

Unistat 405

Unistat 405 controlling H.E.L 1 litre Glass Vacuum Jacketed Reactor*

Requirement

This case study demonstrates the ability of the Unistat 405 to control the temperature of the reaction mass in an 1 litre glass vacuum insulated reactor from H.E.L between -30°C and 140°C.

Method

The 1 litre H.E.L reactor was connected to Unistat 405 using two M16x1 flexible hoses. The thermofluid used in the system was M40.165/220.10. "Process" control was carried out via a Pt100 sensor located in the process mass. Stirrer speed was set to 200 rpm.

Setup details

- Temperature range: -45°C...+250°C
- Cooling power: 1.00 kW @ +250°C
1.00 kW @ +100°C
1.00 kW @ 0°C
0.60 kW @ -20°C
0.15 kW @ -40°C
- Heating power: 3.0 kW
- Hoses: M16 x 1,0 m
- Thermofluid: M40.165/220.10
- Reactor: H.E.L 1 litre reactor
- Reactor content: M40.165/220.10 (0.5 l)
- Stirrer speed: 200 rpm
- Control: Process
- Amb. temperature: 22°C



*Case study made by our partner

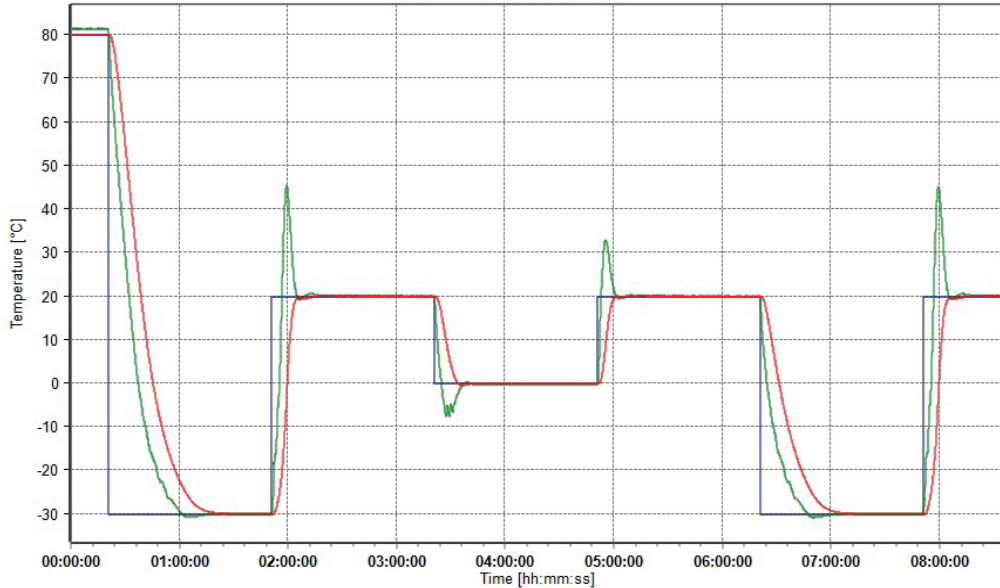
Results

1. Performance:

The graphics show the speed, accuracy and stability of the Unistat 405 as each new set-point is reached.

Start T	End T	Time Taken	Av. Ramp Rate
+20°C	+140°C	28 Minutes	4.3 K/min
+140°C	+20°C	32 Minutes	3.8 K/min
+80°C	-30°C	59 Minutes	1.9 K/min
-30°C	+20°C	24 Minutes	2.08 K/min

Cooling and heating between -30°C and +80°C



Cooling and heating between +20°C and +140°C

