



Government of India
Bhabha Atomic Research Centre
High Pressure & Synchrotron Radiation Physics Division

Ref: BARC/HP&SRPD/ HB/2022/24605

Date: 7.01.2022

Subject: Tender Enquiry for Minor Work

Quotation are invited in sealed envelope on behalf of the president of India by Head, High Pressure & Synchrotron Radiation Physics Division, Bhabha Atomic Research Centre (BARC) for the work given below (Refer Annexure A and Annexure B for technical specifications, criteria and mandatory requirements for qualifying vendors/bidders).

Sr.No.	Description of Job	Completion Period
1	Fabrication and supply of optics and compatible optomechanical mounts as per attached sheet (Annexure-1)	Within 60 Days of receiving the work order.

THE BIDDER SHOULD QUALIFY THE CRITERIA AND MANDATORY REQUIREMENTS BEFORE SUBMITTING THE QUOTATIONS.

Scope of work.

- (A) Fabrication and Supply of customized optics and compatible optomechanical items in BARC.
- (B) The Personnel entering the area should satisfy the norms of contractual workers.

Last date of submission of sealed quotation is **21 February, 2022** up to **17:00** hrs.

Terms & conditions:

1. Sealed quotations should be submitted only through speed post through Indianpostal service addressed to
Head, High Pressure & Synchrotron Radiation Physics Division,
Bhabha Atomic Research Centre,
Trombay, Mumbai - 400085
(Attention: Dr. Himel Bhatt, HP&SRPD, BARC, Telephone: 25590331)
2. Reference No. and due date should be indicated on the sealed envelope.
3. The vendor's engineers, supervisors and workmen etc. should have valid PoliceVerification Certificate (PVC) to work inside BARC.

Himel
07/01/2022

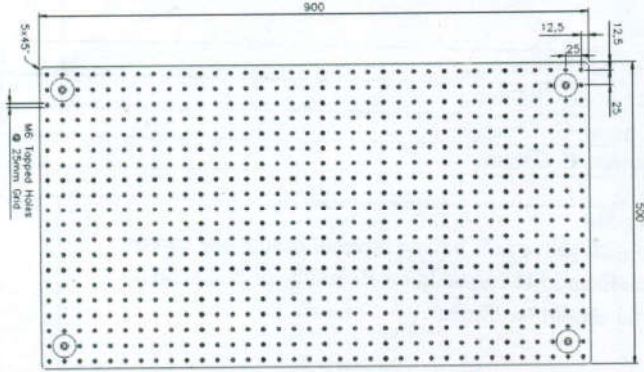
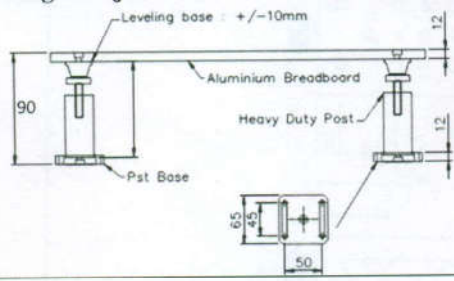
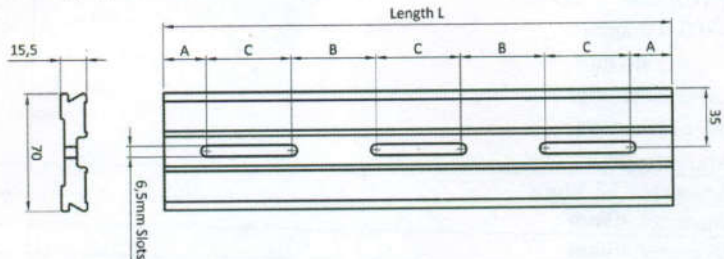
4. Vendor should have experience in carrying out similar work. He should give reference of one or two such work carried out before, so that quality of work can be verified.
5. Taxes if any shall be mentioned separately.
6. Payment will be made after completion of work.
7. Work completion period: within 60 days from the issue of work order.
8. The offer shall be valid for a period of 90 days from the date of opening and the quoted amount shall remain firm during the period of execution.
9. Warranty for one year against manufacturing defects from date of completion.
10. Head HP&SRD reserves the right to accept/reject any or all quotations without assigning any reason.


