

machine infeed. Known as STARS (Storage Tracking and Retrieval System), the system eliminates the need for operators to manually move loads throughout the factory floor and allows the work to naturally flow into the appropriate machine infeed. Plant personnel oversee the process and have several options as to how the work will move throughout the plant and to the correct machine.

Operators use a graphical interface called Layout, which represents the factory floor and lets users see where orders are in real-time on the floor as well as the scheduling for each order in the current machine lineup. Layout shows the entire process from corrugator discharge to machine infeed with various graphical representations of the discharge conveyor, turntable, transfer cars, and storage lines.

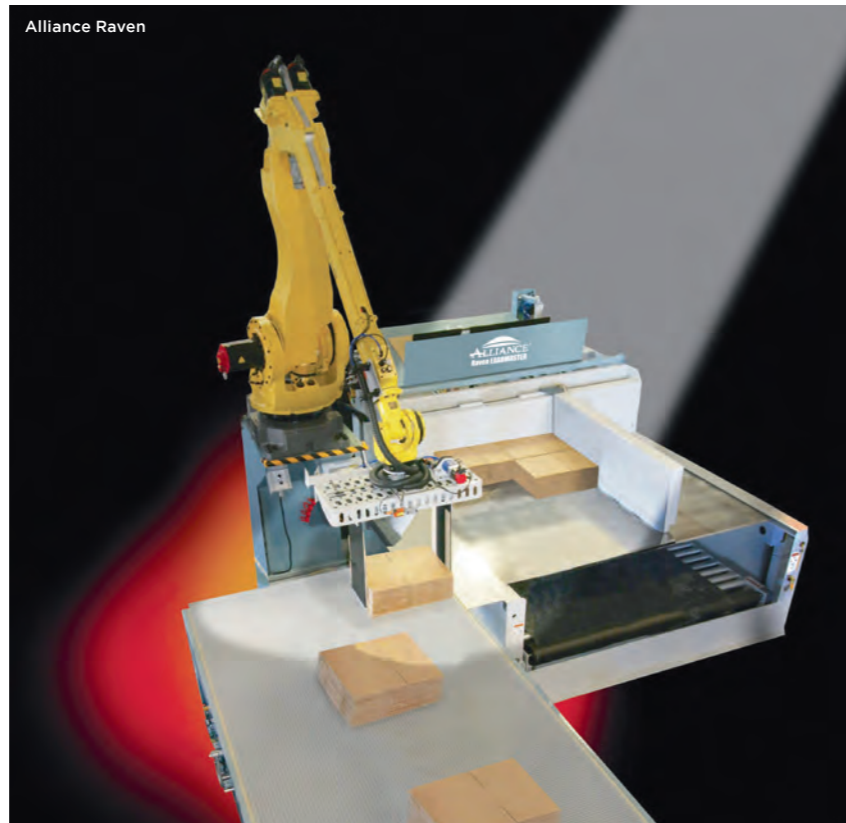
STARS was designed with compatibility in mind. It gives the plant the freedom to use its familiar vendors. Coordinating with the plant's scheduling software, STARS can make decisions on an order-by-order basis and move loads throughout the factory floor - autonomously and effectively.

[www.acsconveyor.com](http://www.acsconveyor.com)

#### Robotic Load Former

Alliance Machine Systems International LLC is introducing a new robotic load former to the corrugated market that reduces labor and increases efficiency. The Raven robotic Loadmaster™ is part of Alliance's Raptor line and offers a more cost-effective and efficient way of load forming, compared to manual methods.

"Alliance continues to expand its product offerings for automating the back end of finishing machines with the introduction of the Raven, a robotic LOADMASTER that can drop in and replace most load formers on 50-inch flexo folder-gluer lines," says Dave Ahrendt, Alliance Sales



Manager. "It is specifically designed to enhance productivity on lines where production is limited by operator fatigue at the load former position."

The Raven contains an infeed system to sequence and position bundles, as well as tie and bottom sheet delivery systems. Safety features include fencing, guarding, and zero-energy lockouts. Alliance provides installation supervision and training to staff.

