

Unistat® 930w

“Internal” (jacket) control with a Buchi Glas Uster CR101 GLSS reactor from 20 °C to T_{min} and then to 180 °C

Requirement

The case study shows the performance of a Unistat 930w working with a Buchi Glas Uster CR101 reactor between a temperature range of -90 °C and 180 °C.

Method

The Unistat 930w and reactor are connected using two 1.5-metre insulated metal hoses. The reactor is filled with 75 litre of “M90.055.03”, a Huber supplied silicon based HTF (Heat Transfer Fluid).

Results

Within 12 minutes of set-point change the internal temperature cools rapidly from 20 °C to -65 °C representing a ramp rate > 7 K/min. The ramp rate slows and after 2 ½ hours reaches “ T_{min} ” of -88 °C.

The set point is then changed to 180 °C and with an average ramp rate of 6 K/min, heats through 268 K in 45 minutes.

Setup details

Unistat® 930w & 100-litre Buchi Glas Uster «chemReactor» CR101

Temperature range: -90...200 °C
Cooling power: 20 kW @ 0...-40 °C
15 kW @ -60 °C
5 kW @ -80 °C

Heating power: 24 kW
Hoses: 2x1.5 m; M38x1.5 (#6656)

HTF: DW-Therm (#6479)
Reactor: 100-litre glass-lined (enameled) steel reactor

Reactor content: 75 litre M90.055.03 (#6259)

Stirrer speed: 80 rpm
Control: internal

