



Press Release
16 July, 2009

First NPE presentation proves to be highly successful

Considerable interest in high-tech temperature control solutions from SINGLE Temperature Controls at NPE

The selection of exhibits presented by SINGLE Temperature Controls, Inc., Charlotte NC, at their own NPE exhibition stand instantly met with an extraordinary response. Visitors from the US displayed a keen interest in the specialist's high-temperature water control systems for high temperatures of up to 400 F and temperature alternating systems for a high accuracy of reproduction of surface detail in injection molded parts, improved dimensional stability and consistency while reducing cycle times.

The use of water as a heat transfer medium during the temperature control of injection molds with temperatures in excess of 250 F (120°C) provides a number of benefits such as

- double specific heat capacity,
- five times higher thermal conductivity,
- between seven and eight times higher heat transfer coefficient,
- trouble-free disposal,
- no danger from leaks and
- lower cost

Units using water as a heat transfer medium for operation at temperatures in excess of 194 F (90°C) must be pressurized, in order to stop the water from boiling. SINGLE high-temperature water control systems STW 200 are suitable for temperatures of up to 400 F (200°C). The required pressure of about 218 psi (15 bar) is not dangerous, as a leak in the closed-loop temperature circuit would cause the water to depressurize very quickly and evaporate immediately. The risk of injury for the operator is much lower than with oil. Oil does not evaporate upon emergence but will shoot out from the leak instead.

Generally, water-operated temperature-control systems are more compact than temperature control systems operating with heat transfer oil. Therefore, these systems have a smaller footprint, are less costly to acquire and are more cost-efficient in operation. This is the widest temperature range covered by temperature control systems currently available in the US.

Variotherm

Variotherm mold temperature control can significantly improve the quality of injection molded parts. It heightens the accuracy of reproduction of surface



detail in injection molded parts, improves the dimensional stability and consistency while reducing cycle times.

Conventional injection molding processes involve heating or cooling of the mold to achieve a constant temperature along the mold cavity wall for the entire duration of the injection cycle. During longer cycle times, however, it may prove useful to operate with a variable cavity-wall temperature during the injection and cooling cycles. This approach is beneficial for the production of thick-wall parts, such as lenses, or for products with thick areas and melt agglomerations, as it allows an accurate reproduction of surface details as well as promoting a swift cooling cycle following the injection phase.

Temperature alternating systems are ideal for this method of cyclic temperature control in two circuits. These systems operate with cool and warm thermal fluids, which are piped through the mold temperature control channels in cyclic variation. The basic layout of temperature alternating systems is similar to that of a two-circuit temperature control unit, where thermal fluid with the required temperature is available in two circuits. The unit provides for setting the temperature of each circuit; while both the cycle time and the switch-over time from cold to warm fluid are determined by the machine. A PLC system controls the process sequences of the temperature control system. Temperature alternating systems manufactured by SINGLE are suitable for water up to 400 F and oil for special applications as thermal fluids.

Temperature alternating systems are successful if they are used during relatively long cycle times and in conjunction with mold technology that provides for a very good heat transfer to the cavity – a prerequisite for fast temperature change. With this technology cycle times can be reduced considerably and therefore enhance the productivity of the process. Suitable are both copper/beryllium inserts with a very good thermal conductivity and mold inserts with cooling channels that are in close contact with the mold contour such as those available from innovative manufacturers. For this area of application, SINGLE offers its special Alternating Temperature Technology (ATT) system solution with cavity inserts, which are built up layer by layer from steel powder using data supplied by a 3D-CAD volume model. Mold components that have been manufactured this way can be machined with conventional methods such as milling, drilling, lathing or grinding.

Benefits of variotherm mold temperature control

The deployment of variotherm mold temperature control and ATT improve the process, the surface of the mold parts, their strength and the cost-efficiency of their production and provide 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 molding of optical components

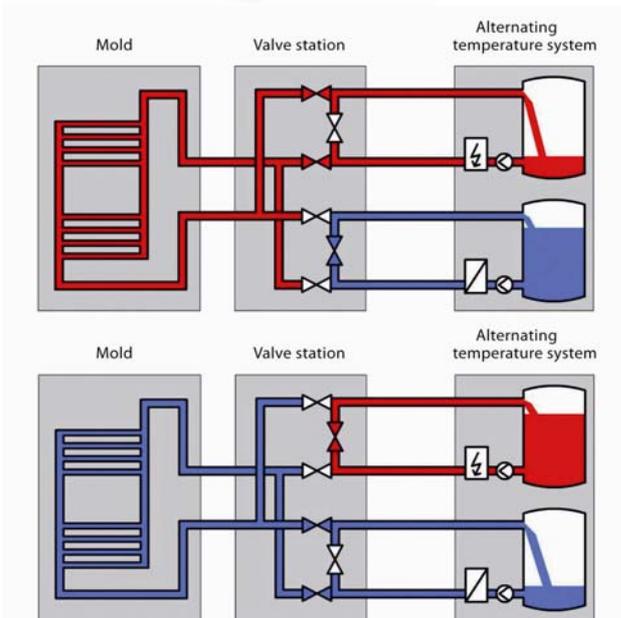


- better surface properties such as self-cleaning or antireflection coatings, microstructures and nanostructures and smoother surfaces as well as high-grade glossy surfaces with piano finish
- more homogenous orientation of glass-fibers in industrial components
- longer welding time for melt front and fewer weld lines
- lower risk of warpage caused by shrinkage and better dimensional stability and consistency of injection molded parts
- shorter cycle times thanks to longer wall contact of melt agglomerations with the result of a more intense cooling action



Water-operated temperature control unit from SINGLE's STW series for temperature control of injection molds with temperatures of up to 400 F (200°C)

*Photo by:
SINGLE Temperature Controls, Inc.*



Principle of STWS temperature alternating system made by SINGLE for cyclic, two-circuit temperature control of injection and compression molds with oil or water with a temperature of up to 400 F (200°C)

*Photo by:
SINGLE Temperature Controls, Inc.*



The alternating temperature system STWS made by SINGLE with a valve station for ATT variotherm mold temperature control

Photo by SINGLE Temperature Controls, Inc.

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 many more.

The company works with an international network of sales and service points. 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 9001:200-12, 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.



Europe

SINGLE Temperiertechnik GmbH
Karlheinz Gruber
Managing Director
Ostring 17-19
73269 Hochdorf
Germany
Phone: +49 7153 3009-0
Fax: +49 7153 3009-50
Email: info@single-temp.de
www.single-temp.de

USA

SINGLE Temperature Controls, Inc.
Michael Bloomhuff
Sales Manager
Whitehall Tech Center II
2915 Whitehall Park Drive, Suite 700
Charlotte, NC 28273
U.S.A.
Phone: (704) 588 5804
Email: m.bloomhuff@single-temp.com
www.single-temp.com

Press Contact

Lüling Marketing Communication
Stephanie Gellersen
Luitpoldstr. 5
91207 Lauf an der Pegnitz
Germany
Phone: +49 9123 9609-14
Fax: +49 9123 9609-29
Email: gellersen@lueling-marketing.com
www.lueling-marketing.com