

Unistat 912w

Unistat 912w cycling a 80-liter glass lined stainless steel reactor



Requirement

This case study demonstrates the ability of the Unistat 912w to control the process temperature in a DDPS 80-liter glass lined stainless steel reactor.

Method

The DDPS 80-liter glass lined stainless steel reactor was connected to Unistat 912w using metal insulated hoses M38. 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.

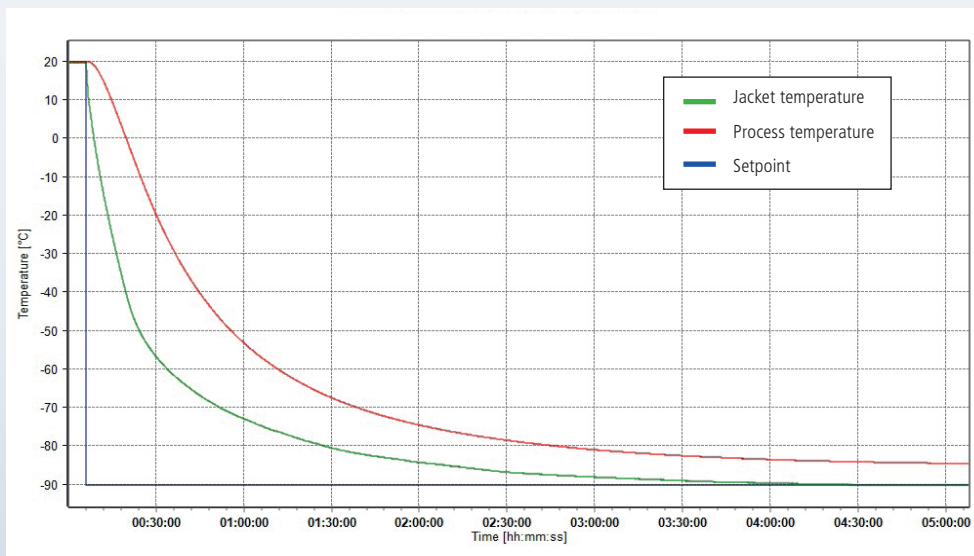
Setup details

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 M38
HTF:	DW-Therm
Reactor:	80-liter DDPS glass lined stainless steel reactor
Reactor content:	42 l Ethanol
Stirrer speed:	85 rpm
Control:	process
Amb. temperature:	+23°C

Results

1. Lowest achievable temperature (Tmin):

The graphic shows the minimum achievable process temperature to be -84.4°C.



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
+20°C	-50°C	40 minutes	1.8 K/min
-50°C	+20°C	45 minutes	1.6 K/min

