



## Closed Cycle Cryostat for EPR

The Displex cryocooler is perfectly suited for EPR experiments at controlled low temperatures in Laboratories where Liquid Helium is impractical or where long duration experiments are frequently performed. These cryogen free systems can regulate the sample temperature between 4K and 450K

### Model:

CS202SI-x15	<b>4K</b>
CS202NI-x15	<b>6K</b>
CS202AI-x15	<b>10K</b>

### Cryostat Components:

CS202A-x15 for EPR, includes the following:

- Displex Cryocooler - DE-202AI.
- Welded instrumentation skirt (Stainless)
- Helium Compressor - ARS-2HW
- Helium hoses, 10 ft.
- Vacuum Shroud – DMX -15 (Stainless Steel).
- Radiation Shield – RSD - 15
- Sample Holder – EPR - Copper or Sapphire
- Temperature control Instrumentation – 1 Silicon Diode Sensor (DT.670B.SD) and metallized thermofoil heater
- Installation and Cryogenic Accessory Kit.

See options also.

### Applications:

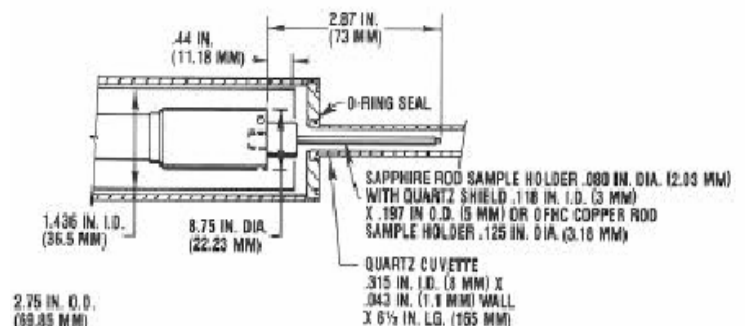
EPR, ESR

### Design Features:

- Compact EPR shroud with quartz cuvette
- Quartz cuvette fits into the microwave cavity.
- Sample in vacuum.
- Stainless Instrumentation Skirt welded to cryo-cooler. This permits improved vacuum in sample space.
- Vacuum Shroud; Polished, stainless steel for durability.
- Vacuum Shroud, all welded, with no epoxy joints for lower vacuum in sample space.
- Sample Rotatable under vacuum. Double O-ring
- Rotation measured by vernier to 0.01 degree
- Displex Pneumatic Drive Cryocooler for low vibrations, See Specifications below.



DE-202SI (4K) with DMX-15 vacuum shroud installed



**Options:**

- Temperature Controller for controlling sample temperature between 10 and 350K. Dual channel (recommended). Single Channel is also available.
- Upgrade to PC202N-x15 (6-350K). Replace cryo-cooler Model DE-202AI with DE-202NI
- Upgrade to PC202S-x15 (4-350K). Replace cryo-cooler Model DE-202AI with DE-202SI
- High temperature; 450K with high accuracy Silicon Diodes.
- Coolpak, remote aircooling option for compressor
- Extra long helium hoses. 15fFt. or 20 Ft.
- 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.

**System Specifications at 60Hz:****Cryocooler Model**

	<b><u>DE-202AI</u></b>	<b><u>DE-202NI</u></b>	<b><u>DE-202SI</u></b>
Temperature Range	10K -350K	6K – 350K	4K – 350K
Cooldown Time to 20K	40 Minutes	40 Minutes	40 Minutes
Cooling Power	0.5 Watts/10K 2.5 Watts /20K	0.5 Watts/6K 2.5 Watts /20K	0.12 Watts/4K 2.5 Watts /20K
Vibrations at sample	+/- 15 Microns	+/- 15 Microns	+/- 15 Microns
Compressor Noise.	Less than 65 dBA.		
Compressor Maintenance	12,000 Hrs.		
Ambient, Operating	12 C – 40 C (54 F - 104 F)		
System Weight:	Cryo-cooler – 7 Kg. Compressor – 73 Kg.		
Power Requirements:	208-230 VAC (+/-5%), 1 Ph, 60 Hz. 200VAC (+/-5%), 1 Ph, 50 Hz. Optional: 230V or 240V, 50 Hz. With Transformer		