Ministat® 240

Ministat® 240 cycling a 20-liter jacketed reactor

Requirement
This Case Study demonstrates the lowest achievable process temperature and the process temperature control abilities of a Ministat 240 when it is connected with a Chemglass 20-litre reactor.

Method
The Chemglass 20-liter glass jacketed reactor was connected to Ministat® 240 using two 1-meter metal insulated hoses M24. 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
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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:	Chemglass 20-liter glass jacketed reactor
Reactor content:	15 l DW-Therm
Stirrer speed:	100 rpm
Control:	process
Amb. temperature:	+25°C

Results

1. Lowest achievable temperature (Tmin):
Once stable at +20°C under the "Process" control, a set point of -40°C is entered. The graphic shows that the lowest temperature achieved was -13.9°C.
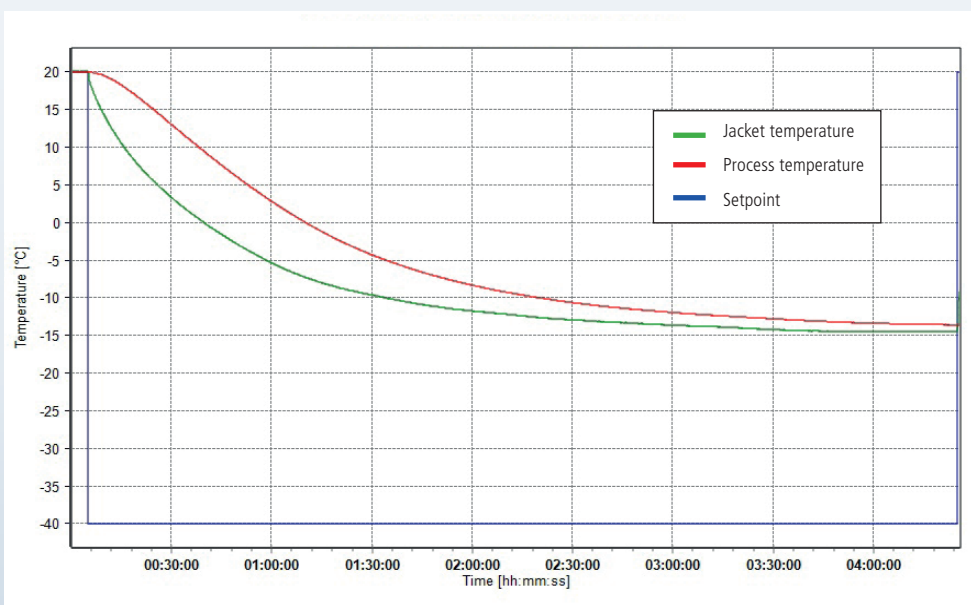
2. Stability:

The graphic clearly demonstrates the stability of the process temperature as the Ministat 240 adjusts the jacket temperature to hold the process temperature stable at +20°C over a period of 5-hours
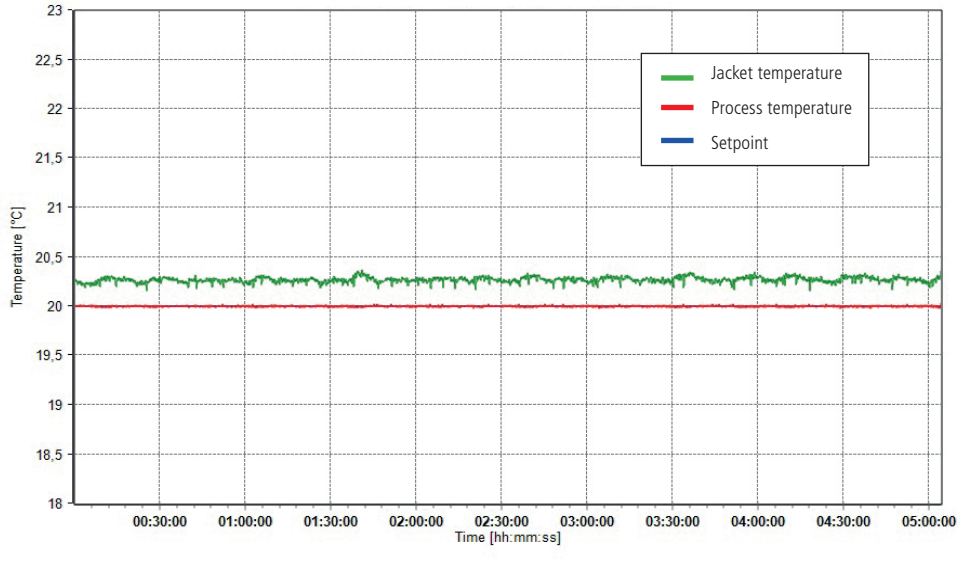
3. Performance:

The table and graphic data show 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	84 minutes	0.2 K/min
0°C	+100°C	82 minutes	1.2 K/min
+100°C	+20°C	125 minutes	0.6 K/min

Technical details and dimensions are subject to change. No liability is accepted for errors or ommisions.

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