single

created for your perfection

HEATING & COOLING
ATT TEMPERATURE CONTROL SYSTEM

ATT
Alternating Temperature Technology
powered by SINGLE

TEMPERATURE CONTROL WATER

TEMPERATURE CONTROL OIL

ATT VARIOTHERM

COOLING SYSTEM

HOT & COOL
ATT TEMPERATURE CONTROL SYSTEM

SINGLE ATT 'Alternating Temperature Technology' is an individually configured system solution for liquid-operated variotherm temperature control of injection molds, compression molds and other mold types. As the active system fills molds alternately with warm and cold thermal fluids, it can actively heat or cool processes in defined alternation.

+ REDUCED CYCLE TIMES
+ IMPROVED PART QUALITY
+ ENHANCED SURFACE FINISH
+ ELIMINATES WELD LINES
+ EXCELLENCE PRECISION

ATT
Alternating Temperature Technology
powered by SINGLE

Variotherm temperature control used in combination with suitable mold inserts allows variations in temperature of more than 100 °C in critical areas or in complete molds. In order to achieve this, the SINGLE ATT system operates with two separate circuits that contain thermal fluid with a different temperature. Both ATT circuits contain the same fluid. Water is recommended for temperatures of up to 200°C, while oil is suitable for applications that operate with temperatures of up to 200 °C.

AREAS OF APPLICATION

- Injection molding of thermoplastics
- Production of components made from fiber-reinforced composites
- Other cyclic processes with temperature profile

STANDARD EQUIPEMENT

GENERAL

- Temperature control system with one heating and one cooling circuit and circuit switch
- Fast alternation between heating and cooling circuit thanks to hydraulic switching
- Energy-saving temperature-controlled feeding of return fluid into the corresponding circuit
- Easy operation with touch screen
- Connection to standard molds
- Rugged, powder-coated steel sheet housing

ELECTRIC AND CONTROL EQUIPEMENT

- Programmable logic controller with touch screen
- Heating control by solid state relay with fail-safe pilot contractor
- Electronic safety temperature limiter
- Switch box to IP54

HYDRAULICS

- High-quality materials and reliable components
- Wear-free flow metering and flow monitoring
- Hose connections between system and valve station

OPTIONS

- Remote control via remote touch screen or via Ethernet-based PC
- Hose connections between valve station and mold
- Data logging via integrated USB interface

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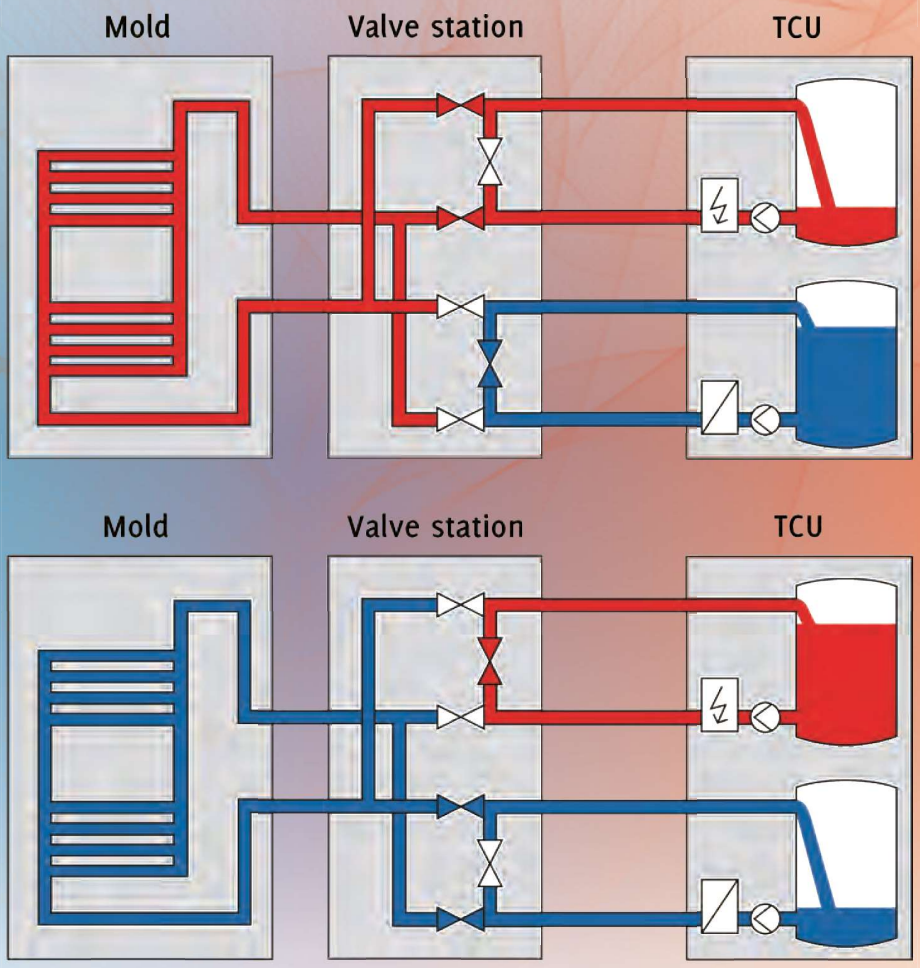
CIRCUIT-BASED CONTROL

The system is equipped with up to four external valve stations for switching the two circuits from bypass mode to mold temperature control mode. User-defined time setting and free selection of maximum or minimum temperatures per mold section allow the energy consumption of the temperature alternation process to be optimized.
Signals for the switch-over from cooler to warmer medium are transmitted by the machine control via programmed I/Os according to process requirements.

