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Canadian Plastics

75 YEARS

NOVEMBER 2018

LEADER OF THE YEAR

EMMIE LEUNG

A recycling pioneer gets her due

\+

A look at the other CPIA AWARD WINNERS

NEW EXTRUSION TECHNOLOGIES: A holiday wish list

ADDITIVE METAL MANUFACTURING wants to make you more competitive

The latest **MATERIALS FROM FAKUMA**

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FROM THE ARCHIVES

The May 2000 issue of *Canadian Plastics* reported on a massive mold building project undertaken by Toronto's FGL Precision Works Ltd. for Louisiana-based structural road mat molder Loma Co. Each mold half of aircraft aluminum measured 14 by 8 feet, and the complete set of both halves tipped the scales at 10,000 lbs. FGL built 24 sets of these monster molds for Loma, which molded the parts in a stack mold configuration on a custom-built vertical compression press, with each stack containing eight sets of tools. FGL would eventually win two design awards from the Society of the Plastics Industry for the project.

Number of the month:
ONE*

* The number of employees at International Paper Industries when Emmie Leung founded it in 1976. (See pg. 11)

Cover photo and pg. 3 photo of Emmie Leung: Sandra Strangemore

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An Xmas WISH LIST

The holidays are coming, which means the biggest shopping month of the year is right around the corner. So if you're an extrusion shop owner and want to treat yourself, consider these new technologies.

By Mark Stephen, editor

Extrusion is a "black-box" process, in that we can't see what goes on inside an extruder. Which can make it hard to spot improvements and innovations. Add to that the fact that an extruder will last for more than 20 years if maintained properly, and you can get the impression that nothing in extrusion ever really changes — that it's a mature technology where radically new developments are no longer possible.

Wrong. Extrusion equipment makers are always working to boost output, reduce energy usage, expand the range of dies, and improve control and measurement capabilities; and if they can make extrusion shops more competitive, then that's radical enough. So as the biggest shopping month of the year approaches, you might want to peruse these innovative new products — regardless of whether you've been naughty or nice.

REDESIGNED MACHINE OFFERS HIGH OUTPUTS, FAST START-UPS

Battenfeld-cincinnati's single-screw solEX NG extruder has a completely redesigned screw feed section with a significantly lower pressure profile, designed to ensure high specific outputs; fast process start-ups at low screw torques; and no conveying instabilities, even at high back pressures up to 500 bar (7,200 psi).

Thanks to the new processing unit, a reduction of melt temperature of up to 20°F (-6°C) is possible — which means the cooling length can be shortened as cooling baths need to remove less heat. Alternatively, for nearly all products, it's possible to increase line speed with the same cooling length, resulting in up to 20 per cent higher outputs. Lower melt temperatures at a consistently high level of melt homogeneity also result in better product quality; sagging is reduced, for example, which is a particularly important development for thick-walled or large-diameter pipes.

And because it operates with less drive power and lower energy losses, the solEX NG series requires up to 15 per cent less energy than competing machines; and the grooved barrel and corresponding lower pressure profile offers additional energy savings by reducing barrel cooling.

Finally, the machine's processing characteristics, combined with special wear protection solutions for the processing unit, result in material and maintenance cost savings.

battenfeld-cincinnati USA (McPherson, Kan.); www.battenfeld-cincinnati.com/usa; 620-241-6843

IN-LINE COMPOUNDING OF POLYMERS, WITH ADDITIVES AND ACTIVE FILLERS

Leistritz Extrusion's new ZSE-3D twin-screw extrusion system is designed for the production of 3D filaments from a co-rotating or counter-rotating twin-screw extruder.

Direct extrusion of raw materials facilitates rapid product sampling, and also results in one-less heat and shear history as compared to two-step processes, which is particularly beneficial for heat and shear sensitive formulations.

The Leistritz ZSE-3D system consists of a ZSE twin-screw extruder configured for compounding, devolatilization, and/or REX; loss-in-weight feeders for pellets, powders or fibres; a liquid injection system; a gear pump front-end attachment; a 3D filament die for one to five mm diameter parts; an air-rack or water tank with sizing bushing; and a downstream system that includes a belt puller, laser gauge, and winder.

