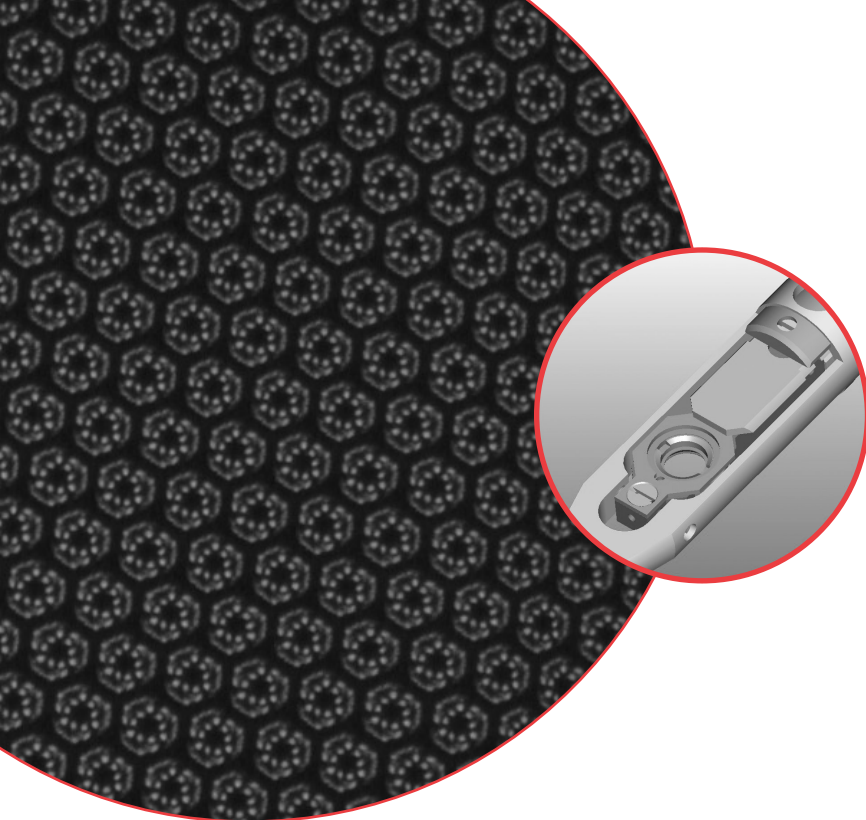


MODEL
CT3500TR

TILT-ROTATE CRYOTRANSFER HOLDER



Processed electron microscopic image of a two-dimensional crystal of bacteriorhodopsin. Courtesy of Sriram Subramaniam (NIH) and Richard Henderson (Cambridge).

Applications

TEM cryotransfer holders are mainly used to reduce specimen damage caused by the electron beam and to observe biological macro-molecules in the hydrated state. Sensitive biological and polymer specimens are rapidly frozen, loaded into the cryo-transfer holder in a special liquid nitrogen cooled workstation and transferred to the microscope goniometer. Specimens are protected from frost and warming during transfer by a shutter, which totally encloses the specimen. By adding the possibility to rotate the specimen within the holder, it is now possible to take series of through tilt images of known angular relationship, thus improving data for 3D reconstruction. 2D crystals may also be aligned.

Low drift and high resolution

Gatan Cryotransfer holders achieve their high mechanical stability by conduction cooling from well insulated, bubble free dewars. The holder rod is designed to minimise cold leaks into the goniometer and hence minimise drift.

Precise temperature control

The specimen holder tip temperature is measured by a fine thermocouple mounted as close to the end tip as possible in order to give the most accurate reading of specimen temperature. Intermediate temperatures may be selected using the rod-mounted heater.

Rapid, frost-free transfer

Gatan technology made frost-free transfer possible with the introduction of the Cryoshield in 1980, and we have continued to provide new concepts to preserve specimen integrity. In the

CT3500TR, a gold plated copper cryo-shield slides over the specimen boat completely enclosing the specimen. This shutter is cooled by the conduction rod and actuated by a click-stopped knob mounted just in front of the nitrogen dewar. During loading in the workstation the specimen is shrouded in cold, dry nitrogen gas.

Optimised specimen loading

The super-insulated cryo-workstation incorporates many features to facilitate and optimise the loading of frozen specimens. Nitrogen filling is via an external funnel to eliminate moisture contamination. The holder end tip sits in a cryo-shield and a small drip tube allows liquid nitrogen to cool the end tip close to the specimen area. The 'T' shaped liquid overflow raises the cold gas shroud well above the specimen holder. Forceps and clamp ring tools can be pre-cooled in the workstation and a specimen storage box is provided for up to 4 specimens.