Machine components include a bottom sheet system, bottom sheet conveyor with pallet capability, tie sheet system, robot, bundle pick zone, transfer conveyor, centering separation unit, and an Alliance Loadmaster.

The high-performance Loadmaster includes the robot interface and controls. Performance ranges from 6.2 bundles per minute for one up to four layers to 16.2 bundles per minute for eight layers in a four-by-two configuration. Figures are for

25 count C-flute bundles, two tie sheets/unit (no tie sheets in one up).

Bundle sizes range from 12- x 10-inch to 50- x 56-inch. Bundle height maximum is 15 inches. Robot payload maximum is 100 pounds. The robot may be parked for manual operation.

[www.alliancellc.com/raven](http://www.alliancellc.com/raven)

#### Automated Solutions

Modern corrugated plants have the ability to produce more MSF with less equipment, typically embracing pull-through planning. They understand the process and rely on material handling to tie their different pieces of equipment together, keeping sheets moving from the corrugator to converting equipment, so that each machine has sheets for the given order being produced. Following are some of the product development and customer service areas that C&M Conveyor has been addressing recently.

# Got BIG Boxes?

Mark 5 gets it done

and runs the small stuff too!



**J&L Mark 5 Jumbo**  
210" Specialty Folder Gluer  
(with two-piece box option)

The Mark 5 is the fifth generation of the market-leading J&L Specialty Folder Gluer and represents the premier solution for the innovative box maker.

Extreme versatility, high throughput, fast setups, and low lifetime ownership costs have always defined the J&L. The Mark 5 continues that tradition while serving today's expanded market requirements.

#### Applications

- Pallet Wraps
- Jumbo Boxes
- Two-Piece Boxes

#### Specialty Boxes

- Lock Bottoms
- Trays
- Displays
- Tubes
- Tear Tape Applications



Alliance Machine Systems International, LLC  
5303 E. Desmet, Spokane, WA 99212  
(509) 535-0356 [www.alliancellc.com](http://www.alliancellc.com)



## Jumbo Specialty Folder-Gluer

Alliance Machine Systems International LLC provides value-added machinery for the manufacturers of very large boxes, such as cargo or pallet containers, and has extended the size range of the J&L product line. The jumbo folder-gluer can accommodate boxes up to 210 inches across. The jumbo J&L addresses the market's need for more bulk bins and very large RSCs. "The box manufacturers are moving toward an auto-erected box that can handle heavy loads, and they need to be large. In some cases, they are heavy doublewall or triplewall," said Craig Gendreau, Alliance's specialty folder-gluer product line leader. Many manufacturers must build larger boxes manually, which requires many people and is a slow process. The jumbo J&L allows box makers to automate that process and run about five or 10 times faster. The machine also can handle two-piece boxes. The folder-gluer has a heavy-duty



tooling and equipment, as well as wider belts. "Even though it's made for up to 210-inch sheets, it can still go very small and run almost the same minimums as other sizes," said Chris Davis, an Alliance application engineer. The Alliance J&L

jumbo folder-gluer can increase production, provide consistent quality of boxes, and increase a company's capability to expand in different markets, he said.



FOR MORE INFORMATION  
ALLIANCE MACHINE SYSTEMS INTERNATIONAL LLC  
[www.alliancellc.com](http://www.alliancellc.com)

## Tear Tape

Rippatape® is a tape-based opening device for board and paper-based packaging. Available printed in up to 10 colors, it enables branding to be placed at consumers' fingertips and gives fast, safe and immediate access to the contents of corrugated and paperboard packaging. It also ensures the box remains intact for any returns, minimizing product damage and reducing any need for further packaging. The ability to print the Rippatape allows a diverse range of brand messages and logos to be added and builds on the growing demand consumers have not just for packaging functionality, but also for brand integrity. Using Rippatape also means knives or other sharp implements are removed from the opening, process thereby minimizing the risk of product damage and possible personal injury, helping to meet environmental and CSR objectives. Its tamper-evident nature gives a clear indication if a package has been opened previously, providing customer confidence on the authenticity of the parcel and contents. Importantly, it does not impede on the recycling of the boards that it is applied to, the tape can be recycled through established recycling processes. This is a key benefit of Essentra's water-based adhesive solution. Rippatape can be easily applied to new and existing product lines at speeds of up to 1476 ft per minute (450 meters) at the point of board manufacture by using Essentra's custom build applicators.



