

**Easily define process window and quality via parameter limits**

## **Mastering machine settings**

Schwertberg, Austria – June 2022

**The precondition for a stable production process and consistently high product quality is the right settings for all process parameters on the injection moulding machine. But mistakes still happen time and time again. The new Parameter Limits feature offers a remedy. It helps the injection moulder keep the parameters constant within a process window.**

Fluctuations in the raw material properties, wear of the mould, changes in the ambient conditions: a wide variety of factors influence the injection moulding process and, in turn, the part quality. Various methods are available to ensure consistently high quality in injection moulding. In addition to legacy quality controls and adaptive process control, the new Parameter - Limits feature by ENGEL ensures that the set values preconfigured for the respective injection moulding process remain within a defined process window at all times. In turn, this means that the quality criteria for the component do not wander outside of the specified limits.

### **Defining tolerance ranges for up to 150 parameters**

A process window describes the range within whose limits the process must take place to achieve the required part quality. With the help of Parameter Limits, a process window can be defined for up to 150 individually selectable process parameters using the CC300 control panel on ENGEL injection moulding machines. The candidates include all numerical process parameters whose set values can be changed by the machine operator.

All selected parameters are displayed for the machine operator on an overview screen. Like the phases of the injection moulding process, the parameters are broken down into four groups, although individual groups can be added. The currently set value is displayed for each parameter. Additionally, the value derived from process optimisation or validation, with which the best possible part quality was achieved, is displayed. This value serves as refer-

ence for the permissible deviations, which are entered as an absolute tolerance or percentage. Alternatively, upper and lower limit values can be input directly; the tolerance is automatically calculated by reference to them. This means that the operator can see the entire process window, the currently set values, and the matching reference value, at a glance.

### **Saving the process window in the settings data set**

The Parameter Limits feature is easy to enable by ticking a box. After doing so, the process parameters can no longer be changed to a value outside of the process window. All configured settings are stored in the parts data set. This means that the process windows are immediately available again, the next time the mould is set up, on the injection moulding machine's CC300 control unit. This eliminates the risk of input errors.

The new feature contributes towards preventing the production of rejects, and helps injection moulders work in a way that saves energy and resources. ENGEL is demonstrating the huge potential of process window monitoring at K 2022 from 19 to 26 October in Düsseldorf by producing specimen vessels for medical diagnostics. It is this safety on top that makes Parameter Limits so interesting – above all for applications in medical technologies.

### **ENGEL at K 2022: hall 15, stand C58**



The new Parameter Limits feature makes it possible to define fixed tolerance ranges for up to 150 process parameters directly on the machine control unit.

Picture: ENGEL

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## **ENGEL AUSTRIA GmbH**

ENGEL is one of the global leaders in the manufacture of plastics processing machines. Today, the ENGEL Group offers a full range of technology modules for plastics processing as a single source supplier: injection moulding machines for thermoplastics and elastomers together with automation, with individual components also competitive and successful on the market in their own right. With nine production plants in Europe, North America and Asia (China and Korea), and subsidiaries and representatives in more than 85 countries, ENGEL offers its customers the optimum global support they need to compete and succeed with new technologies and leading-edge production systems.

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