

# KEYSTONE REVIEW

APRIL

MAY

JUNE

2008

## Preformed Line Products Endorses Fast Delivery and Quality of HPE Extruder

Last fall, Preformed Line Products (PLP) needed a quality extruder for the company's plant in Albermarle, North Carolina, and they needed it fast. This plant serves the power communications industry and a large customer order needed completion within a short timeframe. After contacting Davis-Standard and several other companies, PLP was instantly impressed with Davis-Standard's prompt response and suggested solution – the HPE extruder. Not

only did Davis-Standard's sales representative offer suggestions to improve production, but PLP received a guarantee that the extruder would be delivered in four weeks.

"This was our first Davis-Standard purchase and we were impressed with the entire process. We haven't had to purchase an extruder in a while, so we appreciated Davis-Standard's expertise and knowledge as well as the fact that they promised the extruder in four weeks.



Preformed Line Products is using its new HPE extruder to manufacture air flow spoiler products for the electrical industry.

Everyone else told us eight to 10 weeks," said Greg Eudy, Process Technician at PLP's Albermarle facility. "They came through and

when the extruder arrived, it was a matter of plug and play. All we had to do was uncrate it, power it up and we were operational."

*Preformed continued on page 5*

## New SYNERGY™ Extrusion Coating Line Merges Best of Davis-Standard Brands

An innovative extrusion coating product line from Davis-Standard, LLC – SYNERGY™ – combines the best components of the Black Clawson Converting Machinery, Davis-Standard, Egan and ER-WE-PA brands to support the global marketplace and individual customer needs. The newly introduced product line provides processors with a total equipment package from a single-source supplier to accommodate everything

from basic applications to those with high-speed, complex requirements.

"SYNERGY, as the name implies, integrates the best technology from the respective brands within Converting Systems to create high quality, proven performance systems for several common flexible packaging applications," said Mark Panozzo, President of Converting Systems for Davis-Standard, LLC.

The three SYNERGY product lines include the SYNERGY 300, 450 and 750. (The numbers 300, 450 and 750 reflect the approximate line speed capabilities in meters per minute.) The SYNERGY 300 is engineered for customers who desire to enter new markets or grow their business with a modest investment. The SYNERGY 450 provides greater output and automation, with the SYNERGY 750 offering the fastest line speeds and most options for large-scale production applications. All three can be tailored for customer specific flexible packaging applications and other products such as fabrics, building products, aseptic packaging and others.

For more information about the SYNERGY product line, contact Christine Maxam at maxamc@bc-egan.com. ■

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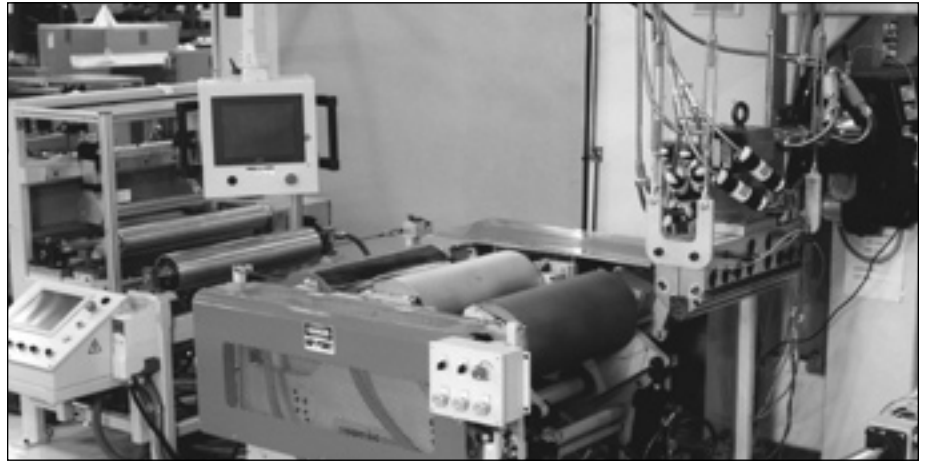
 **Davis-Standard®**

