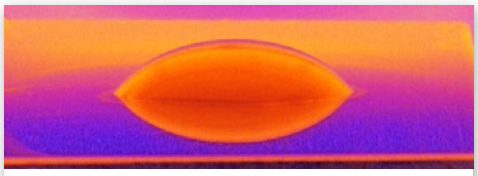
Thermal Solutions for OCA series

Temperature and environmental control systems for the OCA contact angle measuring devices

dataphysics
Understanding Interfaces

DataPhysics offers a wide range of temperature and environmental control systems which operate in conjunction with the optical contact angle measuring and contour analysis systems of the OCA series. These systems allow the measurement of all interfacial parameters, for the most diverse applications, at temperatures from -30 to 1800 °C and from high-vacuum to high-pressure. Temperature, pressure, humidity, and other physical parameters can be acquired by the OCA device or by additional meters, connected to the PC.



molten glass on ceramic substrate

TFC 100Pro

The TFC 100Pro is a liquid temperature control unit for the controlled temperature setting by a liquid circulator bath and an inert gas inlet.
Features:
- temperatures of -10...100 °C
- thermal chamber with 3 windows made of special optical glass
- two Pt 100 as measuring sensor
- temperature reading module TRM 100 for temperature measurements with OCA devices
- cover plates for the optimization of the needle entry gap for varying samples
- prepared for connection to humidity generator HGC 20/30
- optional triple diffusor TDI 100 to prevent condensation at the windows while working below room temperature by using a dry gas flow

Technical data

temperature range:
- -10...100 °C (depending on circulator bath)

heat-up and cool-down rate:
- depending on circulator bath

maximum sample size (LxWxH):
- 93 mm x 93 mm x 24 mm

unit size (LxWxH):
- 100 mm x 124 mm x 55 mm

weight:
- 0.6 kg

TPC 160U

The TPC 160U is a temperature control chamber with electric Peltier system and an inert gas inlet. The TPC 160U requires a liquid counter cooling.
Features:
- temperatures of -30...160 °C
- thermal chamber with 3 windows made of special optical glass
- two Pt 100 as measuring and control sensor
- TC-U PID controller for temperature setting
- cover plates for the optimization of the needle entry gap for varying samples
- prepared for connection to humidity generator HGC 20/30
- optional triple diffusor TDI 160 to prevent condensation at the windows while working below room temperature by using a dry gas flow

Technical data

temperature range:
- -30 ... 160 °C; ±0.1 K

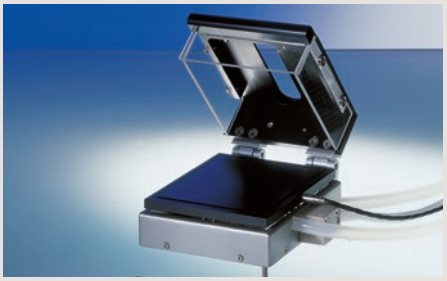
heat-up and cool-down rate:
- ±1 K/s

maximum sample size (LxWxH):
- 94 mm x 94 mm x 24 mm

unit size (LxWxH):
- 108 mm x 128 mm x 70 mm (TPC 160U)
- 220 mm x 190 mm x 95 mm (TC-U)

weight:
- 1.5 kg (TPC 160U)
- 3.0 kg (TC-U)

power supply:
- 100 ... 240 V AC; 50 ... 60 Hz; 650 W



TEC 400U / 700U

The TEC 400U and TEC 700U are temperature control chambers with electrical resistance heating of the chamber floor and lid and an inert gas inlet.
Features:
- Temperatures of up to 400 / 700 °C
- thermal chamber with 3 windows made of special optical glass
- three Pt 100 as measuring and control sensor
- one / two TC-U PID controller for temperature setting
- cover plates for the optimization of the needle entry gap for varying samples
- connector for optional counter cooling with pressurised gas

Technical data

temperature range:
- ambient temp. ... 400 / 700 °C; ±0.2 K

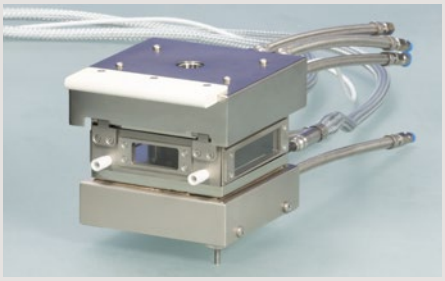
heat-up rate:
- 1 K/s

maximum sample size (LxWxH):
- 94 mm x 94 mm x 24 mm (TEC 400U)
- 90 mm x 87 mm x 28 mm (TEC 700U)

unit size (LxWxH):
- 140 mm x 140 mm x 88 mm (TEC 400U)
- 140 mm x 120 mm x 113 mm (TEC 700U)
- 220 mm x 190 mm x 95 mm (TC-U)

