

PP3005 SEMCool non-airlock cryo cooling for SEM and FIB/SEM



Cold stage and cold trap

A highly stable and thermally isolated nitrogen gas-cooled cold stage attaches to the microscope stage. The location and shape of the cold trap is tailored to suit the internal geometry of the microscope. Both cold stage and cold trap are capable of reaching temperatures down to -190°C with a stability of $<0.5^{\circ}\text{C}$. For easy specimen exchange an interlocked LED chamber light is fitted.

The cold stage connects to the SEM stage using an adaptor and has a dovetail fitting to accept a cryo specimen holder. When not in use the cold stage is uncoupled and stored within the chamber with the gas and electrical fittings connected.

Cooling dewar, trolley and controller

The cold stage and cold trap are cooled by a floor-mounted, vacuum isolated 21 litre dewar and heat exchanger assembly which at normal operating temperatures can run for up to 24 hours between fills. The gas lines between the dewar and the SEM interface are vacuum isolated for maximum thermal efficiency. The cooling dewar is located on a floor-mounted trolley which also houses the temperature and gas control system.

Using the SEMCool

Vent the microscope and manually locate specimen holder on the cold stage. Evacuate the microscope and then cool the SEMCool down to the required temperature. To exchange specimen, warm to above 0°C and vent the SEM.



Pumping

The SEMCool requires a rotary pump to periodically evacuate the heat exchanger vacuum isolated lines (see Ordering information).

Quick overview

The SEMCool is based on the PP3006 CoolLok but without the PP3004 QuickLok airlock components. It is designed for cryogenic applications where vacuum transfer and airlock exchange of specimens into the microscope is not required.

Key features

- Temperature range down to -190°C with stability better than 0.5°C
- Off-column cooling with all-day runtime between fills
- Independent cooling of cold stage and cold trap
- Upgrade path to PP3006
- Three-years warranty

Ordering Information

NB: For a full quotation, including on-site installation and customer training, please contact us

PP3005	SEMCool non-airlock cooling system, consisting of: Nitrogen gas cooled stage with heater and sensor and cold trap with temperature sensor. Precise temperature control with a range down to 190°C , 21 litre liquid nitrogen dewar with trolley, heat exchanger and LED chamber light. Pump fittings (see: Pumping requirements below).
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Temperature and nitrogen gas flow controller mounted on the dewar trolley.

Specimen holders

AL200077B	3x Specimen shuttle (to hold 10 mm \varnothing cryo stubs)
12434	Specimen shuttle blank
20720	Specimen shuttle with holding clips
E7402	blank 10 mm stubs – packet of 10
E7449-7	5x Multi-purpose specimen stubs

Note: other holders are available from Quorum. Specimen mounting compounds (colloidal graphite and Tissue-Tek[®]).

Pumping requirements

The PP3005 requires a rotary pump for evacuating the vacuum isolated gas lines.

13034	5 m ³ /hr Pfeiffer Duo 6 rotary vacuum pump with oil mist filter
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Options and accessories

13296	Sircal in-line gas dryer. Helps to reduce water content of nitrogen gas supply if an external gas source is used
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The range of specimen holders available with the PP3010T can be used with the PP3005.