Unistat Grande Fleur

Unistat Grande Fleur controls the process temperature in non-insulated 1l glass jacketed reactor from Buchi

Requirement

This case study demonstrates the ability of the Unistat Grande Fleur to control the process temperature in non-insulated 1l Buchi glass jacketed reactor.

Method

The Unistat Grande Fleur was connected to a 1l Buchi non-insulated glass jacketed reactor via 2 x 1-meter metal insulated tubes. The HTF used was Huber M40.165/220.10 and the process mass simulated with 0,7l of Huber M40.165/220.10 silicon oil.
Under "Process Control" using a Pt100 (Teflon covered), located in the process mass, different set-points were entered and the performance of the Unistat Grande Fleur was recorded using Huber's software.
The agitator speed was set to 250rpm.

Setup details

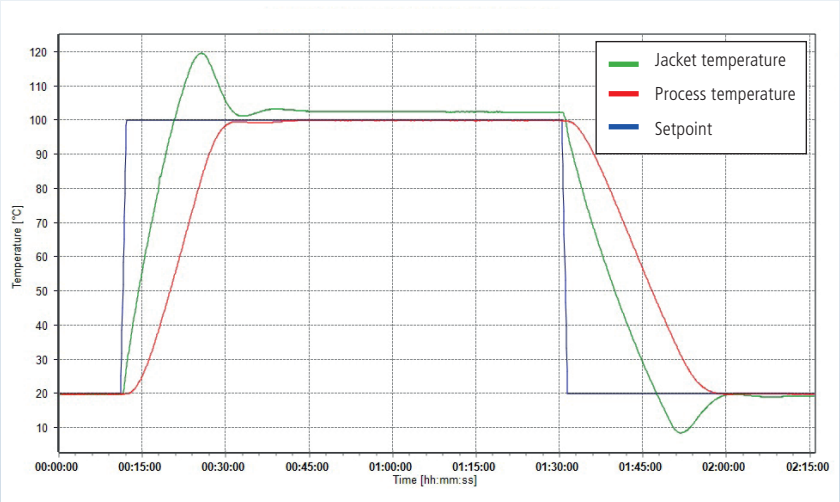
Temperature range:	-40°C...+200°C
Heating power:	1.8 kW
Cooling power:	0.6 kW @ +100°C
	0.6 kW @ 0°C
	0.35 kW @ -20°C
	0.2 kW @ -30°C
Hoses:	2 x M24x1m Metal Insulated
HTF:	M40.165/220.10
Reactor:	Buchi 1l
Reactor content:	7l M40.165/220.10
Control:	process
Stirrer speed:	250 rpm
Amb. temperature:	+25°C

Results

1. Temperature Control: from +20°C to +100°C

This test demonstrates the speed and accuracy that the Unistat Grande Fleur controls the process temperature from +20°C to +100°C and back to +20°C.

Start (°C)	End (°C)	Approximate time (min)	Average Ramp Rate (K/Min)
+20	+100	20	4.00
+100	+20	28	2.86



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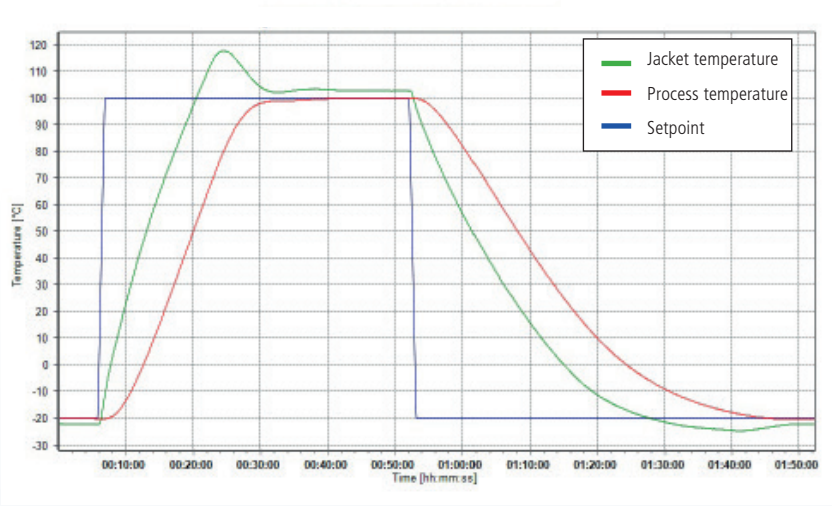
2. Temperature Control: -20°C to +100°C to -20°C
This test demonstrates the speed and accuracy that the Unistat Grande Fleur controls the process temperature from -20°C to +100°C and cooling down to -20°C.

Start (°C)	End (°C)	Approximate time (min)	Average Ramp Rate (K/Min)
-20	+100	29	4.13
+100	-20	54	2.22



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