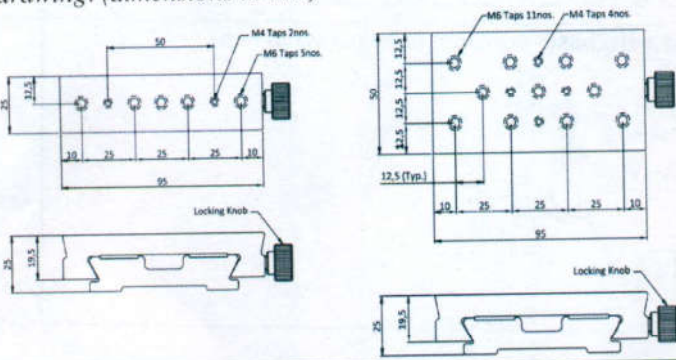
General Specification:

1. **Scope:** Fabrication and supply of optics and compatible optomechanical mounts as per attached sheet (as specified in the Enquiry below)
2. **Requirements:** The optics and compatible optomechanical mounts must be of high quality and from a reputed manufacturer with Metal support, humidity and corrosion resistant.
3. **Completion Period:** This job should be finished within **60 days** of issuing of work order
4. **General Condition:**
 - a) The working personnel should observe all the safety precaution while working.
 - b) The contractor shall be solely responsible in case of any casualty for the working personnel.
 - c) The work personnel should behave well with others.
 - d) General BARC security rules shall apply to all the working personnel. Contractor and his employees must have the police verification certificate with them.
 - e) Working hours: 9.00 hrs to 17.00 hrs Monday to Friday.
 - f) No transport facility shall be provided to the contractor's personnel by BARC.
 - g) Contractor shall be solely responsible for contractor's working personnel inside BARC.
5. **Guarantee/ warrantee and after sales technical support:** The tender must be quoted with one year onsite comprehensive guarantee/ warrantee commencing from the date of complete and satisfactory installation of the equipment against the defect of any manufacturing, workmanship and poor quality of the components.

"Fabrication and supply of optics and compatible optomechanical mounts"

Annexure-1: Technical Specifications:

S.No.	Items	Quantity
1	Aluminium platform with support (see 1a-1b)	
1a.	Aluminium platform breadboard: Size: 900mm x 500mm x 12mm: <i>drawing:</i> 	1
1b.	Height adjustable SS Post with base: <i>drawing: (dimensions in mm)</i> 	4
2.	Optical Rail with Dovetail design (see 2a - 2d) Thickness: 15.5 mm thick, Material: Aluminium alloy, M6 C'bored slots The rails should offer excellent linearity, smooth carrier translation and should have linear scale reading in mm. M6 slots should be provided for fixing it on optical breadboard. <i>drawing: (dimensions in mm)</i> 	

