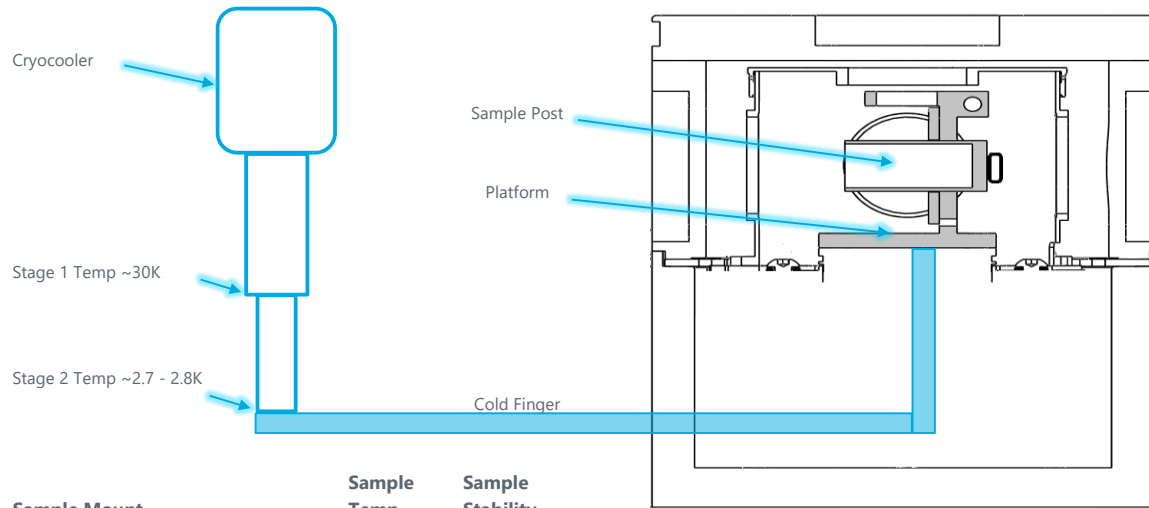


Cryostation Performance Estimator*

Last Updated: August 2015

Cryostation s50 Platform



	Sample Temp	Sample Stability
Sample Mount		
1) Standard (baseline)	3.4K	10mK
2) Standard no post	3.2K	40mK
	Platform Temp	Platform Vibes (nm)
Link Type		
1) Standard baseline	3.2K	5
2) Low temp	3.0K	10
3) PR raised platform	just wiring	10
4) PR with 3stack	just wiring	25-50
5) Std with 3stack	just wiring	20-45
6) Extended	no effect	2 times above
MO with no damped sample mount		
Base Temp	3.2K	30mK
CO (Cryo-Optic)		
Base Temp	3.5K	30mK
Flex Links		
Flex link per stage	+0.03K	see above

Chamber Height	Temp
1) Four 30/20mm	baseline
2) Four 50/30mm	+0.05K
3) Four 50/30 in 100mm	+0.1K
4) None in 130mm	+0.05K
Top Window	Temp
1) 30/20mm	baseline
2) 50/30mm	+0.05K
3) LWD with inner at 2mm	+0.5K
4) LWD no inner at 1mm	+2 to 4K
5) Recessed Objective	no effect
Castle options	Temp
1) Tall round castle	+0.2K
2) Tall with 2 side ports	+0.2K
3) Short high NA	+0.5K
4) Mini castle	+0.1K

Side Panel

- 1) None
- 2) Blank or Fiber
- 3) 4x RF
- 4) Gas tube
- 5) 2xRF+gas

Temp

baseline
no effect
just wire impact
+0.1K
+0.1K plus wires

Fiber Optic in Window Port

- 1) single in 30mm
- 2) single in 50mm
- 3) double in 50mm
- 4) triple in 50mm

Temp

no effect
no effect
no effect
no effect

Window Based RF

- 1) single in 30mm
- 2) single in 50mm
- 3) quad in 50mm

Temp

heat load from wires
heat load from wires
heat load from wires

Window based High Voltage

- 1) single in 50mm

just wire impact

Wires to 3K stage/piezos

- 1) None
- 2) 32 AWG high purity Cu
- 3) 32 AWG PhosBrnz
- 4) 36 AWG PhosBrnz
- 5) 40 AWG Manganin
- 6) CB12 with PhosBrnz
- 7) LCC28 with PhosBrnz

Temp

baseline
+0.3K each
+5mK each
+2.5mK each
+0.5mK each
+0.1K
+0.2K

Coax to 3K stage

- 1) None
- 2) 1GHz flex
- 3) 20GHz semirigid

Temp

baseline
+30mK per line
+25mK per line

Longer Helium hoses

- 10' standard, 30' or 50'

Temp

no effect

Laser or RF input power

- 1 milliwatt absorbed power

Temp

+14mK at low temps

How to use this Estimator:

This table shows the effect of various options on the performance of the Cryostation s50 platform and does NOT apply to other system models. Most options are independent and have direct effects on heat loss. These impacts are based on operation at low temperatures.

The "baseline" Cryostation has 30mm side and top windows with a standard sample mount. For this configuration, the platform temp is typically around 3K, the sample temp is less than 3.4K, and the vibrations are less than 5nm. As you select options, you can estimate the effect on your sample. Use this as an estimate only. If you need a better estimate, please contact one of the engineers at Montana Instruments. Note that the system spec is less than 3.2K on the platform and stability is measured at the sample on the standard sample mount.