# Unistat®
# Tango® Nuevo

**Power vs. Power Transfer**

**Requirement**
This study is to demonstrate that thermal transfer is THE key component in temperature control. In this case study we compare a Unistat Tango Nuevo to a more powerful machine. Both systems were tested under identical ambient conditions and using the same peripherals (insulated reactor, HTF etc.).
The technical data is taken from published materials in the public domain and is in accordance with DIN 12876.

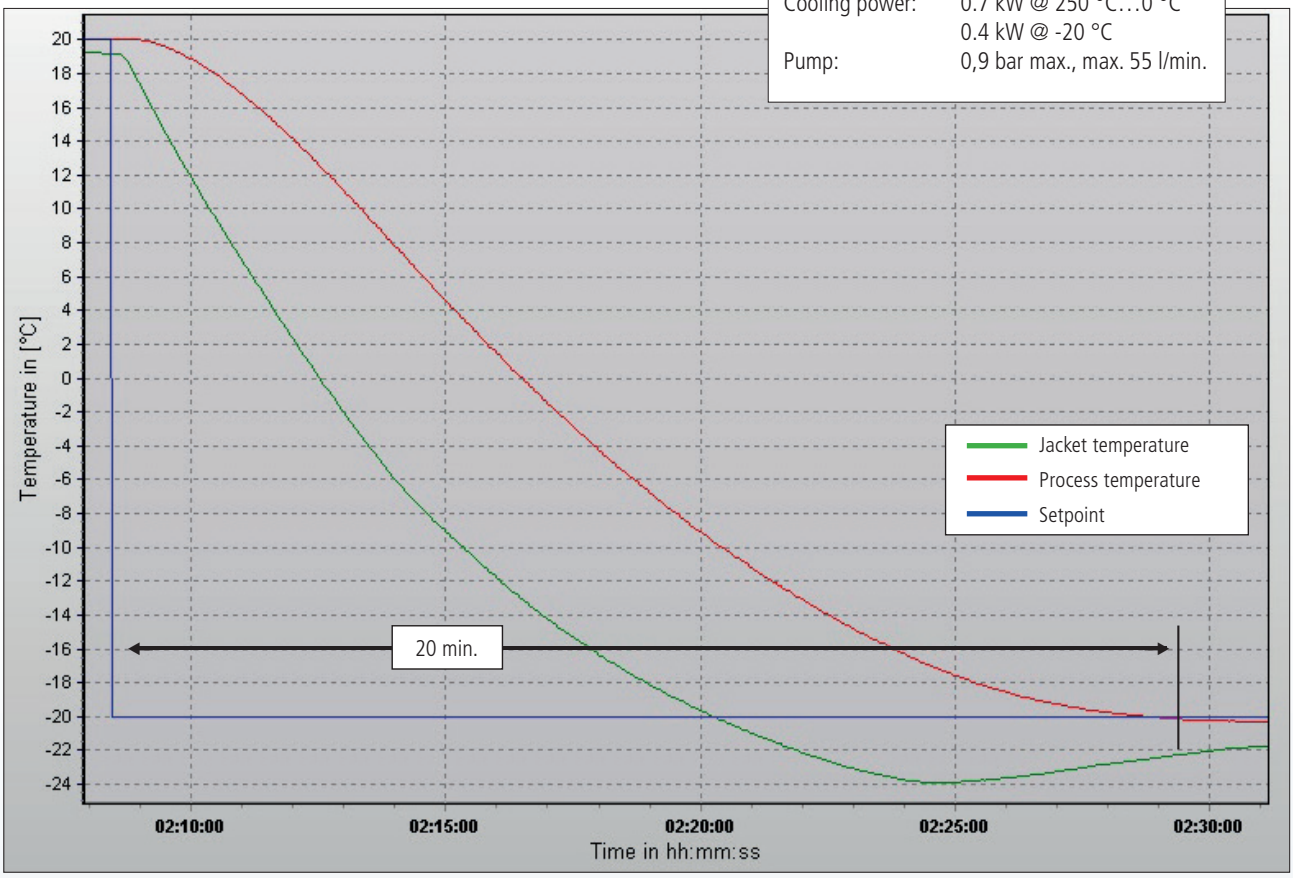
**Method**
The units were fitted to a 1-litre un-insulated glass pressure reactor with M24x1.5 hoses.
The HTF system (thermostat, tubing and reactor jacket) was filled with DW-Therm and the reactor contained 0.75 litre of "M90.055.03" silicon oil (Specific heat capacity of 0.36 kcal / kg °C) to act as a thermal load/process simulation.

**Results**
The results clearly demonstrate that the power transfer from the (pseudo) "dynamically sealed" system is inefficient resulting in slower ramp rates despite having nearly twice the (published) cooling power of the Tango Nuevo.

