

Unistat® petite fleur®

Petite Fleur® cycling a 6-litre De Dietrich jacketed reactor between +100°C and -20°C

Requirement

The Petite Fleur was designed to control the temperature in small reactors, typically 2 litre and below. However, as this case study shows, the thermal efficiencies of the Petite Fleur can be very effective on larger reactors. In this case study, a 6-litre glass jacketed reactor is used to demonstrate this ability.

Method

The reactor was filled with 5 litre of Huber's silicon based heat transfer fluid (HTF) "M20.195/235.20", the stirrer speed was set to 200 rpm. "Process" control was carried out via a Pt100 sensor located in the "process" mass.

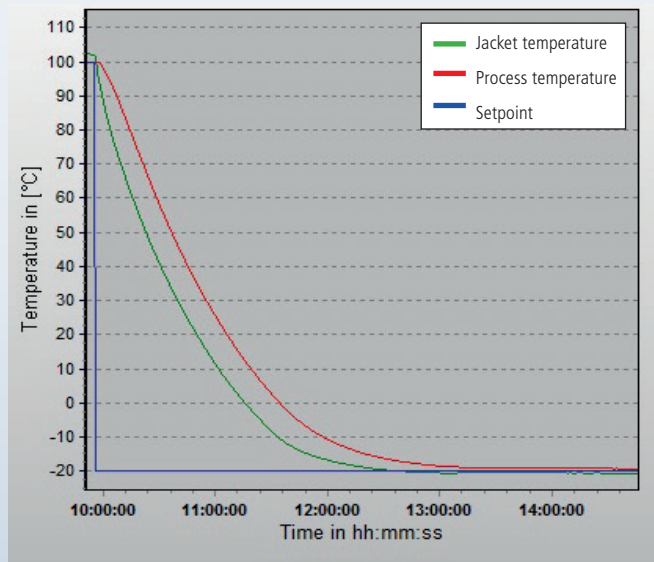
Setup details

Temperature range: -40°C...+200°C
 Cooling power: 0.48 kW @ +20°C
 0.48 kW @ +200°C
 0.45 kW @ 0°C
 0.27 kW @ -20°C
 0.16 kW @ -30°C
 Heating power: 1.5 kW
 Hoses: M16x1; 2* 1 m
 Thermofluid: M90.055.03
 Reactor: De Dietrich
 6-litre jacketed reactor
 Reactor content: 5 litre M20.195/235.20
 Stirrer speed: 200 rpm
 Control: process

Results

Performance:

This graphic shows the Petite Fleur cooling the 6-litre reactor from 100°C to -20°C in approximately 3-hours. An impressive performance from our "baby"!



Temperature control:

This graphic shows the ramp-rate as the Petite Fleur heats the 6-litre reactor from -20°C to 20°C in a time of approximately 20 minutes...a ramp rate of 2K/min.

