Unistat P815w

Unistat P815w controls a 10 liter Asahi reactor

Requirement
This Case Study demonstrates the control capabilities over the process temperature when a Unistat P815w is connected with an Asahi 10 liter vacuum insulated reactor over the temperature range of +20°C to -60°C to +150°C and back to +20°C.

Method
The 10 liter Asahi reactor was connected to Unistat P815w using 1,5 meter metal insulated hoses M30. The thermofluid used in the system was DW-Therm. Process control was carried out. Stirrer speed was set to 75 rpm.

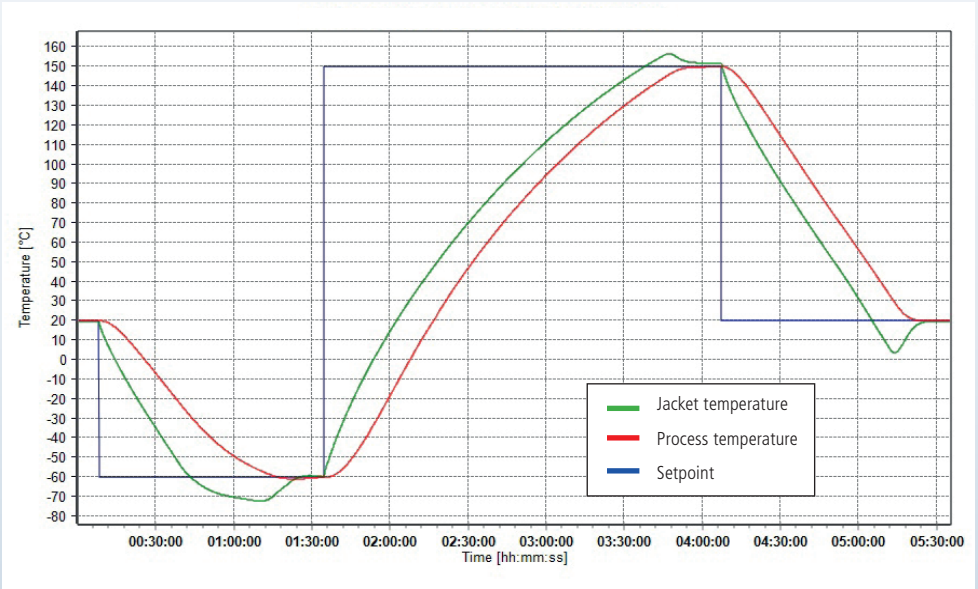
Setup details

Temperature range:	-85°C...+250°C
Heating power:	2.0 kW
Hoses:	1,5 m metal insulated M30
HTF:	DW-Therm
Reactor:	Asahi 10 liter
Reactor content:	7.0 l DW-Therm
Stirrer speed:	75 rpm
Control:	process
Amb. temperature:	+23°C

Results

1. Performance:
The graphic shows the speed, accuracy and stability as the Unistat P815w as it reaches and maintains each new set-point.

Start T	End T	Approximate Time	Av. Ramp Rate	Fastest Ramp Rate
+20°C	-60°C	109 minutes	1.6 K/min	(-10°C to -40°C) 1.5 K/min
-60°C	+150°C	142 minutes	1.5 K/min	(+30°C to +60°C) 1.9 K/min
+150°C	+20°C	77 minutes	1.7 K/min	(+60°C to +30°C) 2.0 K/min



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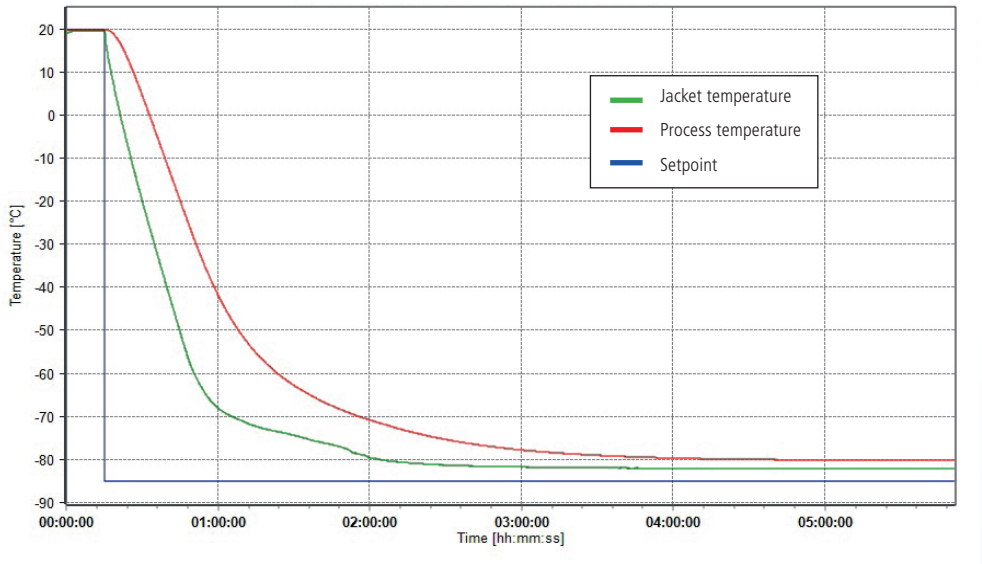
2. Lowest achievable temperature (Tmin):
The graphic shows that the minimum achievable process temperature was -80°C.



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