

SECTION - C**TECHNICAL SPECIFICATIONS OF STORES AND DRAWINGS.****Technical Specifications for 4K GM type Cryo-Cooler**

[1]. <u>Cryo-cooler-Cold head</u>	1 no.
Cooling cycle	Gifford-McMahon (two stage)
Cooling capacity at the 2 nd stage at 50Hz:	≥ 1.5W @ 4.2K
Cooling capacity at the 1 st stage at 50Hz:	≥ 30W @ 50K
Maintenance interval:	≥ 10,000 hrs
Orientation	ANY: with cooling capacity degradation of < 15%
Cooldown time (300K to 4.2K, 2 nd stage)	≤ 90 min
[2]. <u>Helium compressors suitable for Item [1]:</u>	1 no
Compressor type:	Compact water-cooled helium compressor
Cooling system:	Water-cooled
Cooling water flow rate:	< 12 LPM @ 28° C or suitable
Electrical power:	AC 415V(±10 %) 3-phase, 50Hz (Indian Standard)
Power requirement	≤12 kVA
Noise Level (1 meter distance) :	≤60 dBA at 1meter (approx.)
Maintenance interval:	> 20,000 hours
Ambient:	20-35° C 25%-85% RH
[3]. <u>Interconnecting Hoses and Cables:</u>	1 set
Flexible gas lines (supply & return):	20 m
Input power cable:	5 m
Cold head power cable:	20 m

[4]. Measurement and test components:

Temperature sensor: 2 Nos. suitable with operating temperature (1 No. at 1st Stage and 1 No. at 2nd stage)

Suitable cryogenic heater: 25W or 50W. Must be mounted/mountable on cold head (2nd stage)

[5]. Accessories & Spares:

The supplier should provide spares and standard accessories, which include tool kit (gas charge valves, required wrenches etc), manuals and technical instructions for cold head and compressor unit, compressor hoses, O-rings for cold head assembly etc.

[6]. Performance certificate:

Performance certificate of cold head and compressor to be provided for cooling capacity as mentioned in specification.

[7]. Installation and commissioning:

Installation and commissioning have to be carried out at IPR and following acceptance tests have to be performed by the vendor/vendor representative.

Acceptance tests/Criteria

- Cooldown time: ≤ 90 min
- Minimum achievable temp at 2nd stage: ≤ 4 K

[8]. Warranty:

Warranty for all the supplied materials should be at least for one year.

[9]. Delivery :- Within 3 Months from Date of Purchase Order.

[10]. Bidding/Representation:

Bidder should be original manufacturer or the authorised representative. Representative needs to provide the recent and valid authorisation letter from the manufacturer.

[11]. Service:

Manufacturer should have service centre or facility to provide technical support in India. (Provide the contact details of the service centre in India)

[12]. Quotation:

Quotation must be inclusive of all the equipment's (Sr.1 to 3), measurement & accessories (Sr. No 4 & 5. And other charges (Sr. No.6 to 8)

COMPLIANCE SHEET

4K GM cryocooler

SR.N O.	IPR SPECIFICATION/PARTICULARS	IPR REQUIREMENTS	VENDOR'S SPECIFICATION & ACCEPTANCE
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[4].	<u>Measurement and test components:</u>		
	Temperature sensor:	2 Nos. suitable with operating temperature (1 No. at 1 st Stage and 1 No. at 2 nd stage)	
	Suitable cryogenic heater:	25W or 50W. Must be mounted/mountable on cold head (2 nd stage)	
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	Quotation must be inclusive of all the equipment's (Sr.1 to 3), measurement & accessories (Sr. No 4 & 5. And other charges (Sr. No.6 to 8)		