



### Setup details

Unistat® 530w and De Detrich 63-litre reactor

Temperature range: -55...250 °C  
 Cooling power: 7 kW @ 250 °C  
 19 kW @ 200 °C  
 21 kW @ 100 °C  
 16 kW @ 0 °C  
 9 kW @ -20°C  
 3 kW @ -40 °C

Heating power: 12 kW  
 Hoses: M38x1.5, 2x2 m;  
 (# 6657)

HTF: M90.055.03 (#6259)  
 Reactor: 63-litre glass lined stainless steel reactor

Reactor contents: 80 litre M90.055.03 (#6259)

Reactor stirrer speed: 80 rpm  
 Control: process

## Unistat® 530w

**63-litre QVF glass lined stainless steel reactor to T<sub>min</sub>**

### Requirement

The Unistat 530w has a temperature range of -55...200 °C according to DIN12876. This case study demonstrates the closeness of control and the minimum process temperature achievable in the process mass.

### Method

The reactor has a nominal capacity of 63 litre but the jacket design allows thermal transfer for a filling volume of 80 litre.

The reactor was filled with 80 litre of M90.055.03 as a thermal load. The stirrer was set to 80 rpm and the control set to "Process". The results were recorded using the Huber "SpyLight" software. The HTF (heat transfer fluid) used was M90.055.03.

### Results

It can be seen from the graphic how quickly the jacket ramps creating a wide difference in temperature between the jacket and process in the cool down phase. The jacket reaches the published minimum (-55 °C) after approximately 2.5 hours. As the graphic shows, the process mass reaches approximately -53 °C demonstrating good thermal transfer between the jacket and the process mass.