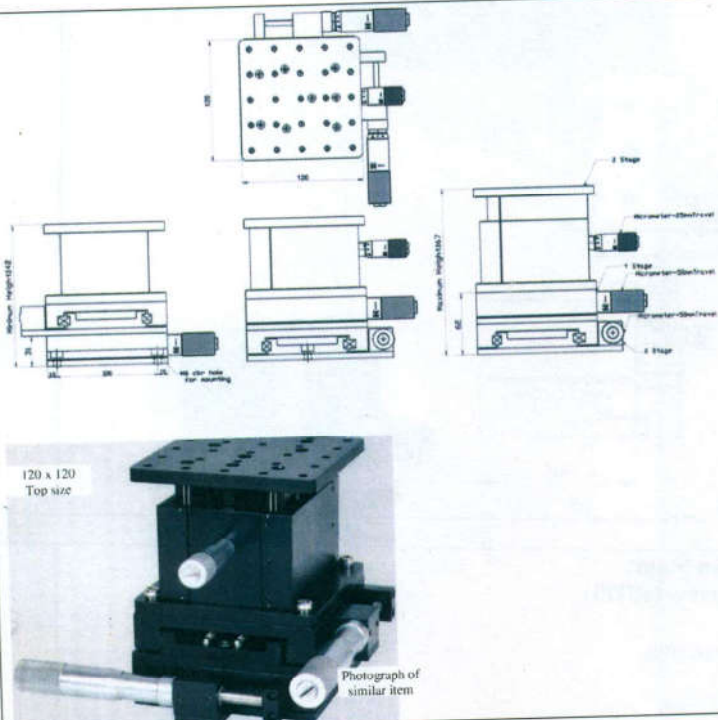
		
2a.	Length: 300mm, A= 25mm, B=50mm, C=50mm	1
2b.	Length: 500mm, A=12.5mm, B=12.5mm, C=75mm	1
2c.	Length: 600mm, A=37.5mm, B=75mm, C=75mm	1
2d.	Length: 700mm, A=50mm, B=100mm, C=75mm	1
3.	<p>Carrier for dovetail Rail (see 3a - 3b)</p> <p>The carriers should be compatible with above rails having dovetail design and can be locked anywhere on the rail. Both M6 and M4 tapped holes should be provided on it. The height of the rail and the carrier should be 25mm.</p> <p><i>drawing: (dimensions in mm)</i></p> 	
3a.	Width: 25mm	4
3b.	Width: 50mm	2
4	<p>Plano convex lens (see 4a - 4g)</p> <p>Material: BK7 or equivalent</p> <p>Effective Focal Length Tolerance : $\pm 1\%$</p> <p>Diameter Tolerance : + 0.0, - 0.2mm</p> <p>Centering Tolerance : ≤ 3 arc min</p> <p>Surface Quality : 40 - 20 (scratch-dig)</p> <p>Clear Aperture : > 90% of Diameter</p> <p>Coating : Broadband Anti reflection</p>	
4a.	Focal length : 25mm; Diameter: 12.5 mm	1
4b.	Focal length: 50mm; Diameter: 30mm	1
4c.	Focal length: 60mm; Diameter: 40mm	1
4d.	Focal length: 360mm Diameter: 40mm	1
4e.	Focal length: 400mm Diameter: 40mm	1
4f.	Focal length: 200mm Diameter: 50mm	1
4g.	Focal length: 50mm Diameter: 50mm	1

