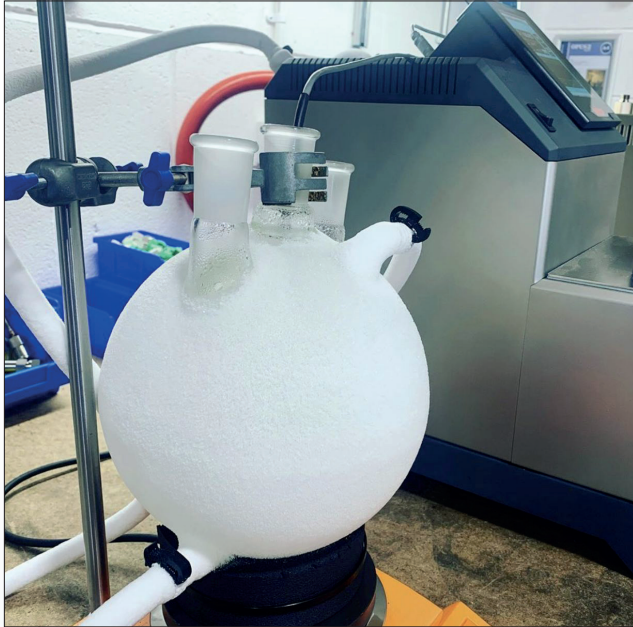


# Ministat® 230

## Ministat® 230 cycling a 2000-mL round bot-tomed reactor



### Requirement

This Case Study demonstrates the temperature control capabilities of the process temperature when a Ministat 230 is connected with a 2000-mL Chemglass round bottomed reactor.

### Method

The 2000-mL Chemglass round bottomed reactor was connected to Ministat® 230 using Tygon A-60-G hoses. The thermofluid used in the system was “M40.165/220.10”, reactor was filled with 1000 mL Isopropyl Alcohol. “Process” control was carried out via a Pt100 sensor located in the “process” mass. Magnetic stirrer speed was set to 200 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  
 Heating power: 2.0 kW  
 Hoses: Tygon A-60-G  
 HTF: M40.165/220.10  
 Reactor: Chemglass 2000-mL round bottomed reactor  
 Reactor content: 1000 mL Isopropyl Alcohol  
 Stirrer speed: 200 rpm  
 Control: process

## Results

### Performance:

The graphic shows the control of this simple bench-top application.

Start T	End T	Time Taken	Av. Ramp Rate
+20°C	-27.8°C	T-min	xxxx
-27.8°C	+20°C	23 minutes	2.0 K/min
+20°C	+50°C	23 minutes	2.0 K/min
+50°C	+20°C	23 minutes	2.0 K/min