MORE EFFICIENCY THROUGH CONTOUR-ALIGNED COOLING CHANNELS

Mold design is a significant factor that affects the efficiency of variotherm temperature control. In order to promote fast temperature changes, molds are recommended to combine an effective thermal conductivity with low weight and a good heat transfer to the cavity. Therefore, ATT is ideally used in combination with mold inserts with contour-aligned heating/cooling channels. These inserts or components can be produced by generative methods using layer-by-layer construction from steel powder from data supplied by a 3D-CAD volume model. This way, even cooling inserts with highly complex geometries can be produced quickly, cost-efficiently and with high accuracy.



Schematic diagram:
Warm fluid heats the mold during the filling phase while cold fluid cools it during the cooling phase

BENEFITS OF ATT MOLDING PROCESSES

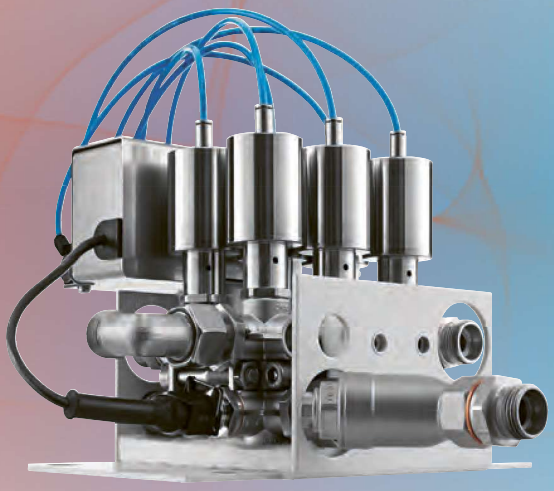
Variotherm mold temperature control has a variety of benefits that positively aff ect processes, part surfaces, part strength and the cost-efficiency of production processes. ATT

- prolongs the holding pressure even in areas that are away from the gate and helps reduce injection pressure and clamping force
- decreases internal stress during compression molding of thick-wall optical components,
- enhances surface properties such as self-cleaning or antireflection coating, the reproduction of microstructures and nanostructures as well as the production of particularly smooth and high-grade glossy surfaces with piano finish
- introduces a better homogeneity of glass fibers in technical parts,
- increases the welding time for melt fronts and reduces the occurrence of weld lines,
- reduces the risk of warpage caused by shrinkage and improves the dimensional stability and consistency of injection molded parts and
- cuts cycle times thanks to longer wall contact of melt agglomerations with the result of an intensified cooling action.

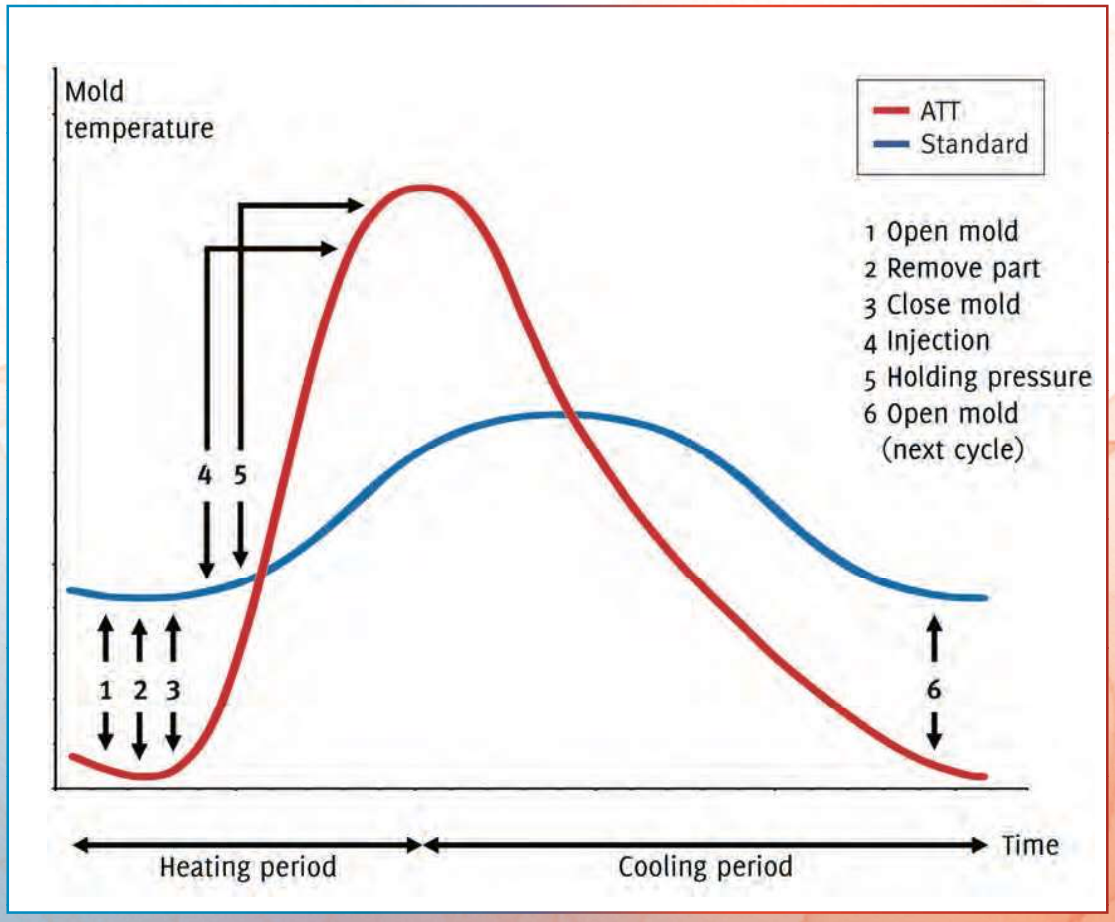
ATT system of the Water Avanced product family

