and cost-effective solution! This proprietary, extreme non-stick sleeve is ideal for hot melt, pressure sensitive, label, label-stock, glue, and non-stick applications.

We dare you to find something that sticks to this sleeve... Call today for a FREE sample and put it to the test!

CALL TODAY FOR A FREE SAMPLE!
262-512-9559 **www.jemmco.com**
sales@jemmco.com

Jemmco, LLC

Prevent Opening Failures of Bags and Pouches with Good Static Control

By **Dr. Kelly Robinson**, Founder, Electrostatic Answers

Static control is important for operator safety, manufacturing productivity and product quality. Easy opening is one important product quality for bags and pouches. Static charges can cause opening failures, which can jam machines causing significant down time. When static charges are the root cause, good static control can prevent opening failures.

When static charges cause a bag opening failure, diagnosing the problem is difficult because the bag must be open for the fieldmeter in Figure 1 to detect the charge. When the bag is closed, fieldmeter reading E_{closed} is nearly zero because the fieldmeter responds to all of the static charges inside control volume CV_{closed}. In this case, for every positive charge on the top of the closed bag, there is also a negative charge on the bottom of the bag. There is no net charge in CV_{closed} and reading E_{closed} is zero.

When we take fieldmeter readings on the line when the bags or pouches are closed, we might think that there will be no problem opening the bags. However, the top of the bag is firmly pinned to the bottom of the bag. The strong electric field across the closed bag represented by the red arrows inside CV_{closed} indicates the attraction of the charges.

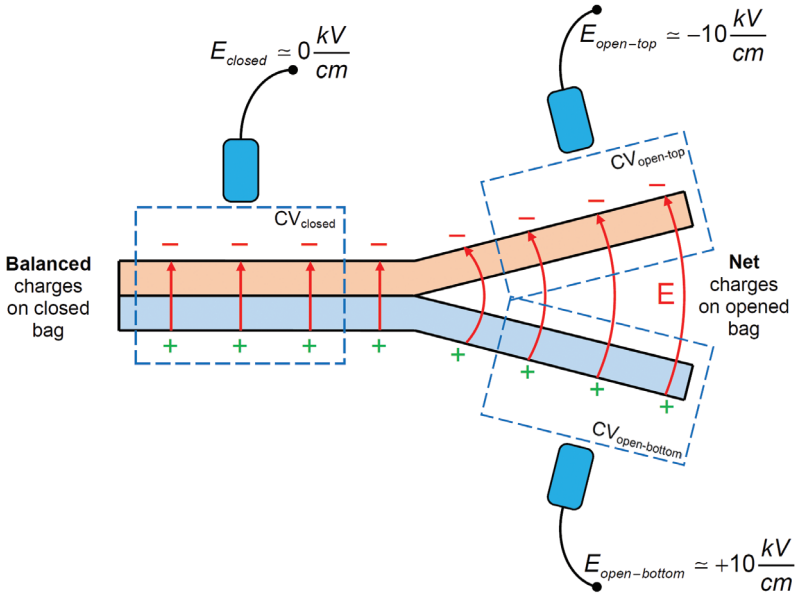


Figure 1: The fieldmeter detects the problem only when the bag is open.

To diagnose the problem, take a bag or pouch from the end of the line. Open the bag or trim the edges so that we can separate the top of the bag from the bottom of the bag. Opening the bag or separating the top sheet from the bottom sheet separates the static charges.

Take fieldmeter reading $E_{open-top}$ in Figure 1 on the top sheet of the open bag. Reading $E_{open-top}$ responds to all of the charges in control volume $CV_{open-top}$ and the negative charges inside $CV_{open-top}$ are detected by the fieldmeter.

To confirm that static charges are causing opening failures, take reading $E_{open-bottom}$ in Figure 1. The polarity of reading $E_{open-bottom}$ should be opposite to $E_{open-top}$ and the magnitudes should be approximately equal. And, the top of the bag is strongly attracted to the bottom of the bag indicated by the electric field E represented by the red arrows.

Now that we have confirmed that static charges cause

SONIC SOLUTIONS™

BIG

System that can clean sleeves up to 70" long

or

SMALL....

System that cleans narrow and medium web rolls

...we can clean them all!

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

Call or e-mail us for more information

877.654.7800

customer_service@sonicsolutionsusa.com

www.SonicSolutionsUSA.com

SONIC KLEEN

Sonic Kleen - The original and still the best.

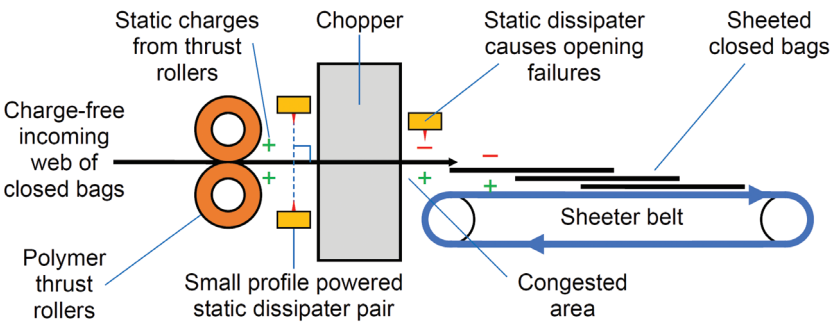


Figure 2: Static charges from the thrust rollers can cause opening failures.

the opening failure, we need to dissipate the charges to solve the problem. One common source of opening failures relates to the polymer thrust rollers in Figure 2 just before the chopper. These polymer nip rollers thrust the closed bags into the chopper. The chopper cuts across the web width and finished bags exit onto a sheet belt. The sheet belt commonly moves slower than the web speed so that the bags are partially stacked.

Polymer nip rollers can deposit large amounts of static charges on webs. Since both thrust rollers in Figure 2 have a polymer or rubber coating, static charges are deposited on both the top and bottom surfaces of the bag exiting the thrust rollers.

Often, we try to dissipate these charges with a powered static dissipater in Figure 2 exiting the chopper facing the top of the bags. Installing this static dissipater exiting the chopper can cause bag opening failures. This powered static dissipater deposits neutralizing ions only on the top of the bags exiting the chopper. The bags exiting this static dissipater look just like the closed bag in Figure 1.

Better is to install a pair of small profile static bars, some only 1/2 inch wide, exiting the thrust rollers. This pair of static dissipaters should be installed symmetrically. By this, I mean two things:

1. The distance from the web to each bar must be the same; and
2. A line drawn from one static bar to the other must intersect the web at a right angle.

With this static bar pair installed, the web entering the chopper is nearly charge-free. And, the static charges causing the opening failures are effectively neutralized.

This pair of small profile static dissipaters may be installed exiting the chopper. Often, this area is congested and the tail of the bag exiting the chopper is loose, which makes it hard to install a static dissipater below the bag exiting the chopper.

Bags and pouches must be easy to open. Bags and pouches must be opened to diagnose opening failures. If static charges are the root cause, installing a static dissipater exiting the chopper can make the problem worse. Instead, install a pair of static bars exiting the thrust rollers to solve the problem. ■

For more information, contact Kelly. Robinson@ElectrostaticAnswers.com.

MAXCESS®

ACCURACY PERFECTED

Building on the legacy of the FIFE-500, the **all-new, affordably priced FIFE-500 MAX** features an **easy-to-navigate 5" color touchscreen** combined with **advanced networking capabilities** that **deliver a higher level** of accuracy, efficiency, and dependability.

Maximize Accuracy with the NEW FIFE-500 MAX.

