



Closed Cycle Cryostat - High Cooling Power.

Optical Cryostat for vibration sensitive experiments.

Cryostat Models:

- CS204A-x20 <9K
- CS204A(**T**)-x20 <9K **Turbo**
- CS204N-x20 <6K
- CS204S-x20 <4K

Applications:

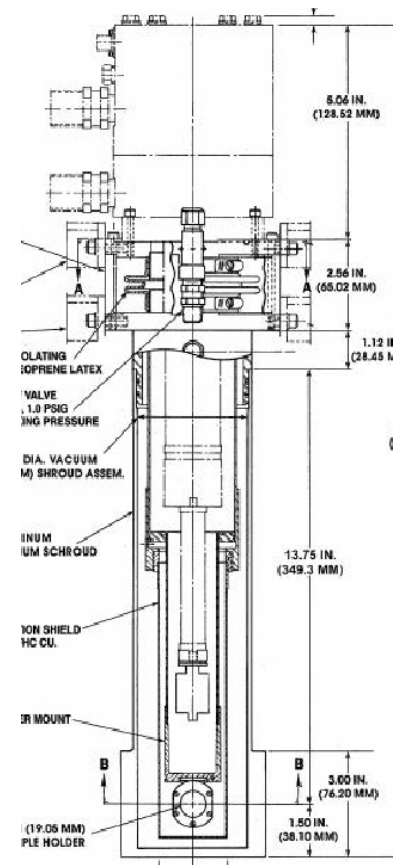
High Cooling power for:
 Mossbauer Experiments
 Low Vibration Optical Experiments
 Quantum Dot – Photoluminescence, MicroRaman, Microspectroscopy.

Design Features:

- Sample is isolated from cryocooler by soft rubber bellows (at room temperature) and helium exchange gas. See specifications for vibration level.
- Vibration level at sample with proper isolation is 3 to 5 Nanometers at 2.4 Hz.
- No line width broadening with proper installation.
- Sample temperature will be ~1- 2K higher than the cryocooler temperature.
- Cooldown time of the interface is between 2.5 and 3 Hrs.
- 2 Window ports. (Optional 4 ports)
- Window materials for Mossbauer (Beryllium) or optical spectroscopy (Vis, UV,IR windows available).
- Compact optical shroud. Optical View = f 1.4 (1.75 in./1.25 in.)
- Sample space; 1.9 in. (ID) * 1.5 inches long.
- Sample in vacuum.
- Vacuum Shroud; Rotatable under vacuum. Double O-ring.
- Sample Holder, two component with groove for indium wire for improved thermal contact with sample.
- Metallized thermfoil heater for long heater life.
- One Instrumentation Port for temperature control instrumentation.



DE-204AF with interface installed. vacuum shroud and radiation shield also shown.



Cryocooler Specifications at 60 Hz.					
Cryo-cooler Model:	DE-104(T)	DE-204A	DE-204A (T)	DE-204N	DE-204S
Compressor Model.	ARS-4HW	ARS-4HW	ARS-4HW	ARS-4HW	ARS-4HW
Temperature Range	<25K-350K	<9K -350K	<9K-350K	<6K – 350K	<4K – 350K
Cooldown Time to 20K	10 min (to 77K)	30 Minutes	25 Minutes	40 Minutes	40 Minutes
Cooling Power (2 nd Stage)		2 Watts/10K	0.7 Watts/10K	3 Watts/10K	0.2 Watts/4K
		9 Watts /20K	12 Watts /20K	8 Watts /20K	8 Watts /20K
Cooling Power (1 st Stage)	60 Watts/77K	18 Watts/77K	24 Watts/77K	18 Watts/77K	18 Watts/77K
Vibrations at sample		3 to 5 nM	Same	Same	Same
Compressor Maintenance	12,000 Hrs.				
Ambient, Operating	12 C – 40 C (54 F - 104 F)				
System Weight:	Cryo-cooler – 7.5 Kg. Compressor – 73 Kg.				
Power Requirements:	208-230V, 60 Hz. 208-220V, 50 Hz. Optional: 230V or 240V, 50 Hz. (With optional transformer)				
Notes:	1. 50 Hz operation will have reduced performance, see specifications for details. 2. These specifications are for the cryocooler only. Actual performance will depend on parasitic and experimental heat loads.				

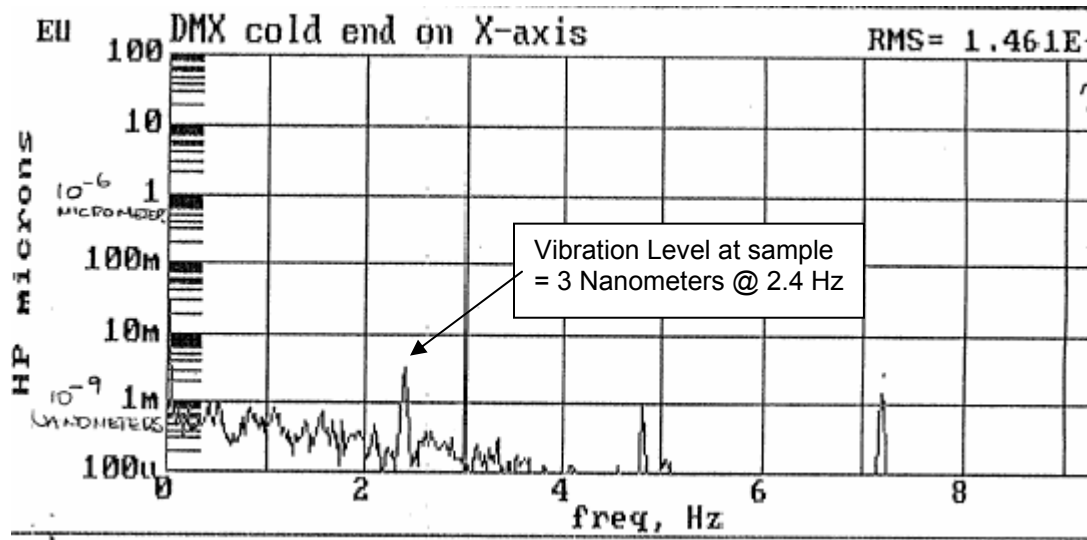


Figure shows vibrations at sample when the system is properly installed.

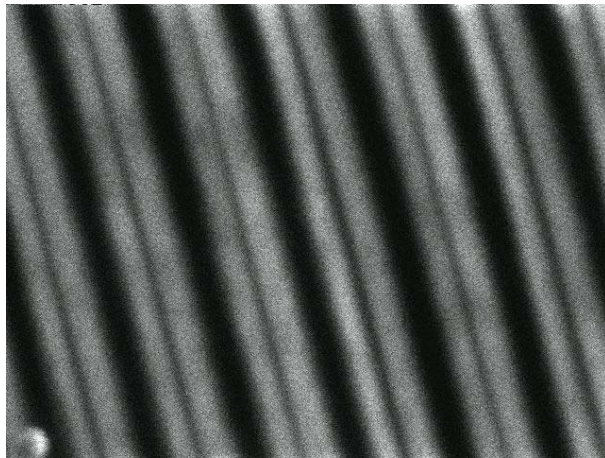


Image of a InGaN/GaN quantum well grown on a patterned GaN substrate. The patterning consists of stripes with a periodicity of 10 microns. Monochromatic CL image (Mag. 2000) taken with a 390 nm detection wavelength. The degradation of image quality from room temperature and 50K suggests that the vibration is less than 10nm. Courtesy; Prof. Dan Rich, Ben Gurion University, Beer Sheva, Israel.