



Setup details

Unistat® 425w & HWS reactor

- Temperature range: -40...250 °C
- Cooling power: 2.8 kW @ 250...100 °C
2.5 kW @ 0 °C
1.9 kW @ -20 °C
0.2 kW @ -40 °C
- Heating power: 2.0 kW
- Hoses: 2x1 m M38x1.5 (#6656)
- HTF: DW-Therm (#6479)
- Reactor: 5-litre jacketed glass reactor
- Reactor contents: 3.75 litre M90.055.03 (#6259)
- Reactor stirrer speed: 200 rpm
- Control: process

Unistat® 425w

Heating and cooling a HWS 5-litre glass reactor between 20 °C and 180 °C

Requirement

This case study looks at the speed of response when a set-point change is made from 20 °C to 180 °C when a Unistat 425w is connected with a HWS 5-litre jacketed glass reactor.

Method

The Unistat 425w is connected to the 5-litre HWS glass reactor using two insulated metal 1-metre hoses. The reactor is filled with 3.75 litre of "M90.055.03", a silicon based HTF.

Results

It takes 22 minutes to heat from 20 °C to 180 °C achieving heating ramp rate of approx. 7.2 K/min. The process temperature experiences no overshoot above the set-point (180 °C). In this test the „internal“ (jacket) temperature is limited so as not to exceed the max. set-point which is set at 200 °C. The cool-down time of the process is 33 minutes from 180 °C to 20 °C giving a ramp rate of 5.3 K/min.

