

EXLAR at ZAHORANSKY: an effective alternative for plastic injection molding

Customer:

End customers from the pharmaceutical and healthcare sectors are loyal but demanding. ZAHORANSKY, an international full-service provider in the field of mechanical engineering, injection molding, and automation technology with 900 employees in 6 plants worldwide understand this.

Application:

Injection molding tools and molds for toothbrushes, razors, syringes and many other pharmaceutical products are manufactured on a project basis, often in small batches or even as individual pieces. Hydraulic or pneumatic actuators were opening and closing the needle shut-off nozzles, scraping, or moving the slide units on injection-molding machines, while cost effective forces and speeds were not adequate.

Customer Challenge:

The pharmaceutical and healthcare sectors had been looking for alternatives for some time: Forces and speeds had to be programmable and controllable; processes had to be documented and later tracked. "The" click-click-open-close "of the pneumatics often does not meet these requirements," explains Jürgen Schulz, design manager at ZAHORANSKY Automation & Molds GmbH in Freiburg, Germany.

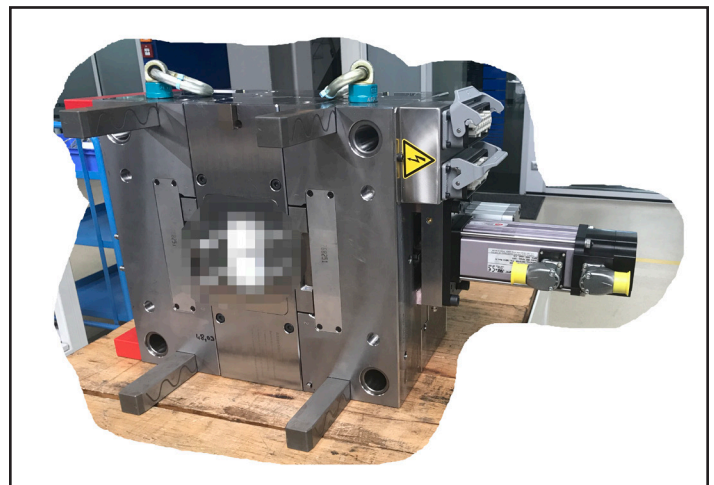
While power and precision were important, the space required in the machine was critical. The device could not be much larger than hydraulic or pneumatic cylinders, because there was no budget for new designs.

Solution:

The first attempt with an Exlar electric Tritex II actuator was successful. Signals from the injection-molding machine were processed in the built-in controller and sent to the integrated drive in order to press the plastic mass into the

mold in a controlled manner. The specially developed, smooth-running and long-lasting drive as well as the rotary encoder - which can be adapted to every controller type, is found in the housing in addition to the patented roller screw, saving on space.

The issue of heat emission and heat sensitivity is also important for the "hot sides" - the die-side mold halves of the injection molds - and Exlar actuators excel here as well. Thanks to its special "T-LAM" winding, the heat dissipation from the engine is limited and the energy is almost completely converted into power. According to the respective technical requirements, the cycle intervals, speeds, and strokes can be controlled and programmed in such a way that it also results in an economically "clean solution." As Mr. Schulz goes on to say: "Costs for the permanent maintenance of hydraulic or pneumatic systems are eliminated, energy only becomes consumed when work is actually being done, and the fear of leaks that always resonates with hydraulic cylinders, including sometimes unforeseeable consequences - is gone."



EXLAR Tritex II actuator driving the stripping unit of the newly developed injection molding tool by Zahoransky

After ZAHORANSKY had gained experience with the Tritex II Series actuators and the Exlar GSX30 actuator, the cylinders were adapted to the Bosch Indradrive frequency inverters used at ZAHORANSKY. Exlar Germany assisted with the mechanical system installation of the tried and tested front panel solution. One Exlar cylinder with a continuous force of just under 6 kN now replaces two hydraulic cylinders in one wiper unit. The advantage here is above all in the precise control that was not previously possible with the hydraulic cylinder.

Results:

The system also works flawlessly, which is why Exlar has now been included in a redesign. ZAHORANSKY has developed a new device for quickly changing model variants, critical in reducing set-up times for small or changing projects - now includes one Exlar GSX30 instead of the four originally intended pneumatic cylinders. "For reasons of cost-effective warehousing, you want to stay

as standard as possible," says Mr. Schulz and expects the following advantages from this solution: "Since Zahoransky has many customers in the pharmaceutical sector, electric drives in the clean room are of course a clean solution. Due to its size, the GSX30 fits well with our modular pneumatic and hydraulic drives. Another advantage is the possibility to integrate the drive into our own control system and to use the control system of the injection-molding machine without much effort. This gives us the greatest possible degree of flexibility."

ZAHORANSKY is currently examining other possible applications and wants to invest in electric actuating cylinders as an option in their production program. Based on the experience gained so far, ZAHORANSKY is certain that if using electrical - then EXLAR actuators are the right choice.