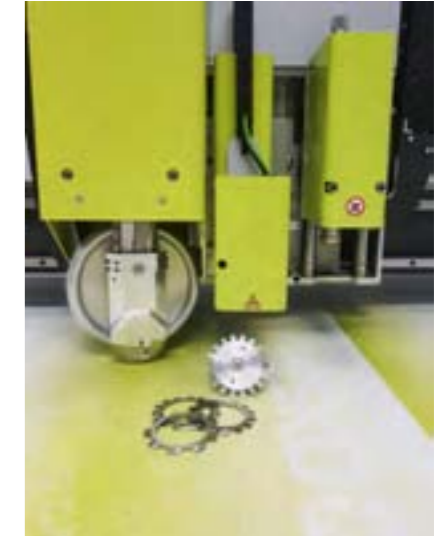
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## Heavy-duty Digital Cutting

The latest Kongsberg digital cutting and creasing innovation from Esko makes it possible for corrugated converters to cut, crease and perforate jobs without the need to change tools, boosting finishing productivity by up to 50%. The newly launched Dual Heavy Duty Unit means operators no longer need to manually intervene in tool changes on Kongsberg digital cutting tables for those jobs that require creasing, cutting and perforation. The machine will automatically switch and use the right tool throughout the job, significantly ramping-up production efficiency. The Dual Heavy Duty Unit is said to deliver better crease quality, even on materials with a high recycled material content. When combined with the Esko CorruSpeed Tool, converters can cut and perforate corrugated

full machine speeds of up to 100m/min. The CorruSpeed Tool is designed specifically for high-speed digital finishing of corrugated board. It uses a static knife in combination with a patented knife foot design to simulate the effects of ejection rubbers in conventional die tooling. The design results in cleaner, more accurate cuts, without burrs. It produces a crisp edge finish even at the highest speeds, smoothly cutting a wide variety of corrugated board types up to 7mm doublewall BC flutes. The unit combines, for the first time, two independent wheels in one heavy-duty unit. Operators maintain all the advantages of superior downforce and speed with the advantages of additional flexibility and higher throughput. The Dual Heavy Duty Unit and Corruspeed tool retrofit on all existing



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Kongsberg C, Kongsberg C Edge and Kongsberg XP tables running iPC.

## Sustainable Adhesive



An innovation from Borregaard makes it possible to produce corrugated board without adding boron derivatives in the adhesive. "This solution is a response to regulatory concerns about borates, as well as improving productivity and quality of the board," said Per-Ivar Heier, Project Director for Exilva at Borregaard. Boron derivatives, classified by the European Chemical Agency as Substances

of Very High Concern, are used in the adhesive to make corrugated board. The Norwegian corrugated board producer Glomma Papp has, together with Borregaard and the Exilva innovation, extensively tested, produced and developed corrugated board solutions with no added boron. "We started to technically qualify a boron free solution. Then we used Exilva as a productivity enhancer. Doing this, we had an option to step by step reduce the boron compounds in the glue, in a controlled manner. Exilva enables us to run smoother, faster, and with improved quality and speed. Based on around 70 million m<sup>2</sup> (750 million sq ft) of board produced with Exilva, we've measured production improvements of 14% and reduced warp of 11%," said Jan Berg, Glomma Papp Corrugator Supervisor.

Borregaard developed the new microfibrillated cellulose technology called Exilva, for a completely natural and sustainable wood-based solution. The product has a special combination of robustness and rheological properties creating a strong network that enables the replacement of boron derivatives in corrugated starch systems.

Exilva has received funding from the Bio-Based Industries Joint Undertaking (BBI) under the European Union's Horizon 2020 research and innovation program under grant agreement No 709746. Exilva is available in the U.S.



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BORREGAARD  
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