Unistat P510w

Unistat P510w controls the process temperature in an uninsulated Buchi 100l GLSS jacketed reactor

Requirement

This case study demonstrates the ability of the Unistat P510w to control the process temperature in an uninsulated Buchi 100l GLSS jacketed reactor.
The table and the graphic below shows the speed, accuracy and stability as the process is changed to each new set-point.

Method

The Unistat P510w was connected to the Buchi Glas 100l GLSS reactor with 2 x 2m metal insulated hoses. The process mass was simulated with 80l of Huber's "M60.115/200.05" HTF inside the reactor. Under "Process control" from a Pt100 located inside the process mass, the temperature of the process was cycled through various set-points and the results recorded using Huber's "Spy Service" software via a USB thumb drive inserted in the USB interface on the Pilot ONE controller.

Setup details

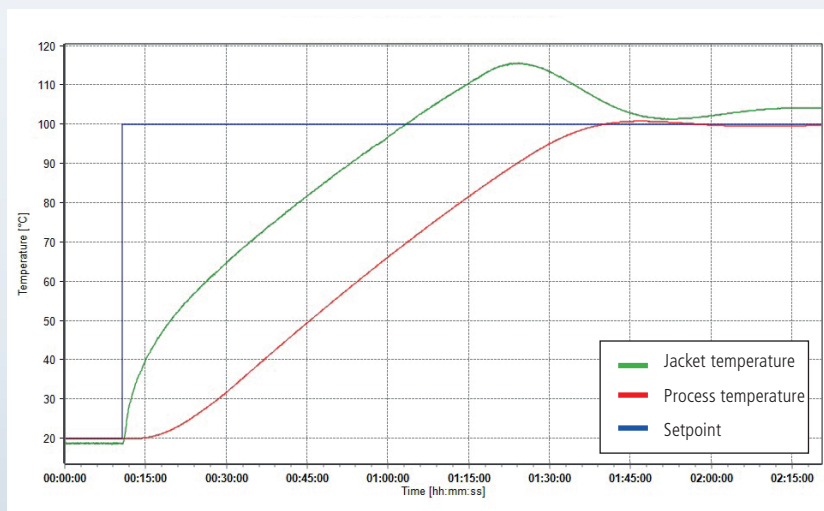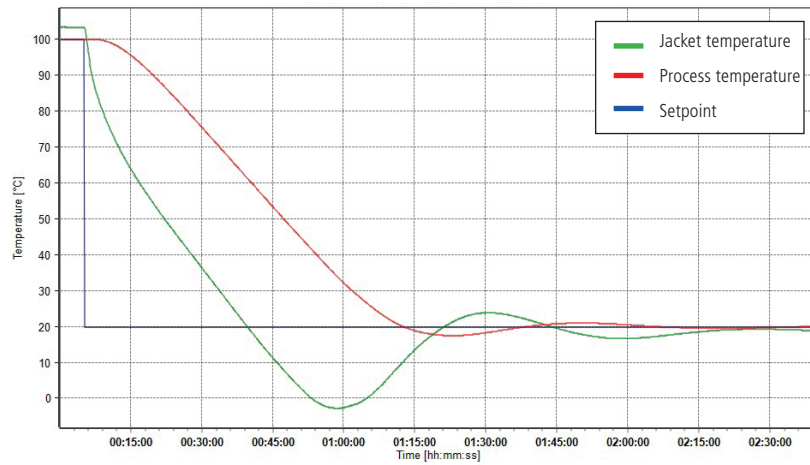|	
Temperature range:	-50...+250°C
Heating power:	6 kW
Hoses:	2 x 2m M30 Metal Insulated
HTF:	M60.115/200.05
Reactor:	GLSS reactor 100l
Reactor content:	80l M40.165/220.10
Control:	process
Stirrer speed:	250 rpm
Amb. temperature:	+23°C

Results

1. Performance. Temperature control from +20°C to +100°C and back to +20°C
The graphic below shows the speed and accuracy of temperature control as the process is cooled & heated from +20°C to +100°C and back to +20°C.
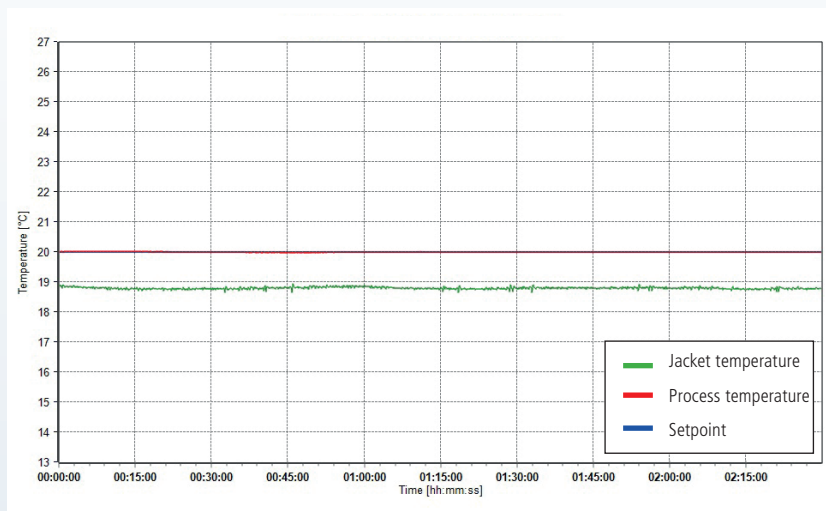
Start	End	Approximate Time	Average Ramp Rate
+20°C	+100°C	88 Minutes (1:28 h)	0.9 K/min
+100°C	+20°C	66 Minutes (1:06 h)	1.21 K/min

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

3. Stability at +20°C

The graphic below demonstrates the Unistat P510w ability to hold the process at +20°C +/- 0.01K over a period of 3 hours.

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3. Stability at +70°C

The graphic below demonstrates the Unistat P510w ability to hold the process at +70°C +/- 0.01K over a period of 3 hours.