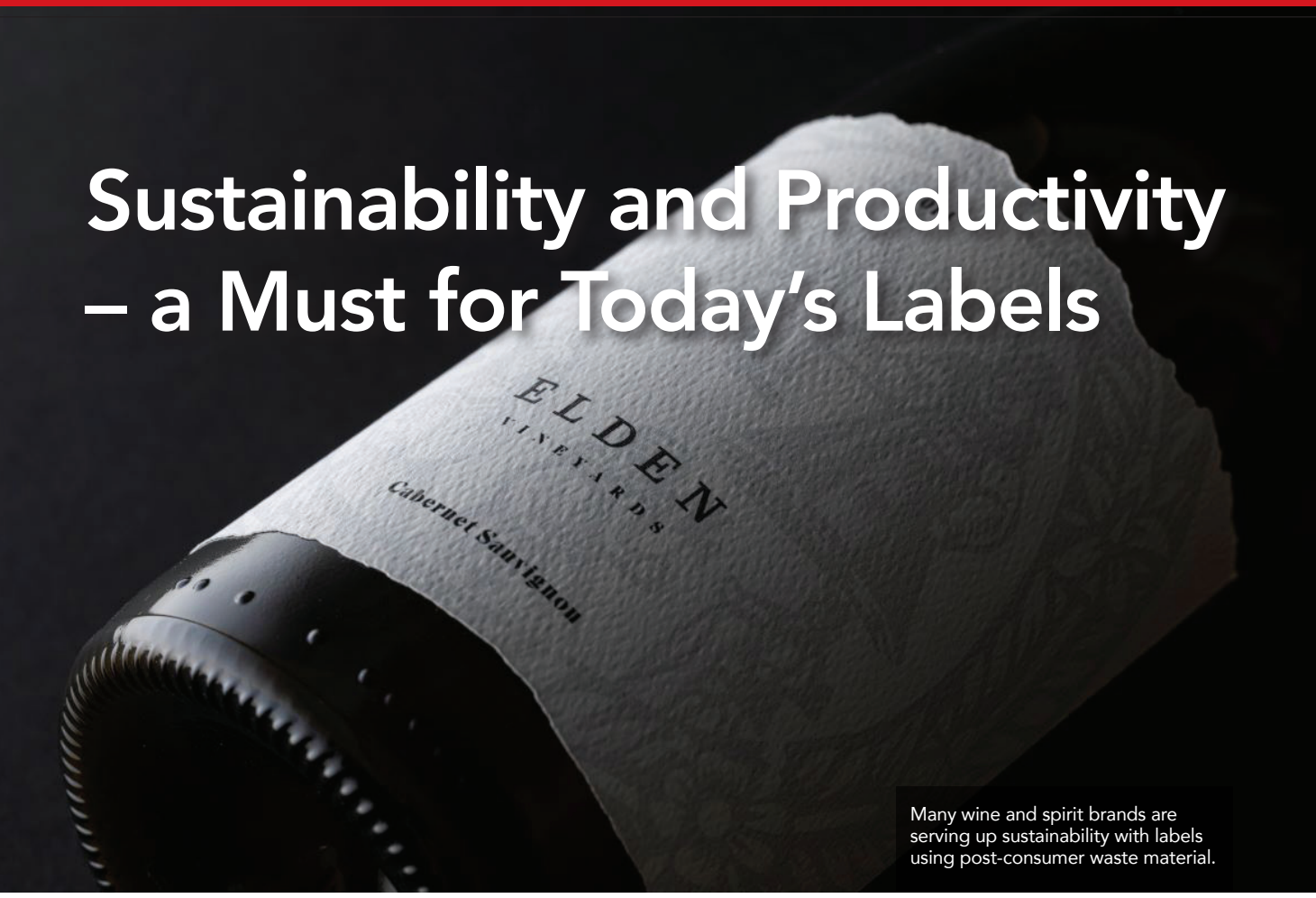
FIFE

A MAXCESS BRAND

To learn more, contact your local representative.

Maxcess.com

Sustainability and Productivity – a Must for Today's Labels



Many wine and spirit brands are serving up sustainability with labels using post-consumer waste material.

By **Louise Sullivan**, Sustainability Director, Avery Dennison Label and Packaging Materials

Sustainability has evolved from being a trend to how companies run their business in the label and packaging industry over the last few years. In addition to landfills beginning to pile up and governments setting stricter targets for recycling and diversion goals, sustainability is smart business.

Label and packaging converters and end-users are expecting more from their suppliers in this regard. They want environmentally responsible products that support them with more substantial, longer-lasting growth and better output. To increase the buy-in for environmentally-friendly label products and meet end-users' goals label products should be sustainable and improve efficiency and productivity.

To create sustainable packaging that supports essential audiences, we must adopt label technologies that reflect a whole system's approach and work in harmony with the existing recycling stream. It's critical to focus on enabling the reduction of resource and energy use in plastic production, maximizing the potential of waste recovery and facilitating recycling.

Innovation with Current Products

Enhancing current products is a vital step in advancing the circular packaging economy without compromising performance. One example is AD CleanFlake™ technology, engineered to enable the recycling of PET and HDPE packaging. It also helps brands meet sustainability targets, comply with regulations and advance circularity by increasing the availability of recycled plastic. During PET recycling, the adhesive deactivates to allow both the label and adhesive to separate cleanly, leaving the plastic free of contamination. During colored HDPE recycling, the label stays attached, but does not compromise the resulting plastic pellets.

Linerless Labels

A sustainable innovation helping productivity is direct thermal blank linerless labels. Direct Thermal Linerless labels don't use a release liner. A silicone coating on the facestock means

self-wound labels won't stick to those underneath, eliminating the need for liner and matrix. Without liners, there is no liner waste, no liner disposal costs and no safety risks to workers due to liner waste on the shop floor. Removing the liners can allow up to 50 percent more labels per roll. With more labels per roll, converters benefit from fewer changeovers and higher productivity.

Recycled Content Materials

Another way for converters to enhance the sustainability benefits of their label is by choosing materials made with recycled content. More and more options are becoming available with recycled content including facestocks, overlaminates and liners. Today, converters can choose everything from direct thermal papers to MDO film facestocks with a range of PCW material included.

Direct Thermal Linerless labels don't use a release liner. A silicone coating on the facestock means self-wound labels won't stick to those labels underneath.

The AD CleanFlake technology is engineered to advance circularity by increasing the availability of recycled plastic.

Sustainability also matters to the wine and spirits industry. Many brands are serving up sustainability with labels using post-consumer waste material face stocks without taking away from the performance or the shelf appeal brands require. In addition, labels created using hemp fiber, stone, cotton or organic waste give brands a compelling story and consumers another reason to feel good about their favorite beverage.

To take it a step further, recycled polyethylene terephthalate (rPET) is also a valuable and sustainable material that can be recycled multiple times into new packaging and benefit end users. rPET is used for both recycled content overlaminates as well as recycled content liners. Even better, these materials allow converters to help their customers meet sustainability targets by using recycled content — all without compromising on converting performance or visual aspects.

Conclusion

The next decade is critical to our industry and the world. Working together for solutions is also the goal of the U.S. Plastics Pact, a group of 110 businesses, retailers, not-for-profit organizations, government agencies and research institutions across the plastics value chain. As activators, we too are rethinking products, packaging and business models with the hope of bringing more national initiatives and innovative solutions to achieve higher sustainability. ■

ABOUT THE AUTHOR

Louise Sullivan is Sustainability Director at Avery Dennison, where sustainability is a core value: "It is built into our product design, operations and culture, and the decisions we make every day. We innovate not only to reduce the environmental and social impact but to go further and improve the planet and the industries we serve. We're proud to do our part in helping the world move toward a regenerative future where we enable recyclability, circularity and productivity."

FORUM 2023
TRADITION REIMAGINED

COLUMBUS, OH · **APRIL 16-19** ·
HILTON COLUMBUS DOWNTOWN

4	DAYS
1,500+	ATTENDEES
100+	AWARDS
180	EXHIBITORS
9	TECHNICAL SESSIONS
20+	IN-DEPTH PRESENTATIONS
30+	INDUSTRY EXPERTS
1	**CAN'T-MISS EVENT**

For more than six decades, FORUM has been an annual meeting of the minds.

It's where flexography's technical experts, foremost authorities and thought leaders come to share knowledge and educate their peers at all levels.

FORUM provides an unrivaled learning opportunity that yields benefits for employees and their employers for years to come.

Where Else Can You Find the Industry's Top Opportunities for **Exhibits, Education, Professional Development, Awards, Networking** and **Special Events** Under One Roof?

Information and education, professional development, industry connection—the foundation of a 65-year legacy. Join the 1,500+ package printers that come to FORUM and INFOFLEX to enhance their flexographic expertise.

