

The latest materials handling equipment innovations are designed to provide the improved performance and process control required by injection moulders serving the most demanding end-use markets

Handled with care

Materials handling hardware rarely grabs the headlines but it plays a key role in ensuring cost effective injection moulding production. The latest conveying and dosing systems offer simplified control, improved precision, faster product changeover and broader flexibility – all key requirements for injection moulders aiming to deliver higher quality and lower cost moulding services.

US-based **Conair** reports a growing demand for web-enabled products that allow anyone with an internet-connected computer, tablet or smart phone (and the correct password credentials) to connect to their materials handling hardware to control and monitor conditions or adjust settings. “Customers have been telling us that they want these remote access options to maximise productivity,” says Doug Brewster, conveying product manager at the company.

“Whether they are on the other side of the building or on the other side of the world, production supervisors and management can change settings, respond to alarms, perform troubleshooting and other operations just as if they were standing in front of the operator interface on the plant floor. It’s a tremendous time-saver,” Brewster says.

Expansion flexibility is also a growing concern for moulders. Conair recently updated its entry-level FLX system for vacuum loader control to handle up to 128 loaders and 40 vacuum conveying pumps using standard industrial Ethernet in-plant wiring, which the company says makes it easy and inexpensive to install and expand as user needs change. A processor can start with an FLX system to manage just 8 loaders and 2 pumps (one primary pump and one back-up pump), and then increase capacity and capabilities in

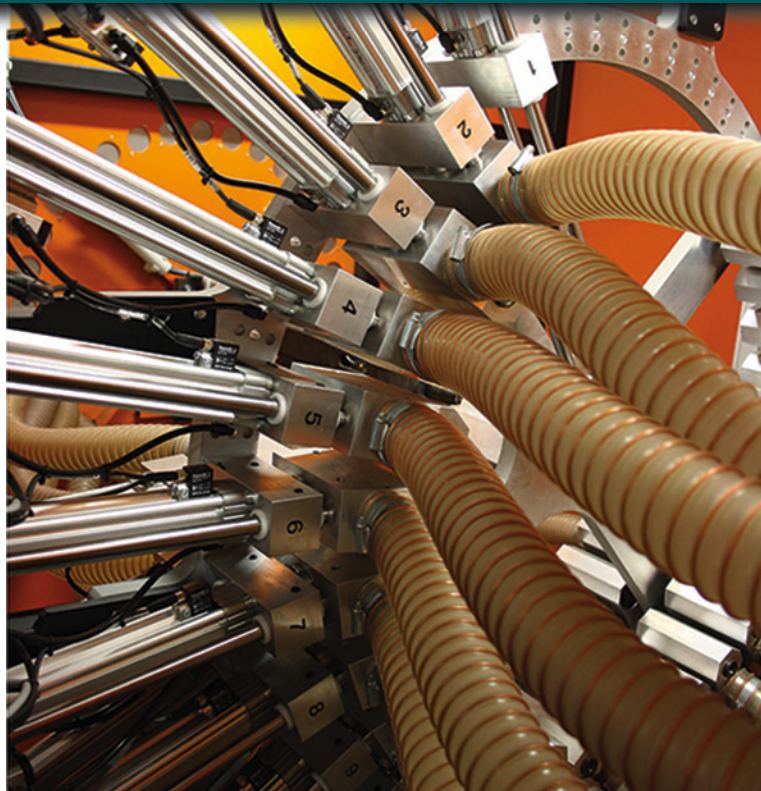



PHOTO: KOCH TECHNIK

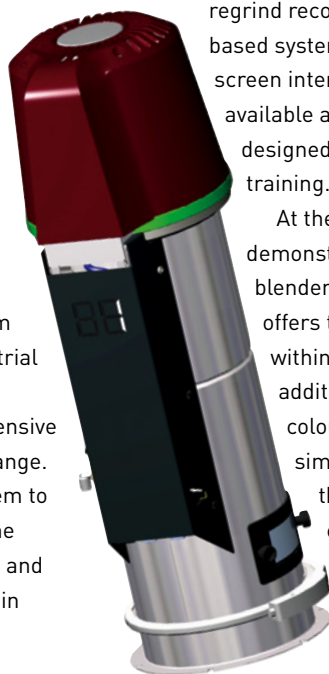
manageable increments as necessary simply by adding more input and output cards.

The FLX system can include high-level functions such as first in/first out (FIFO) and priority loading, multi-source/multi-destination loading, purge, ratio loading, ratio loading with purge, reverse conveying for regrind recovery, and loader fill sensing. The PLC-based system is supplied with a 7.5-inch colour touch screen interface as standard, with a 15-inch version available as an option. The graphic display has been designed for ease of use with minimal operator training.

