

# Unistat 912w

**Unistat 912w cycling a 80-liter glass lined stainless steel reactor**



**Requirement**

This case study demonstrates the ability of the Unistat 912w to control the process temperature in a DDPS 80-liter glass lined stainless steel reactor.

**Method**

The DDPS 80-liter glass lined stainless steel reactor was connected to Unistat 912w using metal insulated hoses M38. The thermofluid used in the system was "DW-Therm". "Process" control was carried out via a Pt100 sensor located in the process mass. Stirrer speed was set to 85 rpm.

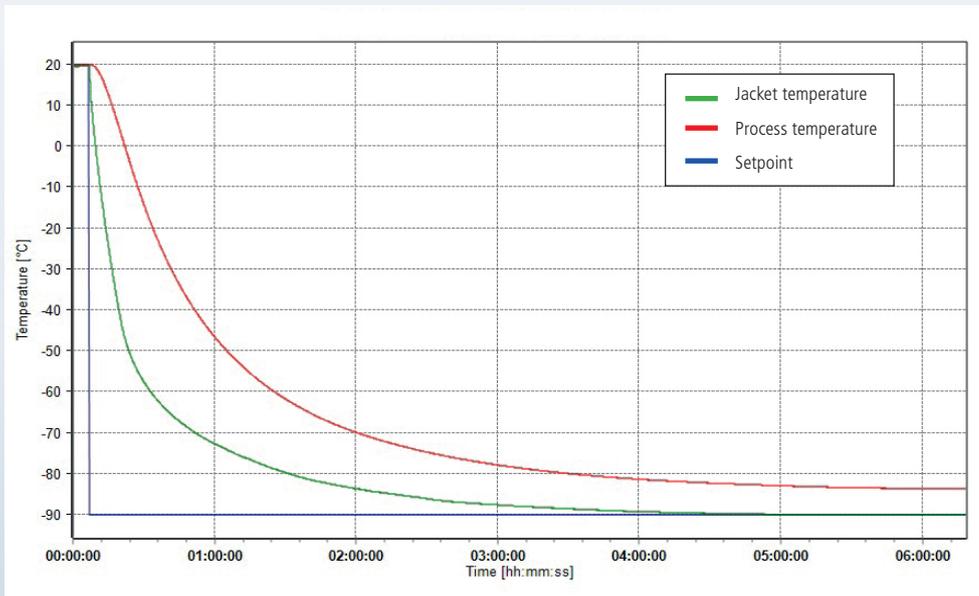
**Setup details**

- Temperature range: -90...+250°C
- Cooling power: 7.0 kW @ +20°C
- 7.0 kW @ 0°C
- 7.0 kW @ -20°C
- Heating power: 6 kW
- Hoses: metal insulated M38
- HTF: DW-Therm
- Reactor: 80-liter DDPS glass lined stainless steel reactor
- Reactor content: 60 l DW-Therm
- Stirrer speed: 85 rpm
- Control: process
- Amb. temperature: +23°C

**Results**

**1. Lowest achievable temperature (Tmin):**

The graphic shows the minimum achievable process temperature to be -83.7°C.



## 2. Performance:

The table and the graphic shows the speed, accuracy and stability as the process is changed to each new set-point.

Start T	End T	Approximate time	Av. Ramp Rate
+20°C	-70°C	118 minutes	0.8 K/min
-70°C	+100°C	118 minutes	1.4 K/min
+100°C	+20°C	40 minutes	2 K/min