INFOFLEX 41 YEARS 2023

BUILDING ON THE FUTURE

Learn more and register today

at forum.flexography.org

Quality Control Equals Margin Control

How Advanced Inspection Technologies Drive Consistency, Quality and Value

By **John Cusack**, Business Development Manager, Baldwin Vision Systems

In this era of supply chain challenges, inflationary pressures, labor shortages and economic uncertainty, converters and printers are largely focused on keeping the lights on. The prevailing mindset is that operating costs are as baked in as profit margins.

So the focus has been on process and production tweaks. But that's not a strategy for future success. Investing in consistent print quality is. Inspection technology can be the sturdy ballast that ensures companies stay ahead of their competitors and deliver value now and in the years to come.

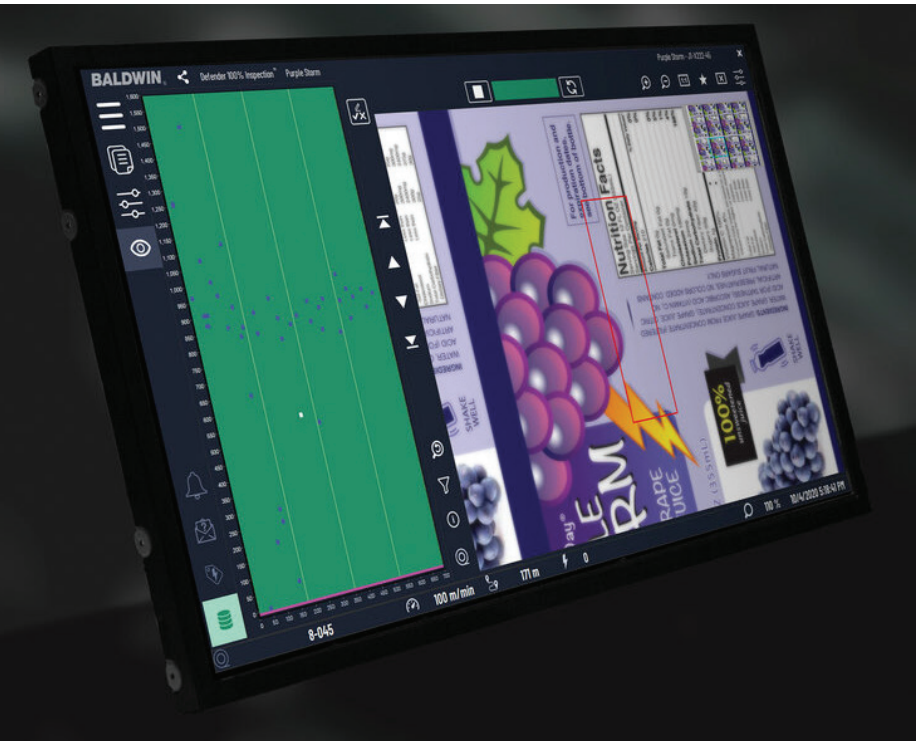
When considering significant investments in this space, factor in not only the up-front capital expense, but in a wider ROI perspective what savings can be extracted, including reduced substrate and ink waste, downtime, returns and re-runs, and the loss of jobs due to quality issues.

In industries with low margins, these are not marginal issues. These tools are about building a better business.

Beyond easily quantifiable ROI calculations, other big-picture concerns loom and need to be addressed — a company's reputation, retaining and retraining press operators, the ability to fix problems in real time and, above all else, proof to brand owners that their consistency and quality demands are met and succeeded, run after run.

For wide web applications, new data-connected platforms provide comprehensive inspection and defect-tracking solutions, including the use of advanced defect-detection algorithms that quickly classify each defect and drive better print-quality decisions.

Self-learning algorithms monitor the capabilities of the press and automatically apply optimum inspection tolerances to every job with job settings that are quickly modified and saved. Reducing "false" alarms is made easy by adjusting sensitivity levels for



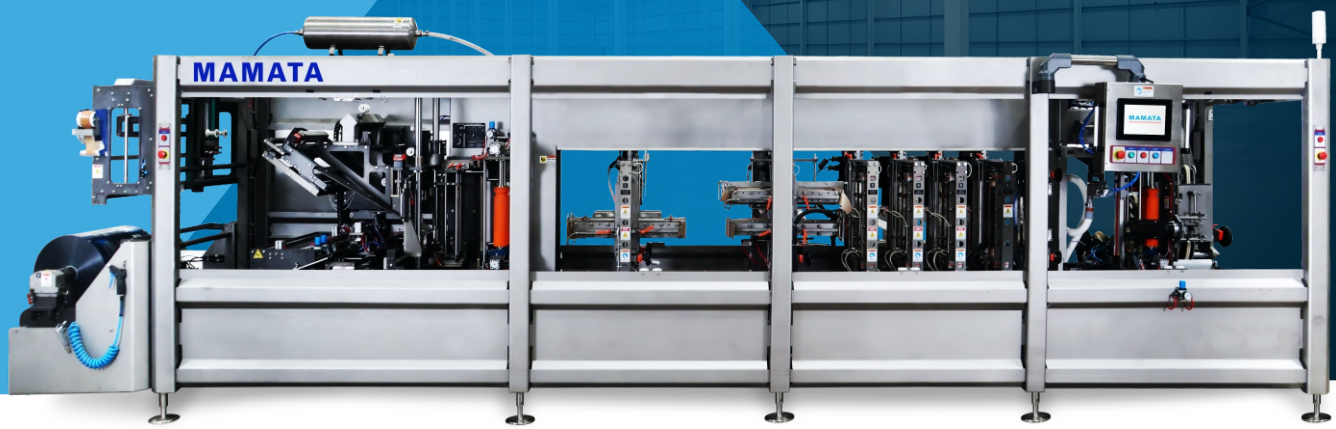
Equipment monitoring the entire web 100% of the time helps detect and manage defects.

MAMATA

Total Solutions For Flexible Packaging

Vega 300 PM

The Shortest footprint Pouch Machine in the Industry



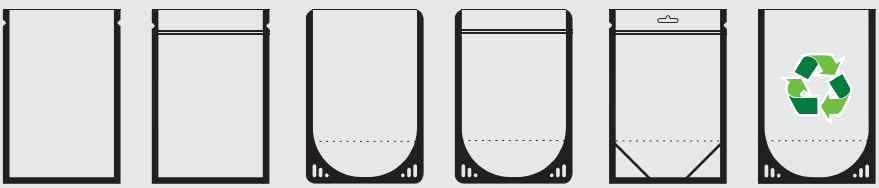
Highlighting features of the machine:

- 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



MAMATA ENTERPRISES, INC.

+1 941 205 0227 / +1 630 801 2320

sales@mamatausa.com

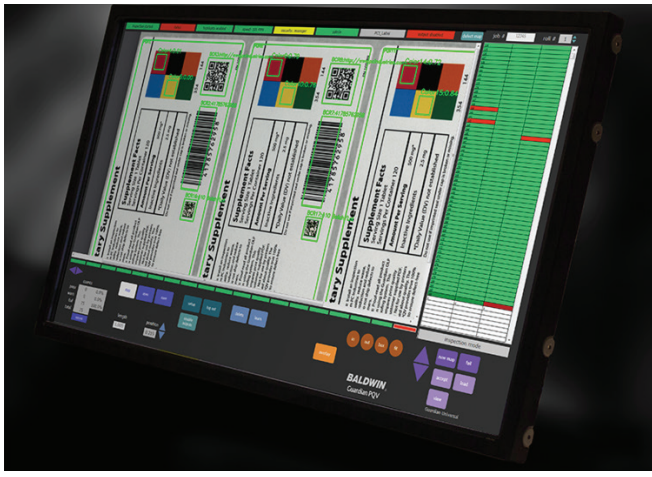
MEMBER Since 2012 PMMI

www.mamata.com

multiple defect types and different substrates.

Visual maps of inspected rolls provide intelligent print inspection. Quality-control operators can easily track and analyze for defect distribution, count and type. Out-of-tolerance areas are identified for removal and job-based quality reports can be generated. Advanced systems also have the ability to interface with rewinding, slitting and sheeting equipment — automatically controlling when they stop/reject — which allows for quick and easy removal of defective material. Defect location data speeds up the converting process by allowing operators to fast forward to the exact location of the defect within a roll.