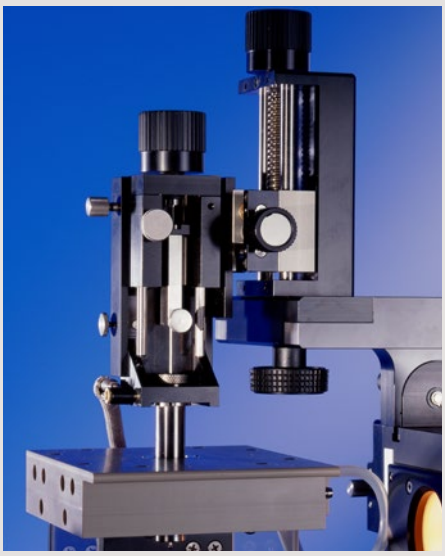
weight:
- 1.5 kg (TEC 400U)
- 3.0 kg (TEC 700U)
- 3.0 kg (TC-U)

power supply:
- 100 ... 240 V AC; 50 ... 60 Hz; 650 W

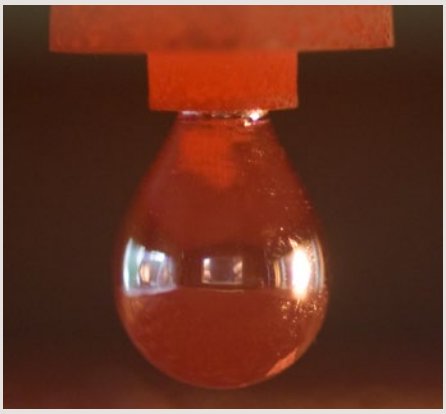


NHD 400U / 700U

The NHD 400U and NHD 700U are electrical needle heating devices for the creation of drops at temperatures of up to 400 or 700 °C, respectively (i.e. polymer and hot melts, molten metals etc.).



Features:
- cannula heater with integrated temperature sensor
- ceramic cannula with plunger
- option for glass syringes with NHD 400U available
- heating carrier with fine adjustment screws for the axial and horizontal positioning
- TC-U PID controller for temperature setting



Technical data

temperature range:
- ambient temp. ... 400 / 700 °C; ±0.2 K

heat-up rate:
- 1 K/s

sample volume of cannula:
- 25...37 µl

unit size (LxWxH):
- 60 mm x 110 x mm 180 mm (NHD)
- 220 mm x 190 mm x 95 mm (TC-U)

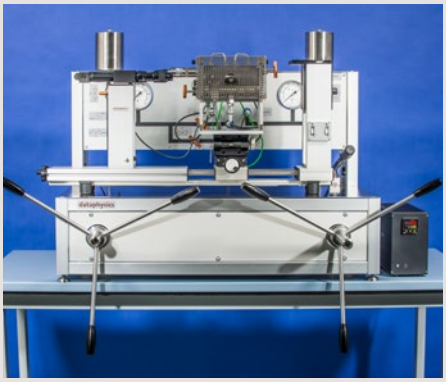
weight:
- 1.5 kg (NHD)
- 3.0 kg (TC-U)

power supply:
- 100 ... 240 V AC; 50 ... 60 Hz; 650 W

Additional systems for special measurement conditions

The high temperature measuring system **OCA 25-HTV 1800** is suited for measurements of contact angles at high temperatures of up to 1800 °C and under vacuum down to 10^{-5} mbar or inert gas atmosphere.

The high pressure measuring system **OCA 25-PMC 750** is suited for measurements of interfacial tension and contact angles under high pressure and high temperature conditions of up to 750 bar and up to 200 °C.



The humidity generator **HGC 20** and **HGC 30** is suited for the automated regulation of the relative humidity and can be combined with a TFC 100Pro or TPC 160 temperature chamber.

For further details on these systems please refer to the corresponding datasheets.

We will find a tailor-made solution for your surface science use case and will be pleased to provide you with an obligation-free quotation for the system that fits your needs.
For more information please contact us.

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