

Unistat® 925w

Controlled rate cooling of a Buchi Glas Uster «chemReactor» CR252, a 250-litre GLSS reactor

Requirement

When cooling a GLSS reactor it is vital to do so in a manner that does not damage the glass lining. This case study examines the capability of a Unistat 925w to cool the process temperature in pre-programmed steps to -50°C from 20°C.

Method

The Unistat and reactor are connected using two 2-metre insulated metal hoses. The reactor is filled with 200 litre of Ethanol. Unistat was limited to T_{min} -60 °C due to GLSS-reactor limitation.

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.

It can be seen that each step reaches its setpoint effortlessly and is maintained precisely to allow the glass lining and steel body of the reactor to harmonize before the next cool-down step is made.

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
 Hoses: 2x2 m M38x1,5 metal hoses
 HTF: DW-Therm
 Reactor: Buchi Glas Uster CR252
 250-litre insulated jacketed glass reactor
 Reactor content: 200 litre Ethanol
 Reactor stirrer speed: 90 rpm
 Control: process

