



Closed Cycle Cryostat

Models:

DE-204S	4K
DE-204N	6K
DE-204A	10K

Cryostat Components:

Wafer Probe includes the following:

- Displex Cryocooler - DE-204AI.
- Helium Compressor - ARS-4HW
- Helium hoses, 10 ft.
- Vacuum enclosure with ports for 4 probes and cover. To fit a 2 inch device or wafer.
- Radiation Shield, OFHC copper.
- Probes with tungsten contacts and XYZ translation capability.
- Sample Holder for mounting the wafer under test (DUT).
- Temperature control Instrumentation.

See options also.

Applications:

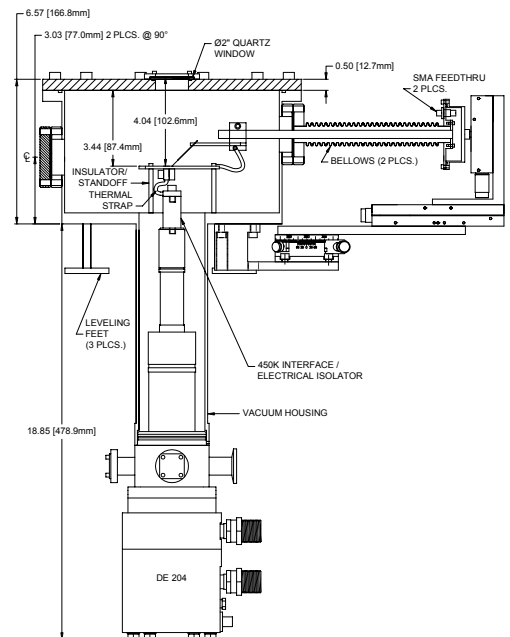
Probe Station with 2 to 8 Inch device or wafer size capability.

Standard Features:

- 4 ports for probes. Additional ports available as options
- Sample holder, 3 inch diameter will hold a 2 in. wafer. Made of OFHC copper with stand off posts and copper braid for reduced vibrations at the sample.
- Vacuum Enclosure is 10 inches OD. Sample space; 8 in (Diameter) * 3.0 in. (high).
- The X-Y motion of the probe will accommodate a 2 inch wafer.
- Pneumatic Drive Displex Cryocooler for low vibrations at the sample (see Specifications).
- Probes have 2 in. linear travel for X translation. Accuracy and repeatability is 1 micron.
- Probes have rotational capability for 2 in. arc motion providing Y translation. Accuracy and repeatability is 5 Arc.
- Probes have 0.5 in. linear travel for Z translation. Accuracy and repeatability is 1 micron. This allows lift for the probes to make and break contact.
- Sample (DUT) is maintained in isothermal environment.
- Probes are thermally anchored with the sample holder, for isothermal operation and minimize drift during test.
- BNC or SMA connectors with co-axial wiring to the tungsten contact tip.
- Window installed on the cover plate for microscope or CCD (Not supplied)



Vacuum enclosure with two probes installed.



DE-204 cryocooler installed on the probe station for 2 inch wafers.



Options:

- Temperature Controller for controlling sample temperature between 10 and 350K. Single channel or dual channel available. Dual Channel is strongly recommended for accuracy.
- Upgrade to DE-204N (6-350K). Replace cryo-cooler Model DE-204AI with DE-204NI
- Upgrade to DE-204S (4-350K). Replace cryo-cooler Model DE-204AI with DE-204SI
- Additional Probes available as options.
- Lower Vibration Closed Cycle System, 3-5 nanometers available. Consult Factory.
- High temperature; 500K with high accuracy Silicon Diodes.
- Larger Samples, up to 8 inch wafer or device capability – Consult Factory.
- High Cooling Power – Cryocooler Model DE-204 or DE-210 Cryocoolers
- Coolpak, remote aircooling option for compressor
- Extra long helium hoses. 15fFt. or 20 Ft.
- Vacuum pump only. 5.5 M³/Hr. 1E-3mbar Pressure, direct drive, two stage.
- Vacuum System: Model VPS-1 Basic System, includes 5.5 M³/Hr. vacuum pump, valve and 1 m. stainless bellows hose.
- Vacuum System: Model VPS-2 is full featured system, Includes VPS-1 and vacuum gauge, filter, oil trap and misc hardware.
- UHV Turbopump System: Model VPS-3, for sample area vacuum in 5E-9 Torr. Includes 60 L/S, Oil Free Turbopump, valve, 1 m. stainless bellows hose, vacuum gauge, filter, oil trap and misc hardware.
- Transformer, 10% for 230V/50 Hz. Or 240V/60 Hz. Power supply.
- Transformer, 15% for 240V/50 Hz. Power supply.
- Stand for the cryostat.

System Specifications at 60Hz:

Cryo-cooler Model:	<u>DE-204AB</u>	<u>DE-204NB</u>	<u>DE-204SB</u>
	Standard	Upgrade	Upgrade
Temperature Range	<10K -350K	<6K – 350K	<4K – 350K
Cooldown Time to 20K	40 Minutes	40 Minutes	40 Minutes
Cooling Power	2.0 Watts/10K	2.0 Watts/7K	0.25 Watts/4K
	9.0 Watts /20K	9.0 Watts /20K	9.0 Watts /20K
Vacuum Level in Cryostat	1E-4 Torr		
Compressor Noise.	60 dB.		
Compressor Maintenance	12,000 Hrs.		
System Weight:	Cryo-cooler – 8 Kg. Compressor – 80 Kg.		
Power Requirements:	208-230V, 60 Hz. 208-220V, 50 Hz. Optional: 230V or 240V, 50 Hz.		

Additional Information:

- DE-204AI - Specification Sheet
- ARS-4HW Compressor - Specification Sheet
- Controller - Specification Sheet
- Vacuum Pumping System – Specification Sheet.
- How to specify a closed cycle cooler - Technical Note.
- Cryostat operation for maximum performance – Tech Note.

Advanced Research Systems, Inc

7476 Industrial Park Way
Macungie Pennsylvania 18062, USA
Tel: 610.967.2120
Fax: 610.967.2395
E.Mail: ars@arscryo.com
Web: www.arscryo.com