

## Buying into the future

Once every three years, the plastics industry descends on Düsseldorf for the K fair. What are machinery makers offering this year? But a more important question looms: what do processors want?

No matter which industrial sector it is, companies are constantly looking for ways to cut costs. Some solutions are light-weighting, using less materials and energy, or improving the cycle times of their machines so that more can be made in less time.

Bernhard Merki, president and ceo of Netstal summarised the challenges the Swiss injection moulding machinery company faced: "The last two years have once again clearly shown us machine manufacturers the dangers and risks that lie in declining markets, global overcapacities of equipment producers, the influences of rapidly increasing raw material and energy prices as well progressing price deterioration."

Netstal experienced first-hand the demise of a whole segment – optical discs. The optical disc market is gone, said Merki during a pre-K press conference held at Netstal's HQ in Näfels, Switzerland.

"This shows how fast the changes are in our business. It (Discjet series for optical discs) was 40% of our total turnover at one time, now that's zero."

Some all-electric technology has shifted from optical discs to medical applications and some major installations were completed in Europe and North America recently. "We haven't found full replacement for this (optical disc) sector yet," said Merki.

But Netstal is not looking back. It is banking on what the company calls "crisis-resistant application areas" like packaging, closures, PET preforms and medical mouldings.

At **Hall 15, Stand D24**, Netstal will display two new models of Elion hybrid machines of 2,200 kN and 2,800 kN where the electrically driven mould closing units are combined with the hybrid injection units of the Evos range. The Elion 2800 will be equipped with a 6-cavity mould made by Swiss company Glaroform, producing flower pots in just under 2 seconds. The Elion 2200 will use a 64-cavity Corvaglia/Switzerland mould to make HDPE closures in 2 seconds.

"Energy is so much an issue now and electric machines' consumption are much lower," Thomas Anderegg, Netstal's senior VP of marketing and sales, explained. "There is no future for small hydraulic machines."



Netstal's high-end hybrid injection moulding solution

Netstal will be displaying 6 Elion machines altogether, some at its own stand and others at partners' stands. A PET-Line platform 2000 will also be on show, demonstrating PET preforms. The line will produce 500-ml bottles weighing 15 g each in cycle time of 9.0 seconds, translating to 24,000 preforms every hour.

### "Inject the future"

This summer saw Austrian injection moulding machinery maker Engel start a new production area at its facility in Kaplice in the Czech Republic. The new building has a floor area of 17,000 m<sup>2</sup> and employs around 400 employees.

Engel has also just completed the extension of product capabilities at St Valentin to 68,000 m<sup>2</sup> as well a new technology centre in Scherzberg HQ.

Engel's earnings dove nearly 40% from 2008 to €358 mil in 2009. "Nobody has expected such a drop from one year to the next," said CEO Peter Neumann.

"We had an increase of 20% in the first

half of 2008; we hit a record," he said, "but by September we had a drop in orders and there were no more orders in January 2009."

"Compared to the 2001 flood catastrophe, the market was completely dead for us."

For the next fiscal year of 2010/11, Engel is aiming for a strong growth of 35% worldwide. Orders are back to a high level – production facilities in South Korea and China are working at full capacity and Engel has announced that it plans to double the China plant.

Engel will be at the K fair in a big way in **Hall 15 Stands B42 and C58**. Twenty machines altogether – 11 its own booth and 9 at partners' booths – will demonstrate Engel's capabilities in automotive, technical moulding, packaging, teletronics and medical fields.

Engel's eco-drive systems saves energy by deploying electric injection units with servo-hydraulics so that no energy is consumed when the hydraulics are idle. Especially for products with long cycle times, energy consumption can go down by as much as 65%.

Besides injection moulding machines, Engel will be showcasing the viper robot series. Automation on the factory floor is improved when the viper robot system automatically senses the weight of the part and changes the movement parameters dynamically. When the part is picked up and transferred, and the robot returns to the original position, the system can optimise the speed of the loop thus saving time and energy.

Despite moving at high speeds, the viper robot moves with minimum vibration for a smoother delivery process.



Engel's innovative viper robot series

## Better precision for micro parts



**T**he ability to produce a good-quality miniature part faces challenges on many fronts. The shot weights are often only several milligrams and the melt has to be kept homogeneous, both thermally and mechanically, while maintaining the dwell time, temperature and shear under tightly controlled conditions.

When the injection volume is small – micro parts often weigh less than 1 g – the displacement distance of the screw is very short. In order to balance material dwell time and shot distance, a combination of screw plasticising and piston injection is used.

Arburg of Germany proposes an operation that uses two screws to prepare, dose and inject the molten material. This helps to even out the quality of the melt and ensures that the same quality of melt is injected every shot. This applies to a full range of plastics materials, not just micro-granulates.

Arburg's micro injection module consists of a servo-electrically driven screw pre-plasticising section installed at 45 degrees to the horizontal injection unit. The screw channel depth of the plasticising screw is similar to a conventional 3-zone screw. The injection unit, with a diameter of 8 mm, is fitted with a non-return valve and is used for transporting the melt. With this set-up, precise shot weights can be achieved and melt can be fed continuously from the material inlet to the tip of the injection screw, thus enabling the "first-in-first-out" use of feedstock.

The Selogica control system monitors the nominal pressure and screw circumferential speed for the pre-plasticising screw to ensure homogeneity of melt feed. If the actual pressure deviates from the nominal pressure, the rotational speed is adjusted to compensate the difference.

The micro injection unit is designed to be applied to the electric Allrounder A machines with a size 70 injection unit. Nevertheless, it can be changed easily and replaced with larger cylinder modules if required.