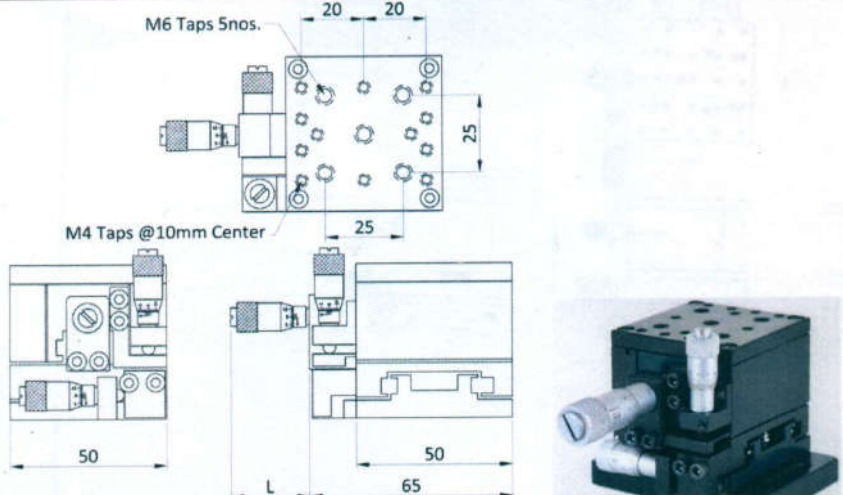
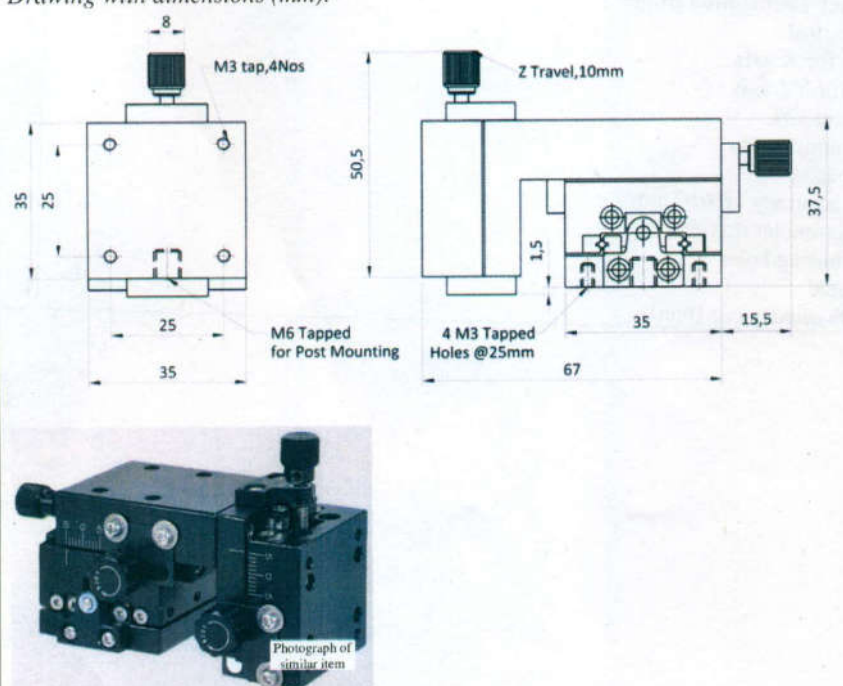
5.	Prism (right angle) (see 5a - 5b) A=B=C Material : BK7 or equivalent Effective aperture : 90 % Surface Quality : 40 - 20 (scratch-dig) Dimensional Tolerance : + 0.0, -0.2 mm Angle tolerance : +/- 3 arc min Surface flatness : $\lambda / 4$ @ 632.8 nm Perpendicularity : +/- 3 arc min Protective chamfer : 0.2 mm x 45°	
5a.	A=B=C=15mm	1
5b.	A=B=C=25mm	1
6.	Absorptive Neutral Density mounted filters (see 6a - 6b) Materials : NG1/ NG4/NG9 / NG11 Surface quality : 40 - 20 (scratch-dig) Diameter: 25mm Dimensional Tolerance : +0.00, -0.2 nm Clear aperture : 90 % Surface flatness : $\lambda / 4$ @ 632.8 nm Parallelism : ≤ 10 arc sec Damage threshold : < 500 mJ / cm ² @ 532 nm CW laser	
6a.	O.D. (0.8)	1
6b.	O.D. (0.3)	1
7.	Manual Lab Jack Aluminium alloy & stainless steel construction; Black anodized Load : 10kg Vertical height adjustment by 1 mm pitch lead screw. Parallelism : 0.1mm for the entire travel M6 tapped holes on the top at 25 mm grid; M6 clearance slots at bottom Min. height: 75mm; Max. Height: 150mm Top length: 150mm, Top width: 100mm	2
8.	Rigid Lens mount (see 7a - 7b) Construction material: Aluminium alloy Finish : Black Anodized The lens mounts should be post mountable.	
8b.	Lens of diameter 12.5mm	1
8b.	Lens of diameter 30mm	1
8b.	Lens of diameter 25mm	2
9.	Translating post holder (see 9a - 9b) Height adjustment range: 15 mm construction material: Aluminium alloy with black anodised finish and brass material Suitable for 12mm diameter post Translating Post Holders should have non rotating height adjustment by a knurled rotating	