When it comes to narrow web applications and the exacting regulatory requirements of the pharmaceutical, currency and security spaces, additional quality safeguards are required. The latest data-connected workflow technologies are able to inspect all types of materials and substrates, allowing printers to eliminate defects through efficient, accurate, data-connected workflows.



State-of-the-art camera systems can provide single or dual sided 100-percent print quality inspection for any application.

Optimal systems provide unique "object-based inspection" throughout the printing process to ensure tighter tolerances and fewer false defects. Areas of concern on the substrate can be defined

for enhanced or reduced levels of inspection, arming operators with the tools to spot errors and make adjustments in real time and mitigate defects throughout the entire process.

The latest data-connecting technologies allow printers to track and compare metrics in a very visual, intuitive and efficient way. Press managers have the ability to monitor changes as they happen, enabling informed decisions concerning print quality, defect management and operator-to-operator performance.

Central servers serve as the hub to monitor, collect and display real-time inspection data on a simple dashboard, collecting a treasure trove of data for multiple presses, jobs and even across multiple plants.

This combination of technologies ties together how you manage your processes, print customers and staff. Again, these advanced tools improve your business practices and grow your margins. Systems that require minimal training mitigate for future workforce challenges, including the retirement of skilled operators.

From future-proofing your business to delivering immediate quality and consistency gains, data-connected workflows give printers and converters the facts and actionable data to make better decisions now and in years to come. With advanced tracking workflows, providing perfect quality to brand owners is made easier, more cost-effective, and more reliable and resilient.

In an industry with small margins for error, inspection technologies protect the margins of printers and convertors. ■

ABOUT THE AUTHOR

With more than 20 years' experience in the print industry, John Cusack specializes in strategic product management. With responsibility for Baldwin's range of 100 percent Inspection, Proofing, Color Management and Data connected systems, John is always looking to maximize Baldwin's value and relevance in Print. John lives in a quiet corner of Ireland with his wife and three young children.

Update on Mercury Regulation for UV Curing Lamps

By **Jennifer Heathcote**, VP Business Development, GEW

Governmental and non-governmental organizations (NGOs) establish and routinely update policy and guidelines stipulating that the most dangerous and most toxic materials must be substituted with alternatives when identified. Harmful materials meant for replacement are commonly referred to as substances of very high concern (SVHC).

Mercury is an example of an SVHC. The SVHC designation drives legislation and policy that regulates how mercury is obtained, used, sold, transported, imported, exported and disposed. When no viable alternatives exist, exemptions or phaseout timelines are often allowed. Mercury regulation pertains to UV curing since a small amount of elemental mercury is contained inside medium-pressure, gas discharge lamps and is necessary for their operation. Without mercury, conventional UV curing lamps do not function.

In general, there are no restrictions in any country worldwide that specifically ban mercury UV curing lamps from production, use, export, import or general shipment, and no new restrictions specifically addressing mercury vapor UV curing lamps are anticipated in the immediate term. Global regulatory policies driven by REACH, RoHS, TSCA/Lautenberg Act and the Minamata Convention on Mercury, as well as regulatory bodies such as the European Commission, the U.S. Environmental Protection Agency and UN Environment are meant to reduce or eliminate anthropogenic mercury use. Anthropogenic refers to mercury directly or indirectly emitted to air or released to water by human activity. While complete mercury elimination is not possible today, restrictions and enforcement are expected to become stricter over time.

The regulatory policy that is most frequently referenced is the European Commission's RoHS 2 Directive. RoHS2 contains a scope carve-out that excludes large-scale stationary industrial tools (LSSITs) and large-scale fixed installations (LSFIs). For the UV curing industry in Europe, the scope carve-out has widely been interpreted to include printing presses, industrial curing chambers and tunnels, and converting lines among other industrial and commercial installations. As a result, the use of mercury UV curing systems in most production applications in the EU is generally understood to be exempt from RoHS restrictions indefinitely due to scope regardless of any specific

ban on mercury UV curing lamps. Spare parts and upgrades to UV curing system installations made before any imposed ban are also allowed indefinitely. Furthermore, amendments to the Directive's Annex III have historically granted mercury UV curing lamps renewable five-year exemptions. The prior exemption adopted in 2016 was scheduled to expire in 2021 but was recently renewed through early 2027.

Another policy-making body is the Minamata Convention on Mercury. This is an international treaty that entered into force August 16, 2017 and has been ratified by 137 countries including the U.S. Its goal is to eliminate all mercury from manufactured goods and processes. Over the coming

Figure 1: Between 10 and 100 mg of elemental mercury is contained inside conventional UV curing lamps. For reference, 5 mg of mercury covers the tip of a ballpoint pen.

Figure 2: UV LED lampheads are available in a range of lengths and form factors and are cooled with either water circulation or forced air.

decades, mercury regulatory policy will increasingly be driven by this treaty.

It is important to note that implementation and enforcement of international treaties is always executed at national levels. This means applicable legislation for each and every country potentially varies and is not always clear. While Minamata does not presently require a ban of mercury vapor UV curing lamps, it does require all Party nations to phase-out or take measures to reduce mercury when possible.

In the U.S., Minamata compliance and mercury regulation fall under the Environmental Protection Agency. The EPA was given full authority to regulate toxic substances and chemicals through the 2016 Lautenberg Act. Today, there is no EPA ban on UV curing lamps. The EPA is presently focused on identifying where mercury-added products are used domestically as well as the total inventory of mercury in products produced within the U.S. and imported to the U.S. Through ongoing evaluation and data collection, the EPA intends to eventually make recommendations

When change is technically, economically and practically viable for the vast majority of diverse UV curing applications, regulatory policy will hold everyone accountable through legislation.

to manufacturers on feasible mercury-free alternatives in order to facilitate a shift away from mercury.

The physics of elemental mercury results in emissions of ultraviolet, visible and infrared wavelengths when mercury is vaporized into a high-temperature plasma. This occurs within a sealed quartz tube filled with inert gas under medium pressure. No other gas discharge material produces the same spectral output as mercury. Since the 1940s, UV curable chemistry has been formulated to react to the broad-spectrum output generated only by vaporized elemental mercury. During transport, storage and use, mercury and its vapor are completely and safely contained within the sealed structure of lamps sourced from reputable manufacturers.

The amount of elemental mercury utilized within UV curing lamps varies across designs and lamp lengths; however, it is typically between 10 and 100 mg per lamp. UN Environment references an average of 25 mg per lamp for global inventory estimates. For context, a single mercury amalgam dental filling, also known as a silver filling, contains an average of 800 mg of mercury. This means there is often more mercury in a person's mouth than is contained in all the UV lamps of a typical printing press or converting line.

Since emissions to air and releases to water from mercury-added products primarily occur during waste disposal, mercury vapor lamps should never be discarded with bulk trash collection. When discarded with general trash, mercury enters the biosphere when lamps are crushed and then incinerated or buried.

Fortunately, mercury pollution from UV curing lamps is avoidable by recycling lamps through facilities that ensure lamp components are separated and spent mercury is safely and securely captured. Reclaimed mercury goes into long-term secure storage, permanent disposal or is processed through

established and documented protocols that safely re-introduce elemental mercury into permissible manufacturing channels.

As an alternative to conventional lamps, UV LED curing systems emit a very intense, narrow band of UVA energy without the use of mercury. UV LED technology was introduced to the curing industry in the mid-2000s. Both LED curing systems and applicable chemistry have been evolving ever since.

It should be noted that as of 2022, there are still no commercially available LED formulations for silicone release coatings, hotmelt adhesives and industrial hardcoats, topcoats and clearcoats. UV curing applications presently able to utilize LED systems include many but not all aspects of digital inkjet, screen, rotary screen, flexo, litho and offset printing. Other applications that are viable for LED include cold foil adhesives, laminating adhesives, cast and cure coatings, and some varnishes.

As confidence and experience builds, more users and markets will convert to LED, which is ultimately the goal of Minamata. This growing shift to LED is occurring independent of regulatory involvement due to the strong business case and increasing preference of end users for the technology. Examples of LED curing lamp heads are shown in Figure 2.

