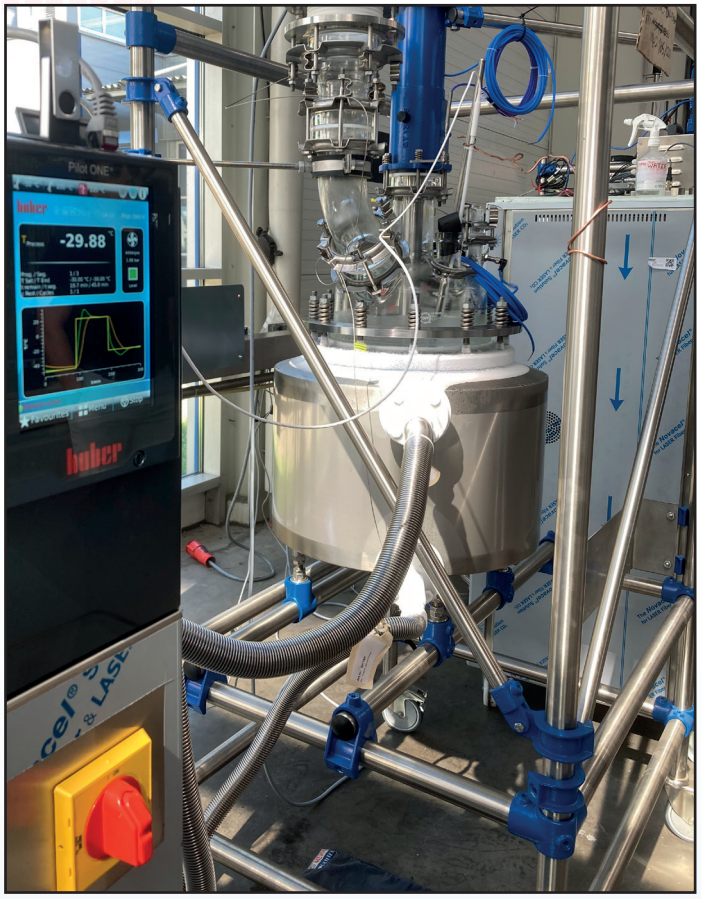


Unistat 510w

Unistat 510w controls a 16l DDPS QVF Stainless Steel Glass Lined Reactor

Requirement
This case study demonstrates the ability of the Unistat 510w to control the temperature of the reaction mass in a 16l GLSS reactor from DDPS QVF, both the time-to-temperature and the control stability of the process mass at +20°C and +70°C.

Method
The Unistat 510w was connected to the 16l DDPS QVF GLSS reactor with 1 x 1m vacuum insulated hose and 1 x 1.5m vacuum insulated hose. The process mass was simulated with 15l of Huber's "DW-Therm" inside the reactor. Under "Process control" from a Pt100 located inside the process mass, the temperature of the process was cycled through various set-points and the results recorded using Huber's "Spy Service" software via a USB thumb drive inserted in the USB interface on the Pilot ONE controller.

