

# Ministat 230

**Ministat® 230-cc®-NR controlling a Chemglass 1 Liter glass jacketed reactor to the lowest possible achievable temperature.**

**Requirement** This case study demonstrates the lowest achievable temperature when connected with a 1 Liter Chemglass reactor system.

**Method** The reactor was filled to 750mL with CG-1978-F132, the HTF used was M40.165.10, the stirrer set to 275 rpm and the control to "process". The purpose of this case study is to show the minimum achievable process temperature. The results were recorded using the "Spyware" software.

**Results** It can be seen from the graphic that the Ministat 230 cools the process to -20°C in just about 40 Minutes, and -29 °C (lowest possible temperature) within 4 hours and 10 minutes.



**Setup Details:**

Temperature range:  
-40°C-+200°C

**Cooling power:**

- .42 kW @ +100
- .42 kW @ +20°C
- .38 kW @ 0°C
- .33 kW @ -10°C
- .25 kW @ -20°C
- .05 kW @ -40°C

**Heating power:** 1.5 kW

- Hoses: M16; 6'
- Fluid: M40.165.10
- Reactor: Chemglass 1L
- Reactor content: 750mL (M40.165.10)
- Stirrer speed: 275 rpm
- Control: process

