



*Engineering Excellence*

# **Faster than the blink of an eye: Closure production with fully automated diameter adaptation**

Peter Schmid, Munich 2018

## Application

38 mm single-piece closure

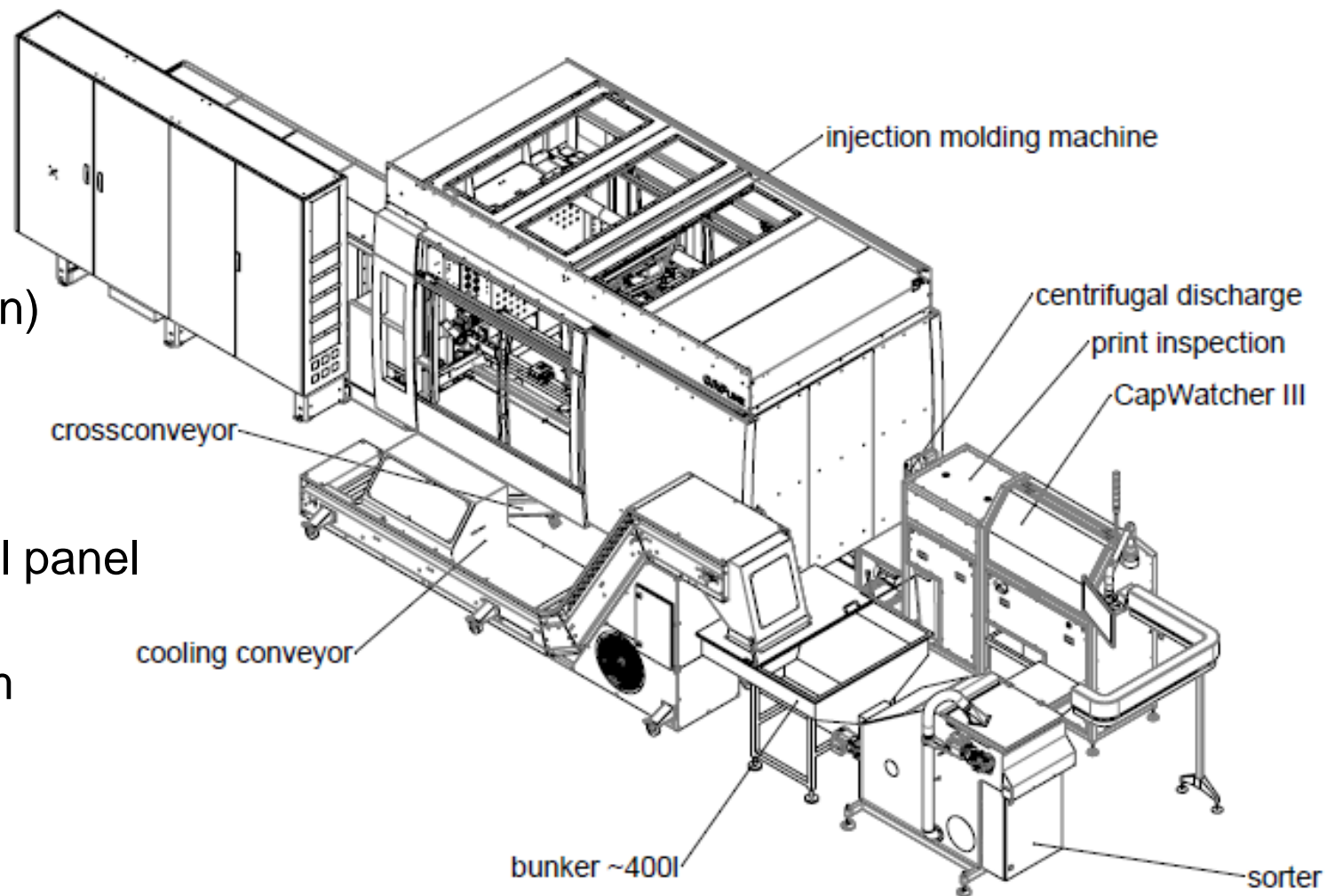


- 38 mm closure
- 32-cavity mold
- Elion 2200 - 1000 machine
- Throughput approx. 85 kg/h
- Material HDPE
- Capacity: 480 parts/min

## Design and function

Complete production cell in a compact footprint

- Injection of the parts
- Transport and cooling
- In-line inspection (camera inspection)
- Data evaluation feedback
- Data visualization system on control panel
- Adaptive closed-loop control system