# D-S Laboratory Capabilities

Davis-Standard, LLC has readily supported growing customer R&D demands in the U.S. and abroad this past year by supplying a range of laboratory and specialty equipment and systems, including several high performance lines. Davis-Standard has seen a need by larger, high tech companies for more lab facilities in order to differentiate product capabilities and maintain a competitive edge through accelerated product development. Almost as significant is the increased demand by other businesses that are closing in-house laboratories and by smaller companies and startups that are relying on outside facilities for lab work.

At the Killion laboratory in Houston, there has been a 30 percent growth in lab trial inquiries over the past 24 months and a 70 percent increase in the duration of each trial. As lab applications become more sophisticated, there is a need for an equipment supplier who has extensive process and applications experience. Development in biopolymers, FEP and PFA, high temperature (PEEK) and composites applications has been the greatest contributor to this growth.

“We are in the unique position of being able to access personnel and knowledge from the other business groups within Davis-Standard, LLC, most of whom are leaders in their particular production specialty,” said Simon Dominey, Business Manager of Davis-Standard’s Killion and Specialty Systems Group. “This has enabled us to build more sophisticated lines such as



Pictured is a horizontal three-roll stand, one example of Davis-Standard’s extensive laboratory equipment line.

multi-purpose systems for extrusion coating and high pressure laminating, including those that make cast film down to a few microns and also produce sheet and embossed products.”

Davis-Standard supplies laboratory and specialty systems for cast film, blown film, sheet, coating and laminating applications. Killion laboratory systems are engineered for effectively processing low volumes of resin. Specialty pilot lines and unique production systems capable of speeds up to 3,000 feet per minute (914 meters per minute) are also available. A recent system included integrated cast film and calendared sheet capabilities in the 2-32 mil range, complete with a multi-layer feedblock, five extruders, and web coating capabilities for product widths of 14 inches (350mm) and line speeds up to 400 feet per minute (121 meters per minute).

In order to offer the most flexibility, extruder and downstream equipment for each product line is supplied in a modular format to provide nearly every configuration

possible and an easy upgrade path. As an example, winders range from simple, single shaft designs for cost-effective lab use to dual- and four-station, auto changeover and accumulator systems, plus multiple spindles for monofilament applications. Roll stands are available in two, three, four or five-roll designs with low and high pressure calendars and roll configurations that include vertical, horizontal, 45-degree and J-stack. Fully custom designs for specialty applications or non-plastic, non-extrusion projects are also available.

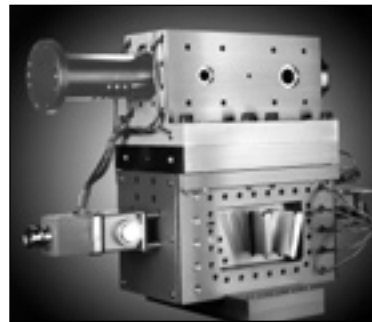
“We have such an extensive product range that we can often provide what would be typically regarded as a custom process line by simply combining our standard modules,” added Dominey.

For more information about Davis-Standard Killion laboratory and specialty systems capabilities, contact Simon Dominey at [sdominey@davis-standard.com](mailto:sdominey@davis-standard.com). ■

## Davis-Standard, LLC Patents Micro Layer Combining Adapter

A newly patented combining adapter from Davis-Standard, LLC simplifies infield interchangeability of polymer flow paths from multiple extruders for improved layer uniformity, accuracy, control and quick change when processing multilayer extrusion coatings and films. The patent on the “Micro Layer Combining Adapter” (US 7,296,992 B2) was issued in November to Davis-Standard engineers Frederick Suppon and John Montalbano.

