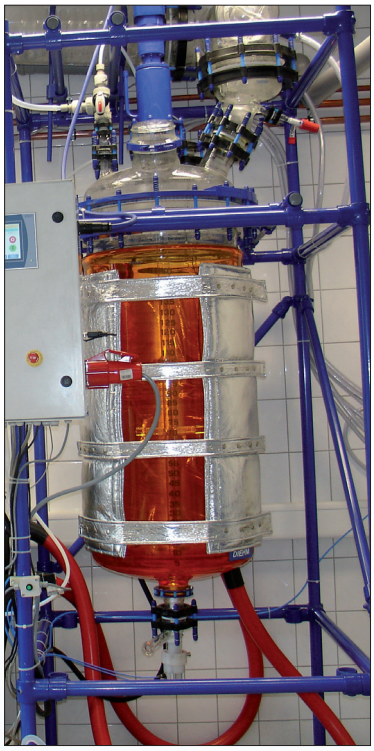

Setup details
Unistat® 930w & Diehm reactor

Temperature range:	-90...200 °C
Cooling power:	19 kW @ 200…100 °C 20 kW @ 0…-40 °C
Heating power:	24 kW
Hoses:	2x1.5 m; M38x1.5 (#6656)
HTF:	DW-Therm (#6479)
Reactor:	100-litre un-insulated glass reactor VPC Bypass installed
Reactor content:	75 litre M90.055.03 (#6259)
Stirrer speed:	400 rpm
Control:	process

Unistat® 930w

Heating and cooling a Diehm 100-litre reactor under different control dynamics

Requirement
This case study looks at the performance of a Unistat 930w heating and cooling a Diehm 100-litre reactor from 20 °C to 60 °C under two different control dynamics:
– Fast, small overshoot
– No overshoot

Method
The Unistat and reactor are connected using two 1.5-metre insulated metal hoses. The reactor is filled with 75 litre of "M90.055.03", a Huber supplied silicon based HTF.

Results
Fast, small overshoot – even under this control dynamic it can be seen that the process temperature reaches the set-point of 60 °C with negligible overshoot.
No overshoot – here the ramp rates are slower to minimise the overshoot. It can be seen that the ΔT generated between jacket and process are narrower so change in process temperature is slower.