Unistat® 830

Heating and cooling a 20-litre metal jacketed reactor between 20 °C and 180 °C

Requirement
This case study is to look at the performance of a Unistat 830 heating and cooling a 20-litre metal jacketed reactor from 20 °C to 180 °C and back to 20 °C.

Method
The Unistat and reactor are connected using two 1.5-metre insulated metal hoses. The reactor is filled with 15 litre of "M90.055.03", a Huber supplied silicon based HTF.

Results
The HTF used is DW-Therm which has a maximum temperature of 200 °C. It can be seen that the unit prevents the DW-Therm from exceeding its limits while still accurately controlling the process to its new set-point.

Setup details
Unistat® 830 & Buchi Glas Uster reactor

Temperature range:	-85...200 °C
Cooling power:	4.0 kW @ 200 °C 3.8 kW @ 100 °C 3.5 kW @ 0 °C
Heating power:	3 kW
Hoses:	2x1.5 m; M30x1.5 (#6386)
HTF:	DW-Therm (#6479)
Reactor:	20-litre un-insulated jacketed metal pressure reactor
Reactor contents:	15 litre M90.055.03 (#6259)
Reactor stirrer speed:	400 rpm
Control:	process