The adapter, also referred to as a flow velocity profiler (FVP), features a cartridge assembly body or cassette comprised of individual cavities with precision layer inserts



Micro Layer Combining Adapter

and divider walls to create passageways. The layering inserts form flow channels that can be individually selected or changed to accommodate polymer feed path flows. Each insert can also divide one polymer inlet feed into two channels and accurately meter flows to a common region. For example, a cartridge designed with nine inserts can create or define 18 individual flow channels. The design allows interchangeability of

entire cassettes or inserts within a cassette.

This unique design offers processors several advantages over a conventional apparatus. It includes a capability to process a larger number of layers within a smaller package using interchangeable layering plates or inserts which can be customized based on polymer rheology. The design also allows the use of custom inserts to form definitive and positioned lanes in the final extrudate from the die. The FVP also provides a significant improvement in layer uniformity as a result of internal flow path streamlining, a shorter distance traveled by the combined polymers, matched velocities and shear rates at the combining region, and elimination of diverging flow areas in the flow path.

Applications where this new technology would be beneficial include extrusion coating and laminating as well as flat cast film and cast embossed film.

For more information about the Micro Layer Combining Adapter, contact Chris Maxam at [maxamc@bc-egan.com](mailto:maxamc@bc-egan.com). ■

# Consultant's Corner

## The Impact of Bio-Polymers on the Plastics Extrusion Industry

By John Christiano  
Davis-Standard, LLC  
Vice President,  
Process Technology



The plastics industry is beginning to focus on polymers derived from renewable resources in order to reduce the impact of their products on the environment. Companies are searching for polymers that will create products that are environmentally friendly and sustainable. The driving force for this change is increased consumer awareness about the environment. Today, nearly 100 percent of plastics are petroleum-based products that are not derived from a renewable resource.

There are two critical areas of concern in the public consciousness: climate change and waste disposal. These concerns are moving to the top of corporate agendas as large multinational corporations implement sustainable programs as part of their pledge for good corporate governance. Bio-polymers can help address both of these problematic issues because they are biodegradable and derived from a renewable source of carbon.

NatureWorks®, a subsidiary of Cargill Corporation, developed PLA (Poly Lactide), a bio-polymer based on poly lactic acid. NatureWorks' PLA is produced using an

abundant, natural resource like field corn, which can easily and efficiently be reproduced each year. When plants grow they use CO<sub>2</sub> and sunlight to create carbon through a process called photosynthesis. At a wet milling facility, the starch is separated from the other components of the corn kernel into dextrose. The dextrose or sugar is fermented to create lactic acid. From lactic acid, a molecule called lactide is created. The water is removed and crystallized to create the high-performance polymer – PLA.

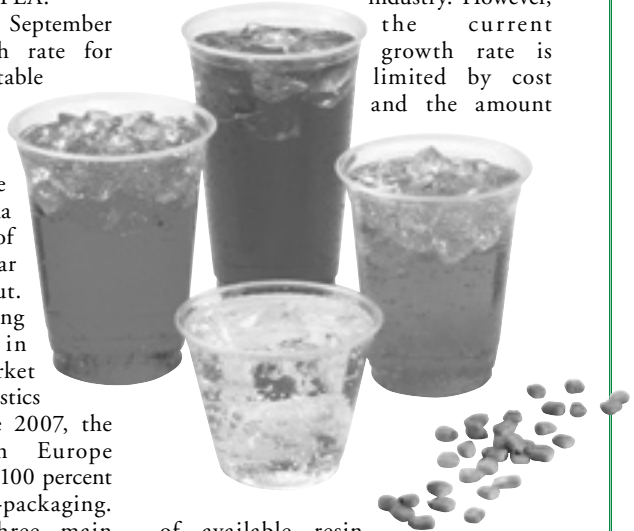
A Freedonia report from September 2006 projects the growth rate for biodegradable and compostable plastic to increase by 20 percent annually through 2010. NatureWorks' PLA is one example of this. The company's facility in Nebraska has a nameplate capacity of 300 million pounds per year and is currently sold out. The company is considering additional capacity in the future to meet market demand. According to a Plastics Engineering article in June 2007, the bio-plastics industry in Europe experienced growth of up to 100 percent over 2005 levels in bio-packaging. This is attributed to three main areas, which include raised consumer environmental awareness, companies being increasingly prepared to actively support sustainable development, and a sharp rise in material and energy prices.

