PRESS RELEASE, September 2022

FANUC to showcase sustainable, reliable and cost-effective injection moulding solutions at K 2022

Based on a development platform that centres on machine sustainability, reliability and the market's best TCO (total cost of ownership), manufacturers opting for all-electric FANUC technology can rest assured that their investment will pay dividends, both financially and environmentally. At K 2022 (19-26 October, Dusseldorf, Germany), from booth A50 in hall 14, FANUC will shine the spotlight on its credentials as a provider of sustainable production solutions for the plastics industry.

The company's latest-generation ROBOSHOT Alpha S*i*B injection moulding machine not only impresses with its low energy consumption but also features a small overall footprint, thereby saving production space. Using innovative servo technology and an intelligent energy recovery system reduce the electricity consumption of ROBOSHOT machines by up to 70% compared with hydraulic models. Each FANUC demonstration cell at K 2022 will display its energy consumption.

Full electric technology

FANUC began its green journey more than 35 years ago with its first ROBOSHOT all-electric injection moulding machine. Aside from better environmental credentials, electric technology is far cleaner than hydraulics, making this advance important for sectors such as medical, where the absence of particulates and vapours in cleanroom environments is paramount.

Carbon footprint reductions are available thanks to the elimination of oil treatment and disposal, while there is no requirement for water to cool the hydraulics as FANUC ROBOSHOT machines use air cooling. Furthermore, FANUC machines are easily configurable for use with the latest biodegradable materials, helping industry and society to overcome the issue of single-use plastics.

Proven longevity

Outlining the reliability of FANUC technology, the MTBF (mean time between failures) for the company's CNC systems is more than 30 years, while for robots it is over 20 years. Furthermore, any maintenance requirements are simple to perform. The FANUC Panel *i*H Pro multifunctional display can highlight impending issues prior to failure, even providing a video or image that outlines how rectification can take place in-house to minimise downtime. Alongside exceptionally high spare parts availability, fewer components and less wear, investing in FANUC technology will deliver the market's most attractive TCO, potentially several factors lower than that available from hydraulic machines.

Users of ROBOSHOT machines also benefit from low piece part costs due to high uptime and productivity, supported by injection rates of up to 350 mm/s and parallel machine movements.

Sustainable, reliable, low-cost production

Turning all of the theory into reality, FANUC will showcase four automated production cells at K 2022.

For instance, a FANUC ROBOSHOT S220*i*B (220T capacity) injection moulding machine will produce polypropylene parts from a 48-cavity mould manufactured by Foboha, with parts handling via a Sepro Success 33 linear robot and Gimatic gripper. Integrated file management allows easy program transfer between machine and robot. In addition, fully integrated Regloplas water manifolds (via VNC – virtual network computing) ensures easy setting and adjustment using the ROBOSHOT HMI screen.

For the mould, the system will feature Priamus cavity pressure sensors with an E63 fill control interface. Fill control balances the cavity by adjusting the hot-runner nozzle temperature. The latest EUROMAP 82.2/OPC 40082-2 control interface will provide communication with a Gammaflux hot-runner temperature control system.

Clean performance

Visitors from the medical sector will benefit from taking a look at FANUC's demonstration cell involving a ROBOSHOT S150*i*B (150T capacity) injection moulding machine with a TIM 8-cavity mould for 20ml polypropylene syringes. A FANUC M20*i*B/25C industrial

6-axis robot with Gimatic gripper is set to provide the automation. The system will feature integrated Regloplas water manifolds via VNC and an integrated FANUC servo unscrewing function for the mould. A plug and play FANUC *i*RVision visual detection system will check for the correct demoulding of parts.

Optimised for cleanroom environments, this standard medical package will also demonstrate a PETEK laminar flow box for class 8 cleanroom use. Further features include bush-less tie bars for enhanced cleanliness in the mould area (less lubricant requirement), FDA-approved grease, high-gloss paint for easy cleaning and rust-proof linear guides.

Bio-compostable materials

To demonstrate FANUC's compatibility with the latest sustainable and environmentally friendly bioplastic materials, visitors to K 2022 can view a ROBOSHOT S100*i*B (100T capacity) injection moulding machine producing 8-cavity coffee capsules from a bio-compostable plastic. Fully configured to process this innovative material, the ROBOSHOT machine at the exhibition will have an Inmex 26mm barrel with integrated heater featuring insulation and cooling for energy-efficient operation. The latest EUROMAP 82.1/OPC 40082-1 control interface will provide communication with an HB-Therm mould temperature controller.

Full automation is courtesy of a FANUC LR Mate 200*i*D/7L compact industrial robot, highlighting the benefit of FANUC QSSR (Quick & Simple Start-up of Robotization). QSSR makes it possible to connect the ROBOSHOT machine and robot using a single Ethernet cable. Users have the subsequent option to undertake G-code programming of the robot via the machine tool's control. The robot will also showcase a Zimmer tool-change system.

LSR moulding in action

The final demonstration cell will focus on an LSR (liquid silicone rubber) application. Central to the system will be a ROBOSHOT S150*i*B injection moulding machine supported by a FANUC M20*i*D/25 robot. This FANUC LSR package will be producing LSR sealing components from a 64-cavity SEI WOO mould. Notable features include: a FANUC LSR plasticiser; integrated vacuum pump, mould heat circuits and control; standard enhanced software package for LSR moulding functionality; and LSR dosing equipment from ACH Hefner.

IoT corner

Elsewhere on the booth, visitors can view FANUC's extensive IoT capabilities, including the potential to connect to FANUC machines using EUROMAP 77/OPC40077 (an interface based on the internationally recognised OPC UA standard).

The spotlight will also fall on ROBOSHOT-LINK*i*-2, a production and quality information tool that can monitor the entire moulding process, schedule upcoming jobs, analyse and evaluate historical data, create customised reports, and issue downtime notification emails. LINK*i*-2 manages up to 1000 ROBOSHOT machine in real time from remote PCs or smart devices, although it can also run on the ROBOSHOT screen.

Another highlight will be a connection from a FANUC ROBOSHOT machine to the UMATI booth at K 2022.

ONE FANUC

Everything on view from FANUC at K 2022 is available from a single source thanks to the ONE FANUC approach. A single, common, easy-to-integrate platform encompassing machines, robots and software provides complete flexibility for customers seeking an easy pathway to optimised production.

About FANUC

The FANUC Corporation is one of the worldwide leaders in factory automation for CNC control systems, robots and production machinery (ROBODRILL, ROBOCUT & ROBOSHOT). Since 1956, FANUC is the pioneer in the development of numerically controlled machines in the automation industry. With 271 FANUC locations worldwide and more than 8,000 employees, FANUC offers a dense network in sales, technical support, research & development, logistics and customer service.

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