Ministat® 230-cc®-NR

Ministat® 230-cc®-NR Syrris 0,5 litre reactor

Requirement
This case study demonstrates the closeness of temperature control and the minimum process temperature achievable in the process mass.

Method
The 0,5 litre Syrris reactor was connected to the Ministat 230-cc-NR using two M16x1 1-meter flexible hoses. The thermofluid used in the system was Ethanol. "Process" control was carried out via a Pt100 sensor located in the process mass. Stirrer speed was set to 400 rpm.

Setup details

Temperature range:	-40°C...+200°C
Cooling power:	0.42 kW @ +20°C
	0.38 kW @ 0°C
	0.25 kW @ -20°C
	0.14 kW @ -30°C
Heating power:	2.0 kW
Hoses:	M16x1; 2* 1 m
Thermofluid:	Ethanol
Reactor:	Syrris 0,5 litre reactor
Reactor content:	330 ml Ethanol
Stirrer speed:	400 rpm
Control:	process

Results

Performance:
To demonstrate the efficient performance of the Ministat 230-cc-NR, this graphic shows that it can cool the process in a 0,5-litre glass reactor from +20°C to -20°C in approximately 110 minutes, hitting and stabilizing exactly on the set-point. A rapid heat-up time of less than 30 minutes from -20°C to +20°C with the same accuracy can also be seen.

Lowest achievable temperature (T_{min}):
Once stable at +20°C under "Process" control, a set-point of -20°C is entered. The Ministat 230-cc-NR cools the reactor down to the minimum achievable process temperature of approximately -22°C.