



NEWS RELEASE

IKV starts up fully networked injection moulding machine with automated quality assurance

Demonstrator project at K2019 for fully automatic process set-up in injection moulding will be further developed at IKV

Aachen, September 2020 – At its injection moulding pilot plant, the Institute for Plastics Processing (IKV) in Industry and Craft at RWTH Aachen University is putting on stream a new injection moulding machine of Type IntElect2 100/470-250 with five-axis handling from the firm Firma Sumitomo (SHI) Demag Plastics Machinery GmbH, Schwaig. Dr. Thümen, Senior Director Technology, made the celebratory handover of the new machine in the IKV pilot plant.

With this injection moulding machine, the K2019 demonstrator project for fully automated process set-up will be further developed. The process will be extended by a fully automatic quality assurance system for documenting various optical and gravimetric quality criteria and by a central filing system for machine and peripheral data. The fully networked production centre offers a variety of approaches especially in the digitisation of the injection moulding process and the utilisation of machine and part data for determining optimised process parameters by machine learning.

During the K Show 2019 in Düsseldorf, process data for an AI model consisting of an artificial neural network and a subsequent evolutionary algorithm were generated on the system. These were read out via OPC-UA in order to carry out the modeling of the injection moulding process and its optimisation autonomously by the system. In the following, possibilities of a "data recycling", also called transfer learning, shall be investigated, which could drastically shorten the time for automatic process setup by reducing the required process data. For this purpose, process data of other components, initially produced on the same injection moulding machine, shall be used as substitution data, which thus already implicitly include the machine and material behaviour. The research focuses on the development of operative assistance systems for set-up personnel and process engineers in order to effectively combine objective optimisation models with many years of experience in the injection moulding process.

The production of plastic-metal hybrid parts in in-mould assembly continues to be part of IKV's research programme. Here, in addition to new applications for hybrid parts in E&E lighting applications with an amorphous plastic component, new joining methods are also being studied. The focus of the tests is on the back-moulding of laser-microstructured metal sheet. The new machine technology offers, through precise process control and the integrated sensor system, the possibility to examine more closely a wide variety of parameters in hybrid technology.

www.ikv-aachen.com

www.sumitomo-shi-demag.eu



About IKV

IKV - the Institute for Plastics Processing at RWTH Aachen University, is Europe-wide the leading research and education institute engaged in the field of plastics processing enjoying outstanding reputation. More than 300 staff are employed in finding solutions to problems connected with processing, materials technology and part design in the plastics and rubber industries. IKV's close contacts with industry and science, together with its outstanding facilities, enable cutting-edge research in plastics technology and ensure that students benefit from a comprehensive, practically oriented course of study. Plastics engineering graduates from IKV are thus sought-after experts in industry. In organisational terms, IKV is divided up into the four specialist departments of Injection Moulding, Extrusion and Rubber Technology, Part Design and Materials Technology, and Composites and Polyurethane Technology. The institute also takes in the Centre for Analysis and Testing of Plastics, and the Training and Further Education department. IKV is run by an Association of Sponsors, which currently has a membership of about 300 plastics companies from all over the world. Univ.-Prof. Dr.-Ing. Christian Hopmann is Head of the Institute and Managing Director of the Association of Sponsors. He also holds the Chair of Plastics Processing at the Faculty of Mechanical Engineering at RWTH Aachen University.



Prof. Christian Hopmann, Dr. Thorsten Thümen and Dr. Malte Röbig during the handover of the new system technology in IKV's injection moulding pilot plant (Photo: IKV)

Photo in high resolution to find on our website together with the press release at www.ikv-aachen.de/en/news

We would appreciate a sample copy of any reprints.

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