## Control loop

Closed-loop between machine and visual inspection system



Sensor



Actuator

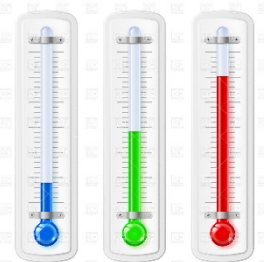
# Language

Communication between machine and visual inspection system

## Parameters



Pressure

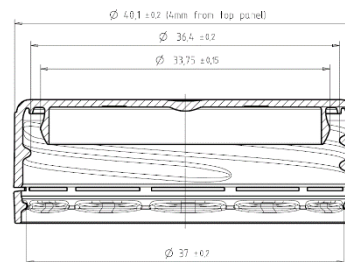


Temperature



Time

## Features



Dimensions



Weight

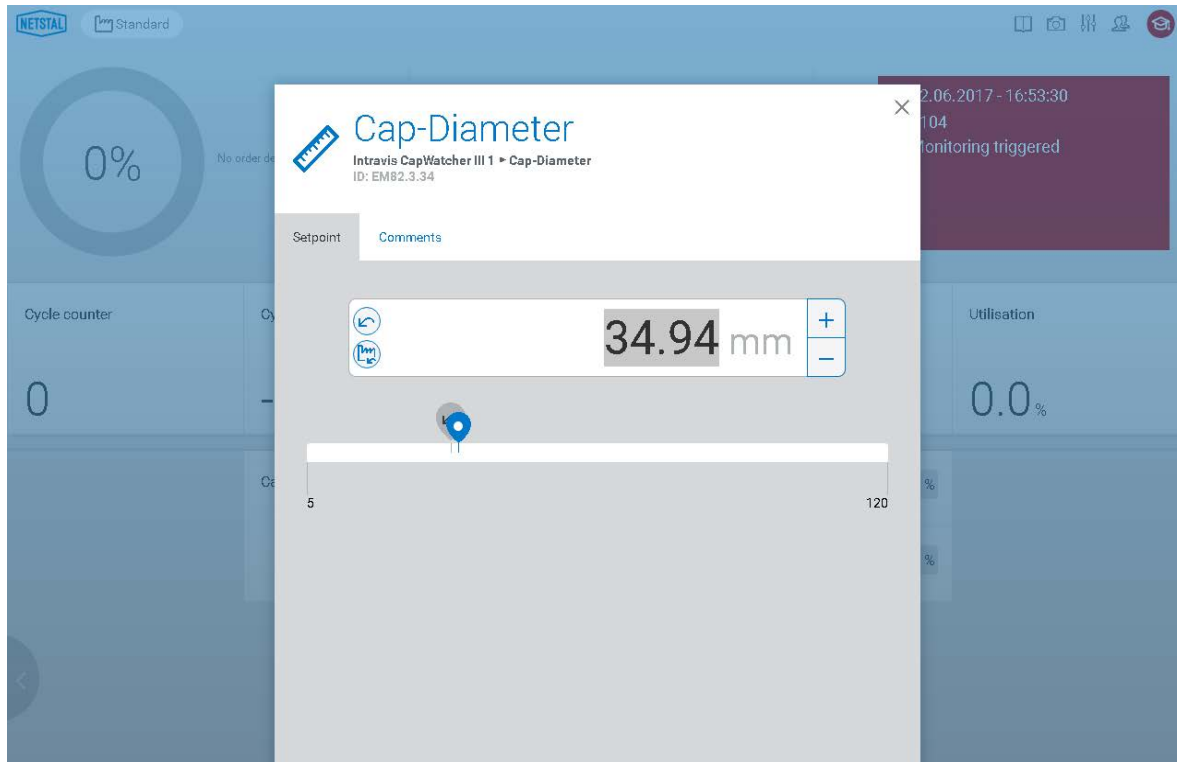


Visual

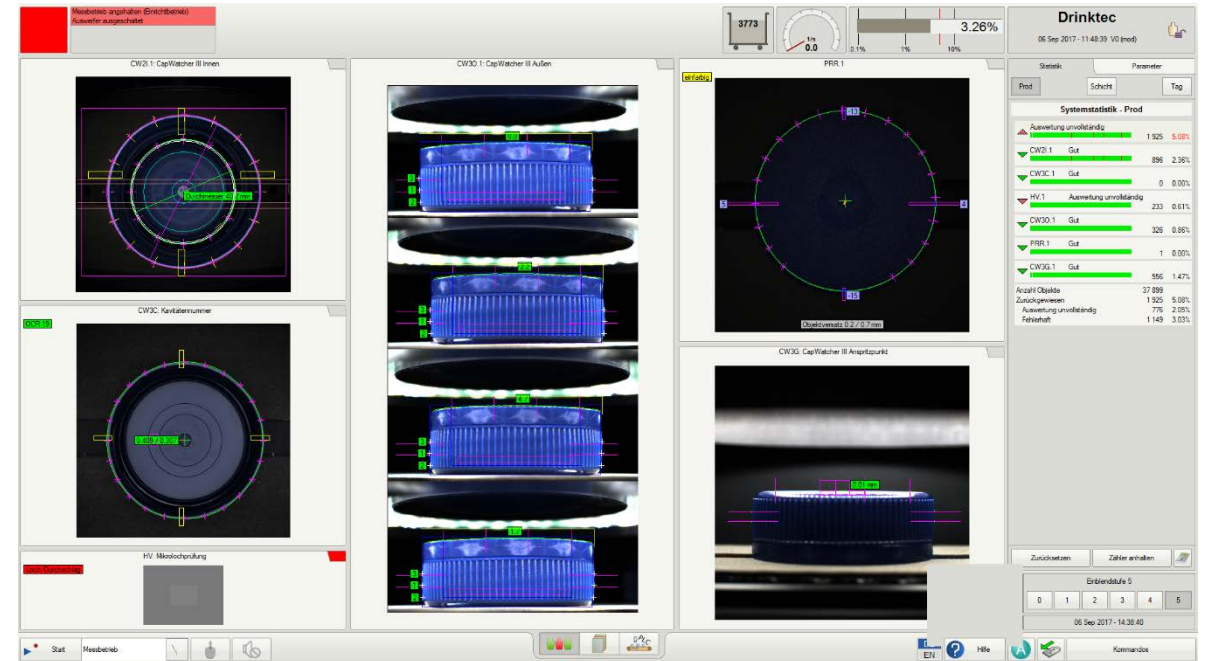
# Language

Communication between machine and visual inspection system

## Feature

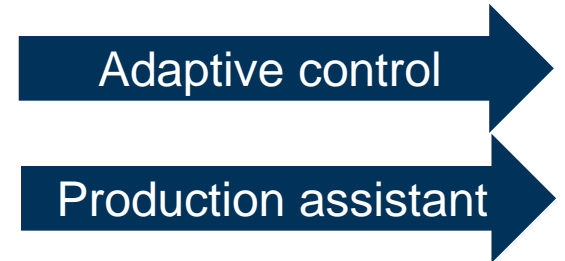
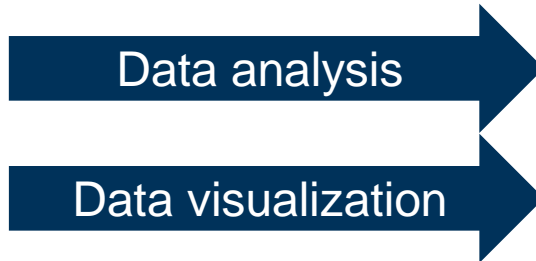
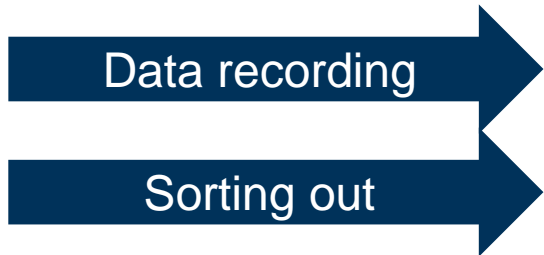
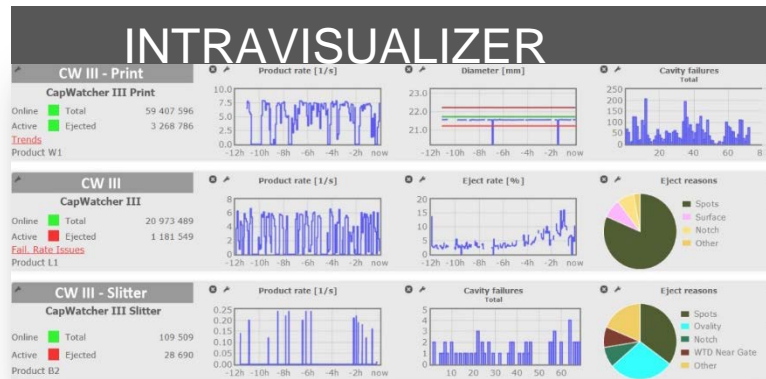


## Feature



# Control loop

Injection molding machine adaptive closed-loop control system



# Advantages of the adaptive closed-loop control system

Greater production efficiency thanks to intelligent networking



- Standardized and intelligent procedure during interventions
- Real-time
- Low risk from operator error
- Greater process robustness
- Avoidance of scrap





**Thank you for your attention!**



## **Peter Schmid**

Team Manager for Applications

Netstal-Maschinen AG  
Tschachenstrasse 1  
8752 Näfels  
Switzerland

Telefon +41 55 618 64 13  
Mobil +41 79 248 50 37  
Email [peter.schmid@netstal.com](mailto:peter.schmid@netstal.com)