The ultimate goal of regulatory policy is to create awareness and pressure to expedite change. When change is technically, economically and practically viable for the vast majority of diverse UV curing applications, regulatory policy will hold everyone accountable through legislation. Until such time, users of UV curing are encouraged to educate themselves on LED technology, install UV LED systems where viable, actively engage in process development and recycle all mercury vapor lamps at end of useful life. ■

ABOUT THE AUTHOR

GEW (EC) Limited presented Truth and Clarity on Mercury Regulation in UV Curing at the RadTech 2022 conference in Orlando, Florida. This articles is a brief excerpt of GEW's paper that summarized 62 documents on global mercury use, legislation, handling, recycling and disposal. The conference paper also addresses feasibility of light emitting diodes (LEDs) as an alternative to mercury vapor curing lamps. It's a must read for anyone who wants to understand the regulatory situation and the shift to LED technology. The paper also serves as an industry reference that enables end users and suppliers to confidently plan for the future. For an electronic PDF of the paper, email jheathcote@gewuv.com.

FINZER ROLLER: 55 YEARS LATER

Finzer Roller is a one of the largest rubber roller companies in the United States. It has remained a family-owned business for fifty-five years. The second-generation Finzer's are actively working to pass the business on to the third generation. The company's success, growth and longevity are unique.

John and Betsy Finzer founded Finzer Roller in 1968. Finzer's beginnings were humble. The first building was a 6500 square foot building located on the west side of Chicago. The building did not have a loading dock. When rollers arrived by common carrier, customer trucks or the family station wagon - manpower was used to unload the rollers and transport them through the production cycle. Betsy processed purchase orders, customer checks and payroll in the early years.

Back in 1968, John informed a friend that he was starting his own roller company. His friend used rollers. John asked his friend if he would buy rollers from him. His friend said, "if the quality and service are there, of course I'll buy from you." We are proud to say that friend's company is still a customer today.

Fifty-five years later, Finzer Roller has twelve manufacturing locations strategically located throughout the United States. Industries serviced include film, foil, steel, wood, flexible packaging, printing, metal decorating, and general industrial. Finzer makes rollers as small as a human pinky finger and as large as 92" in diameter, 315" long and weigh up to 20,000 pounds.

As customer expectations for rollers evolved, Finzer Roller has responded by purchasing larger state-of-the-art equipment including CNC lathes, laser measuring devices, and dynamic balancers. Consistent employee training is routine at every facility. In addition to equipment and training, we offer more than seven hundred application specific compounds to fulfill customers' unique roller requirements.

In January 2022, Finzer Roller acquired and renovated an 80,000 square foot facility in Itasca, Illinois. The renovation was a tremendous success and is now the largest Finzer Roller facility and serves as the corporate headquarters.

"Our success is due to the great people we have working with us and our ability to change to meet customer demand. What was an acceptable roller 20 years ago may no longer be acceptable in today's marketplace. Continuous improvement in quality and service drives our industry and we have adapted accordingly to meet our customer's requirements." said Dave Finzer, President.

"Only thirty percent of family businesses pass from the first generation to the second – and only 12% pass from generation second to third. The third generation of Finzer's is now poised to carry on the family legacy. Mike Finzer is the plant manager in Minnesota. Eric Finzer is the plant manager of the Itasca location. Sean Finzer is overseeing the start-up of the latest Finzer facility in Arlington, Texas. Brendan Finzer in our Sales and Marketing Manager. Only 3% of family businesses pass to the fourth generation. We are proud of our accomplishments and hope that the third generation will continue the legacy," said John Finzer III, CEO.

Finzer Roller is an industry leader in rubber, urethane, and silicone roll coverings. Services include new, recovered, or reground rubber, polyurethane, and silicone rollers. Other products include new cores, heat/chill rollers, fiberglass and carbon fiber covered sleeves, rotary backup brushes, pin perforating rolls, bow rolls, specialty wear and release coatings.

FINZER ROLLER™

Visit FINZERROLLER.COM or contact us today at 1-800-ROLLERS.

ETI: Empowerment through Innovation

For more than 20 years, ETI has been a trusted partner with players in the narrow-web converting industry. As a pioneer in the art of in-house coating, the company develops and produces specialized equipment for self-adhesive label printing and converting.

How does in-house coating stand out from other technologies? A bit of historical background

Brought about in 2000, the concept of in-house coating has upheaved legacy production methods for label printers and converters. By literally deconstructing and rethinking how a label is fabricated, ETI materialized a novel idea and presented COHESIO—an all-in-one label printing, adhesive/silicone coating, and converting machine. By eliminating the need to outsource label stock procurement, printing businesses suddenly acquired the capacity to truly produce, instead of just printing.

For us, this now well-established, empowering approach stands as the only appropriate way to make a label—From A to Z.

Success factors

In the past two decades, in-house coating technology has established itself as the main alternative to traditional label-making methods. Not only is it a cost-effective solution—reducing adhesive material expenses—but it also boasts sustainability—with its capacity for linerless applications. And we're not even mentioning the autonomization gained by our clients, which can then freely express their creativity.

From its inception, ETI has been constantly innovating and developing

state-of-art know-how unequaled in the industry. Rather than offering one-size-fits-all solutions, its multidisciplinary teams strive to grasp the client's unique wishes and needs, always taking in consideration the tangible end product. After the conception and configuration phases, our specialists make sure to pass along to the client all the knowledge needed to make educated choices about raw materials and production recipes. This made-to-measure, result-driven approach ensures maximum ROI for the customers and fosters their self-reliance.

Support from our dedicated teams doesn't stop after the delivery of the equipment. Throughout its lifecycle, our people tag along when the client wants to evolve their system—whether it be a reconfiguration or the addition of a supplemental unit—or when it wants to go after a new niche and requires new production abilities.

New Technology Center

Located on the outskirts of Montreal, Quebec (Canada), our brand new Technology Center offers state-of-the-art equipment, a wealth of resources and an experienced, helpful lab staff. Whether you're exploring new label possibilities, assessing raw materials, or testing the effectiveness of our equipment, you can conduct your R&D right here on site or from a distance. It's an exceptional experience that encourages innovation and creativity from start to finish.

ETI Converting Equipment
450-641-7900
sales@eticonverting.com
eticonverting.com

eti
Equip to innovate

Discover how our equipment for pressure sensitive labels can work for you.

Inline printing, coating and converting equipment powered by unequalled expertise.

Discover ETI's Technology Center :
your one-stop test and trial facility

eticonverting.com
sales@eticonverting.com

The Leader in Web Handling Expertise and Innovation

As the only solutions provider with all capabilities in-house, American Roller is proud to be a trusted and dependable supplier of custom cores, high-release coatings, and durable coverings. Our dedicated in-house team of engineers, research scientists, and technical field experts partner with our customers to provide comprehensive expertise, convenience, and solutions that optimize production processes.

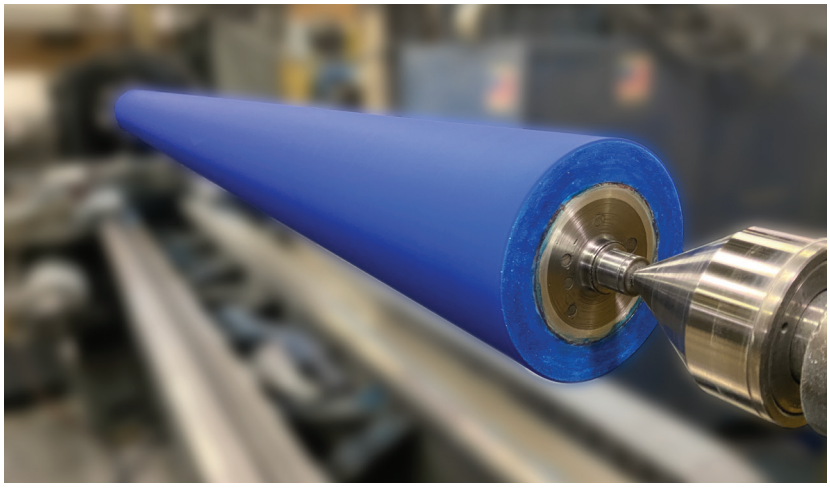
Founded in 1938 and based in Union Grove, WI, American Roller has multiple facilities spread throughout the United States, China, and several licensees located globally. This global network drives multiple levels of availability with local plants, integrated transportation, and a national sales and customer service team.

