

Cryostat for confocal micro-Raman Spectroscopy System

1	It should be a cryogen-free closed cycle variable temperature cryostat (air cooled) integrable with confocal micro-Raman/Photoluminescence spectrometer.
2	Temperature range: Minimum temp $\leq 4\text{K}$, Max temp $\geq 350\text{ K}$. Appropriate heater and control systems should be provided that can be operated both in manual and automatic modes.
3	The cryostat should contain one optical window on top with working distance $< 4\text{ mm}$ and it should allow the light with wavelength range of at-least, $400\text{ nm} < \lambda < 1700\text{ nm}$. The vendor should provide the sufficient supporting information.
4	The cryostat should also contain at least four optical windows on sides.
5	The cryostat should be compatible to integrate with the standard confocal micro-Raman systems.
6	The cryostat housing should be compatible with at least one stack of low temperature XYZ piezo positioners from standard companies.
7	The system should include an electromagnet capable of providing magnetic field at least in the range of $-0.5\text{ T} \leq B \leq 0.5\text{ T}$ (and preferably in wider range) at the sample location. The required bipolar power supply should be included along with software control of the magnetic field. The magnet should also allow for optical measurements while working with the micro-Raman system.
8	Microwave feedthrough port should be provided with at least 2 SMA/SMP connectors. It should also include at least two semi-rigid cables that are thermalized to at least the radiation shield temperature or lower.
9	A sample mount compatible with microwave and DC measurements should be provided, with at least two SMA or SMP connectors. It also provide at least 4 connection pads for DC measurements.
10	Maximum peak-to-peak temperature variation should be $\leq \pm 10\text{ mK}$. The vendor should provide the sufficient supporting information.
11	Controlled temperature measurements with the interval of 100mK in the $3.2\text{K} - 100\text{K}$ range.
12	Sample stage vibration in xy plane/direction should be $\leq 105\text{ nm}$ (peak to peak). The vendor should provide the sufficient supporting information.
13	The vendor should specify the actual sample drift at low temperature $< 5\text{ K}$ with sufficient supporting information.
14	The cryostat should have an electrical feed through with at least 24 pins
15	A sample mount should be provided that enables the sample to be mounted both horizontally and vertically.

16	Cool down time from room temperature to 5 K should be less than 2 hours.
17	Vacuum pumping and measurement systems along with require necessary accessories should be quoted.
18	A software should be provided to control the temperature of the system and other system parameters.
19	The system should include the system calibration thermometer that covers the specified temperature range of the cryostat.
20	The vendor should include standards to be used for calibration of tool parameters.
21	The cryostat should be flexible to keep it on any part of a vibration isolation table, or from one table to another, as and when it is needed.
22	It should be possible to control the cryostat with an external computer and custom made programs using standard programming languages like Labview, Python or C++.
23	Spares for up to one year should be included. A set of basic tools required for performing routine maintenance should be provided.
24	Warranty: at-least 3 year should be confirmed.
25	Installation and training for at least 3 people. The instruments will be considered successfully installed only upon the demonstration of the following at IIT Madras: <ul style="list-style-type: none"> • Demonstration of cooling down to the lowest temperature according to the specifications and in the time specified in the tender. • Demonstration of the base pressure and non-condensation upon cooling. • Demonstration of control of magnetic field in the range specified in the technical data sheet using the provided power supply. • Demonstration of the computer control of various parameters using the provided software.
	NOTE TO VENDORS
26	Vendor should provide a compliance sheet with clear “Yes” and “No” against each point of this advertisement. In case of any deviation, extent of deviation should be added in a separate column. Vendor should attach the complete technical brochure having model number of the quoted system.
27	Vendor should also provide the necessary documentation / pictures for preparing the site and the optical table for housing the cryostat and also for its successful integration with the different kinds of RAMAN systems mentioned above.
28	Vendor should provide a list of at least 5 customers who are using the same system (as quoted by the vendor in their bid). Vendor must provide the complete contact details of the users: name, mobile number, email id, address.
29	Representatives/Distributors quoting on behalf of OEM should submit authorization certificate with the quotation.