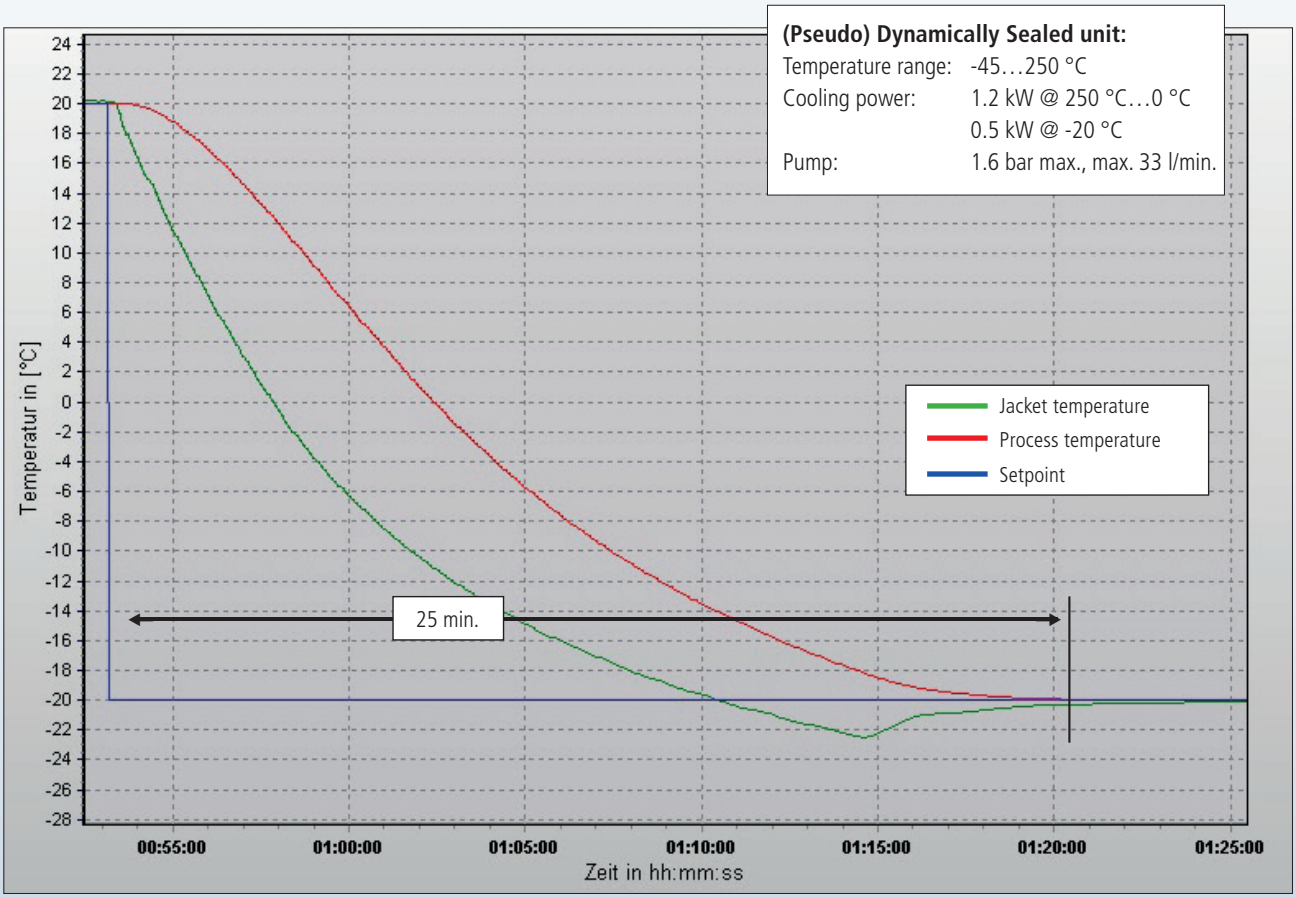
However, we were surprised at the gap in performance and investigated further.
The causes for such large losses can partially be seen in the pump specification in having high pressure yet low flow rate. Moisture absorption into the HTF during the operation of the "dynamically sealed" system via "breather" and "venting" valves may have caused ice build-up on the evaporator impairing performance. We were unable to confirm the published cooling power of the "dynamically sealed" system in tests carried out by certified refrigeration specialists.


**Results**

**Unistat® Tango® Nuevo:**
Temperature range: -45…250 °C
Cooling power: 0.7 kW @ 250 °C…0 °C
0.4 kW @ -20 °C
Pump: 0,9 bar max., max. 55 l/min.




**(Pseudo) Dynamically Sealed unit:**
Temperature range: -45…250 °C
Cooling power: 1.2 kW @ 250 °C…0 °C
0.5 kW @ -20 °C
Pump: 1.6 bar max., max. 33 l/min.





Technical details and dimensions are subject to change. No liability is accepted for errors or ommisions.