Use this document to detail specifications/requirements for an item and/or ancillary services.

TITLE: Two 2.3K Mechanical Cryocoolers

Requesting Lab/Division/Group: Physical Measurement Laboratory (PML), Applied Physics Division 686, Quantum Nanophotonics Group (Group 10)

General Statement of Need

The Quantum Nanophotonics group requires two (2) complete mechanical cryocooler systems, each including compressor, hoses, and coldhead, for cooling electronics and optics to 2.3K. The systems will be installed into existing cryostats that are designed to accommodate a Sumitomo RDK-101DL cryocooler or equivalent in dimensions and all other specifications. Each crycooler must be capable of achieving a base temperature of 2.3K or colder, with a cooling power of 0.1W or greater at 4.2K.

Items and/or Ancillary Services

Item 1: Mechanical Cooler System to 4K that includes compressor, cold head, and flexible helium lines
Quantity: 2
Specifications: 1.1: At least 0.1 W of cooling power at 4.2K
1.2: Air-cooled compressor that uses 120VAC power
1.3: Must match standard Sumitomo RDK-101DL size and dimensions to fit into NIST-designed, NIST-assembled cryostat.
1.4: Flexible helium lines connecting compressor to cold head must be no shorter than 6 feet and no longer than 15 feet.
1.5: Base temperature of 2.3K or lower

Click or tap here to enter text.

Service Requirements / Item Specifications

Section	Requirements/Specifications
Planning Considerations ☒ **N/A**	☐ List any visits required to allow potential vendors to see site specific constraints. [Explain requirement here] ☐ US citizen required on-site (foreign nationals require preregistration 30 days prior) ☐ Vendor rep on-site more than three days ☐ Other considerations: [List other considerations to ensure an accurate quote]

Shipping & Delivery ☐ **N/A**	[Enter shipping and delivery information by item here.] **Shipping criteria:** ☒ Partial delivery acceptable ☐ Direct delivery to building required [Explain need for requirement here] Building has: ☐ Loading dock ☐ Containerization preference: [Choose container] Other requirements: [List any other requirements here] **Delivery date criteria:** ☒ Delivery of goods, installation, and training shall be completed no later than: 20 weeks ARO ☐ Deliver no earlier than: [Insert date here] ☐ Other: [List other shipping, delivery, or specil requirements]
Electronic Media ☒ **N/A**	[Enter electronic media requirements by item here.] ☐ Software ☐ Electronic manuals ☐ License Key ☐ Other: [List any other Electronic Media requirements here] [Enter email address for software delivery here]
Installation ☒ **N/A**	[Enter installation requirements by item here.] ☐ Vendor technician on site ☐ Rigging ☐ Uncrating / Unpackaging ☐ Removal of packaging material ☐ Equipment set up ☐ Start-up services ☐ Turn key installation ☐ Other [Enter details here.] Note: When installation is required, TPOC or COR shall be the coordination point.
Facility / Utility Considerations ☒ **N/A**	[List site specific utility considerations by item here.] ☐ OFPM Work Order Number(s) [List any Work Order Number(s) here] ☐ Power available Voltage: 200 (V) Max Current: 50 (A) Phase: Three phase Frequency: 60 (Hz) NEMA Plug Type: Unknown (i.e.: NEMA L5-20P) Environment: Common Lab / Office Environment Other power consideration: [List any other power considerations here] ☐ Utility connections: Cooling water, 6-9L/min @ 5-25C ☐ Other considerations: Click or tap here to enter text.

Warranty ☐ **N/A**	Base Manufacturer Warranty is acceptable [If you require an Extended Manufacturer Warranty, describe the warranty requirements per item here.] What is included? ☐ Labor ☐ Parts ☐ Travel ☐ Cost and liability for returns ☐ Other: [Enter other requirements here] ☐ Warranty length: Click or tap here to enter text. Period Length:[Ex. month, 6 month, year etc.]
Training ☒ **N/A**	[Training requirements (who, when, what, where) here. If on-site, is travel necessary?] ☐ On-site ☐ Off-site location: [Enter location(s) here] ☐ Number of trainees: [Enter number of trainees here] Scope of training: ☐ Operations ☐ Maintenance ☐ Troubleshooting ☐ Safety ☐ Other: [Enter other scope requirements here] ☐ Training materials to be provided: [Describe requirement here] ☐ Other: [Enter other training requirements here] Note: When training is required, TPOC or COR shall be the coordination point.
Inspection and Acceptance ☐ **N/A**	[Enter inspection requirements per item here] ☐ Planned government acceptance testing (7 business days) ☒ Gov't acceptance expected to take longer than 7 business days: 21 business days ☒ Inspection and acceptance plan: Before inspection can occur, requires installation which may take as much as 2 weeks. ☐ Other: [Enter other requirements here]
Maintenance ☒ **N/A**	[Describe your maintenance requirements per item here] Period Length: [Ex. month, 6 month, year etc.] What is included? ☐ Labor ☐ Spare parts ☐ Consumables ☐ Travel ☐ Cost and liability for returns ☐ Software updates ☐ Manuals ☐ Service plan length: [Enter service plan length here] ☐ Other: [Enter other requirements here] ☐ Requirements: [Enter requirements here] (i.e.: onsite within 72 hours, etc.) ☐ Option Period 1 ☐ Option Period 2 ☐ Option Period 3 ☐ Option Period 4

Government Furnished Material / Equipment ☒ **N/A**	[List any government furnished material/equipment per item here] ☐ Samples for testing ☐ Government equipment which will leave gov't site (TPOC must coordinate with division property custodian) Serial Number: [Enter Serial Number here] Description: [Enter description here] NIST property number: [Enter NIST property number here] ☐ Other: [Enter other details here]
Travel ☒ **N/A**	[Describe any travel requirements per item here] ☐ Explain: [Explain here] ☐ Other: [Enter other requirements here] *Vendor: To the maximum extent possible, include as part of appropriate sections above (maintenance, repair, etc.). Otherwise, it will be a separate line item, reimbursable per the Federal Travel Regulation.*

Provide suggestions to improve this form by clicking here.