

Injection mold for the "Ahoi" lemon squeezer. The long poles hold even small molds securely

A Welcome Extension of Service Life

Rapid Mold Exchanges. Koziol, a manufacturer of high-quality designer plastic products, was able to extend the service lives of eleven injection molding machines by several hours when it introduced magnetic clamping. This was because the universal quick-change system reduced the time for exchanging molds by about 75 %.

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Rapid mold exchange offers enormous time and cost savings where there is a wide range of plastic articles and flexible batch sizes. In addition to its own products, Koziol ideas for friends GmbH achieves a substantial share of its sales with publicity materials and promotional articles. For such merchandise, short manufacturing times and delivery times are even a crucial competitive advantage. Rapid mold exchange is an essential part of efficient work organ-

ization. The plastic products should look attractive, be sturdy with good workmanship, competitively manufactured and delivered as rapidly as possible. "Suppliers from the Far East couldn't manage such orders in the time and with the quality that we can", states production manager Andreas Creutz confidently, and gives some reasons: the in-house mold making, modern production lines and faster mold exchange due to magnetic clamping technology.

Over 500 Products and Just as Many Colors

Speed in production, the multiple award-winning design and quality of the parts

are the underlying principles of this brand-name manufacturer, based in Er- →

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Andreas Creutz, production manager at Koziol: "Suppliers from the Far East couldn't manage such challenging orders in the time and with the quality that we can"



The Concentration Effect of Long-pole Technology

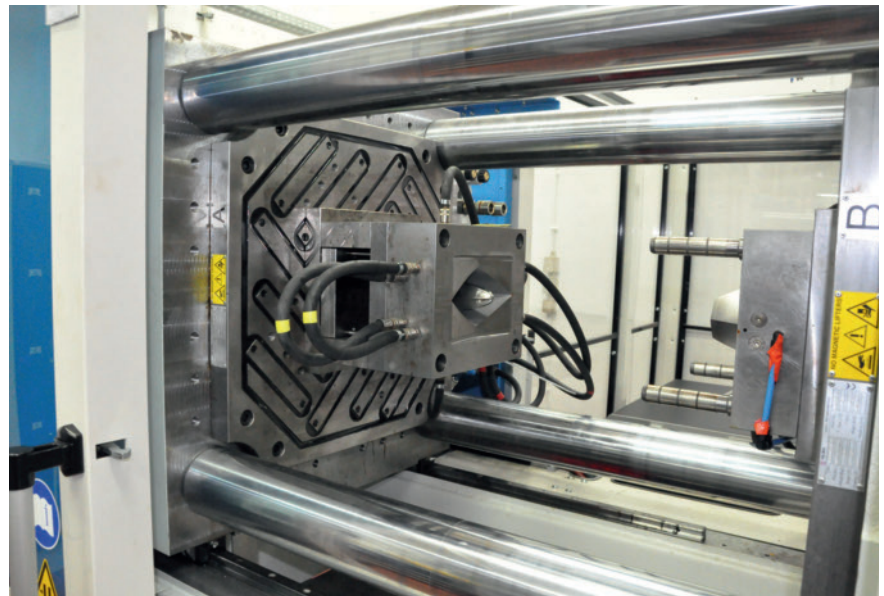
The specialist in mold clamping and exchange technology from Siegerland, Germany, supplies magnetic clamping systems for different requirements in three models. The M-Tecs 210 magnetic clamping elements are designed for the high processing temperatures up to maximum 240°C that are found in rubber and thermoset processing, die casting and in the production of O-rings and rubber parts. The M-Tecs 130 model that Koziol chose is a magnetic clamping system for molds

bach, Odenwald, Germany. It also manufactures a wide variety of colors and models. The "koziol collection" comprises over 500 high-quality designer products for the kitchen, bathroom and home, available in up to 500 different color shades. Each year, Koziol presents the season's innovations at the two leading trade shows "Ambiente" and "Tendence".

Just as varied as the articles that Koziol manufactures are the clamping means it uses for injection molding. In the past, it was often time-consuming to exchange them, and it regularly led to unproductive set-up times and interruptions in manufacturing.