The primary markets for biodegradable plastics are packaging areas such as film, bottles, and food services products including thermoformed sheet. The extrusion processes used for these applications include bi-axially oriented film extrusion, film extrusion, sheet extrusion, blow molding and injection molding. Two examples of innovative fiber and film products being produced from PLA include NatureWorks' Inego™ nonwoven products and food packaging film produced by Treofan GmbH in Germany under the trade name Biophan®.

Inego is the world's first man-made fiber derived from 100 percent annually renewable resources. It combines the qualities of natural and synthetic fibers to balance

strength and resistance with comfort, softness and drape in textiles. Biophan is also biodegradable and made primarily from a renewable primary product, starch. It offers excellent transparency and gloss, the capability to transmit water vapor and good sealing properties. It is also printable, resistant to oil, fat, and alcohol, and thermoformable, making it ideal for packaging food and consumer products.

In the long run, bio-plastics will have a significant impact on the plastics industry. However, the current growth rate is limited by cost and the amount



of available resin production. Presently, bio-polymers represent less than one percent of the total plastics consumption in Europe and the United States with potential to capture up to 10 percent in the future. Bio-polymers offer a sustainable solution to the industry that reduces the impact of plastic materials on the environment in areas of climate change and disposal. As consumer's environmental awareness increases, we know the demand for these products will increase.

The increasing demand for bio-polymers will drive the demand for new extrusion equipment. Existing equipment will require a new optimized screw design, the ECO-DSB® barrier screw, and a gearbox modification for increased torque to process PLA. Drying equipment upstream of the extrusion line will also be required to dry the bio-plastic before processing. Equipment suitable for PET sheet and film production is suitable for production PLA products. This presents a great opportunity to forge closer relationships with existing and new customers as we work together to create new plastic products that are sustainable.



# Personnel News

## Davis-Standard, LLC Announces Promotions and New Hires

### Converting Systems



Steve Cole



Christine Maxam



John Montalbano



Brian K. Stock



Fabian Umbach



Ray Whitmore

**Steve Cole's** responsibilities have expanded to include engineering in addition to purchasing and manufacturing. In his new role, Cole will lead the order fulfillment group as Vice President, Order Fulfillment. One of the new objectives of the order fulfillment group is to identify ways to reduce the cycle time to produce relatively standard projects, allowing for increased engineering capacity for custom projects and new product development.

**Christine Maxam** has been promoted to the position of Global Marketing Administrator. Maxam will oversee the global marketing communication activities for all of Converting Systems, as well as continuing to assist the sales organization.

**John Montalbano** has rejoined the company in the position of Product Manager of Extrusion Coating. He brings over 30 years of experience in the plastics converting industry, having worked for Black Clawson Converting Machinery for 28 years.

**Brian K. Stock** has joined the Blown Film Group as District Sales Manager. He will be responsible for sales in the southeastern United States and brings nearly 30 years of experience to his new position.

**Fabian Umbach** has been appointed to lead the Liquid Coating Business Team. This promotion expands his existing role as Global Business Manager for Liquid

Coating and establishes a Liquid Coating Business Team within Converting Systems. Umbach will be responsible for growing the company's liquid coating business across all markets. He will also define strategies including product direction, target markets, promotional activities and resource requirements on a global basis.

**Ray Whitmore** has been promoted to Vice President, Project Management and Quality for Converting Systems capital equipment projects. Whitmore's team will be responsible for managing all phases of projects from order acceptance to customer acceptance to ensure customer satisfaction.

