

# Unistat 510w

**Unistat 510w cycling a 60 litre vacuum-insulated glass Asahi AG reactor**

**Requirement**

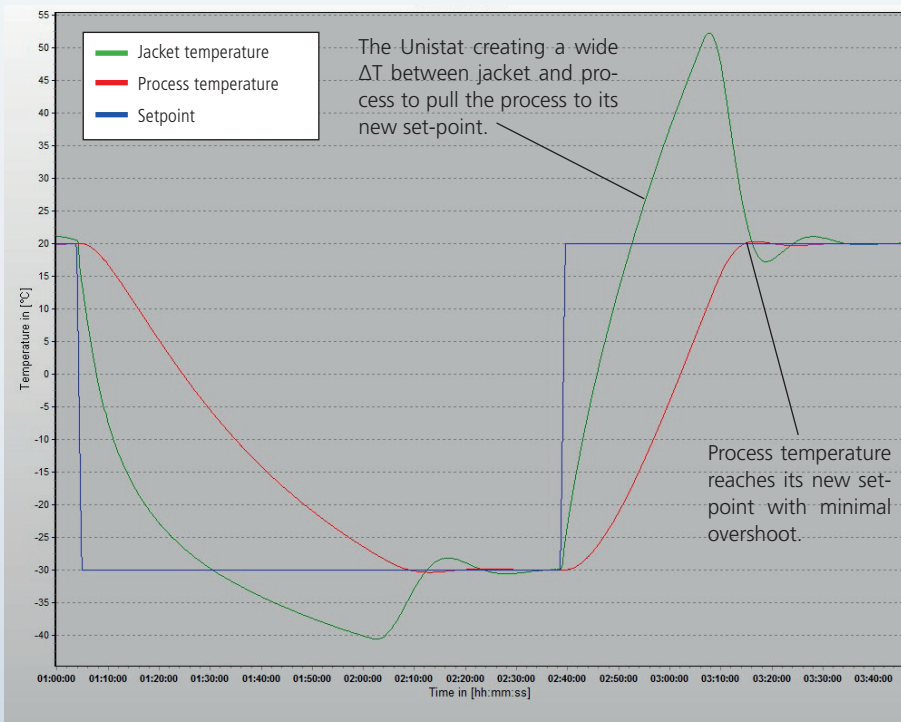
This case study demonstrates the ability of the Unistat 510w to cycle the process temperature in a range from +20°C to -30°C. On the second page the case study shows cool down curves from +20°C to -50°C and from +120°C to -30°C. Additionally the measurements demonstrates the closeness of temperature control and the minimum process temperature achievable in the reactor.

**Method**

The 60 litre reactor was connected to the Unistat 510w using two M30x1,5 1,5-meter flexible hoses. The thermofluid used in the system was M90.055.03. "Process" control was carried out via a Pt100 sensor located in the process mass.

**Setup details**

- Temperature range: -50...250°C
- Cooling power: 5.3 kW @ 0°C  
2.8 kW @ -20  
0.9 kW @ -40°C
- Heating power: 6.0 kW
- Hoses: M30x1,5 ; 2x1,5 m
- HTF: M90.055.03 (#6259)
- Reactor: 60 litre glass reactor vacuum-insulated
- Reactor content: 45 litre M90.055.03 (#6259)
- Reactor stirrer speed: 230 rpm
- Control: Process



**Results**

**Performance:**

The following cooling down and heating up curves demonstrates the performance of the Unistat 510w. It cools down and heats up in a range from +20°C to -30°C. The Unistat 510w needs approximately 65 minutes to cool down the reactor from +20°C to -30°C and approximately 36 minutes to heat it up from -30°C to +20°C.