X-Temp 2

Low Temperature Single Crystal Handling for X-ray Structure Analysis
A Combination of Crystal Cooling and Oil-Drop Mounting Technique

Controller Evaporator Insulation Container

contact address

Prof. Dr. D. Stalke
Institut für Anorganische Chemie der
Georg AugustUniversität
Tammannstraße 4
37077 Göttingen

Tel. (int.)	+49-(0)551-39-3000 or 3045
FAX (int.)	+49-(0)551-39-3459
email	dstalke@chemie.uni-goettingen.de
web	www.stalke.chemie.uni-goettingen.de

In combination with inert oils (e.g. perfluorinated polyethers FOMBOLIN YR 1800 and GALDEN HT 90 from AUSIMONT DEUTSCHLAND GMBH, Kölner Straße 3a, Postfach 5202, D-65760 Eschborn (www.ausimont.de))

X-Temp 2 facilitates

- handling of highly reactive and/or thermolabile compounds (e.g. the solid state structure of n-butyllithium T. Kottke, D. Stalke *Angew. Chem. Int. Ed. Engl.* **1993**, *32*, 596.)
- monitoring a reaction pathway by means of low temperature X-ray structure analysis (A. Heine, D. Stalke *Angew. Chem. Int. Ed. Engl.* **1992**, *31*, 854.)
- crystal preparation (selection, cutting, washing, mounting at the tip of a glass fiber) at any constant temperature between room temperature and –120°C (D. Stalke *Chem. Soc. Rev*. **1998**, *27*, 171.)
- investigation of the crystal quality by the polarization device of any commercial microscope.
- 3-5 hours operation time with a single filling and pressureless top-up without the need of interrupting low temperature work.

Recent results achieved employing *X-Temp 2*

1. Ulrike Flierler, Michael Burzler, Dirk Leusser, Julian Henn, Holger Ott, Holger Braunchweig, Dietmar Stalke „Electron Density Investigation of Metal–Metal Bonding in the Dinuclear "Borylene" Complex [{Cp(CO)$_2$Mn}$_2$(μ-B^{t}Bu)]" *Angew. Chem. Int. Ed*. **2008**, *47*, 4321.
2. F. N. Shi, L. Cunha-Silva, R. A. Sà Ferreira, L. Mafra, T. Trindade, L. D. Carlos, F. A. Almeida Paz, J. Rocha „Interconvertable Modular Framework and Layered Lanthanide(III)-Etidronic Acid Coordination Polymers" *J. Am. Chem. Soc.* **2008**, *130*, 150.
3. Hanne Nuss, Martin Jansen „Cs$_5$([12]crown-4)$_2$(O$_3$)$_5$: A Supramolecular Compound Containing the Confined Ozonide Partial Structure {Cs$_8$(O$_3$)$_{10}$}$^{2-}$".*Angew. Chem. Int. Ed.* **2006**, *45*, 7969.
4. Hanne Nuss, Martin Jansen „[Rb([18]crown-6)(NH$_3$)$_3$]Au·NH$_3$: Gold as Acceptor in N_H···Au-Hydrogen Bonds" *Angew. Chem. Int. Ed.* **2006**, *45*, 4369.

Specification of X-Temp 2

a) model

evaporator: nickel plated brass; recooling of evaporated nitrogen to guarantee the gas stream temperature being independent from the liquid nitrogen level

top of insulation container: aluminum/polystyrene material

main heater: ceramic power resistors

transfer line: two silvered glass tubes with vacuum jacket, interconnection by a teflon adapter and a screw cap with silicon sealing; integrated heating coil (stream heater)

nozzle: teflon material with fan-shaped outlet, integrated nozzle heater, connected in series with the main heater, integrated thermosensor.

controller: illuminated switches, triac controlled power supply of heating elements, visual and acoustic alarm at low nitrogen level, automatic shut-off of all heating elements at minimum level, external miniature thermosensor, operating current 110/220 V switchable

b) technical data

liquid nitrogen capacity: 5 L
operation time: 3-5 h (dependent on gas flow rate) per single filling, refillable at standard pressure without interrupting operation
T(min): -120°C, T(max): 30°C, temperature constancy ΔT better than $\pm$ 2°C

c) dimensions

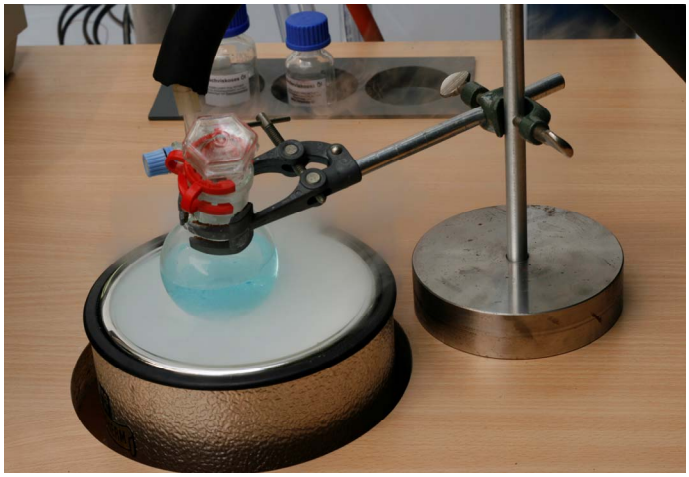
controller: 110 x 290 x 200 (H x W x D in mm), weight 4 kg
evaporator: 250 x 390 (∅ x H in mm), weight 9 kg
height of transfer line: 200 mm above top of insulation container
length of transfer line: 220 mm from edge of container to top of nozzle outlet

Quote for the *X-Temp 2* system package

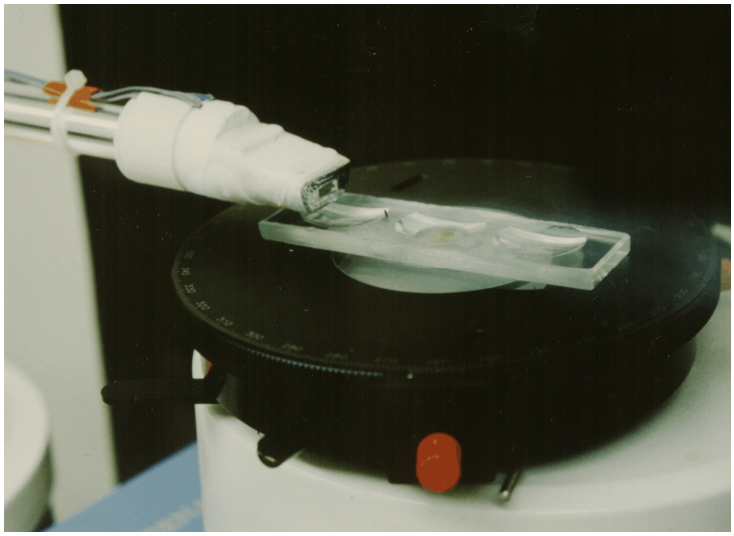
1 liquid nitrogen evaporator with thermo insulation container
1 transfer line with integrated stream heater, teflon adapter and screw cap
1 teflon nozzle with built in nozzle heater and thermosensor
1 controller for generating and regulating the nitrogen cold gas stream, operating at 110/220 V power supply
1 external thermosensor

Total: € 5980.00 plus shipping

X-Temp 2 : System for Crystal Handling at Low Temperatures



crystal cooling by a N_2 inert gas stream generated by *X-Temp 2*
easy crystal handling under the microscope down to –120°C without icing



Single crystals immersed in an inert oil *X-Temp 2* cooled on the microscope slide