BENEFITS OF ATT FOR FIBER -REINFORCED COMPSITES

Variotherm mold temperature control also has a variety of benefits that positively aff ect the process, part stability, surface quality and cost-efficiency of thermoset processing and composite structure production. It cuts cycle times by optimizing the process stages thanks to faster curing and subsequent cooling.



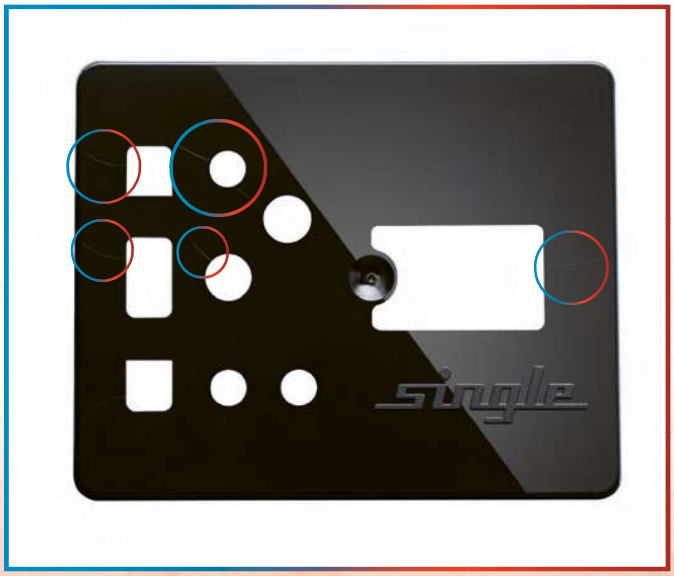
Compact valve station for mold-aligned installation



ATT

Structural units			K	N1	S	H
Max. temperature range		°F/°C	320 / 160	302/150 | 356/180	302 /150 | 356 /180	392/200
Max. external volume		gal/l	0.5 / 1	1.1 / 4	1.8 / 7 | 1.8 | 7	1.1 / 4
Heating capacity heating circuit		kW	18	24 / 36	48	36
Cooling capacity *(80 °C flow/15 °C cooling water)*		kW	50	150	220	150
Maximum flow rate		gpm/l/min	15.9 / 60	19.8 / 75	39.6 /150	15.9/60
Maximum outlet pressure *(80 °C flow/15 °C cooling water)*		psi/bar	87 / 6	106 /7.3	109 /7.5	87 / 6
Pump capacity		HP/kW	1.3 / 1	1.5 / 1.1	3.0 / 2.2	1.3 / 1
Valve station supply			AD22-L	AD-22-L	DN 32	AD 22-L
Valve station outlets		MPT	G 3/4“	G 3/4“	DN 32	G 3/4“
Cooling water supply	in/mm	hose nippel *⌀ 0,55 /14*	hose nippel *⌀ 0.82 /21*	G1“ AG	hose nippel *⌀ 0.82 /21*	
Dimensions	L	in /mm	33.3 /845	47.2 /1200	54.9 / 395	47.2 /1200
	W	in /mm	24.5 / 623	24.9 /633	29.6 / 753	24.9 / 633
	H	in /mm	30.1 /765	44.1 /1120	46.5 /1180	44.1 /1120
Approximate weight		lb / kg	287 /130	529 / 240	882 /400	529 /240

APPLICATION



YOU HAVE QUESTIONS? OR A TASK FOR US?
Then please contact us directly!

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