

## BOY has the automation under control – integration of individually selectable tool-bits in the injection-moulded T-handle

The production of a practical plastic T-handle with different tool-bits illustrates BOY's high capability in the overmoulding of insert components.

At the K show, a universal bit holder for holding the tool bits was overmoulded with glass-fibre reinforced polyamide to form a handy handle on a BOY 35 E VV.

The special feature of this trade fair application was the

integrated in a space-saving manner in the longitudinal direction on the rear machine table of the BOY 35 E VV.

The gripper of the BOY LR 5 removed a Bit-holder from a feed unit and inserted it into the opened mould. After the two-platen clamping unit with a fixed lower platen had been closed, 42.5 g of plastic (PA6CF10) was injected via a hot runner.

The metal part, overmoulded

with a plastic handle, was removed by the BOY LR 5 and then placed on a cooling station.

One of the cooled down T-

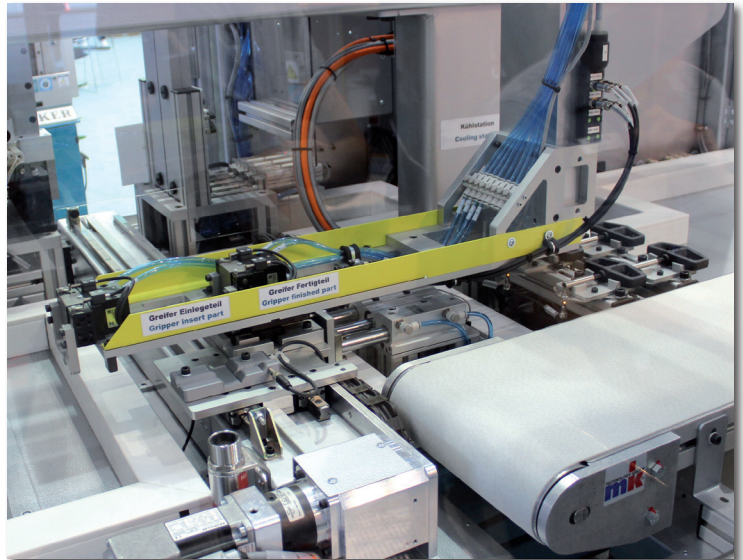


individual selection of different tool-bits. At an input terminal, the visitors could select two pairs from the bits offered, which are then inserted into the injection-moulded T-handle by a Pick-and-Place-system.

The BOY injection moulding machine presented on the trade fair also included the in-house developed LR 5 linear-handling-system, which was

handle was then transferred by the BOY linear handling to an automatic Pick-and-Place system.

Here, the tool-bits ordered by the visitors were inserted into the four hexagonal openings of the handle. The T-handle equipped with tool-bits was then supplied to „its orderer“ with the BOY LR 5 linear handling system via a conveyor belt.



This application combined the compact BOY 35 E VV insert moulding machine, the tailor-made automation solutions and the input terminal in a compact footprint.

Due to the increasing connectivity of injection moulding machines, such complex Industry 4.0 applications could be impressively realised.



Industry 4.0

Here you can find a video that impressively presents the application:



Video



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## The visitors selected actively - the automation at the BOY booth perfectly implemented their individual selections

At the K show BOY prompted the visitors at its booth to actively participate in the production process.

On a BOY 60 E VV gift boxes made of Polypropylene were produced. Visitors could individually select a variety of injection moulded parts as well as smaller trade fair treats via an input field. The automation cell of the company Gosewehr Robot Automation GmbH integrated on the rear machine table of the BOY 60 E VV filled the BOY gift boxes with the desired trade fair gifts.



### Integration and Networking

The machine control of the BOY 60 E VV, the control of linear handling and the six-axis robot (Stäubli AG) as well as the digital input device and the camera-based parts-identification for a correct filling are linked with each other in terms of control technology.

BOY demonstrated with this application, that its injection moulding machines not only produce precise, versatile and durable plastic parts, they can also be fully integrated into automated production lines and complex manufacturing processes.

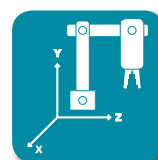
### Individual selection with coordinated process

After the insertion of an in-mould-film into the mould and the injection moulding of the gift box, the parts were removed from the mould by a linear handling system (Gosewehr Robot Automation GmbH) and transferred to a six-axis robot. During this process the open gift box was turned and placed with the opening upwards.

If requested by the visitor at the input terminal, either the linear handling or the six-axis robot filled the gift box with a wine spout including a decanting function, Smarties chocolate lentils or egg cups.

Before the six-axis robot removed the articles, a camera system with image evaluation determined the position and orientation of the articles and, if necessary, a correction took place via a vibrating plate.

The six-axis robot then removed the items selected by the visitor from the respective storage boxes and placed them into the gift box. Now the gift box was closed by the six-axis robot and subsequently placed on a chute where the customers received their individually filled gift box.



Automation



Video



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