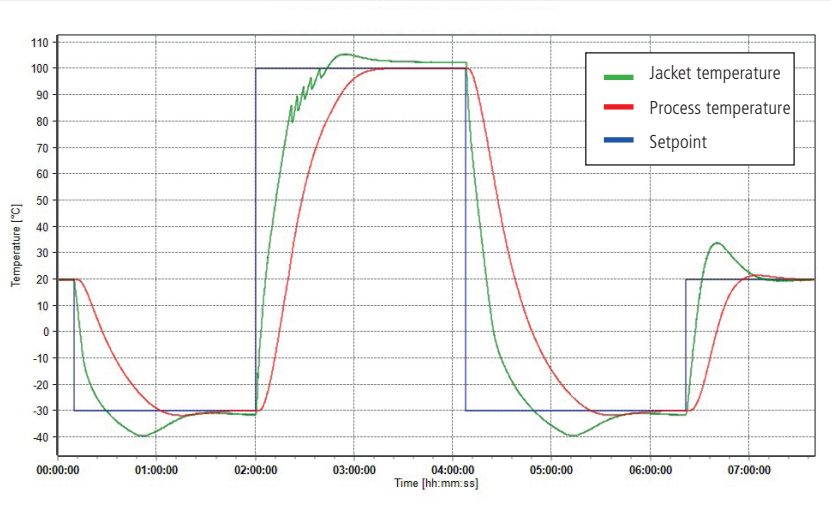
Setup details

Temperature range:	-50°C...+250°C
Heating power:	6.0 kW
Hoses:	2 x M30 Vacuum insulated flexible tubing
HTF:	M40.165/220.10
Reactor:	DDPS QVF GLLS 16l
Reactor content:	15l DW-Therm
Control:	process
Stirrer speed:	250 rpm
Amb. temperature:	+24°C

Results

1. Performance. Temperature control
The graphic clearly demonstrates the speed, accuracy and stability of the Unistat 510w as each new set-point is reached.

Start (°C)	End (°C)	Time Taken	Av. Ramp Rate
+20°C	-30°C	50 min	1 K/Min
-30°C	+100°C	74 Min	1.7 K/Min
+100°C	-30°C	78 min	1.7 K/Mn
-30°C	+20°C	35 min	1.4 K/Min



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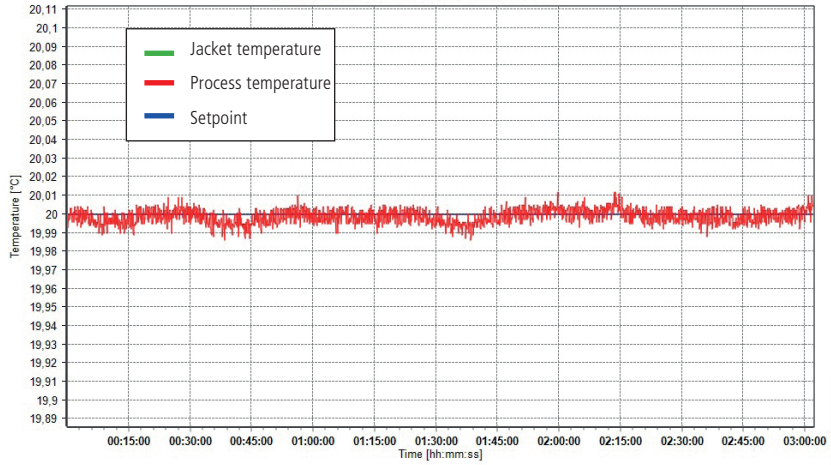
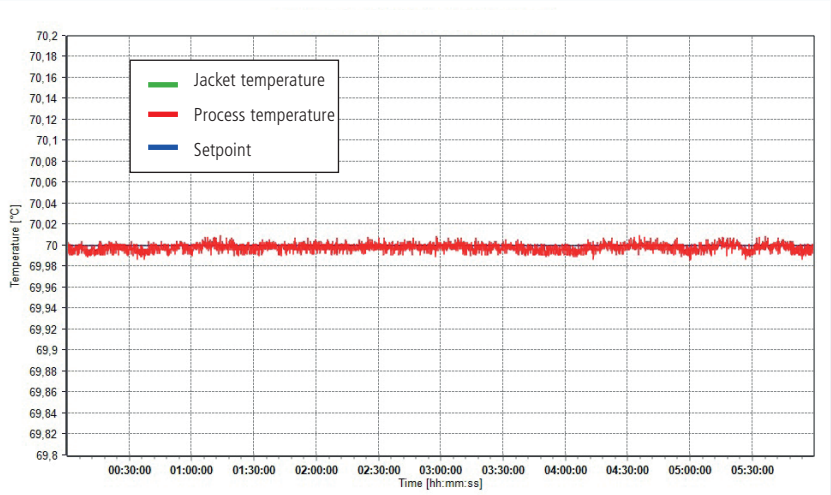
2. Performance. Stability at +20°C

The graphic above demonstrates the ability of the Unistat 510w to control the process mass at a set-point of +20°C with a stability of better than +/-0.01K.



3. Performance. Stability at +70°C



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