

Unistat® 925w

Controlling a Buchi Glas Uster 250-litre GLSS reactor between 20°C and 100°C

Requirement

This case study looks at the capability of the Unistat 925w at controlling a Buchi Glas Uster CR252 filled with 200 litre of water.

Method

The Unistat and reactor are connected using two 2-metre insulated metal hoses. The reactor is filled with 200 litre of water. Firstly using TAC's singleshot identification from 20 °C to 35 °C. Back at 20 °C the test run up to 100 °C was started. While reaching 100 °C the setpoint was changed immediately due to the physical of water property.

Results

The minimum jacket temperature of the Buchi Glas Uster reactor was limited to -60 °C as was the ramp rate to avoid damaging the glass lining. Water represents a very "heavy" thermal load with a specific heat capacity (cp) of 4.18 KJ / Kg K. Despite this it can be seen that the Unistat 925w is able to heat and cool this relatively large mass from 20°C to 100°C and back to 20°C under tight and predictable control.

During this case study the heating power of the unit was limited to 12 kW.

Setup details

Temperature range:	-90...200 °C
Cooling power:	16 kW @ 200...-20 °C 15 kW @ -40 °C 13,5 kW @ -60 °C
Heating power:	24 kW (limited to 12 kW)
Hoses:	M38x1,5; 2*2 m
HTF:	DW-Therm
Reactor:	Buchi Glas Uster CR252 250-litre insulated jacketed GLSS reactor
Reactor content:	200 litre water
Reactor stirrer speed:	90 rpm
Control:	process

