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ALLROUNDER

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CONTENS

Customer report: "Innovations for the future"

MASTHEAD

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Innovations f

Mentor: Long-established company specialises

With this slogan, Mentor GmbH & Co Präzisions-Bauteile KG from Erkrath advertises its products. A company that stocks a product range of 11,500 individual parts and around 7,000 finished ones, ranging from micro components weighing only 0.006 g to injection moulded items with a length of 800 mm long is no common occurrence. As with its co-operation with ARBURG, the diversity of the range of both customised and standard items, has grown continuously: Mentor has been producing its entire product range exclusively on ALLROUNDERS for 40 years.

The company, which was established in 1920, currently manufactures 80 percent of its products from a huge variety of plastics, some glass fibre reinforced, and primarily intends to further expand in this sector. Marco D'Aurelio, Marketing Advisor, has this to say: "Today, Mentor produces plastic parts, components and assemblies for the mechanical, electronics and optoelectronics sectors, among others."

Their customers are primarily found in the fields of electronics/surface-mounted devices (SMD) and medical technology,

while the automotive sector is also positioned strongly with around 40 percent. Christian Broich, Production Manager at the injection moulding plant, remarks on the nature of Mentor's customers: "For the most part, we work with regular customers, who appreciate us and our skills as a system supplier. We mainly support our partners throughout the entire value-added chain. This ranges from development, design and mould making, through to production, subsequent machining, assembly, packing and delivery.

According to Marco D'Aurelio, the company's own sales organisation is also to be expanded in order to gain a greater share of the international market because so far, at 70 percent, the lion's share of Mentor products has gone to the German market.



Microstructures for uniform light distribution

The company produces polymer optical waveguides in lengths between 4.5 and 800 mm. Says Christian Broich: "Above all, our specialist know-how includes the incorporation of microstructures along the entire length of the moulded parts in order to achieve uniform light distribution and output. These contours are particularly important because we only couple the diode light in these structures on one side."

An in-house developed, machine-based CAQ system is employed for quality monitoring purposes. Here, important machine parameters are recorded via a special interface for each shot and are 100 percent documented and monitored via the SPC statistical process control system. Of the company's 40 ALLROUNDER machines, 21 operate in shift operation in Erkrath, the remaining

Production Manager Christian Broich (bottom left) shows the optical waveguide that is injected vertically into a one-metre mould on an ALLROUNDER 420 C (bottom).



Optical waveguides for vehicle interiors (left) are a speciality at Mentor.

or the future

in optical waveguides for the automotive sector



Photos: Mentor

One-metre mould for optical waveguide

An ALLROUNDER 420 C particularly catches the eye in the production line: the machine operates with a maximum useful clamping surface of 600 mm and a round, 1-metre mould positioned vertically in the clamping unit. The single mould for producing the 800-mm optical waveguide extends down into the machine base and a size 250 injection unit injects vertically into the parting line. Christian Broich responds to questions with a smile: "How do I produce high-quality technical moulded parts in a large mould with such a small clamping surface? That's what a lot of people want to know when they see this and they all get the same answer: That's Mentor know-how."

We will say this much: the optical waveguides are made from PMMA and the mould contours are highly polished. The light-conductive geometry is milled and eroded, and has different characteristics for the different waveguide lengths. After a cycle time of 45 seconds, the parts are ejected and the sprue removed downstream by laser. Next, the parts are either delivered immediately, or sent to the assembly plant in Tunisia for the manufacture of components with LEDs and addi-

ones are located at the Mentor subsidiary Albert Weidmann Licht-Elektronik GmbH in Pforzheim. Christian Broich explains why Mentor has equipped itself exclusively with ALLROUNDER injection moulding technology: "For us, ARBURG brought all the positive factors together. First of all, the ALLROUNDER machines are compact, with high repeat accuracy and excellent availability. Secondly, the fast and flexible service by the ARBURG Technology Centre in Radevormwald is very important. Thirdly, we also benefit from the ALLROUNDER philosophy of compatible technology throughout virtually the entire product range, such as the universal suitability of the injection units, for example."

tional electronics. Christian Broich again: "We are extremely flexible with regard to our customers. In our opinion, intelligent light distribution with optical waveguides and LEDs holds enormous development potential for the future."

INFOBOX

Founded: 1920

Employees: over 450

Machine fleet: 40 ALLROUNDERS with clamping forces from 250 to 1,500 kN, including vertical and two-component machines

Products: e.g. light-conducting components – including waterproof versions – into which 50 million LEDs are built annually

Certification: DIN EN ISO 14001, 9001 and TS 16949, listed as "Formula Q" A-supplier for VW.

Contact: www.mentor-baelemente.de



Customised series production. Milestones of the ALLROUNDER principle:

Variety of working positions. Multi-component injection moulding. Modularity. Automation. VARIO principle. Displaceable injection unit. Vertical and rotary table ALLROUNDERS. SELOGICA machine control system. Today: Unique range of technologies. Highly modular. Customised to meet any production requirements. The ALLROUNDER: 50 years of innovation. To be continued...



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