### Extrusion Systems



Steven Kriger



Jinsong Lin



Robert Planchon



Steve Pupillo

**Steven Kriger** has been promoted to Business Manager, Reclaim and Compounding Systems. Kriger's new responsibilities include the sales and marketing of both the Davis-Standard and Merritt extruder brands for the company's reclaim and compounding product lines. Kriger joined the company with Egan Machinery in 1983 and then Davis-Standard in 1990.

**Jinsong Lin** has joined the company in the position of Extrusion Business Director, China. Lin will be responsible for the development and implementation of logistical and sourcing strategies and procedures. He comes to Davis-Standard with 15 years of experience in machinery manufacturing.

**Robert Planchon** has been promoted to Project Engineer, responsible for the

oversight and facilitation of pipe and profile projects. Planchon has over 20 years of manufacturing experience, joining Davis-Standard in 1988.

**Steve Pupillo** has been promoted to Project Engineer. He will be responsible for the oversight and facilitation of sheet/foam, reclaim, and compounding projects. Pupillo has over 25 years of manufacturing experience.

# Sigma Stretch Film Expands Tulsa Operation with Davis-Standard Blown and Cast Stretch Film Lines

Leading U.S. stretch film producer Sigma Stretch Film recently purchased blown and cast stretch film lines from Davis-Standard, LLC for the company's growing facility in Tulsa, Oklahoma. The production lines are slated for a fall 2008 installation.

"We made our decision based on their reputation and the advanced technology offered by Davis-Standard's Converting Systems Group," said Mark Teo, President of Sigma. "We felt we had to advance our machinery technology to be able to enter into new markets and defend our leading position. They have done a very good job of addressing our needs and we are pleased with the depth of their machinery capabilities in both blown and cast film. We appreciate Davis-Standard's willingness and ability to customize."

The 130-inch (3.3 meter) blown stretch film line will consist of three MAC extruders equipped with PIB injection that will feed a 40-inch (1 meter) diameter three-layer IBC

oscillating die that utilizes a unique bearing arrangement to support the weight of the die. It will also be equipped with two types of individual winding systems.

The 180-inch (4.5 meter) net finished cast stretch film line is engineered as a high-output, wide-width machine wrap line. It features digital controls, advanced web handling to reduce in-wound tension for enhanced roll formation, and reduced unwind-to-core forces. Designed to provide nine 20-inch (500mm) wide rolls or six 30-inch (762mm) wide rolls, this line features a nine-layer Cloeren melt forming system coupled with multiple Davis-Standard extruders to process proprietary resin formulations. It is fitted with a single Black Clawson Converting Machinery BMW winder with two pairs of pivoting core shafts on a common elevation that enable the ergonomic unloading of rolls and re-coring. All machine modules will be pre-wired, requiring only primary power

drops and communication cables, to reduce installation time and cost.

Sigma Stretch Film is a division of The Sigma Plastics Group. The company was founded in 1978 and continues to be the largest, privately held film extrusion group in the United States. It is comprised of 13 divisions and employs over 5,000 people. Sigma Stretch Film has five North American plants with four in the United States and one in Canada. Sigma Stretch Film produces a full range of blown hand films including coextruded films and high performance, premium grade films. For more information, visit [www.sigmastretchfilm.com](http://www.sigmastretchfilm.com).

For more information about Davis-Standard's blown and cast film capabilities, contact Bob Moeller for cast film at [moellerr@bc-egan.com](mailto:moellerr@bc-egan.com) and Rick Keller for blown film at [kellerr@bc-egan.com](mailto:kellerr@bc-egan.com). ■

## Preformed continued from page 1

Eudy is especially impressed with the extruder's user-friendly design. PLP installed an HPE-150A or 1 1/2-inch (38mm) adjustable model. This extruder is mounted on an axis, so it can be used for primary or coextrusion applications. It is also engineered with a well-labeled control panel to simplify extruder operation.

