

Dynamic application notes:

2-litre HWS glass jacketed reactor controlled with a Huber Unistat Tango

Equipment used:

- Unistat Tango (Cat No. 534.0003)
- HWS 2-litre glass reactor
- Buddeberg stirrer
- 1000 watt immersion heater
- Huber Laboratory controller
- Buddeberg process Pt100

Unistat Tango specifications

Cooling:	0.7 kW at 100°C
	0.7 kW at 0°C
	0.4 kW at -20°C
Heating:	1,5 kW
Pump:	Flow 15 l/min
	Pressure 0.5 bar



Unistat Tango connected to the Buddeberg 2-litre reactor

The Aim

The aim of this experiment is to demonstrate the responsiveness of the Unistat Tango to sudden changes in thermal load within the reactor.

The Method

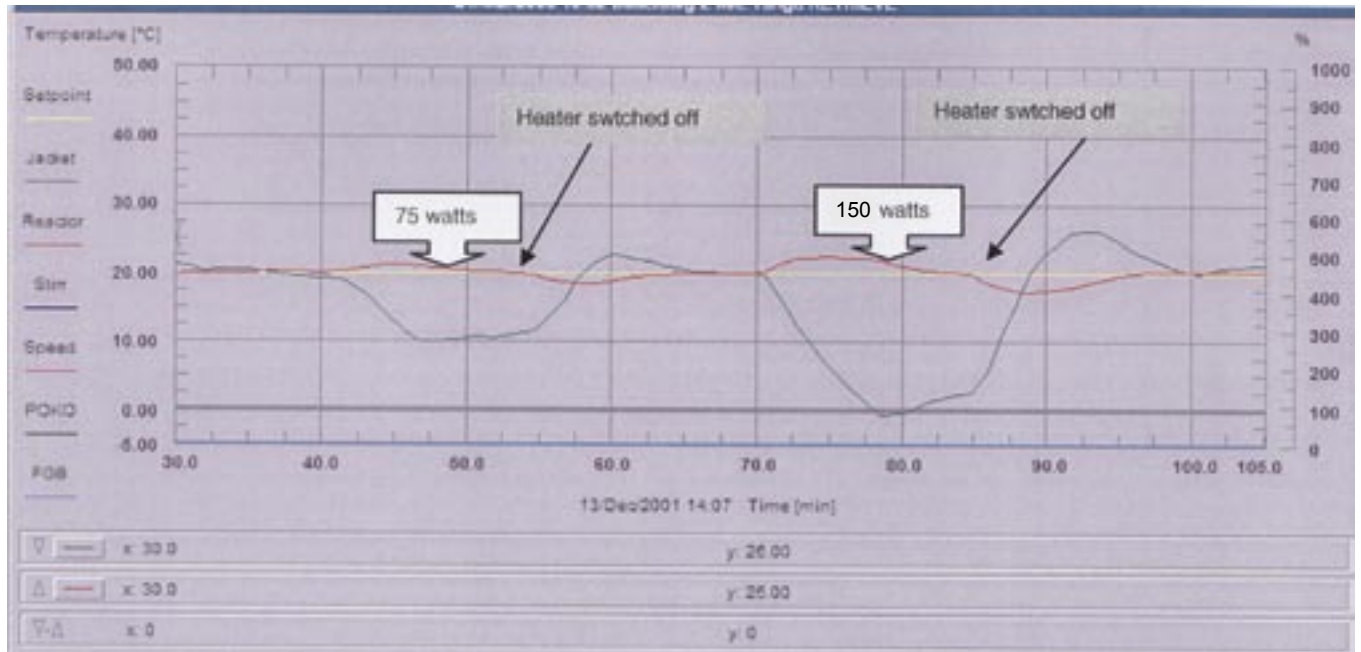
The Buddeberg 2 litre reactor was filled with water. The Buddeberg stirrer was set to a speed of 150 rpm. A process sensor (Pt100) was fitted and process control selected on the Unistat Tango.

An electric immersion heater was placed inside the pot of the reactor and connected to a Huber lab controller allowing us to vary the amount of heat injected into the water.

2 "reactions" were carried out at 20°C. The first being 75 watts, the second being 150 watts.

APPLICATIONS

Results



75 watts

From stable conditions at 20°C, the immersion heater was switched on at a power of 75 watts.

The process temperature begins to rise and the jacket temperature falls rapidly to 10°C and very quickly arrests the rise in process temperature and returns it to the set-point of 20°C within 10 minutes

Once the process had re-gained 20°C the heater was switched off. The process temperature begins to fall but the jacket temperature quickly rises to return the process temperature to 20°C.

150 watts

From stable conditions at 20°C, the immersion heater was switched on at a power of 150 watts.

The process temperature begins to rise and the jacket temperature falls rapidly to -2°C and very quickly arrests the rise in process temperature and returns it to the set-point of 20°C within 12 minutes.

Once the process had re-gained 20°C the. The process temperature begins to fall but the jacket temperature quickly rises to return the process temperature to 20°C.