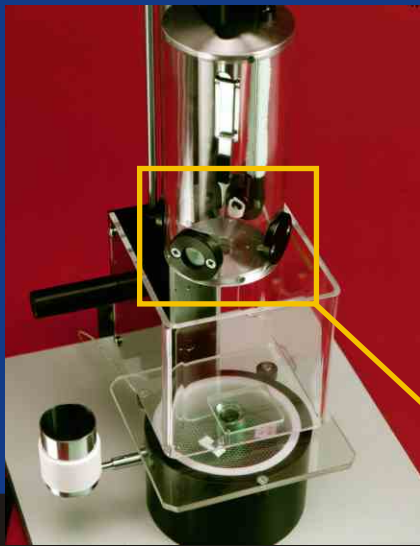


GATAN Cryoplunge

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Scientist in charge: Luis M. Liz-Marzán



Humidity chamber and freezing station



Detail of blotting device

Safety

Safety is key to the design of Cryoplunge, and following blotting, the opening of a shutter and the spring-assisted release of the forceps are interlocked to a safety guard.

Due to the flammability of ethane vapour, Cryoplunge is entirely controlled by pneumatics, making the apparatus safe to use within a spark proof fume hood.

A minimal volume (2 ml) of condensed ethane is used and a temperature monitor and alarm will indicate the need to add more liquid nitrogen or dispose of the ethane.

Specifications

Including :

Pneumatically released plunge mechanism and forceps, fitted with safety guard and interlock,
Humidity chamber, allowing sample introduction and blotting under maintained humidity conditions,
Pneumatically actuated, timed blotting device

Pneumatically actuated shutter, fitted to base of humidity chamber,

Freezing station allowing LN2 cooling of ethane for plunge freezing of sample, complete with ethane reservoir, blotter, grid storage area, transparent lid, and LN2 filling reservoir,
Ethane temperature monitor with alarm,
Pneumatic system controller and timer,
Freezing station tools, grid holder and grid transfer container.

Option : display of temperature and humidity from humidity chamber

Important

This cryofixation device must be operated within a spark-proof fume hood (not supplied)

A compressed air supply, or cylinder is required, providing 4 to 8 bar pressure, to operate Cryoplunge.

Cryotransfer

Please ask for details of CT3500, 626.DH, 630,910 and 915 cryo-transfer systems and TAC 100 twin blade anti-contaminator for high resolution cryo-TEM imaging. Please contact us for advice concerning this application or your detailed technical requirements.



