CC-510

CC-510 cycling a 20-liter glass jacketed reactor

Requirement
This Case Study demonstrates the process temperature control and the minimum achievable process temperature when a CC-510 is connected with a Chemglass 20-liter glass jacketed reactor.

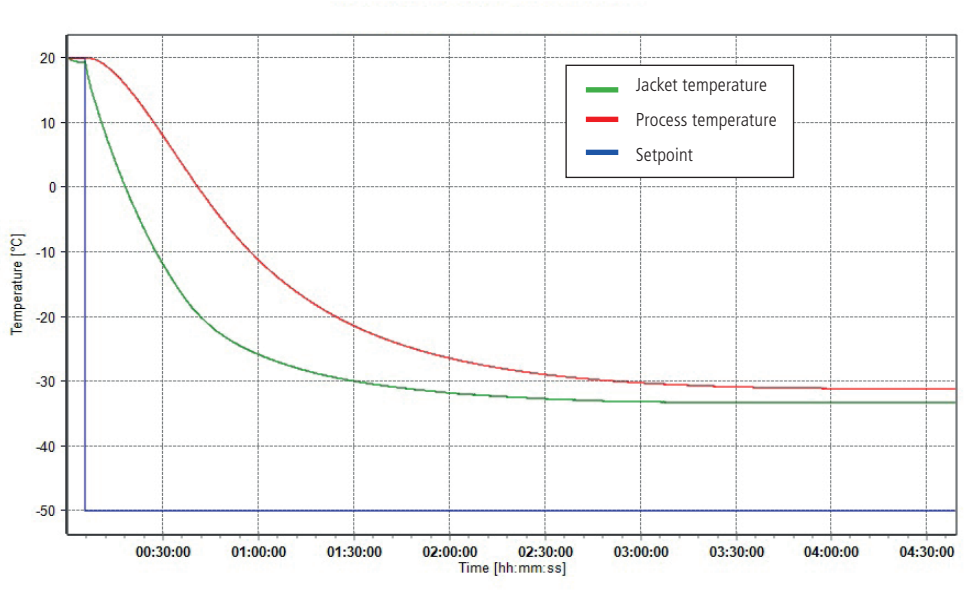
Method
The 20-litre glass jacketed reactor was connected to CC-510 using M24 metal insulated hoses. The thermofluid used in the system was "M60.115/200.05". "Process" control was carried out via a Pt100 sensor located in the process mass. Stirrer speed was set to 100 rpm.

Setup details

Temperature range:	-50°C...+200°C
Cooling power:	2.1 kW @ +20°C 2.1 kW @ 0°C 1.0 kW @ -20°C
Heating power:	3.0 kW
Hoses:	2*M24 metal insulated
HTF:	M60.115/200.05
Reactor:	Chemglass 20-liter glass jacketed reactor
Reactor content:	15 l M60.115/200.05
Stirrer speed:	100 rpm
Control:	process
Amb. temperature:	+25°C

Results

1. Lowest achievable temperature (Tmin):
As the graphic shows, a minimum process temperature of -31.6°C was achieved.



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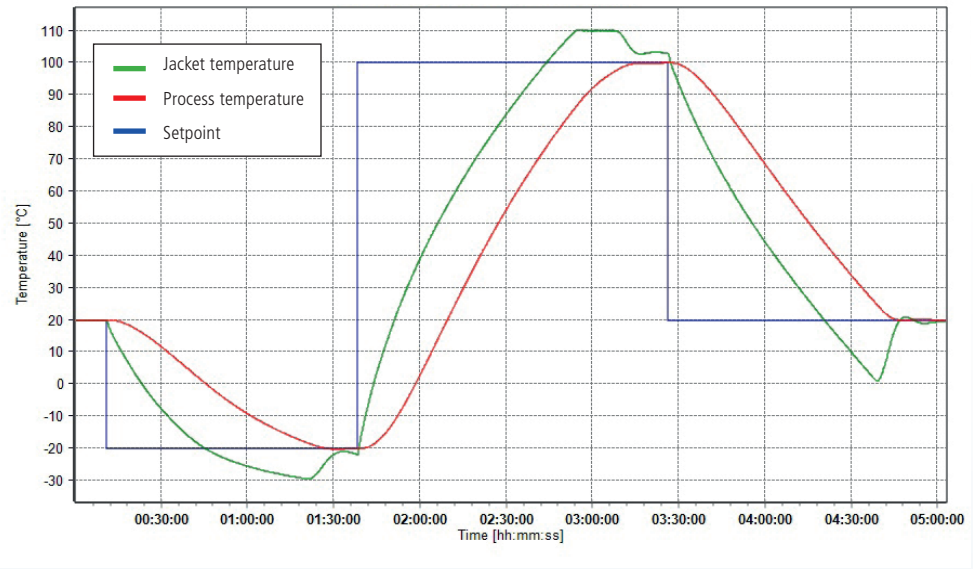
2. Performance:
The table and graphic data show the speed and accuracy achieved as the CC-510 reaches each new set-point.

Start T	End T	Approximate time	Av. Ramp Rate
+20°C	-20°C	75 minutes	0.5 K/min
-20°C	+100°C	94 minutes	1.3 K/min
+100°C	+20°C	80 minutes	1.0 K/min



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