At the K show in Germany last year, Conair also demonstrated its TrueBlend TB-250 gravimetric blender in a networked application. The TB-250 offers throughputs up to 431 kg/hr and accuracy to within $\pm 0.5\%$ of the setpoint on colorant and additive weights. An LCD touch screen with full colour graphics allows easy set up - operators simply enter the percentages of the blend on the touch screen and the system automatically weighs the ingredients in the proper sequence and maintains the correct blend relationship. 

Main image:
Materials handling technology is key to achieving efficient processing

Left:
Wittmann's Feedmax S3 net system provides simple connectivity to hopper loaders



Right: Maguire has more than 45,000 WSB blenders installed worldwide. This is its MicroBlender model

The demonstration unit was equipped with four hoppers using a combination of the company's Access and Filterless loaders. Access loaders and receivers feature an angled hopper, which makes them easier to clean and maintain, and an oversized discharge opening designed to prevent material bridging. Filterless loaders use a patented cleaning process that continuously reverses airflow to separate incoming material from conveying air without the need for filters or screens.

Connectivity is also a key development focus at Austria-headquartered **Wittmann**, which recently launched the Feedmax S3 net system. This allows simple material conveyors or loaders to be connected in a network to achieve control from a central point. It combines the advantages of using simple production cell-based conveying units with many of the benefits of a centralised system, according to the company.

The Feedmax S3 net system uses a CANbus network to link a number of individual Feedmax S3 net conveyor units to a single console, which includes a 4.3-inch TFT touch screen and displays complete information about the status of each separate conveyor unit. As standard, the Feedmax S3 net units also include an LED status display that provides a clear indication of current activity of the device to production staff.

The Feedmax S3 net conveyor unit is equipped with a 1,100W motor and can handle throughputs up to 200 kg/h. Features include a stainless steel construction and polyester micro-fibre filter and automatic cleaning system, which the company says prevent power loss when processing dust-laden materials. Each unit

can also be fitted with an optional two-component diverter to enable conveying of both virgin and regrind materials.

Where it is necessary to convey material over greater distances, Wittmann has also developed a central vacuum pump version. The Feedmax BS net unit can be combined with blowers rated up to 7,500W.

Wittmann has also introduced two new additions to its Gravimax blender line that it claims meet user demands for more flexibility in throughput rates. The Gravimax G14 and Gravimax G34 units offer material throughputs of up to 80 and 200 kg/h respectively. However, both also incorporate a new 'parallel dosing' function, which uses simultaneous operation of multiple dosing



valves to allow system output to be increased by up to 30% if required with no mechanical modifications.

As with the previous models in the Gravimax range, the G models use Wittmann's RTLS (real time weighing) technology to ensure accurate dosing.

This keeps two weighing cells active through the entire dosing cycle to maintain accuracy to within 0.1g. Dosing weight, the progress of dosing operation, and the remaining quantity to be dosed can be read in per cent or kilograms at any time from the colour LED display on the handheld control unit.

This display provides information about current production – including throughput, the consumption of individual component materials, or the dosing ratio of components to one another. A history of about 1,000 cycles can be exported via a USB port for further analysis.

US-based **Maguire**, which has more than 45,000 of its WSB gravimetric blenders in operation around the world, updated its Gravimetric Gateway G2 software last year to provide more capability in plant-wide and multiple plant monitoring applications. G2 Version 5 provides access to the blender network via a PC server, allowing users to capture more 'live' material usage data more easily, helping them control and document process conditions.

The software, which is fully compatible with Windows 8, provides extensive material-usage reports, displays alarms from anywhere in the network, downloads and updates recipes in specific machines from remote locations, monitors inventory levels, and provides alerts to reorder raw materials.

"Increasingly processors and their customers are taking advantage of the third-party links available through G2 software to deliver real-time process information to their databases," says Paul Edmondson, general manager of Maguire Europe. "This capability increases control over the largest cost factor in plastics processing—raw material—and addresses the growing demand for documentation on the part of customers in critical markets such as medical."

The company has also introduced a new dispense device for ultra-small dosing of difficult-to-feed ingredients from the hopper into the weigh chamber. The new carousel valve mimics the action of a vibratory feeder and can dispense masterbatches and additives at rates of less than 1 g/s. It takes the number of different interchangeable dosing options available for the company's blending systems to more than 50, says Edmondson.

Below: Piovan's recently introduced Quantum blender features a new patented mixer design

