

Actuators solve baffling bagging application

In the diverse bulk-materials processing industries, systems must be designed to measure, fill, and seal bags containing anything from pet food to salt, sugar to dirt, and fertilizer to animal feed. And because the bags themselves are one area where processors can cut corners, many are sourcing their bags from China. However, low-cost bags often mean irregular dimensions, making them challenging for automated machinery to handle.

lar bags were slowing production processes.

Because repeatability is critical to filling and sealing, Thiele engineers needed a solution that would increase accuracy and flexibility for packagers. They found their answer in four custom electric screw linear actuators from Tolomatic Inc., Hamel, Minn., which precisely position incoming empty bags. The bagging system now automatically compensates for variations in

inch, bag-handling issues were becoming commonplace. To solve the problem, the company developed a “bag top reference” mechanism to compensate for varying lengths.

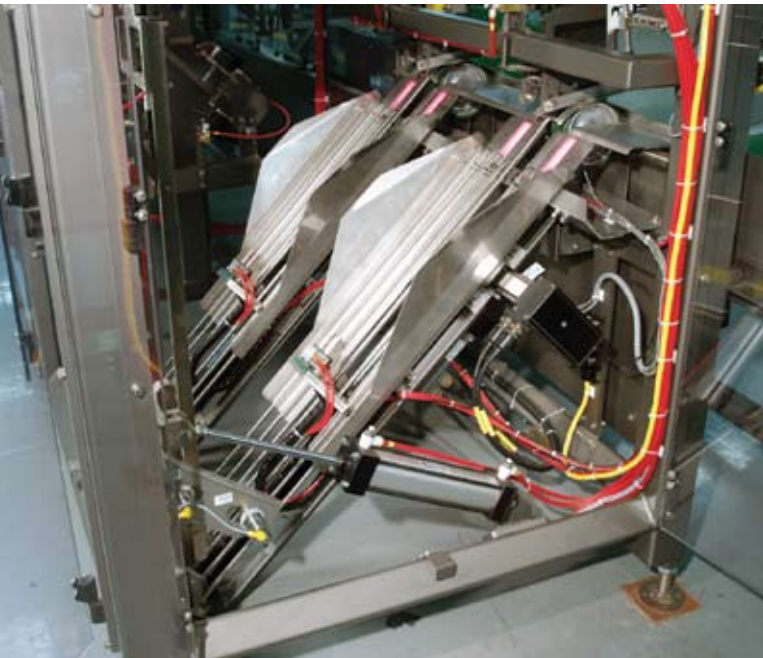
The new mechanism uses four modified-standard B3S10 rodless electric screw actuators to precisely position incoming bags before they are inserted into the filling/sealing line. Two of the actuators, each one operated by a separate servomotor, adjust the vertical position of the bags. As bags are loaded into the staging trays, vertical actuators catch them and lower the bag tops to a precise reference point determined by two video cameras controlled by the system's PLC.

At the same time, bags are centered in their trays by two horizontal B3S10 actuators that have been extensively modified. Each actuator has two carriers riding on a screw with right-hand threads on one half, and left-hand threads on the other half. As the screw turns, each pair of carriers moves toward each other to center the bag in the tray. The two actuators are joined by a coupler and are operated by one servomotor connected by a compact 180° belt drive. Once bags are vertically aligned and centered, they're picked up by a pneumatic arm and inserted into the filling/sealing line. The new design automatically compensates for variations in bag length and width and eliminates filling and sealing problems. For more information, visit www.tolomatic.com.

bag dimensions and eliminates a manual setup when changing bag sizes.

The original version of the bagging system was automated except for a tray that positioned bags prior to pickup and insertion into the filling line. When using high-quality bags with

consistent dimensions, the trays required only a simple manual adjustment at the start of a run. However, when customers began switching to low-cost bags, some were not positioned accurately, resulting in improper filling and sealing. With bag lengths varying by as much as 3/4 of an



Two ganged Tolomatic actuators center the bags in staging trays while two other actuators adjust vertical position.

Packaging equipment manufacturer Thiele Technologies Inc., Minneapolis, recently faced this dilemma — how to compensate for inconsistent bag dimensions on its modular bag filling and sealing system. Many of Thiele's customers had recently switched to cheaper bags, and the irregu-

Packaging profile enhances **SERCOS III**

Good news for the packaging industry: The SERCOS (Serial Realtime Communication System) vendor organizations have announced the development of a Pack Profile for real-time Ethernet-based SERCOS III. The new profile defines a subset of SERCOS interface functions for packaging machinery to ease implementation of the standard and improve multi-vendor interoperability of servo controls and drives. Products from various vendors that conform to the Pack Profile will provide plug-and-play functionality for packaging machinery. The specification is being developed in consultation with users and suppliers of packaging machinery, and will be available in April 2009. In parallel, a conformance test is being developed to ensure interoperability.

