

# CRYOGEN REFILLING SYSTEM Next-Gen

Our next generation cryogen auto-refilling system is a **safe and cost-effective** solution that periodically refills the liquid Nitrogen ( $\text{LN}_2$ ) cryo specimen holder and in addition optionally the anti-contamination device (ACD) of your TEM. This significantly helps to **extend the automated data acquisition time** of your transmission electron microscope. Each of the (up to two) system dewars is equipped with a low pressure, micro dosing  **$\text{LN}_2$  pump**. The Next-Gen system follows our previous refilling system, equipped with a single  $\text{LN}_2$  dewar mounted on top of the frame (U.S. Patent No. 10,481,055).

## MAIN FEATURES AND COMPONENTS

- ❑ Automatic refill makes data collection more efficient. It eliminates overflow of cryogenic liquid, helps to minimize specimen drift/vibrations during refills and provides a safer environment for the user by minimizing cryogen handling.
- ❑ Automatic refill of cryogenic holder as well as the TEMs ACD at regular programmed intervals thus reducing frequent human intervention to top off dewars. Main user inputs through a touchscreen are “Number of refills” and “Time between refills”.
- ❑ Equipped with 35 liter  $\text{LN}_2$  dewar(s) along with microdosing  $\text{LN}_2$  pump(s), holder and/or ACD are refilled (if holder dewar and ACD are both to be refilled, two 35 liter dewars and two  $\text{LN}_2$  pumps are utilized). The  $\text{LN}_2$  hold time during operation is approximately one week. A low center of gravity and a highly flexible design allows adapting for various tight space conditions.
- ❑ Sensor assembly provides continuous temperature feedback from the holder and ACD dewar and prevents overflow during refilling. A precise motion system slides the nozzles into position to align with the refill funnel.



- ❑ Insulated transfer tubes to avoid condensation and ice formation.
- ❑ Operation integrated with camera PC for automated single particle and tomography data acquisition.
- ❑  $\text{LN}_2$  flow closes automatically under all adverse conditions including power and electronics failure.
- ❑ Emergency stop button.
- ❑ Compatible with various TEM's, ACD dewars and cryo holders.

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