	thimble. One spring loaded Plunger knob should be fixed on translating post holder. M6 mounting hole should be provided at the bottom of the post holder.	
9a	Length: 75mm dia: 12mm	2
9b	Length: 100mm dia: 12mm	2
10.	Pedestal post holder (see 10a - 10c) Construction material: Aluminium alloy with black anodised finish Pedestal foot material: stainless steel Pedestal foot thickness: 5mm Suitable for 12mm diameter post One spring loaded plunger knob should be fixed with post holder.	
10a	Length: 30mm dia: 12mm	2
10b	Length: 50mm dia: 12mm	2
10c	Length: 75mm dia: 12mm	2
11.	Post holder Construction material: Aluminium alloy with black anodised finish M6 mounting hole Suitable for 12mm diameter post Post holders should have a square relief cut for stable three point line contact with post and post holder. Spring loaded plunger knob should be provided with every post holder for smooth up and down movement and stable tightening at desired position. Length: 50mm dia: 12mm	3
12.	Posts (see 11a - 11e) Construction material: stainless steel with Ground finish One end chamfered for easy access One end M4 & the other end M6 threaded for mounting A 3.6 mm diameter hole should be provided on the surface of the post for providing extra torque while tightening components on it.	
12a	Dia: 12mm length: 30mm	10
12b	Dia: 12mm length: 50mm	5
12c	Dia: 12mm length: 75mm	4
12d	Dia: 12mm length: 100	5
12e	Dia: 12mm length: 125	4
13.	Kinematic Prism mount Angular tip / tilt : $\pm 3^\circ$ Translation range : 6 mm Linear resolution : 0.25 mm Sensitivity : 4 arc sec. Mounting hole : M6 / M4 Mounting orientation : Vertical & horizontal Material : Aluminium with Black anodize finish Kinematic prism mounts should enable horizontal & vertical mounting. Left / Right orientations should be easily arranged using detachable platform. Suitable prism clamps are provided along with kinematic prism mounts.	1

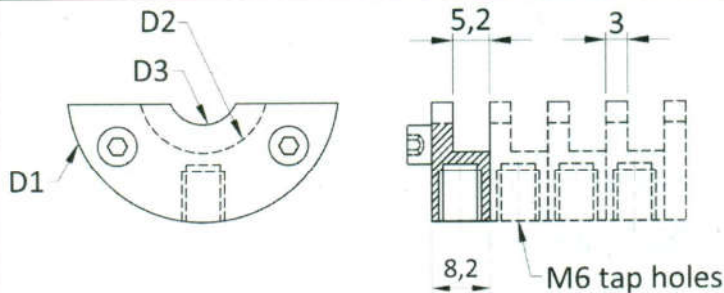
	Tilt adjustment screws should have 0.25 mm / rev. pitch threads. M6 mounting options should be provided	
14.	Linear translational stage (X stage) Straight line accuracy : 5 μ m Micrometer linear resolution : 10 μ m Guide way : Precision ball bearing guide way Construction : Aluminum alloy B51S; Black anodized finish Mounting holes : M4 tapped holes on carriage : M6 tapped hole on top and bottom : M4 CBR hole for mounting the stage to base Plate Mounting options : Post mountable by using M6 thread : Breadboard mounting by using base plate Design : Modular design for multi axis configurations Travel : 6 mm Carriage Size : 35 mm x 35 mm Height: 12mm Load Capacity : 3 kg vertical on X axis	3
15.	Right angle post clamp Right angle post clamp should be 360° rotatable post clamp compatible with 12mm posts. Material: Aluminium alloy with Black anodized finish M6 locking knobs	2
16.	Pedestal Fork Pedestal forks should be able to fix pedestal post holder, Post holder with suitable pedestal adapter or pedestal post (that holds 12mm post) to a breadboard Material: Stainless Steel Construction 12mm Thick M6 CBR Slot Suitable for STD Pedestals Machined finish	3
17.	Standard post base 12mm (see 17a - 17b) Post base should be able to mount post holder, holding 12mm diameter post anywhere on a breadboard irrespective of the position of tapped holes. Material: Aluminium alloy with black anodized finish 9mm thickness M6 clearance slot for mounting	2
17a.	Square type	2
17b.	U type	
18.	Swivel post base Should be 360 degree rotatable post base compatible with 12mm diameter post holders. Material: Aluminium alloy with black anodized finish 12 mm thickness 360 degree rotatable M6 clearance slot M6 C'bored hole	2
19.	Pedestal adapter Pedestal Adapter should be able to convert post holder to a pedestal post holder system. Stainless steel construction with Turned finish	5