Globally Networked Resources

Our globally networked strategies drive multiple levels of availability with local plants, integrated transportation, and national sales and customer service professionals. Our staff is organized in teams dedicated to our customers to ensure your experience is seamless regardless of product or plant. With locations strategically placed throughout the U.S, a plant in China, and 8 globally located licensee locations, we've got you covered regardless of where you are located.

Roller Services

We differentiate ourselves by anticipating market needs and developing state-of-the-art engineered solutions that help our customers stay at the forefront of their industries. Our services are continuously expanding to provide a more comprehensive experience, personalized solutions, and superior services. While our services are always evolving, our "core" services include our on-site coatings, reverse engineering, various finishing options, and journal/shaft/core body repair.



Core Fabrication

Industrial cores and bases are manufactured in-house with the capability to apply all material types. Our experienced team of engineers is available for design and CAD Drawing assistance. Whether you need a new live/dead shaft, idler, bowed, heat transfer, and more, we can engineer a solution for your unique application. Thermalon, our patented electric heat transfer rolls are a cost-effective advantage over oil, water, or steam heat-generating systems found in many converting operations.

Roller Coatings

Plasma Coatings was developed as a unique dual-coating system that offers the wear and abuse resistance of thermal spray materials such as Tungsten Carbide with high release polymers like Teflon. Our expertise with polymer materials is gained from decades of providing the highest quality and most extensive selection of polymers. Our field engineers will evaluate your application to provide a solution and conduct lab testing with your product or with you to field test coatings to determine the perfect coating for your specific application.

Roller Coverings

All surface enhancement coverings are manufactured in-house giving users the best solution by balancing the engineering trade-offs of each covering type. Arcomax is the name brand for our all-encompassing polymer family of roller coverings. We provide standard compounds as well as blended and specialty formulated versions of standard polymer families. In addition to providing standard and customized compounds, American Roller also provides a variety of specialty covering options; Arcostretcher and Pegasus to name a few. The American Roller Arcostretcher is an all-purpose elastomeric grooved roller designed to remove wrinkles from paper, film, and foil without web distortion. And our Pegasus line of rollers provides a dual-layer compression roll with an abrasion-resistant outer cover for converting, corrugated, and printing industries.

American Roller
262.878.8665
www.americanroller.com

American Roller

YOUR GO-TO WEB HANDLING / CONVERTING EXPERTS

American Roller - Trusted Since 1938

85 Years Dedicated to Web Handling Expertise and Innovation

As the only solutions provider with a team of professionals and with all capabilities in-house, American Roller is proud to be a trusted and dependable supplier of custom cores, high-release coatings, and durable coverings. Our dedicated team of engineers, research scientists, and technical field experts partner with our customers to provide comprehensive expertise, convenience, and solutions that optimize production processes.

Globally Networked Resources

Our globally networked strategies drive multiple levels of availability with local plants, integrated transportation, and a national sales and customer service team.

Locations

13 locations and 8 globally located licensee locations with dedicated teams providing customers support regardless of their location.

Roller Services

Anticipating market needs and developing state-of-the-art engineered solutions that help our customers stay at the forefront of their industries.

Core Fabrication

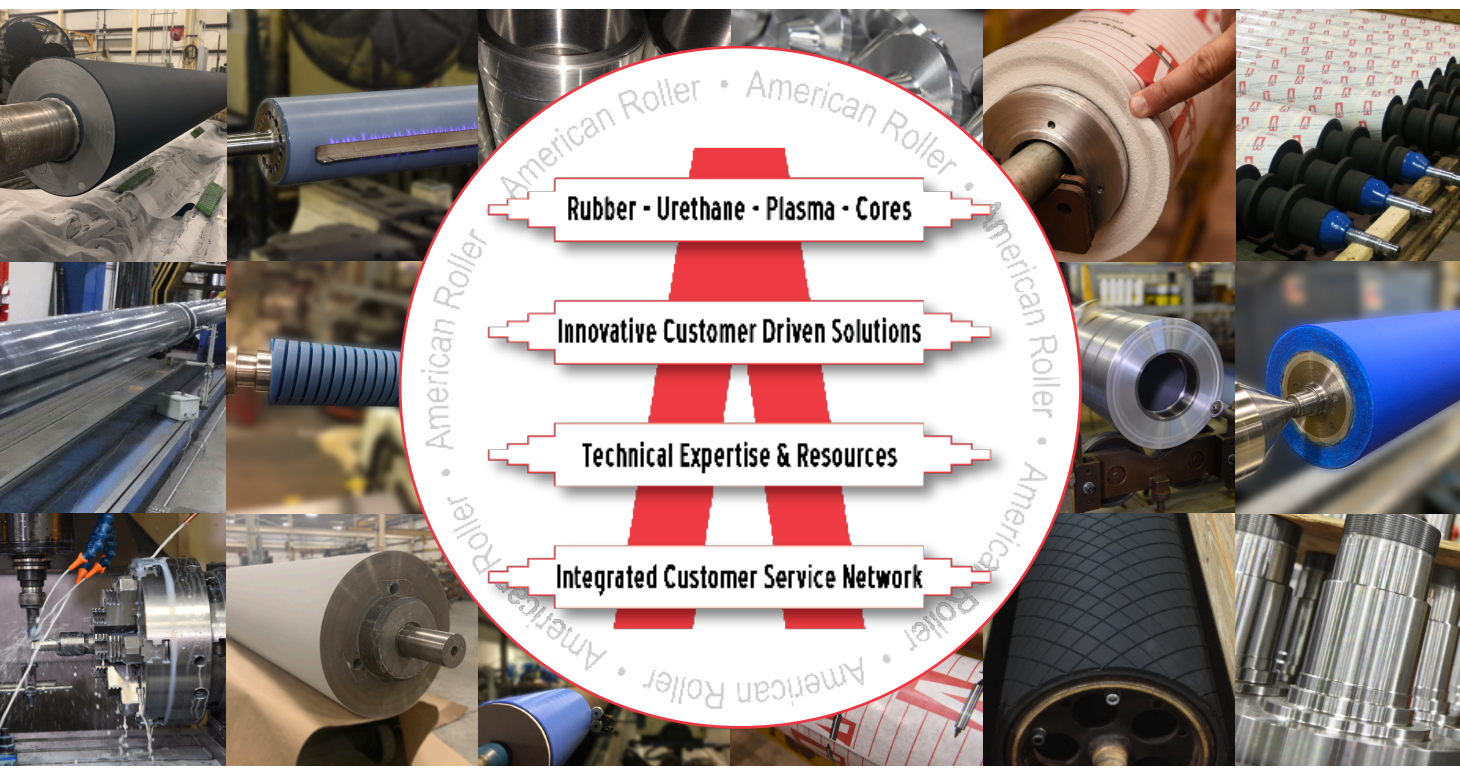
Our experienced team of engineers is available for design, engineering, and fabrication assistance.

Roller Coatings

Our dual layer coating system offers the wear and abuse resistance of thermal spray materials.

Roller Coverings

All surface enhancement coverings are manufactured in-house giving users the best solution by balancing the engineering trade-offs of each covering type.



Demand a Solution, Not a Product.

1400 13th Avenue, Union Grove, WI 53182 | 262.878.8665 | info@americanroller.com | www.AmericanRoller.com

IMS TECHNOLOGIES: Converting the future since 1851

IMS TECHNOLOGIES designs and manufacturers slitter-rewinders for converting a wide range of materials. Through its world-renowned brands GOEBEL IMS, LAEM IMS and ROTOMAC, the Group provides the global market solutions for slitting and rewinding plastic film, paper, aluminium, nonwovens, flexible packaging and many other applications.

Thanks to the combined strength of the group's brand and 170 years history, IMS TECHNOLOGIES counts over 14,000 installations throughout the entire world. Its industrial capacity is spread over at total area of 21,000 square meters between the Italian plants of Calcinate, Seriate – in the province of Bergamo – and Casale Monferrato (Alessandria), and the growth will continue: new facilities are in progress to support the remarkable growth of the last years.