"One of the biggest advantages of this machine is the layout of the control panel," explained Eudy. "It is so easy to operate that no training is required. This is especially beneficial because we are required to get products out the door quickly due to the immediate nature of the industry we serve. The HPE has definitely exceeded our expectations in both design and performance. I would buy another one."

PLP is a worldwide designer, manufacturer and supplier of high quality cable anchoring and control hardware and systems, fiber optic and copper splice closures, and high-speed cross connect devices. The company is based in Cleveland, Ohio, and the Albermarle plant is PLP's second

largest U.S. facility. The company's new HPE extruder is being used to manufacture air flow spoiler products for the electrical industry. PLP serves customers all over the world with the U.S. and Canada as its primary markets.

"When we designed the HPE extruders, we had customers like PLP in mind. We wanted to offer something with a small footprint, performance features, and a fast delivery for coextrusion and multi-layer applications," said Wendell Whipple, Vice President of Davis-Standard's Pipe, Profile and Tubing Systems. "We are able to meet tight delivery requirements due to our stocking and component pipeline programs, as well as a strong commitment from our engineering and manufacturing teams. We appreciate PLP's confidence and trust in us to get the job done."

For more information about PLP, visit [www.preformed.com](http://www.preformed.com). For more information about HPE extruders, contact Wendell Whipple at [wwhipple@davis-standard.com](mailto:wwhipple@davis-standard.com). ■

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## Upcoming Events

*Davis-Standard, LLC will be exhibiting at the following tradeshow & seminars during April, May and June.*

### Basic Extrusion Seminar

April 1-2  
Pawcatuck, CT

### China Rubber and Tyre Exhibition

April 1-3  
Qingdao, China  
Booth B14

### Plastimagen

April 8-11  
Mexico City, Mexico  
Booth #917

### Polyolefins Additives Conference

April 14-16  
Cologne, Germany

### Chinaplas

April 17-20  
Shanghai, China  
Booth #E1D01

### ANTEC/Plastics Encounter

May 5-7  
Milwaukee, WI  
Booth #718

### PSTC Conference

May 5-9  
Baltimore, MD  
Booth #502

### AMI Stretch and Shrink Film

May 20-22  
Barcelona, Spain

### DRUPA

May 29-June 11  
Düsseldorf, Germany  
Hall 12, Stand C69

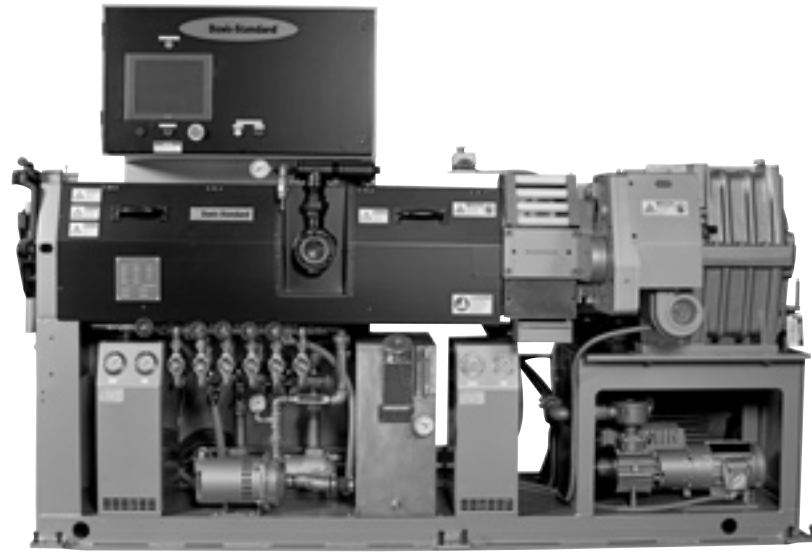
### Hose Manufacturing Conference

June 10-11  
Cleveland, OH  
Booth #9

# DSREV GEN 2 Rubber Extruder Welcomed by Industry

Davis-Standard's DSREV GEN 2 multipurpose rubber extruder, introduced last fall, offers customers an innovative design and operational advantages. Design advantages include a pre-assembled screw, head zone direct injection temperature control units, a compact unified base, and simplified cooling and wiring systems including redesigned double-pass heaters for ease of piping and wiring. Operational advantages include an improved feed section design, updated touch screen operator controls, and maintenance-friendly access to all major components on the machine. This machine can be delivered in 10-12 weeks, which is currently the fastest in the industry for this type of extruder. Its introduction has been well received by the industry as several machines have been sold in the past few months.