	M6 stud for mounting Disc thickness 5mm Suitable for pedestal fork	
20.	Screws: (see 20a - 20d)	
20a.	M6 Metric Socket Cap Screws: Length = 6mm, 10mm, 16mm	25 numbers each
20b.	M4 Metric Socket Cap Screws: Length = 6mm, 10mm, 16mm	25 numbers each
20c.	M6 Metric set screws Length = 6mm, 10mm, 16mm, 20mm	25 numbers each
20d.	M4 Metric set screws Length = 6mm, 10mm, 16mm, 20mm	25 numbers each
21.	Washers and Nuts: (see 21a - 21d)	
21a.	M6 Washers	25 numbers
21b.	M4 Washers	25 numbers
21c.	M6 Nuts	25 numbers
21d.	M4 Nuts	25 numbers
22.	XYZ Compact Translation Stage: 50 mm travel for X and Y axis 10 mm travel for Z axis 120 x 120 mm top size 145 mm minimum height 6 kg load capacity Straight line accuracy : 0.010 mm Precision micrometer driven M6 mounting holes Base mountable All drive micrometers should be arranged along adjacent sides for ergonomical use. M6 tapped holes should be provided on top and bottom for mounting purpose. A base plate need to be provided for mounting on to breadboards and optical table. <i>Drawing with dimensions (mm):</i>	1

		
23.	<p>XYZ Compact Translation Stage: Single side control 10 mm travel for X axis 5 mm travel for YZ axis 50 x 50 mm top size 50 mm minimum height 3 kg load capacity Straight line accuracy : 0.010 mm Precision micrometer driven M6 / M4 mounting holes Base mountable <i>Drawing with dimensions (mm):</i></p>	1

		
24.	<p>XYZ Compact Translation Stage: Micrometer drive: Leadscrew (80TPI) Upto 1 kg load capacity Straight line accuracy : 0.010 mm Resolution: 0.1mm XYZ, Linear Travel - <small>Photograph of similar item</small> 1m M6/M3 mounting holes Drawing with dimensions (mm):</p> 	1
25.	<p>Beam expander with mount: (see 30a - 30b) X5 Input Aperture: 3mm</p>	1

	Wavefront distortion : $< \lambda / 4$ Transmission : $> 96\%$ Wavelength range : 400 - 700nm Damage threshold : $> 500 \text{ mW} / \text{cm}^2$ Surface quality : 40 - 20 (Scratch-dig) AR coating, ravg : $< 0.5\%$ @ 400-700 nm Mount with beam expander should be post mountable, with M6 mounting holes	
26.	Variable circular aperture with compatible mount Made of brass and aluminium Leaves made of spring steel Black anodized finish for casing Black zinc finish for leaves Compatible mount with M6 tapped at the bottom for post mounting Minimum aperture: 0.8mm Maximum aperture: 12mm Smooth control	2
27.	Manual Polarizer Rotators 1° resolution Manual 360° rotation Optics held by threaded ring Threaded bore depth : 12 mm M6 mounting holes Post mountable Aluminium alloy Black anodized finish Polarizer diameter : 25mm Outer diameter: 56mm Height of the polarizer from the centre: 40mm	2
28.	Linear film sheet polarizer (unmounted) Optical type : Transmissive Colour : Neutral gray Polarization : Linear Polarizing efficiency : 99 % Polarizer sheet Thickness : 0.18 mm Spectral range : 400 - 700 nm Extinction ratio : $\geq 500 : 1$ Diameter: 25mm	2
29	Slotted plates (see 29a-29c) Made of Aluminium alloy; Black anodized finish; Easy mounting on breadboard	
29a.	Size: 50mm x 18mm x 9mm Single M6 slot with M6 CBR hole	2
29b.	Size: 100mm x 18mm x 12mm Two M6 slots with M6 CBR hole	2
29c.	Size: 100mm x 18mm x 12mm Two M6 CBR slots opposite to each other	2
30.	Quick Change Multiple Filter Holder (single case) For 25mm diameter absorptive ND filters	2