The Leistritz ZSE-3D twin-screw system is ideal for in-line compounding of polymers, with additives and active fillers, to quickly develop new filaments and formulations. Formulations can be modified "on-the-fly" for rapid sampling of filaments with different formulation percentages. A sample can be produced every 10 minutes. Additionally, the system can be configured for water-soluble and high-temperature engineering polymers.

Leistritz Advanced Technologies Corp. (Somerville, N.J.); www.extruders.leistritz.com; 908-685-2333

VERSATILE SINGLE-SCREW UNIT

New from Milacron Extrusion Technologies, the SV350 is designed to be a robust, flexible extruder for processors of profile, tubing, sheet, fibre, and wire and cable.

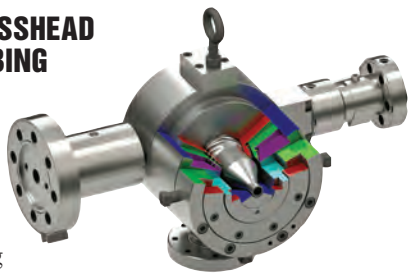
A stock machine, and therefore available for quick delivery, machines are available with screw sizes ranging from two to 4.5 inches with a L:D ratio of 24:1.

A big benefit of the SV350 is the versatility to handle a multitude of applications and materials, Milacron said.

Milacron both designs and builds full extrusion systems in-house. Its range of supplies includes new and rebuilt extruders, barrels and screws, pipe heads, dies, and downstream equipment.

Milacron LLC (Batavia, Ohio); www.milacron.com; 513-536-2000

CO-EXTRUSION CROSSHEAD FOR IRRIGATION TUBING



The new Series 824 from Guill Tool & Engineering Co. Inc is a co-extrusion crosshead designed for irrigation tubing with an emitter tool.

Manufactured from stainless steel, this crosshead features balanced flow design with spiral technology that improves flow characteristics at all extruder speeds. Dual-feed ports provide concentric compound flow, while the splits flow from one extruder to feed the inside and outside layers via a manifold assembly. The crosshead is adaptable to virtually all popular extruders on the market, the company said.

Capacities include a maximum die ID of 1.875 inches, a maximum core OD of 1.250 inches, a maximum tip OD of 1.500 inches, and a maximum emitter tool OD of 1.18 inches.

The Series 824 design allows the emitter insertion tool to pass completely through the crosshead ID. Gum space adjustment is performed with die nut rotation, while a two-stage clamping mechanism allows easier concentricity adjustment.

Quick-change tooling and a tool kit for disassembly and re-assembly are provided with the unit.

Guill Tool & Engineering Co. Inc. (West Warwick, R.I.); www.guill.com; 401-828-7600

CO-EXTRUSION DIES NEED LESS SPACE, PROVIDE MORE PRECISION

On the heels of the launch of its extrusion dies for film, Dual Spiral Systems Inc. (DSS) has designed new co-extrusion dies for manufacturing pipe and tubing.

The new DSS Compact Coex pipe and tubing dies have been reduced in height and weight by 50 per cent compared to the company's traditional multilayer DSS modular die system, DSS president Rafael Castillo said, and have serious advantages over traditional dies. "They offer faster heat-up time due to their lower mass, lower residence time due to shorter flow passages, faster purge and material changeover times, 60 per cent less energy consumption, and more streamlined melt port entries," he said.

Additionally, Castillo said, they're easier to handle and move, and take up less floor space.

"Our research has shown that layer division substantially reduces film thickness deviation, increases output rates, and makes film twice as strong compared to dies with single-film layers," Castillo continued. "When we applied the DSS concept to pipe extrusion, pipe wall thickness was equally uniform, to the point where any nonuniformity can no longer be measured by traditional methods."

DSS Compact dies can produce tubing and pipes ranging from 0.25 to 60 inches in diameter, Castillo said.

Dual Spiral Systems Inc. (Burlington, Ont.); www.dualspiralsystems.com; 905-524-2438