Motorised specimen rotation

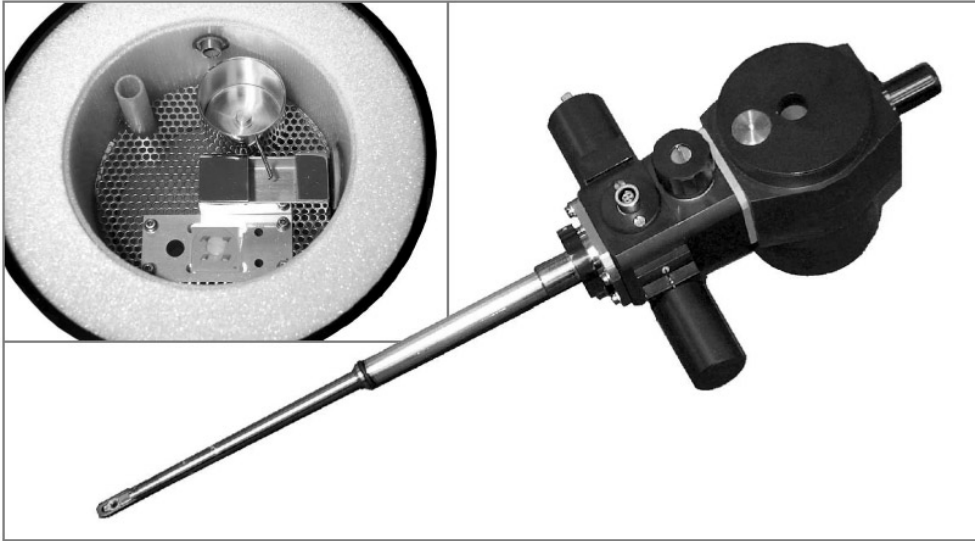
The specimen rotation is motorised with a digital readout. Depending on the goniometer type, this is either controlled from the microscope or by footswitches supplied.

Secure specimen clamping system

In order to provide a high-pressure contact and ensure good thermal contact between the grid and specimen boat, a threaded clamp ring is used to secure the specimen. This ring is tightened with a specially designed friction drive tool, which prevents over-tightening of the ring.

**PRECISION POWERING
PRODUCTIVITY**





System Description

Tilt-rotate Cryotransfer System, including nitrogen cooled, single tilt specimen holder with specimen rotation, cooled shutter screwed insert, cryo-workstation, portable storage container for frozen specimens, tip protection sleeve with pump out fitting, digital controllers for temperature and rotation, tools.

Please note: Tilt ranges of specimen holders vary according to the manufacturer, model, pole piece and the presence of in-gap accessories of the TEM used. When ordering, please specify the TEM make, model, pole piece, configuration of the EDX detector and local line voltage requirements.

Gatan manufactures a wide variety of analytical, cooling, heating, straining and other speciality or custom holders for most microscope makes and models. Contact your local Gatan representative for more information about specific holders and microscope configurations.

Specifications

CT3500TR Tilt-Rotate Cryotransfer Holder

Observable area (zero tilt) (60 degrees tilt)	2.2mm diameter 0.5mm x 2.2mm
Standard cup material	Phosphor bronze
Specimen size	3mm diameter
Number of specimens	1
Cooling method	Nitrogen
Maximum temp in TEM	55°C
Minimum temp in TEM	-175°
Rotation angle	+/-110°
Cryogen hold time	4.5 hours

Gatan Inc.
Corporate Office
Western USA Sales
5933 Coronado Lane
Pleasanton, CA 94588
Tel. (925) 463 0200
Fax. (925) 463 0204
Contact: info@gatan.com

Eastern USA Sales
780 Commonwealth Drive
Warrendale, PA 15086
Tel. (724) 776 5260
Fax. (724) 776 3360
Contact: info@gatan.com

Gatan GmbH
Ingolstädterstr. 12
D-80807 München
Germany
Tel. +49 89 358084-0
Fax. +49 89 358084-77
Contact: rries@gatan.com

Gatan UK
Ferry Mills 3
Osney Mead
Oxford, OX2 0ES
United Kingdom
Tel. +44 0 1865 253630
Fax. +44 0 1865 253639
Contact: ukinfo@gatan.com

Gatan France
3bis, Chemin du Haut Breuil
78113 GRANDCHAMP
FRANCE
Tel: +33 1 34944407
GSM: +33 6 80135139
Fax: +33 1 34871668
Contact: dmonville@gatan.com

Nippon Gatan
Hibarigaokaminamikan 6F
3-27-11 Yato-cho,
Nishi-Tokyo-shi
Tokyo 188-0001 Japan
Tel: +81 424 387230
Fax: +81 424 387228
Contact: miyamori@gatan.com

Gatan Singapore
10 Eunos Road 8
#12-06 Singapore Post Centre
Singapore 408600
Tel: (65) 6293 3160
Fax: (65) 6293 3307
Contact: floh@gatan.com

Gatan On-line
http://www.gatan.com
info@gatan.com
help@gatan.com

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ORDERING INFO

MODEL
CT3500TR

DESCRIPTION
Tilt-Rotate Cryotransfer Holder