



CC[®]-K6

CC[®]-K6 controlling a 2 liter Radleys vacuum insulated reactor

Requirement

This Case Study determines the minimum achievable process temperature when a CC-K6 is connected with a Radleys 2 liter vacuum insulated reactor.

Method

The 2 liter Radleys vacuum insulated reactor, was connected to the CC-K6 using two metal hoses. The thermofluid used in the system was M20.195/235.20. "Process" control was carried out via a Pt100 sensor located in the process mass. Stirrer speed was set to 150 rpm.

Setup details

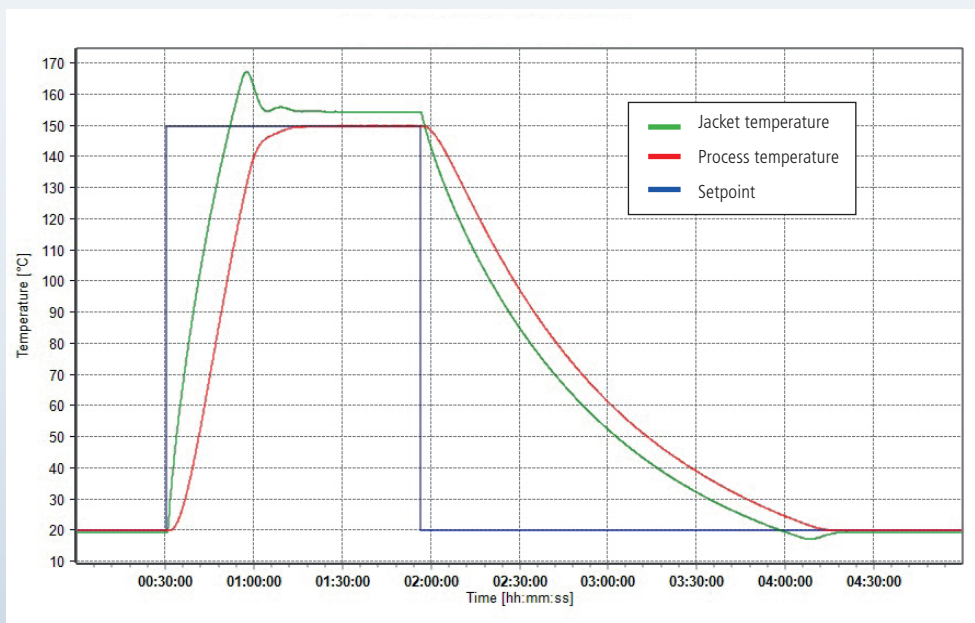
- Temperature range: -25°C...+200°C
- Cooling power: 0,20 kW @ +20°C
0,15 kW @ 0°C
0,05 kW @ -20°C
- Heating power: 2,0 kW
- Hoses: M16x1
- HTF: M20.195/235.20
- Reactor: 2 liter Radleys vacuum insulated reactor
- Reactor content: 1,5 l M20.195/235.20
- Stirrer speed: 150 rpm
- Control: Process
- Amb. temperature: +23°C

Results

1. Performance:

The graphic shows the speed and stability as the process temperature reaches each new set-point.

Start T	End T	Approximate time	Av. Ramp Rate	Fastest Ramp Rate
+20°C	+150°C	49 minutes	2.7 K/min	(+60°C to +90°C) 5 K/min
+150°C	+20°C	137 minutes	1.0 K/min	(+90°C to +60°C) 1.1 K/min



2. Lowest achievable temperature (Tmin):

The graphic shows that the CC-K6 can cool the process to 1.4°C.

