Unistat 912w

Unistat 912w cycling a 20-liter glass jacketed reactor

Requirement
This case study demonstrates the ability of the Unistat 912w to control the process temperature in a Büchi 20-liter glass jacketed reactor.

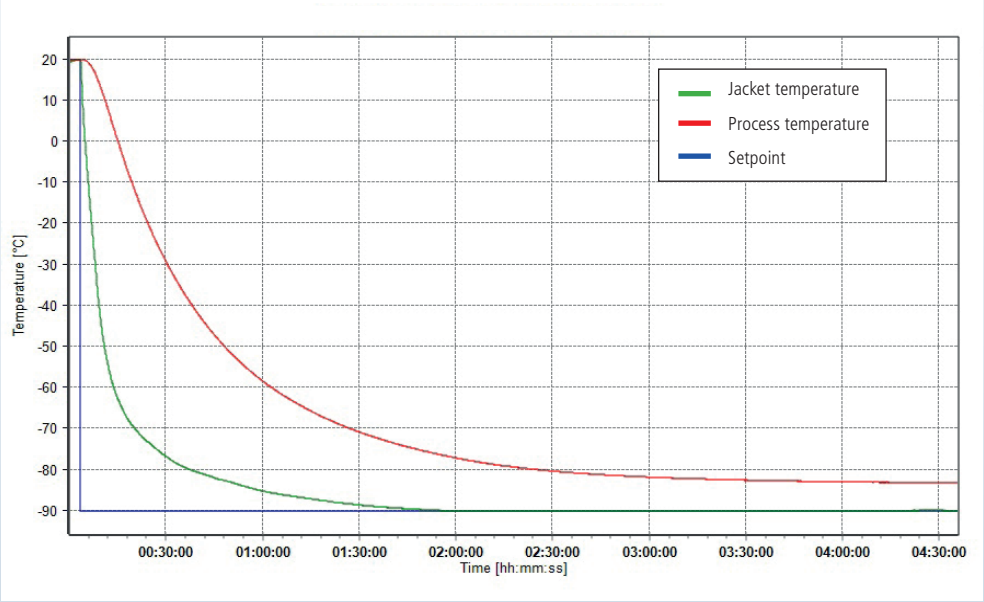
Method
The Büchi 20-liter glass jacketed reactor was connected to Unistat 912w using metal insulated hoses M30. The thermofluid used in the system was "DW-Therm". "Process" control was carried out via a Pt100 sensor located in the process mass. Stirrer speed was set to 85 rpm.

Setup details

Temperature range:	-90…+250°C
Cooling power:	7.0 kW @ +20°C 7.0 kW @ 0°C 7.0 kW @ -20°C
Heating power:	6 kW
Hoses:	metal insulated M30
HTF:	DW-Therm
Reactor:	Büchi 20-liter glass jacketed
Reactor content:	16 l DW-Therm
Stirrer speed:	85 rpm
Control:	process
Amb. temperature:	+23°C

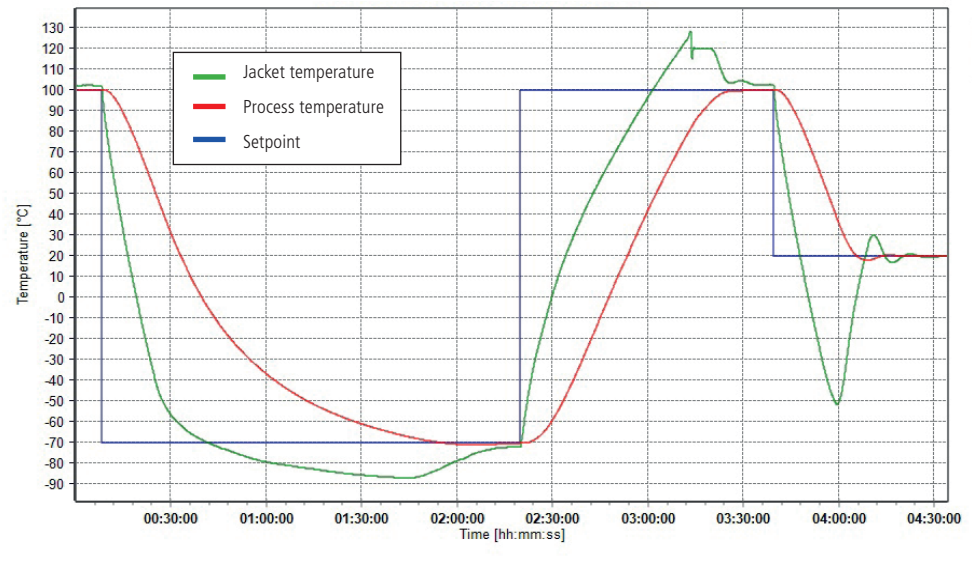
Results

1. Lowest achievable temperature (Tmin):
The graphic shows that a process temperature of -83.2°C was reached.



2. Performance:
The table and the graphic shows the speed, accuracy and stability as the process is changed to each new set-point.

Start T	End T	Approximate time	Av. Ramp Rate
+100°C	-70°C	105 minutes	0.62 K/min
-70°C	+100°C	71 minutes	2.4 K/min
+100°C	+20°C	26 minutes	3.1 K/min



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