



Press Release  
SINGLE at Fakuma 2009: Hall A3, Stand 3102

Intermittent temperature control for better-quality injection moulded parts

## **SINGLE presents EcoTemp: Cost-efficient passive system for variotherm mould temperature control**

**At Fakuma 2009, SINGLE Temperiertechnik GmbH of Hochdorf/Germany presents EcoTemp, a cost-efficient passive system for variotherm mould temperature control. EcoTemp integrates conventional small temperature control units into a system. This system interrupts mould cooling during the injection phase to allow the cavity wall to heat up. This procedure is followed by a particularly intense cooling phase.**

EcoTemp is an electric and hydraulic combination of mini and small SINGLE temperature control systems for creating an intermittent flow through the mould. EcoTemp controls the starting and stopping point of the cooling media flow with the help of cycle-dependent signals from the injection moulding machine. The temperature of the cooling media can be set as required. Thanks to the intermittent media flow, EcoTemp operates with lower media temperatures than conventional units that work with constant temperatures.

In practical tests with reference customers, EcoTemp mostly achieved cycle time reductions in the double-digit percentage range while delivering a constant part quality. These tests showed that EcoTemp produces repeatable as well as reliable results and is easy to operate. In most cases two or more temperature control units are used for heating or cooling a mould. These units supply transfer media with different temperatures to the different circuits up to the level of the pressurised water. All small and medium-capacity SINGLE temperature systems are compatible with EcoTemp.

### **EcoTemp live at Fakuma 2009**

At Fakuma 2009, SINGLE EcoTemp can be viewed in operation at the following stands:

INNONET Kunststoff	Hall A3, Stand 3105
Evonik Industries	Hall A4, Stand 4117
FANUC Roboshot Europe GmbH	Hall B3, Stand 3108

### **Background: Variotherm mould temperature control**

“Dynamic”, “cyclic” or “variotherm mould temperature control technology” is increasingly being used to improve the quality of injection moulded parts. It is an attractive option for plastic processors because it heightens the accuracy of the reproduction of surface detail in injection moulded parts, dimensional stability and consistency as well as shortening cycle times.

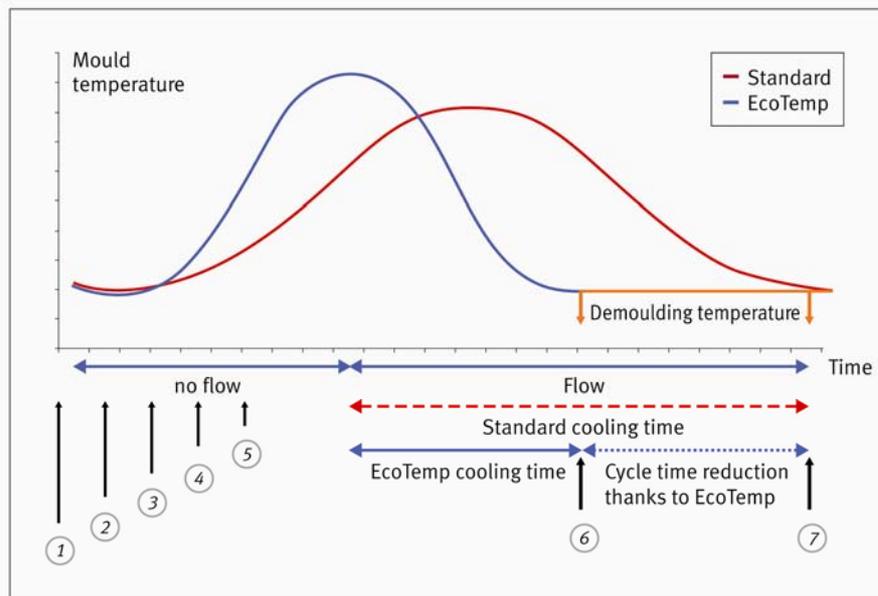
Variotherm mould temperature control involves heating the cavity wall prior to injection of the melt to a temperature that exceeds the glass transition temperature of the melt. Mould cooling starts as soon as the cavity has been filled and lasts until the part has reached the required temperature for demoulding. Active systems such as ATT (Alternating Temperature Control Technology) by SINGLE ensure that warm and cold transfer media are passed through the cooling/heating channels in alternation. In contrast, EcoTemp interrupts mould cooling during the injection phase to allow the mould cavity wall to heat up.

For maximum efficiency and profitability, both methods should be applied in combination with moulds that provide good thermal conductivity, ensure an effective heat transfer to the cavity and a low mass to be cooled/heated. In order to keep this mass to a minimum, small inserts with contour-aligned cooling/heating channels are preferred.

#### **Benefits of variotherm mould temperature control**

The deployment of variotherm mould temperature control improves the process, the surface of the moulded parts, their strength as well as the cost-efficiency of their production and provides a range of benefits:

- longer holding pressure even in areas that are away from the gate, which helps reduce injection pressure and clamping force,
- less internal stress during moulding of optical components,
- better surface properties such as self-cleaning or antireflection coatings, microstructures and nanostructures and smoother surfaces as well as high-grade glossy surfaces with piano finish,
- more homogenous orientation of glass-fibres in industrial components,
- longer welding time for melt front and fewer weld lines,
- lower risk of warpage caused by shrinkage and better dimensional stability and consistency of injection moulded parts,
- shorter cycle times thanks to longer wall contact of melt agglomerations with the result of a more intense cooling action.



- |               |                                     |
|---------------|-------------------------------------|
| ① Open mould  | ⑤ Holding pressure                  |
| ② Remove part | ⑥ Open mould (EcoTemp)              |
| ③ Close mould | ⑦ Open mould (conventional systems) |
| ④ Injection   |                                     |

*EcoTemp suspends mould cooling during the injection phase to allow the cavity wall to heat up. This procedure is followed by a particularly intense cooling phase. This approach reduces cycle times and improves the quality of the moulded part*

*Diagram: SINGLE Temperiertechnik GmbH, Hochdorf/Germany*

### **SINGLE in profile**

SINGLE has been developing, producing and selling high-performance temperature control systems for more than 40 years. The company's product portfolio consists of water and oil-operated, high-quality temperature control systems, heat transfer units, water-to-water chillers, as well as customized solutions. SINGLE uses only high-quality components and materials. Long-standing customers testify to the ease-of-use and the reliable operation of SINGLE systems even under a high workload.

In addition to plastics processors and manufacturers of plastics processing machines, SINGLE caters to customers in the chemical and pharmaceutical industry as well as to the metal plating industry, the food production segment and is used for test bench technology and many more applications.

A network of regional sales partners and service points as well as a subsidiary in the US are the cornerstones of SINGLE's international presence. Services and after-sales support on all temperature-control related problems, commissioning, on- and off-site training complete SINGLE's portfolio. SINGLE



is certified to EN ISO 9001:2000, has technology and manufacturer certifications that meet the European Pressure Equipment Directive (PED) and complies with standards such as UL and regional directives to CSA and GOST.

The company, which employs about 110 people, has been a member of Looser Holding AG of Arbon/Switzerland since 2006.

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