

Unistat® 425w

HWS 5-litre reactor

Requirement

This case study looks at the speed of response when a set-point change from 20 °C to -20 °C when a Unistat 425w is connected to a HWS 5-litre 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 19 minutes for the process temperature to reach its set-of -20 °C, i.e. a cooling rate of 2.1 K/min.

It can be seen how the internal temperature ramps rapidly to almost -34 °C, thus the process temperature can reach the set-point as soon as possible.

Setup details

Unistat® 425w & HWS 5-litre 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:	2x1.5 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