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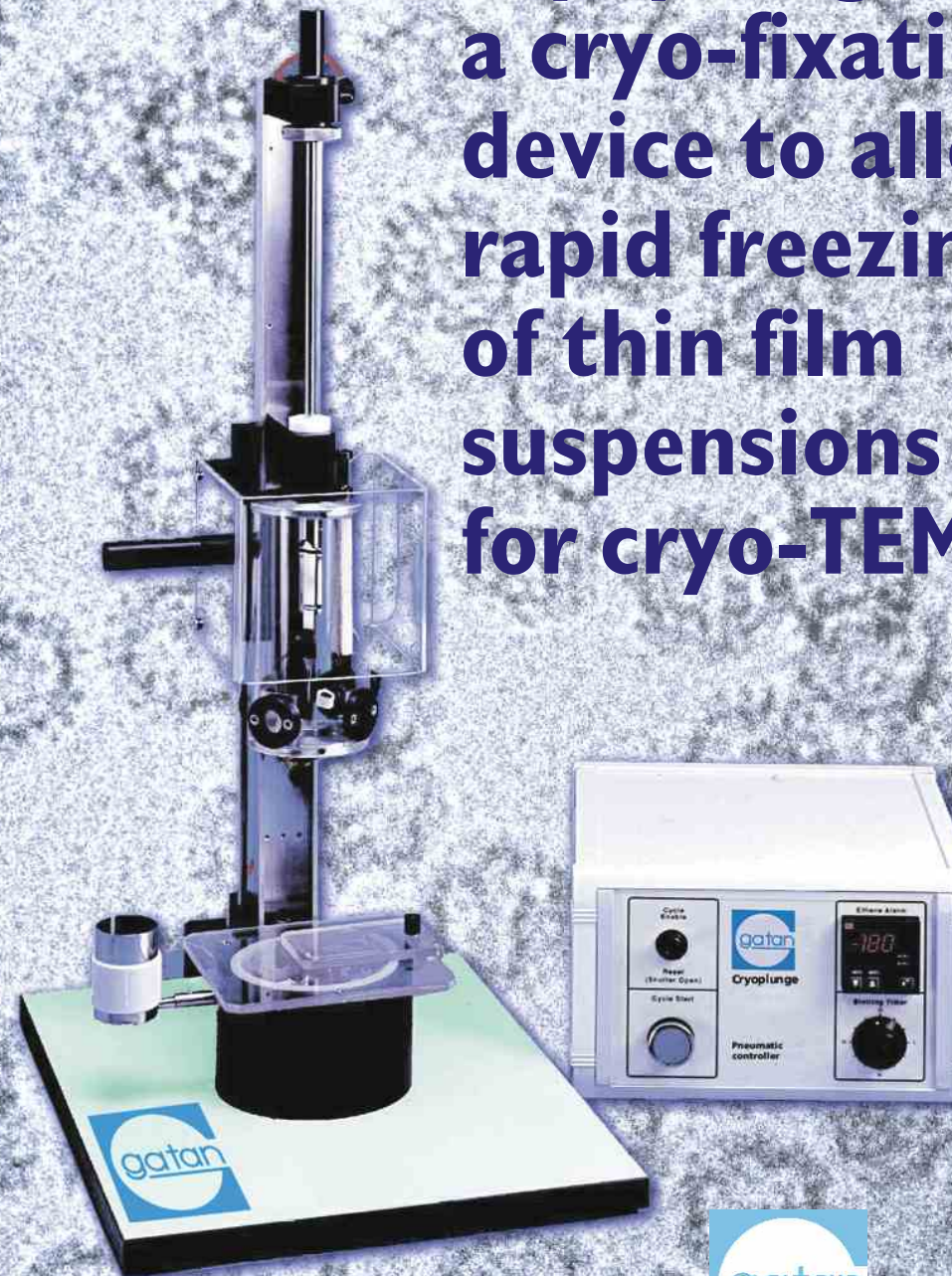
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Cryoplunge

Cryoplunge is a cryo-fixation device to allow rapid freezing of thin film suspensions for cryo-TEM



Cryoplunge is a cryo-fixation device to allow rapid freezing of thin film suspensions for cryo-TEM.

When used together with a Gatan cryo-transfer system for TEM, Cryoplunge enables reproducible vitreous preparations of viruses, liposomes, bacteriophages, isolated macromolecules, macromolecular assemblies and 2-D crystals.

Reproducible cryo-fixation

Cryoplunge utilises the well-proven technique of plunge-freezing thin film specimens into liquid ethane.

This technique has allowed very rapid freezing to ensure vitreous ice, but has required high expertise to control the thickness of the frozen film for successful cryo-TEM imaging.

Cryoplunge uses a timed blotting function to control film thickness.

This is applied pneumatically to the sample suspension, deposited on a TEM grid held by forceps within a maintained humidity chamber. The optimum blotting time is established, and this is then controlled repeatedly.

Blotting, shutter opening and the 'launch' of the plunger into the liquid ethane is controlled by an automatic cycle, allowing a rapid sequence and maintaining integrity of both grid and sample.

The ethane reservoir is contained within a 'freezing station'. This is cooled by liquid nitrogen, which can be easily filled without removing the transparent lid, minimising the risk of contamination from ice crystals while allowing access.

Following plunging, the vitrified specimen on the TEM grid is removed from the reservoir; blotted to remove any remaining ethane, and then 'parked' in the workstation or transferred. A convenient (4) grid holder and container is supplied for specimen transfer, under LN2, to the TEM cryo-transfer system.



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