

October 2021, Kottlingbrunn/Austria

PRESS RELEASE

WITTMANN BATTENFELD at the Fakuma

LSR processing in micro injection molding

At the Fakuma 2021 in hall B1, booth 1204, WITTMANN BATTENFELD will manufacture a support ring with a silicone membrane to demonstrate its expertise in two disciplines: liquid silicone processing and the production of top-quality micro parts.

The micro part produced in a 2C process is a support ring used in industrial metrology. The parts are manufactured in an 8-cavity mold constructed in cooperation with Nexus. The materials used are polycarbonate (Macrolon) from Covestro and a self-adhesive LSR (Silopren) supplied by Momentive.

With a diameter of about 6 mm, a height of 1.8 mm and a total part weight of just 23 mg, the uncontested highlight is the silicone membrane, which weighs no more than 120 µg. This extremely thin membrane, only 20 µm thick, permits accurate transmission of even minute pressure differences between two different media. Thanks to the optimal choice of materials, neither high operating temperatures of up to 150° C nor difficult media will present any problems.

The LSR will be fed from (1L) cartridges, the material flows will be metered in microliter quantities by the liquid dosing unit for LSR. Simultaneously, the high measured material quality will be recorded and transmitted to the machine's B8 control system via an OPC UA interface (Euromap 82.3). The "Servomix X1" liquid dosing unit for LSR supplied by Nexus is a part of the overall package, which meets the requirements for the production of micro parts in every respect.

Minimal flow paths combined with optimal process control in material loading as well as further processing in the two-step injection unit of the *MicroPower* from WITTMANN BATTENFELD, specially designed for micro parts injection molding. All of this provides the best possible conditions for producing top-quality micro parts with utmost repeatability.

The machine used for this application will be a *MicroPower 15/10H/10H* COMBIMOULD. This multi-component machine is equipped with two horizontally

mounted injection units and a rotary disk, and laid out for clean room injection molding. The rotary disk is completely encapsulated. The connections for heating, temperature sensors, water tempering, core pull pneumatics and sensors, as well as the blow through valve, are all placed near the rotary disk. The resulting short connection lines to the mold enhance the machine's user friendliness. Similar to the standard machine, the injection units of the *MicroPower* multi-component model also take the form of two-step screw-and-plunger aggregates with a shot volume of 4 cm³, and with minimal flow paths to enable processing of thermally homogeneous melt and consequently producing parts of excellent quality.



Fig. 1: *MicroPower* 15/10H/10H COMBIMOULD in LIM version with Servomix X1 liquid dosing unit for LSR