	 <p>D1=50mm, D2=30mm, D3=22mm</p>	
31.	<p>Vertical Translation Stage Straight line accuracy : $\pm 10 \mu\text{m}$ Positioning accuracy : $10 \mu\text{m}$ Height: $42.5 \pm 2.5 \text{ mm}$ Travel: $\sim 5\text{mm}$ Load capacity: 2 Kg Platform size: 50mm X 50mm Guide way : Precision ball slide Drive : Precision lead screw / micrometer Construction : Aluminium Alloy B51S Finish : Black anodized (aluminium) Mounting Holes: M4 / M6 tapped holes on carriage (M4 / M6 CBR hole for mounting the stage to base plate or breadboard) Mounting Options : Both options: Post mountable by using M6 thread or Directly mountable to breadboard by using M6 screws or using base plate Design : Modular type design for multi axis configurations</p>	1

Annexure 2
Bidders Acceptance Criteria

- Vendor should be able to arrange a visit to their manufacturing & testing facility/site.
- Vendor tendering should be able to show sample pieces of the material, if asked for.
- Images & certificates regarding the quality of products with dimensions have to be attached by the Vendor along with tender wherever applicable.
- Vendor should execute fabrication using reputed high quality material to maintain quality & standards.
- All metallic surfaces should be anti-corrosive in nature.
- Vendor should have experience in supply of laboratory items to DAE.
- Vendor will have to supply all tendered items as per the specifications which will be supplied along with work order.
- Vendor should quote for all the items mentioned in the tender. Provision for placement of part-order is not available and the compatibility of optics and corresponding optomechanical mounts must be ensured, wherever desired.
- The quotation must accompany the photograph/ schematic and dimensions of all the quoted items. If the supplier intends to send an extensive manual, the quoted items in the present order must be highlighted with reference to page/ model number etc.
- Size & specifications should adhere to details as mentioned in the tender.
- Supplier has to provide complete assembly and disassembly instruction manual with all deliverables. Supplier shall also provide manual describing day-to-day maintenance measures and precautions to be considered while using the deliverables, to ensure durability of the deliverables.

Mandatory Requirements

1. The bidder should be a manufacturer registered in India or their authorized dealer or should be 100% subsidiary in India of parent company, if any
2. Joint ventures are not accepted.
3. The bidder also must agree and issue a certificate stating that technical query will be responded within 5 working days and the support will be provided within 15 working days from the date of reporting of the technical failure for downtime free operation of the items.
4. In case any of the items supplied under this minor fabrication are found not working or not as per the specification or having any defects, the same must be replaced within 30 days of notification. Any charges towards such replacement will be borne by the supplier.
5. A list of institutes in India for whom a similar items were fabricated and installed.
6. The supplier should provide valid test report for sturdiness and motion controls of mounts and optical parameters of the quoted optics.
7. Vendor should be original manufacturer of the items.
8. Workers/Contractor given by the vendor should be well experienced in above mentioned job.
9. All workers/Labors of the vendor/contractor for the execution of job in this tender should have proper PPE and arrangement for all above shall be made by Vender/Contractor.
10. All workers/labors of the vendor's/contractor's company/firm should have PVC not expiring during the tender period (i.e. from the date of enquiry till completion of work order).
11. Vender/Contractor should have precleared security vetting of his company/firm as per BARC security rules.
12. Should not have incurred any loss in the last five years ending 31st March 2021.
13. Supply & installation has to be completed within 60 Days from receiving work order.


Dr. HIMAL BHATT
(SO/F, HP&SRPD, BARC)