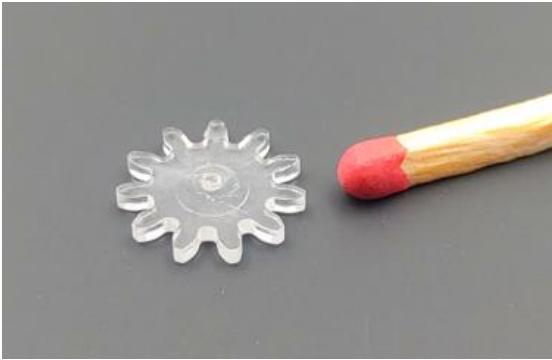


# Injection unit for micro injection molding

## Economic micro-component manufacture

### Invention

Economic micro-component injection molding (for all batch sizes) is no longer a pipe dream! TH Köln has developed a polymer laboratory in which it has discovered how to economically melt and inject thermoplastics not only in multiple cavities, but also with single-cavity molds. The injection molding unit concept allows greatly reduced dwell times, low energy consumption, and very good reproducibility.



Verified sample component

This is accomplished with a new type of shut-off needle integration into the injection piston and clever plastic melt guidance. Injection unit volume is so low that short dwell times can be achieved in single-cavity molds even without oversized gating systems. The unit can be combined with sprueless injection molds. Dwell time was reduced by more than 90%. Material flow is FIFO.

### Commercial Opportunities

The injection unit that has been developed can be used to manufacture micro-components in all batch sizes for which excessive thermal load for melting is to be avoided. Since oversized gating systems are eliminated for single-cavity molds, economic injection molding processes can be used even for small batch sizes.

### Current Status

TU Köln has submitted a German patent application for the invention with the option of international expansion.

The functional prototype has been successfully tested for functionality and desirability with various thermoplastics.

An invention of the Cologne University of Applied Sciences.

### Competitive Advantages

- Short dwell time
- Energy-saving potential
- Increased, reproducible precision
- Can be sprueless

### Technology Readiness Level

123456789

Technology validated in lab

### Industries

- Plastics industry

### Ref. No.

6681

### Contact

Dr.-Ing. Oliver Kower

E-Mail: [ok@provendis.info](mailto:ok@provendis.info)

Phone: +49(0)208-94105-61

