

## Unistat® 520w

**Unistat® 520w cycling a 50 litre Chemglass jacketed reactor**

### Requirement

This case study demonstrates the ability of the Unistat 520w to cool down the process temperature in the reactor from +100°C to -30°C. The graphics additionally shows a heat up curve as well as the closeness of temperature control and the minimum process temperature achievable in the process mass.

### Method

The 50 litre Chemglass reactor was connected to Unistat 520w using two M30x1.5 1-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:	-55°C...+200°C
Cooling power:	6.0 kW @ +200°C 6.0 kW @ +100°C 6.0 kW @ 0°C 4.2 kW @ -20°C 1.5 kW @ -40°C
Heating power:	6 kW
Hoses:	M30x1.5; 2* 1 m
HTF:	M90.055.03
Reactor:	Chemglass 50 litre jacketed reactor
Reactor content:	34.5 l M90.055.03
Stirrer speed:	100 rpm
Control:	process



## Results

### Performance:

The Unistat 520w needs approximately 92 minutes to cool down the process temperature in the reactor from +100°C to -30°C and 28 minutes to heat it up from -30°C to +20°C.

### Lowest achievable temperature (T<sub>min</sub>):

Once stable at +20°C under "Process" control, a set-point of -55°C is entered. The Unistat 520w cools the reactor down to the minimum achievable process temperature of -50°C.