The mold warehouse comprises almost 10,000 different injection molds with dimensions up to 1,000 mm wide and deep, about 800 mm mounting height, and weighing between 50 and 7,000 kg. With such diversity, magnetic clamping's strengths for the molds come into play, since this method allows all molds to be rapidly positioned and securely clamped without further standardization.

Until it was modernized in 2009, the machine park consisted of injection molding machines from different manufacturers whose specific application possibilities were limited depending on the complexity of the mold. "That meant for



Left (A) and right (B) magnetic clamping platen with injection mold. The faster mold exchange liberates additional machine capacities (photos: Hilma-Römheld)

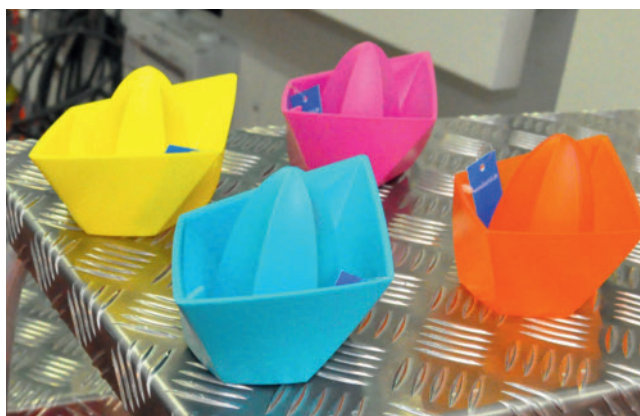
us that we were less flexible in the machine allocation, and therefore utilization", says Creutz. Koziol therefore invested in renewing the injection molding shop, including in eleven new injection molding machines from KraussMaffei, which were equipped with "M-Tecs" series magnetic clamping platens (manufacturer: Hilma-Römheld GmbH).

for thermoplastic processing designed for temperatures up to 130°C. It is optionally available with an integrated heater and is supplied in customer-specific sizes. Cost-effective entry into fast-clamping technology is made possible by the third product line "Clamp & Go," in which the dimensions of the magnetic platens are standardized.

"We used to clamp the molds with eight claws each. That was inconvenient, complicated and very time consuming", recalls the production manager. Hydraulic clamping elements or bayonets were discussed as alternatives, but rejected, since the necessary adapters for the bayonet insert would have been more expensive than magnetic clamping technology.

Koziol opted for the supplier Hilma-Römheld, since, instead of the square-pole magnets used by its competitors, this company equips its magnetic clamping platens with long-pole magnets. The ben-

Ahoi lemon squeezer, one of the "koziol collection", numbering over 500 plastic designer products which are available in up to 500 different color shades



efits of long poles include the concentration effect of the magnets for clamping small molds: while, with square-pole magnets, the molds must be at least the size of two pole fields to be held securely, the magnetic force in the technology used by Hilma is concentrated on the contact surface, and therefore clamps even very small molds with full force without additional aids.

500 Hours Free Capacity from Nothing

“The ergonomics is a dream, and the security is very high”, is how Creutz summarizes the reduction in the machine operators’ workload. For Creutz as production manager, the high precision, general-purpose deployment, low mold wear and cost efficiency are most important. “The shorter set-up time increases the machine service life, and so the purchase rapidly pays off,” explains Andreas Reich, sales manager mold clamping technology with Hilma. He calculates that: “With up to five mold changes in each of three shifts and 250 working days per year, a maximum of 3,750 set-up operations can be reduced from ten to two minutes compared to clamping with claws – irrespective of the size and geometry of the molds. That results in a possible saving of up to 30,000 minutes per year, which works out as 500 hours: time in which the machines are productive instead of standing idle.

Koziol can well use the service life it has gained. The company is set for growth. 70 % of the products are exported throughout the world, and it isn’t only in Asia that demand is very strong. According to Creutz, 2009 was a good year despite the economic crisis. But the trained mold maker and graduate plastics engineer is already looking to the future: In keeping with the philosophy of Kaizen, he wants to motivate the employees to turn Koziol into a learning company in continual transformation and, with their help, to unleash more productivity, efficiency and creativity. ■

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