Fig. 2: 2-step screw-and-plunger aggregates of the *MicroPower* COMBIMOULD LIM

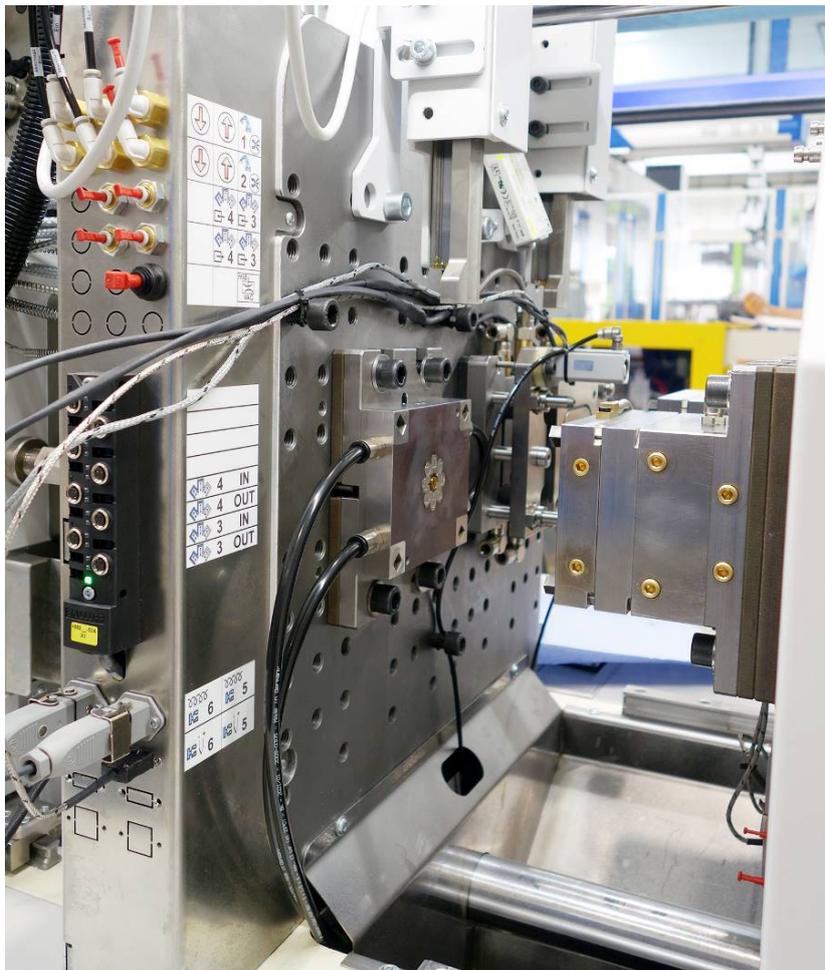


Fig. 3: Mold space with view of the thermoplastic component

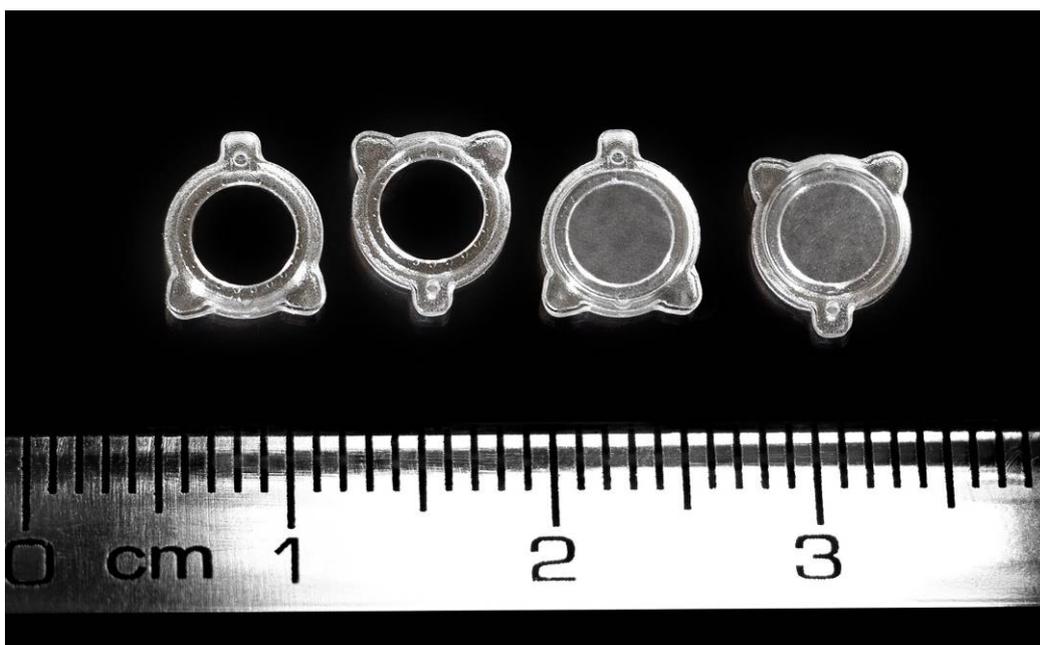


Fig. 4: Support ring with silicone membrane

The WITTMANN Group

The WITTMANN Group is a globally leading manufacturer of injection molding machines, robots and auxiliary equipment for processing a great variety of plasticizable materials – both plastic and non-plastic. The group of companies has its headquarters in Vienna, Austria and consists of two main divisions: WITTMANN BATTENFELD and WITTMANN. Following the principles of environmental protection, conservation of resources and circular economy, the WITTMANN Group engages in state-of-the-art process technology for maximum energy efficiency in injection molding, and in processing standard materials and materials with a high content of recyclates and renewable raw materials. The products of the WITTMANN Group are designed for horizontal and vertical integration into a Smart Factory and can be interlinked to form an intelligent production cell.

The companies of the group jointly operate eight production plants in five countries, and the additional sales companies at their 34 different locations are present in all major industrial markets around the world.

WITTMANN BATTENFELD pursues the continued strengthening of its market position as a manufacturer of injection molding machines and supplier of comprehensive modern machine technology in modular design. The product range of WITTMANN includes robots and automation systems, material handling systems, dryers, gravimetric and volumetric blenders, granulators, temperature controllers and chillers. The combination of the individual areas under the umbrella of the WITTMANN Group enables perfect integration – to the advantage of injection molding processors with an increasing demand for seamless interlocking of processing machines, automation and auxiliaries.

Contact:

WITTMANN BATTENFELD GmbH

Wiener Neustädter Strasse 81

2542 Kottlingbrunn, Austria

Tel.: +43 2252 404-1400

gabriele.hopf@wittmann-group.com

www.wittmann-group.com