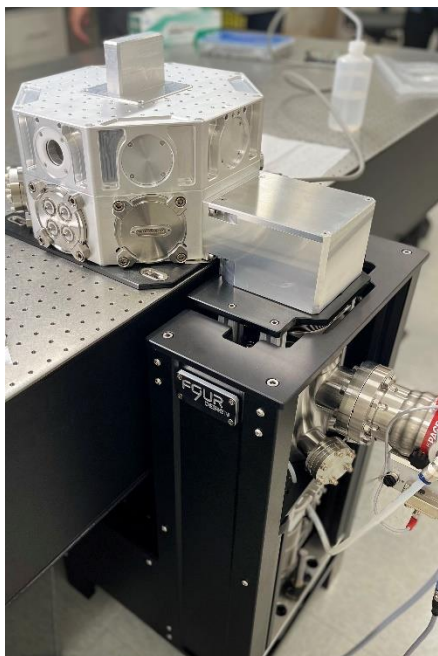
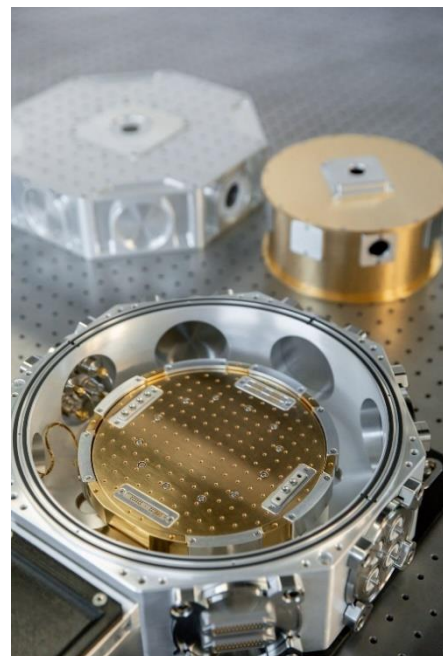


# SideKick

## UHV Low Vibration Optical Cryostat



The SideKick is an ultra-high vacuum, ultra-low vibration, sub 4K cryostat that removes the cryocooler clutter from your table and provides access to your experiment from all sides. The cryogenic workspace is mounted to your existing table like other optical elements. It connects with a highly flexible bellows column to the cryo-cooler and mechanical pumps, which are referenced off the lab floor to separate pump vibrations from your sample and optics. The sample space environment uses low outgassing materials only and if you choose to bake the chamber, you can expect <math>1E-8</math> torr before cooldown and <math>1E-11</math> torr once cold.

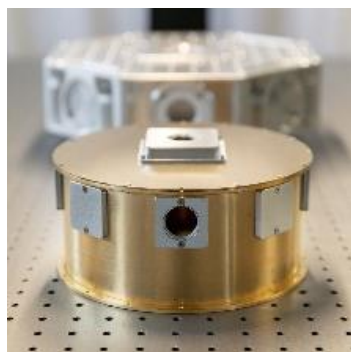
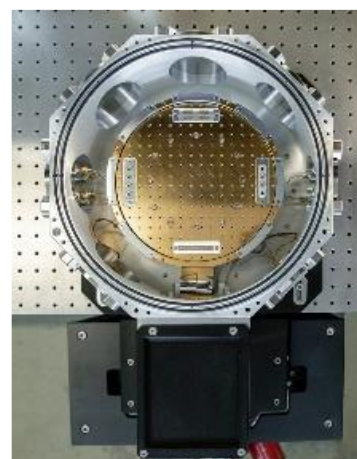


### Cooling Powers

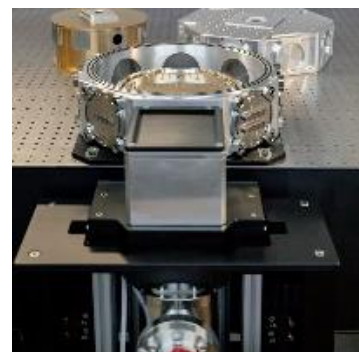
| Model | Base Temp | Cold Plate Cooling Power | Cold Plate Vibrations |
|-------|-----------|--------------------------|-----------------------|
| SK100 | < 4K      | 100mW @ 5K               | < 15nm                |
| SK200 | < 3.6K    | 200mW @ 5K               | < 25nm                |
| SK300 | < 3.5K    | 300mW @ 5K               | < 30nm                |

### Key Features

- Ability to vacuum pump before cooling to prevent sample contamination
- Ability to reliably reach ultra-high vacuums
- Large cold platform -  $\varnothing 200\text{mm}$  X 100mm cold space typical
- Plenty of optical access via windows or fibers. 9 windows available (8 horizontal, 1 vertical)
- 24DC connections available to user included, integrated and heat sunk at 4K cold plate
- Six industry-standard ISO63 panels may be used for interfacing additional RF, DC, or fiber optics.
- Integrated temperature sensors and heaters on 1st Stage, 2nd Stage, cold plate, and radiation shield
- Integrated turbo pump, roughing pump, and full-scale pressure gauge.
- Floor mounted vibration isolation pillar at optical table edge. Specify table thickness of 12-36"



A one-week on-site installation trip with in depth training of system architecture, functionality of components, and user operation is provided with all systems.



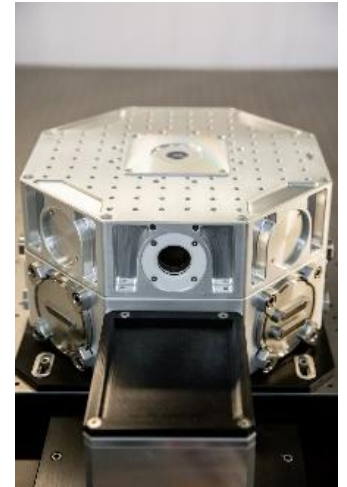
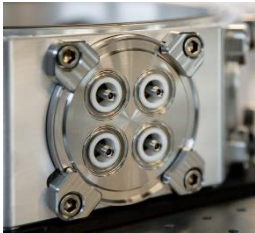
## Options

**Bakeout:** Integrated bakeout hardware including heaters and controller. Pressure (before cooldown, after bakeout):  $< 1E-8$  torr.



**Connections per UHV flange:** (All thermally heat sunk at 40K and 4K)

- 24 DC user connections using Micro D25 connectors
- 4x RF Cables, 20 GHz stainless steel, semi-rigid coaxial lines. SMA on outside, SMP at 4K
- 2x Fiber Optic Feedthrough - FC/APC, feedthrough only

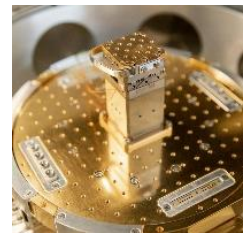


**Gas Tube Assembly:** for injecting gas molecules to intentionally freeze on sample

**Kimball Spherical Octagon Housing** with 8x 2.75" CF radial ports. Ideal for high NA applications.



**User Controlled XYZ Positioning Sample Mount:** Integrated on top of nanopositioner stack. Includes closed-loop heater and thermometer (Cernox) control. Thermally decoupled using ultra-high thermal conductivity flexible thermal link for quick temperature changes and low position drift between 4-350K. Adds about 0.25K to base temperature.



**4K Shield:** Allows lowest vacuum applications.

**Low Vibration Insert for SPM:** For 0.1nm PTP relative motion.

**250mm Cold Plate:** Allows 8 interface patch panels at the cold plate surface. These panels may be for RF, low voltage, or high current (for magnet options) connections.