"With the DSREV, we took our existing multipurpose extruder and made design modifications that improve the performance, operation and maintenance



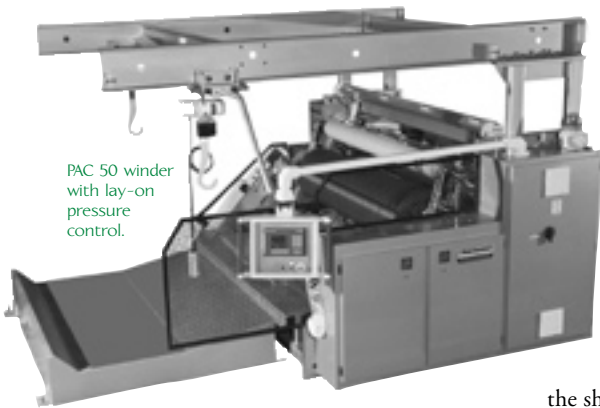
The DSREV GEN 2 extruder features updated operator controls, an improved feed section design, and maintenance-friendly access to all major components.

of the machine. Customer feedback was a guiding consideration in implementing this new design," said Joe Wnuk, Vice President of Davis-Standard's Elastomer Systems. "When we displayed the extruder at the Rubber Expo in October, customers were pleased with the changes. Specifically, they liked the compact footprint, touch-screen controls with intuitive programming, extra wide feed section and simplified maintenance features such as improved accessibility to the vent port."

The DSREV GEN 2 is available in sizes ranging from 1 1/2 to 10 inches (38mm to 250mm). The 3 1/2-inch (90mm) model

has been the most popular size thus far. In addition, existing Davis-Standard multipurpose extruders in the field can be upgraded with DSREV GEN 2 components. Davis-Standard has already done this for customers in the U.S. and abroad.

As with Davis-Standard's earlier multipurpose rubber extruders, the DSREV GEN 2 is well equipped for several rubber applications including automotive weather stripping, automotive and industrial hose, custom profiles, gaskets and preforms. For more information, contact Joe Wnuk at [jwnuk@davis-standard.com](mailto:jwnuk@davis-standard.com). ■



PAC 50 winder with lay-on pressure control.

## D-S Upgrades PAC 50 Surface Winders

Davis-Standard, LLC announced that it has upgraded the company's PAC 50 series' surface winders. The new winders feature a compact hydraulic system, which uses high-speed digital electronics for lay-on pressure

control. This feature reduces blocking at the core, a problem typical on most large-roll surface winders where the lay-on force is not controlled or controlled through mechanical means. The new design also features a device to bring the new core up to speed prior to transfer to allow for smoother starts on thin, high speed webs. Another valuable addition is an integrated shaft hoist system that allows for the operators to easily return the shaft to the transfer position without lifting the shaft.

Other advantages include touch-screen controls mounted on a pendant, AC digital drives and a center assist drive. The new PAC 50 winders are capable of winding diameters up to 60 inches (1,500mm), depending on the width of the shafts. Shafts are available in 3-inch (76mm) and 6-inch (150mm) sizes. The PAC 50 is also equipped with a motorized shaft hoist for shaft handling and re-insertion.

The PAC 50 is designed for converting film and any large diameter roll applications. It is pre-wired and tested to simplify installation. For more information, contact Rick Keller at [kellerr@bc-egan.com](mailto:kellerr@bc-egan.com). ■

### **Davis-Standard®**

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