Mold Alternating Temperature Technologies
Comparison of Systems

	SINGLE ATT	STEAM ASSIST
	www.single-temp.com	
Principle	Active alternating temperature control of small molds or special mold zones with inserts	Active alternating temperature control of complete molds, therefore very high capacities required
Function	Cycle controlled alternating flow of hot and cold water through a canal system in the mold, switch over by a valve station	Cycle controlled alternating flow of steam and cooling water through a canal system in the mold, switch over by a valve station
Heat Transfer by	Cooling water Hot water	Cooling water Condensing steam
Heating Capacity	Standard: from 18 to 144 kW	Steam generator from around 400 kW to 1000 kW
Primary Energy	Electricity	Gas, Oil (Boiler)
Max. Temperature	Water 200°C Heat transfer oil 350°C	160 to 180°C
Control Accuracy	High in static operation hot or cold	Poor in hot operation due to the undefined condensation
Technical Complexity	Moderate	Very high, water purification before steam generator
Installation Work	Moderate	Very high, exhaust gas routing system for steam generator
Reproducibility	High	In question
User Responsibilities	Moderate	High, Safety regulations for burner
Energy Balance	Optimal, Refeeding of tempered water in closed circuit	Poor, No refeeding of condensate in closed circuit
Investment Costs	Example: STWS 200, 36 kW HL USD $ 40,000 STWS 200, 144 kW HL USD $130,000	Much more than USD $150,000
Operating Costs	Example: 36 kW heating capacity operation 4000 h/yr, 40% heating time electricity costs 7.1 ct/kWh $ 4,100 - per year	Example: 400 kW heating capacity operation 4000 h/yr, 40% heating time gas costs 8.0 ct/kWh $ 51,200 - per year
Advantages	See above, Very economical, Independent and mobile systems	Good heat transfer through steam condensation
Disadvantages	Innovative molds required	Significant effort and costs