IMS TECHNOLOGIES operates globally through 350 direct employees with a widespread network of international branches and agents. The US branch – IMS TECHNOLOGIES INC – was opened in New Jersey in 2019 and gives the North American market top-notch sales and technical commercial support.

The facilities integrate all processes of design, engineering, automation, component CNC machining, painting, assembly, testing installation and after-sales services.

2022: a year full of news

Thanks to the extensive know-how and strength of the GOEBEL IMS & LAEM IMS brands, in 2022 the Group developed the **eSERIES**, a new comprehensive portfolio of slitting and winding solutions working fully electric, combining high performance and top quality with groundbreaking technology and a brand new innovative design. The first model which was launched was eXTRASLIT, a compact slitter rewinder processing all film substrates and flexible packaging materials. This machine is extremely flexible and guarantees highest productivity and rewind quality. eXTRASLIT is configurable to customers' requirement thanks to the modular concept with its wide range of technical features. The eSERIES includes also two other types of machines: eMONOSLIT GIANT, the widest slitter rewinder for all film substrates - featuring a working width of 12,000 mm - and eINTERSLIT, the exceptionally efficient slitter rewinder for converting a wide range of applications.

The benefits of eSERIES at a glance are:

- Energy saving up to 25%
- No more hydraulic system
- No oil leakage
- Reduced noise emissions
- Easier maintenance
- Smaller footprint
- New design
- MAIA Industrial IoT platform.

The eSERIES wasn't the only innovation of 2022. GOEBEL IMS, at the forefront of the mechanical engineering and construction for over 170 years, developed a portfolio of in-line winders and off-line slitter rewinders for the nonwoven market.

Last year IMS TECHNOLOGIES designed, built and sold its first machine for the nonwoven industry: the HYPERSLIT GIANT. This solution is a fully automatic top level offline slitter rewinder for converting a huge range of nonwovens fabric, such as spunbond, spunlace, sms , smms etc.

IMS TECHNOLOGIES
CONVERTING THE FUTURE SINCE 1851

IMS TECHNOLOGIES SPA
Via Cav. Beretta, 25
24050 Calcinate, Bergamo – Italy
Phone: +39 035 83 55 111
Email: sales@imstechnologies.com

IMS TECHNOLOGIES INC
5 Commerce Way, Unit 150,
Hamilton, NJ 08691
United States of America
Phone: + 1 (973) 287 – 7569
Email: info-us@imstechnologies.com

IMSTECHNOLOGIES

CONVERTING THE FUTURE SINCE 1851

Excellence in Converting

THE WIDEST RANGE OF MATERIALS

GOEBEL IMS LAEM IMS ROTOMAC

No matter what kind of material you have to process
IMS TECHNOLOGIES has the **right converting solution**

PAPER & BOARD | FLEXIBLE PACKAGING | FILM | ASEPTIC PACKAGING | TOBACCO | NONWOVEN | ALUFOIL

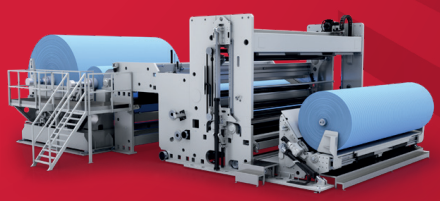
Primary slitter rewinders for packaging, technical and special **films**

Slitter rewinders, two-drum winders, doctor machines and automatic winding machines for **paper&board**

Automatic rewinding and **embossing machines** for producing rolls for food wrapping as well as packaging and accessories

The **fully electric compact slitter rewinder** for converting films

Twin-shaft, high productivity turret machines and compact slitter rewinders for the **flexible packaging** industry and for converters



Inline winders and offline slitter rewinders for all the main types of **nonwoven** products

www.imstechnologies.com

sales@imstechnologies.com

We'll be present at Converter Expo South!
Booth #56

CONVERTERS Expo SOUTH
February 22nd 2023
Charlotte NC

Leader in Advanced Sensing and Control Solutions

Roll-2-Roll Technologies LLC, a spin-off of Oklahoma State University (OSU), is revolutionizing the roll-to-roll industry with advanced sensing and control solutions. Our team of experts, well-versed in various web handling aspects including lateral dynamics, longitudinal dynamics, winding, rewinding, and print registration control, brings a unique blend of academic and industry expertise to the table. Our mission is to democratize access to technology by providing simple solutions that make our customer's lives easy.

Our flagship product, the Roll-2-Roll® Sensor, is a prime example of this philosophy in action. This plug-and-play solution can detect any material without the need for any setup or calibration, making it one of the most efficient and user-friendly sensors on the market. Its accuracy and high resolution of 0.0025" and sensor range up to 960 mm or 37.8" make it ideal for multiple applications such as web guiding, edge sensing, web width measurement, thread counting, flag detection, splice detection, registration mark detection, fold detection, defect detection, missing end detection, and much more.

Our products are the result of strong fundamental research funded by the National Science Foundation (NSF) and Oklahoma Center for the Advancement of Science and Technology (OCAST), and are constantly improving based on customer feedback. We are dedicated to listening to our customers and proactively working to reduce the unnecessary complexities of technology. We spend countless hours on R&D to save minutes for our customers. Our goal is to simplify the web handling process, reduce inventory, and simplify part numbers, especially relevant now with the supply chain shortages.

At Roll-2-Roll Technologies, we believe that "Simplicity is the ultimate form of sophistication" and our products reflect this philosophy. Our expertise lies in web guiding, web width measurement, web position measurement, and defect detection, serving a diverse group of customers in paper, film, foil, packaging, textile, metals, food, tire/rubber, medical, battery and specialty converting industries. We are committed to providing our customers with cutting-edge, reliable and effortless solutions that improve their operations and meet their needs.

At Roll-2-Roll Technologies, we understand the importance of reliable and efficient customer service. Our team is fast to respond and always available to answer any questions you may have. We have a wealth of documentation available on our website, and our experts are on-hand to provide on-site support in the USA. We also offer video and remote support for global customers. We pride ourselves on providing the highest level of service to ensure that our customers are satisfied with their purchase and have the support they need to achieve their goals. With Roll-2-Roll Technologies, you can trust that your needs will be met with the utmost care and attention.

Roll-2-Roll
Technologies

1110 S Innovation Way
Stillwater OK 74074
W: https://r2r.tech
P: +1-888-290-3215
E: sales@r2r.tech

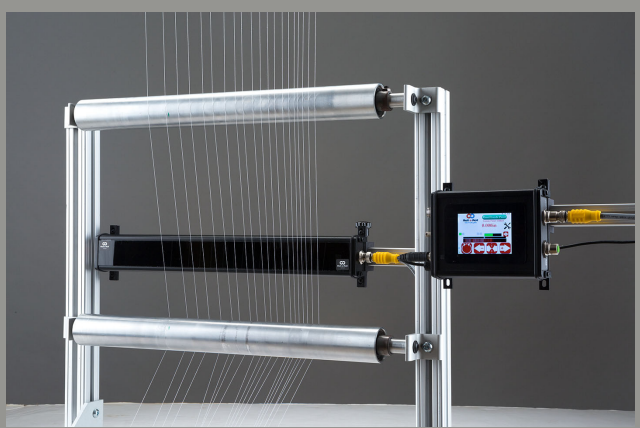
Streamline your operations with the **Roll-2-Roll®** Sensor

One Sensor, Infinite Possibilities

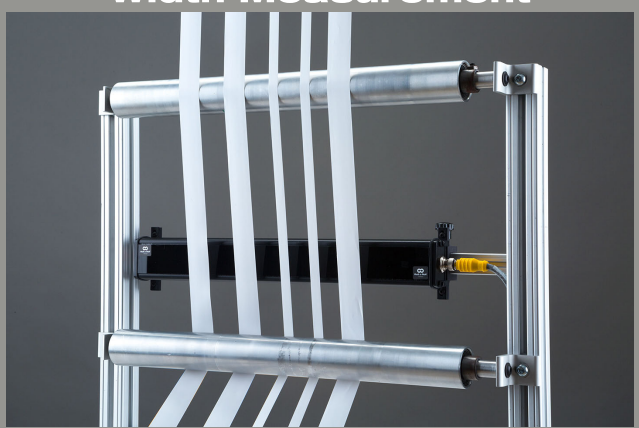
Web Guiding

Web Width Measurement

Elastic/Thread Counting



Multiple Strip Width Measurement



One Sensor, Infinite Possibilities

Don't let the complexities of technology hold you back, upgrade to the **Roll-2-Roll®** Sensor to simplify your operations. With its compact one-sided design, it's easy to install in tight spaces and can be used for a variety of applications including ***web guiding, edge sensing, web width measurement, elastic/thread counting, flag detection, splice detection, registration mark detection, fold detection, defect detection, missing end detection*** and more.