The original Pack Profile for SERCOS II was defined in response to a request by the OMAC Packaging Machinery Working Group (OPW) in 2005. Since then, it has been used by major packaging machinery builders and suppliers in a variety of packaging applications. SERCOS III is the third generation of the interface, and integrates the open Ethernet protocol with high-speed data transfer at 100 MBits per second. Additional features include improved safety, the construction of efficient networks with minimum cabling due to a redundant ring and/or line structure, and specific cross communication traffic between control systems. For more information, visit www.sercos.com.

InSights

The election may be over, but the fun hasn't ended. It's out with Nobama signs and in with nanobamas. A University of Michigan professor in Dearborn has created 3D portraits of the president-elect that are smaller than a grain of salt. John Hart, an assistant professor in the mechanical engineering department, made the mini-Barack Obama likenesses with his colleagues to raise awareness of nanotechnology and science. Each one contains about 150 million carbon nanotubes (extremely strong hollow cylinders about 1/50,000th the width of a human hair) stacked vertically. Hart's Mechanosynthesis Group focuses on studying how to make nanostructures like nanotubes, and how to use these small-scale building blocks in electronics, energy devices, and high-performance materials. For more information, visit www.nanobliss.com.



Motion controllers aid space exploration



Exploring the deepest corners of space depends on savvy astronomers with access to the right tools, not the least of which are powerful telescopes. A team of scientists at the University of California Observatories (UCO) is in the process of creating the first comprehensive map of the distant universe. Known as the

DEEP Project (Deep Extragalactic Evolutionary Probe), the team uses twin 10-meter W.M. Keck telescopes in Hawaii, the Lick Observatory on Mount Hamilton in California, and the orbiting Hubble Space Telescope.

Telescopes collect light emitted from stars or faint galaxies about 14 billion years ago. Detecting and analyzing

this light requires advanced mechanical, electronic, and optical instruments, sensors, and software. Many of these instruments, including the DEIMOS spectrograph (Deep Imaging Multi-Object Spectrograph, which is able to magnify the telescope's capacity by a factor of seven for faint-galaxy optical spectroscopy), require precise motion control. Motion controllers from Galil Motion Control, Rocklin, Calif., have been specified for more than 15 years by Barry Alcott, development engineer at UCO, to handle the motion control tasks.

For example, Alcott is using Galil's RIO Pocket PLC to automate portions of the manually operated Hamilton Spectrograph system, the first cross-dispersed spectrograph installed at the Lick Observatory. It operates by having light fed to a grating that sends it in one direction and then immediately feeds it to a prism that disperses it at a 90° angle, resulting in very high-resolution spectra. Alcott configured the multiple I/O points provided by the RIO to automatically control four pneumatic stages used for moving an iodine cell into a beam, opening a light port, moving a mirror into a beam, and opening a mirror cover. The logic control provided by the RIO ensured proper sequencing of events. Automating control of these functions lets astronomers remotely control telescope instruments from a home base, rather than coming to the Mount Hamilton Observatory.

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PTDA announces changing of the guard

At The Power Transmission Distributors Association (PTDA) 2008 Industry Summit held recently in Miami Beach, Fla., PTDA elected its 2009 Board of Directors and Manufacturer Council. Drew Tucci, director, marketing and sales, Eastern Bearings Inc., Waltham, Mass., will succeed John Masek,



Drew Tucci will serve as PTDA's 2009 president.

vice president, Bearing Service Inc., Livonia, Mich., as PTDA's president in the coming year. Joining Tucci on the 2009 Board are Keith Nowak of

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MPT Drives Inc., David Mayer of Kaman Industrial Technologies Corp., Larry Brand of IBT Inc., Michel Bouchard of General Bearing Service Inc., Christopher Bursack of Industrial Supply Co. Inc., Craig Faber of Miller Bearings Inc., James Gibney of Warren M. Pike Assoc., Ron Herem of Baldwin Supply Co., and Richard White of Flexco.

Bob Daniel, general sales manager, The Timken Company, Canton, Ohio, assumes the duties of the PTDA Manufacturer Council chair in 2009, succeeding Bob Ruland, president, Ruland Manufacturing Co. Inc., Marlborough, Mass. Joining Ruland on the 2009 Council are Randy Breaux of Baldor Electric Co., Justin Aschenbrenner of Gates Corp., Cliff Bannon of Climax Metal Products Co., Michael W. Dolpp of Danaher Motion/Thomson, Pamela Kan of Bishop-Wisecarver Corp., Brian Kolman of Brewer Machine & Gear Co., Kevin Powers of U.S. Tsubaki Inc., and George Rizza of Nord Gear Corp. For more information, visit www.ptda.org.

