Ministat® 240

Ministat® 240 cycling a 20-liter glass jacketed reactor

Requirement
This Case Study demonstrates the minimum achievable process temperature and the temperature control capabilities when Ministat 240 is connected with a Buchi Glas Üster 20-liter reactor.

Method
The 20-liter Buchi Glas Üster reactor was connected to Ministat® 240 using 1-meter metal insulated hoses. The thermofluid used in the system was "DW-Therm". "Process" control was carried out via a Pt100 sensor located in the process mass. Stirrer speed was set to 100 rpm.

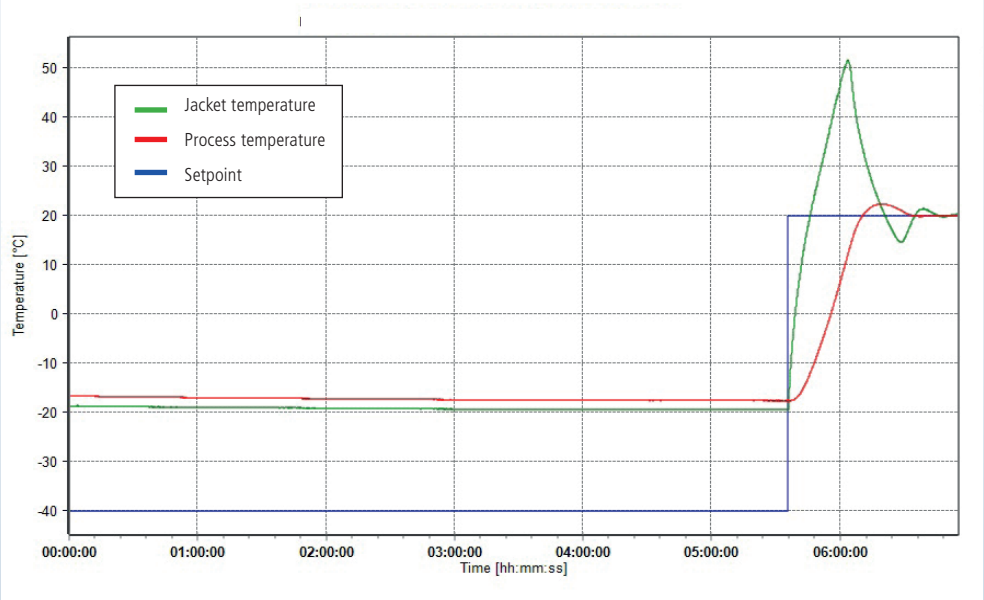
Setup details

Temperature range:	-45°C...+200°C
Cooling power:	0.60 kW @ +20°C 0.55 kW @ 0°C 0.35 kW @ -20°C
Heating power:	2.0 kW
Hoses:	2*1 m metal insulated
HTF:	DW-Therm
Reactor:	Buchi Glas Üster 20-liter glass jacketed
Reactor content:	15 l DW-Therm
Stirrer speed:	100 rpm
Control:	process
Amb. temperature:	+24°C

Video clip
https://youtu.be/7nlvU3VKqBQ

Results

1. Lowest achievable temperature (Tmin):
As the graphic shows that the minimum achievable Process Temperature was -17.6°C.



2. Performance:
The graphic shows the speed, accuracy and stability as each new set point is reached.

Start T	End T	Approximate time	Av. Ramp Rate
+20°C	0°C	69 minutes	0.3 K/min
0°C	+100°C	95 minutes	1.1 K/min
+100°C	+20°C	134 minutes	0.6 K/min