

Cryoplunge 3 system

Model 930

Cryoplunge™ 3 with GentleBlot™ technology, model 930, is a semi-automated plunge freezing instrument that is used for preparing frozen hydrated specimens for cryo-electron microscopy (cryo-EM). GentleBlot technology optimizes the blotting force and pressure to provide gentle 1-or 2-side blotting of the specimen grid to minimize breakage of even the most fragile specimen supports.

Preparing frozen hydrated specimens using Cryoplunge 3 system with GentleBlot technology is easy for novice or experienced cryo-electron microscopists and provides excellent results. A small volume of the specimen is applied to the specimen grid, which is attached to plunging tweezers. The grid is loaded within the humidity chamber and gently blotted to produce a thin, aqueous film. The specimen grid is then plunged into a temperature controlled ethane bath. This results in instantaneous freezing of the specimen in a layer of non-crystalline (vitreous) ice. One press of the quick disconnect allows the operator to quickly and easily disconnect the plunging tweezers from the plunge rod. The liquid nitrogen workstation provides a protective cryo-environment to minimize contamination of the frozen hydrated grid during transfer to a pre-cooled cryo-grid storage box within the workstation. The cryo-grid storage box can then be safely transferred to a liquid nitrogen storage vessel or to the workstation of the cryo-transfer holder for low dose imaging on the transmission electron microscope (TEM).



Benefits

- **Specimen blotting:** GentleBlot optimized blotting force with adjustable blotting pressure for gentle and effective specimen blotting 1- or 2-side, single or multiple blotting, as well as blot override capability
- **Ethane temperature controller:** Accurately maintains temperature of ethane just above its melting point
- **Protection for cryo-specimen:** The liquid nitrogen cryo-workstation protects the cryo-specimen during transfer from ethane to the cryo-grid storage box and a liquid nitrogen transfer vessel protects the contents of the cryo-grid box when it is removed from the workstation for storage or immediate viewing on the TEM
- **Cryo-workstation:** Removable liquid nitrogen cryo-workstation allows transport to and from fume hood for filling and disposal of liquid ethane
- **Tweezer securing mechanism:** Quick disconnect tweezer mounting mechanism makes it easy and fast to connect or disconnect the plunging tweezers from the plunge rod
- **Plunge mechanism:** Pneumatically assisted, multi-positional plunge rod
- **Humidity chamber:** Safeguards the specimen from drying during the blotting process
- **Safe operation:** Safety interlocks protect the user during the blotting and plunging cycle
- **Easy installation:** Everything is included for fast, easy setup

Applications

- Structural biology
- Soft polymers
- Pharmaceuticals

Specifications

Weight (kg)	12.25
Dimensions (L x W x H, mm)	410 x 310 x 750
Max. power input at 24 V (A)	2.08
Max. ambient temperature (°C)	26
Liquid nitrogen stabilization time at max. ambient temperature (min)	~15
Ethane pot capacity (mL)	4
Liquid ethane operating temperature	Can be maintained just above the melting point of ethane using the ethane temperature adjustment controls
Liquid ethane hold time	Indefinitely as long as workstation is maintained at liquid nitrogen temperature
Plunge speed (m/s)	1.7
Pneumatics (psi)	70
(bar)	4.8
%RH at ambient temperature	98%
Ethane alarm temperature (°C)	-150

The specifications provided herein are approximate and are intended only as guidelines. Specifications are subject to change.

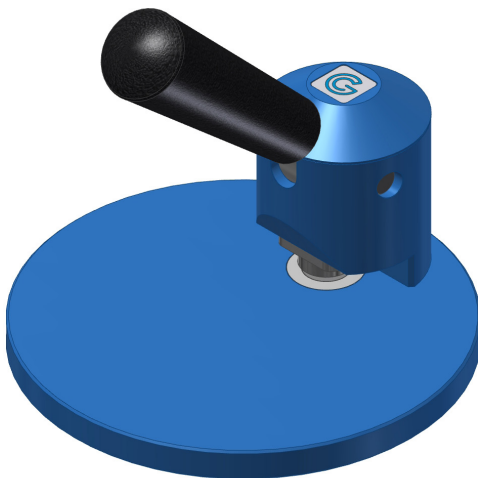


Figure 1. Filter paper punch.

Ordering

Model	Description
930.GB	Cryoplunge 3 with GentleBlot system (basic instrument and accessory kit)
930.GBU	GentleBlot upgrade kit for 930.B
930.T	Installation and basic training (optional)
930.TWX	Online training (optional)
930.50000	Filter paper punch

Other products to consider

- Solarus[®] advanced plasma cleaning system
- Single tilt liquid nitrogen cryo-transfer holder, model 626
- Single tilt liquid nitrogen cryo-transfer holder, model CT3500
- Single tilt rotation liquid nitrogen cryo-transfer holder, model CT3500TR
- Single tilt liquid nitrogen cryo-transfer tomography holder, model 914
- Double tilt liquid nitrogen cryo-transfer holder, model 915
- Multi-specimen cryo-transfer holder, model 910
- TAC100 series liquid nitrogen anti-contaminator

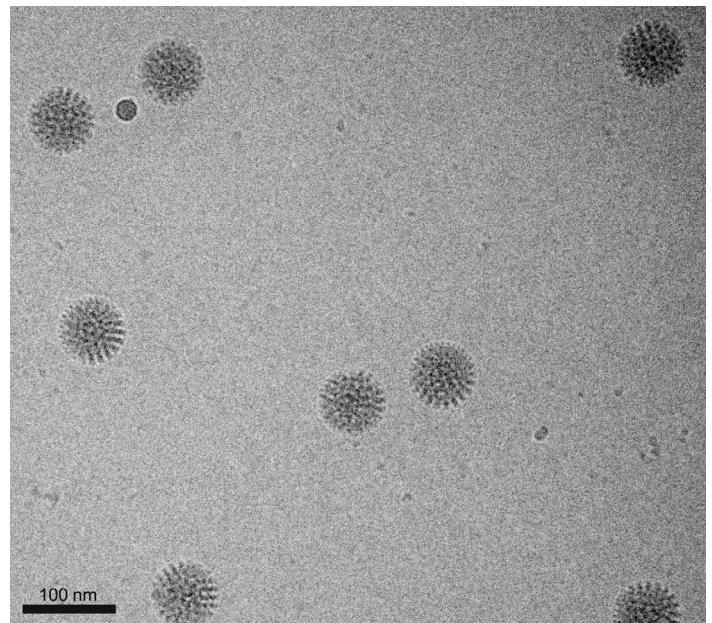


Figure 2. Image of frozen-hydrated rotavirus double-layered particles (0.01 mg/mL) prepared on affinity grids decorated with His-tagged protein A and antibodies against the outer capsid protein, VP6. Specimen was prepared using the Cryoplunge 3 system with GentleBlot system on C-flat™ 2/1 grids (Protochips, Inc.). Specimens were examined under low dose conditions at 120 kV. Image recorded at 50kx using a dose of ~5 e/Å². Image courtesy of Dr. Debbie Kelly, Virginia Tech Carilion Research Institute, Roanoke, VA, USA.