A working group in the Department of Medical Technology at the University of Munich developed a prototype of the µ-Ject micro-injection molding machine with real-time control. The system made it possible to achieve high injection velocities, detection of the change-over point in real time and maximum deceleration. The important part of the system is a synchronous motor that actuates both the injection plunger and the toggle mechanism of the clamping unit. The system components are coupled to the linear motor by means of bottled connections, while the clamping and injection units are attached to the machine frame in the uncoupled state. The plasticated melt can be injected immediately on the basis of a FIFO principle. The modularity of the µ-Ject concept is the basis for the adaptability of the system and the development of new processes and products.

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