

## Unistat® 510w

### Cooling a Chemglass 50-litre jacketed glass reactor from 120 °C to -30 °C

#### Requirement

This case study looks at the speed of response to cool a Chemglass 50-litre jacketed glass reactor to -30 °C from 120 °C (150 K).

#### Method

The Unistat and reactor were connected using two 1.5 m insulated metal hoses. The reactor was filled with 37 litre of "M90.055.03", a Huber supplied silicon based HTF.

#### Results

It can be seen that the jacket rapidly cools to -42 °C pulling the process temperature towards its new set-point before heating slightly to guide the process to -30 °C with negligible under-shoot.

#### Setup details

Unistat® 510w & Chemglass 50-litre reactor

Temperature range: -50...250 °C  
 Cooling power: 5.3 kW @ 250...0 °C  
 2.8 kW @ -20 °C  
 0.9 kW @ -40 °C

Heating power: 6.0 kW  
 Hoses: 2x1.5 m; M38x1.5 (#6659)  
 HTF: DW-Therm (#6479)  
 Reactor: 50-litre Chemjacketed glass reactor (un-insulated)

Reactor content: 37 litre M90.055.03 (#6259)

Stirrer speed: 80 rpm  
 Control: process