Don't waste time and money on multiple sensors for different applications. Trust the **Roll-2-Roll®** Sensor for all your needs.

Roll-2-Roll
Technologies

P: +1-888-290-3215 **E:** sales@r2r.tech **W:** https://r2r.tech

Manufacturing Quality Print Finishing Solutions in the USA

D&K Group is a leading manufacturer of print finishing solutions including laminating films and equipment. D&K Group products are made in the USA to high quality standards backed by over a forty-five year history.

Some of D&K's finishing products include thermal and pressure sensitive laminating films and adhesives. D&K manufactures these items in a wide variety of sizes including wide format rolls up to sixty one inches wide. These films and adhesives are available for all types of laminating equipment including automated high speed systems, wide format laminators, and even small school and office desktop systems.

D&K operates ISO 9001:2015 certified facilities in the United States. Custom coating and converting solutions are available for a wide variety of industries. D&K specializes in high-tech coating projects with services such as pattern and slot die coating, optically clear adhesives, printable topcoats and more.

Additionally, D&K manufactures custom machines. Fully automated laminating systems and individual components such as sheet feeders, laminators, and cutters are available for purchase. For more information on D&K products, visit www.dkgroup.com or call 800–632–2314.

Make Better Films with Enercon's Leading Surface Treating Technology & Support

Get unparalleled application expertise from the experts who have solved over 10,000 surface treating applications around the world. From printing, coating, & laminating to extrusion coating, blown film & cast film - the Enercon name has become synonymous with uptime & reliability.

Application Expertise

Our application experts help converters and extruders define their surface treating requirements and then configure a custom solution for their operations. Whether your application requires standard corona, high definition corona, atmospheric plasma, or flame, Enercon will customize these technologies for your application, operation and budget. You can also put your application to the test with our free laboratory testing services.

OEM Integration

When it comes to integration & operation, no one does it better than Enercon. We partner closely with leading OEMS to ensure our equipment mechanically and electrically integrates for easy start-up & trouble-free operation.

Innovative Technology

Our new Compak™ Pro Power Supplies are unmatched for reliability and performance. Advanced features include artificial intelligence, Industry 4.0-readiness & unprecedented operating control, detailed system data, maintenance reminders and more.

Leading Support

Enercon offers the largest support team in the industry. Get 24/7 for free phone support and access to our service engineers for on-site visits for start-up, training, and service. We also have developed new methodologies to provide remote troubleshooting assistance, and we offer the industry's most comprehensive library of technical papers, best practice guides & educational webinars.

Contact Enercon today for a custom surface treating solution for your operation.

www.enerconind.com
Phone: (262) 255-6070

enercon® INDUSTRIES CORPORATION

Innovative People. Ensuring Your Treating Success.
+1.262.255.6070 / www.enerconind.com/web-treating

Metlon Corporation — Maintaining its Edge in the Converting Industry

Metlon Corporation has occupied a unique niche in the converting industry. They provide precision, narrow width slitting and rewinding services to businesses in almost every industry imaginable.

As Metlon grapples with changes — from technology to the world economy — a few themes reoccur. The havoc of the Covid-19 pandemic and the supply chain issues that continue today require Metlon to work more closely with customers and vendors alike. For effective, cost-efficient management, Metlon had already honed its organization system, complete with documentation designed to meet customers' compliance needs. Communication enables Metlon to be responsive to customers, flexible in production scheduling, and proactive in plant management.

Customers receive up to date information on their job status as soon as updates on delays are received from vendors.

While delays in supplies may be beyond the manufacturer's control, Metlon handles the issue by promptly notifying customers, which allows them to adjust their production scheduling. For example, despite a heavy backlog of jobs and months-long material delays from vendors, Metlon constantly readjusts its schedules as backordered supplies arrive in order to help their customers get back into production. Often this means sending partial shipments to multiple customers.

At a time when customer product lines are changing and offshore competition is increasing, Metlon's ability to maintain tight tolerances on the production floor and provide excellent customer service has allowed them to remain an invaluable asset to their customers.

Delivering Innovative Solutions to Converters and Packagers

Pearl's punches and in-line attachments improve uptime and hole-cut quality for all your punching, perforating, and slitting needs.

As the leading manufacturer of quality toothed punches for flexible packaging manufacturing, Pearl offers three tiers of precision-engineered solutions: our reliable Value punches, our all-new Impact punches designed to deliver quality at scale, and our premium Performance punches for unmatched quality.

- Value Punches offer an economical hole-making solution and provide good cut quality and durability at an affordable price.
- Impact Punches offer the best of both worlds, great cut quality and punch durably at an affordable price.
- Performance Punches offer the optimum combination of hole cut quality and punch durability.

Pearl is also a leading supplier of converting products for the flexible packaging industry. We are focused on bringing you top-of-the-line solutions to increase productivity, lower costs, and improve quality.

- High-speed continuous and/or intermittent motion machine attachments
- High-quality and consistent holes, seals, slits, and perforations
- All Pearl units are built to last and withstand your needs
- Customizable solutions available, when needed

We'll help you find the right product from our large in-stock inventory and a vast library of designs, or we'll bring our decades of manufacturing experience to customizing a product for your specific needs.

Our engineers are dedicated to helping you find the right punch and/or unit for the job. If you are unsure of which solution is right for your application, our experienced team is here to help you. In many cases, we can pre-test punches and unit attachments in our in-house Application Lab using supplied samples of your own product materials — often at the same production speeds as your own line.

We're here to help you save both time and money! We are your trusted partner for innovative, safe, and cost-saving solutions.

PEARL

Phone: 315-365-3742
Email: sales@pearltechinc.com
Website: www.pearltechinc.com

Leadership in Converting through Static Control Solutions

TAKK Industries is an early innovator in the static elimination field, originating best in class static control solutions since 1943. TAKK continues as a leading provider of static control expertise, with cutting edge static control and static generation technologies for the Converting, Printing, Packaging, Textiles and Allied Industries. Our technical team with decades of expertise delivers static control process evaluations and specification of our high performance, quality static elimination and generation technologies to fit the unique requirements of each company we work with. We pride ourselves on technology driven solutions, built to last and economically priced.

TAKK provides a comprehensive technology range:

Static Elimination Bars — precision engineered tools with the exact electronic power, ionization range and scope to solve

your specific static problem.

Static Elimination Blowers — combining powerful ionization with controlled air flow, an encompassing field, and extended range of ionization.

Electro-Static Generators and Generator Bars — a low cost, effective method of temporary adhesion and pinning through the bonding force of static electricity.

Passive Static Eliminators — led by our low cost, effective anti-static tinsel, and outstanding line of no power needed static neutralizers.

Measuring and Monitoring Devices — static meters and bar testers for analysis.

We are in the solutions business. Providing economical solutions, through quality products and technical services. Solving the costly static problems frequently experienced by our customers in the fields of Converting, Packaging, Plastics, Printing, Painting, Electronic Assembly and Textiles. We serve end users of static elimination equipment and original equipment manufacturers, nationally and internationally.

TAKK Industries
Terrance Clark
Sales Manager
800-792-8255
sales@takk.com
www.takk.com

AD INDEX

PFFC
PAPER, FILM & FOIL CONVERTER

PFFC
An RDG Media, Inc. Publication
P.O. Box 529
Estero, FL 33929

Presorted Std
US Postage
PAID
RDG Media, Inc.

PLASMA COATINGS

The Future in Web Handling is Traction, Release, & Durability