

**GOVERNMENT OF INDIA
BHABHA ATOMIC RESEARCH CENTRE
SOLID STATE PHYSICS DIVISION**

Ref: BARC/ SSPD/ *OPA-58874*

Date: 27/03/2019

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Sub: Invitation of quotations for "Fabrication of SS (316) detector shells and welding of end flanges" as per specifications.

Quotations are invited for Fabrication of detector shells in SS (machining and welding of detector parts) as mentioned in attached specification sheet.

Kindly submit your offers along with detailed terms and conditions to **Head, Solid State Physics Division, BARC, Mumbai-400085** on or before 18 / 04 / 2019 in a sealed envelope super scribed with the above reference number and due date given above by Indian post only.

The address on the envelope should read: **Head, Solid State Physics Division, BARC, Mumbai-400085. Attn: Dr. S. S. Desai**

Terms and conditions:

- 1) Contact **Dr S S Desai**, SSPD through Email ssdesai@barc.gov.in for details of the design and welding process before **14/ 04 /2019**
- 2) Drawing is to be submitted within 2 weeks of acceptance of work order. The items should be delivered only after pre-despatch inspection carried out to the users' satisfaction for acceptance and for certification of the completion of this order, in all respects.
- 3) Raw material will be inspected by our engineer before welding of the end flanges.
- 4) All welding and brazing joints are to be vacuum (10^{-6} Torr) and leak (15 bar of ^4He pressure) tested. Reports are to be submitted with delivery.
- 5) Model of ceramic feed through should be confirmed with indenter before procurement.
- 6) **Delivery:** This work order shall be executed within three months from the date of its receipt; the work order may please be acknowledged. **Material is to be delivered to F-10 Hall 4 SSPD,, BARC, Mumbai - 400085.**
- 7) **Guarantee:** Items supplied/work executed shall be guaranteed against quality material/workmanship for satisfactory intended operation, for a period of 12 months from the date of execution of this order.
- 8) Taxes and excise duties shall be quoted separately.
- 9) **Payment terms:**
Payment in general is made within 30 days of the completion of the order and on production of bill in triplicate along with an advanced stamp receipt for the bill amount and guarantee certificate referred to (3) above. Head, SSPD reserves the right to accept /reject any or all quotations without giving any reason.
- 10) **Confidentiality & Publicity Clause:** No party shall disclose any information to any third party concerning the matters under this contract generally. In particular, any information identified as "Proprietary" in nature by the disclosing party shall be kept strictly confidential by the receiving party and shall not be disclosed to any third party without the prior written consent of the original disclosing party. This clause shall apply to the sub-contractor, consultants, advisers or employees engaged by a party with equal force.
- 11) **"Restricted information" categories under Section 18 of the Atomic Energy Act, 1962 and "Official Secrets" under Section 5 of the Official Secrets Act, 1923:-**Any contravention of the above-mentioned provisions by any contractor, sub-contractor, consultant, adviser or the employees of a contractor will invite penal consequences under the aforesaid legislation.
- 12) **Prohibition against use of BARC's name without permission for publicity purposes:-**The contractor or sub-contractor, consultant, advisor or the employees engaged by the contractor shall not use BARC's name for any publicity purpose through any public media like Press, Radio, T.V or Internet without the prior written approval of BARC.

Enclosed: Specifications of material

Head
Solid State Physics Division

Md. Yusuf 27.3.19

डॉ. एस.एम. यूसुफ/Dr. S. M. Yusuf
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Specifications

Fabrication of SS316 detector shells and welding of end flange as per specifications:

Machining, Cleaning and welding requirements:

	Details		Quantity to be fabricated
1)	Detector Shell	Dimensions i. Length: 1m ii. Wall thickness: 0.9 mm iii. Diameter: 37 mm OD Detector Material: SS316 tube seamless cold drawn extruded smooth surface finish	-2 Nos
	a) Ceramic Feed Through details Model no Ceramtec:3887- 68W Or Model Ceramaseal : 9791-04W	Weldable ceramic seal with SS collar and SS feed through, glazed alumina surface on outer side of mounting flange. Through tube diameter: OD 2.5 mm ϕ ; ID 1 mm ϕ Total length: ~30 mm Insulation: 1 T Ω at 5000V	2 ceramic feed through to be mounted on each shell
	b) Cu tube (refrigeration tubing)	dimension: Length: 120mm OD: 3.2 mm ϕ Wall thickness: >0.5 mm	1 Cu tube to be welded on only one side flange of each detector
	c) Flange dimension	Material SS Diameter: 36.2 mm ϕ push fit inside detector shell 24TPI Threading diameter: 30mm Threading length: 5mm	
	d) Cap dimension Material SS	(For 38 mm ϕ shells): 2 nos Cap Length: 60 mm 24 TPI Threading diameter: 29 mm, Threading length: 5 mm 4 diagonal Tapped holes of M 2.5 and 19 mm ϕ through hole at the centre for connector	2 caps on each detector shell Matching to the end flange threading Total 4 caps
	e) Cu guide wire:	Diameter: 0.4 mm ϕ wire to be guided thru both ceramic feed throughs and tied to the Cu tube	20 cm longer than the detector shell
	f) Cleaning requirements	All assembly should be extremely clean and free of any dust particle or grease. SS tube is to be cleaned with SS cleaning solution. Degreasing and acid treatment is to be done followed by rinsing with water. Tube is to be tig welded at two ends using threaded end flanges. Ceramic feed through is to be fitted on the flange using tig welding, at centre with 100 micron accuracy and perfect coaxial alignment. Cu wire with 0.4 mm ϕ is to be guided through the whole assembly. One end flange is to be fitted with Cu tube. Two ends are to be covered with matching end caps of 60 mm length. Tapped and through holes are to be made on caps matching with HN connectors panel type for 38 mm dia detector shell	