Unistat® 405w

Cooling a DDPS 2-litre jacketed glass reactor to -20 °C.

Requirement
This case study looks at the performance of a Unistat 405w cooling a 2-litre glass reactor from 20 °C to -20 °C (40 K) under "process" control.

Method
The Unistat 405w was connected to the reactor using two 1-metre insulated metal hoses. The reactor was filled with 1.5 litre of "M90.055.03", a silicon based HTF.

Results
The ramp rate over the temperature change is almost linear at an average speed > 1.7 K/min. taking 23 minutes to reach -20 °C.

Setup details
Unistat® 405w & DDPS reactor

Temperature range:	-45...250 °C
Cooling power:	1.3 kW @ 250…0 °C 0.7 kW @ -20 °C
Heating power:	1.5 kW / 3 kW
Pump speed:	3300 rpm
Hoses:	2x1 m; M24x1.5 (#9325)
HTF:	DW-Therm (#6479)
Reactor:	2-litre jacketed glass reactor
Reactor contents:	1.5 litre M90.055.03 (#6259)
Reactor stirrer speed:	115 rpm
Control:	process