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Two automation conferences, one location

OMAC OMAC and WBF will co-locate their 2009 conferences, to be held May 4 to 6, 2009, in Research Triangle Park, N.C., at the Sheraton Imperial Hotel and Conference Center. The uniting theme is "Expanding the Horizons of Manufacturing: Learning and Sharing with the Leaders in Automation and Manufacturing." These Automation Federation member organizations will hold their conferences in the same location to provide attendees a greater breadth of topics and additional networking opportunities, and to increase collaboration for the advancement of industrial standards, say event organizers.

The WBF 2009 North American Conference will focus on new manufacturing methods, featuring presentations and tutorials on ISA88, ISA95, ISA99, B2MML, and Make2Pack. These sessions will complement the 2009 OMAC Integration Symposium, which will cover evolving manufacturing technologies in packaging, machine tools, robotics, emerging technologies, operations management, and the implementation of industry standards. For more information, visit www.omac.org and www.wbf.org.

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Biz bits

Fenner Precision enhances Buffalo facility

Fenner Precision, Manheim, Penn., a developer and manufacturer of custom belts, pulleys, and rollers for paper propulsion, motion control, and power transmission applications, has invested \$950,000 in upgrades and new equipment in their Buffalo, N.Y., location, formerly Winfield Industries. The additional equipment will increase production by 40% and will add 10 new jobs. The primary focus of the Buffalo location is custom formulating and molding of polyurethane and silicone products, specializing in unique electrically conductive materials for the digital printing and medical imaging markets. Fenner Precision purchased Winfield Industries in March 2008. Improvements and equipment installations will be completed by February 2009.

PMD announces new president



Performance Motion Devices Inc., Lincoln, Mass., has named Greg Woods as its new president. Founder Chuck Lewin will continue as chairman of the board and VP of engineering, focusing his efforts on development of motion control product lines. Woods has more than 20 years of experience in the industrial automation and motion control industries. His most recent position was as CEO of Control Technology Corp., a supplier of automation controllers based in Hopkinton, Mass. Prior leadership positions have been with Danaher Corp. as president of API Motion Controls, and vice president of sales and marketing at Ormec Systems. Woods holds an undergraduate degree in physics from Colgate University, graduate degrees from Dart-

mouth College in computer engineering, and an MBA from the University of Rochester's Simon School.

SCHUNK raises money for soup kitchen

SCHUNK Inc., Morrisville, N.C., a manufacturer of workholding, toolholding, and automation technology, continues its partnership with Joe Gibbs Racing (JGR), one of NASCAR's Sprint Cup Racing teams, by participating in JGR's 2008 FanFest. The event, which hosted approximately 4,000 fans, took place in October at the JGR facility in Huntersville, N.C. More than \$25,000 was collected for the Mooresville Soup Kitchen (MSK). Fund-raisers at the event included driver autograph sales and a silent auction. SCHUNK serves as the "Official Workholding Partner" of JGR, home of the



#20 Home Depot Toyota driven by Tony Stewart, the #18 M&M's Toyota, driven by Kyle Busch, and the #11 FedEx Toyota, driven by Denny Hamlin.

Danfoss to double Illinois facility



Danfoss Drives is doubling its Loves Park, Ill., facility that produces variable frequency drives, adding both production and office space. After expansion, the facility will be LEED-certified and registered with the U.S. Green Building Council. The LEED (Leadership in Energy and Environment Design) building rating system promotes sustainability in design and construction practices. Danfoss designs and manufactures variable frequency drives (VFDs) for efficient control of ac motors used in applications that include food and beverage, material handling, and other industrial applications. The company moved into their current facility in 2001, located on 18 acres. The building expansion will use the remainder of the acreage, so the company has purchased another 17 acres of land to ensure the possibility of contiguous expansion beyond 2011.

MicroStrain expands to fuel growth

Due to strong growth in sales and development contracts over the last five years, MicroStrain Inc., Williston, Vt., has expanded its corporate headquarters. The new 19,000 sq. ft. facility is double the size of its previous location. Growth is expected to continue at approximately 40% per year, according to company officials. The facility enables MicroStrain to significantly increase its production area, with additional space dedicated to increased capacity for its robotic calibration systems, which automate the process of embedding intelligence into its inertial, wireless, and micro-displacement sensing systems. MicroStrain's new street address is 459 Hurricane Lane, Suite 102. All phone numbers and e-mail addresses are unchanged.

Bodine Electric completes consolidation project

Bodine Electric Company, Chicago, Ill., has completed its strategic plant consolidation project. The company, a manufacturer of fractional horsepower gearmotors, motors, and



motor speed controls announces that their Peosta, Iowa plant is now fully operational. More than 100 new CNC machining jobs were created and the size of the company's facility was more than doubled to 140,000 sq. ft. It is now home to most of the company's manufacturing and all assembly operations. The Peosta plant is designed around flexible cellular manufacturing principles, allowing the company to continuously adapt its manufacturing processes to the needs of its customers, both in the U.S. and globally.