Setup details
Unistat® 705w & Radleys reactor

Temperature range:	-75...250 °C
Cooling power:	0.6 kW @ 250...100 °C 0.65 kW @ 0 °C 0.6 kW @ -20...-40 °C 0.3 kW @ -60 °C
Heating power:	1.5 kW / 3 kW
Pump speed:	3300 rpm
Hoses:	2x1 m; M24x1.5 (#9325)
HTF:	DW-Therm (#6479)
Reactor:	1-litre un-insulated jacketed glass reactor
Reactor content:	0.75 litre M90.055.03 (#6259)
Stirrer speed:	200 rpm
Control:	process

Unistat® 705w

Heating and cooling a 1-litre jacketed glass reactor from 20 °C to 180 °C and back to 20 °C

Requirement
This case study looks at the performance of a Unistat 705w heating and cooling a Radleys 1-litre un-insulated jacketed glass pressure reactor from 20 °C to 180 °C and back to 20 °C under "process" control.

Method
The Unistat and reactor are connected using two 1-metre insulated metal hoses. The reactor is filled with 0.75 litre of "M90.055.03", a Huber supplied silicon based HTF.

Results
On the heating curve the process ramps through 160 K (20 °C to 180 °C) within 40 minutes (ramp rate of 4 K/min). The process also ramps back through 160 K (180 °C to 20 °C) within 40 minutes (ramp rate 4 K/min).