Unistat® 405w

5-litre HWS glass reactor

Requirement
This case study looks at the ability of the Unistat 405w to control the process temperature in a 5-litre HWS un-insulated glass reactor.

Method
The reactor and Unistat 405w are connected using two 1-metre insulated metal hoses and the reactor is filled with 3.75 litre of "M90.055.03", a silicon based HTF (Heat Transfer Fluid). The Unistat controls the temperature at 20 °C and then a new set-point of 0 °C is entered.

Results
The process reaches 0 °C from 20 °C in just 17 mi-nutes with no under or overshoots of the process set-point temperature. It is clearly seen how the jacket temperature rapidly ramps the jacket first down to pull the process towards target temperature then back up so the process temperature meets exactly the set-point.

Setup details
Unistat® 405w & HWS reactor

Temperature range:	-45...250 °C
Cooling power:	1.3 kW @ 0 °C 0.7 kW @ -20 °C
Heating power:	1.5 kW / 3 kW
Pump speed:	3300 rpm
Hoses:	2x1 m; M24x1.5 (#9325)
HTF:	DW-Therm (#6479)
Reactor:	5-litre glass reactor
Reactor contents:	3.75 litre M90.055.03 (#6259)
Reactor stirrer speed:	200 rpm
Control:	process