

# DEPARTMENT OF PHYSICS

PANJAB UNIVERSITY, CHANDIGARH-160 014 (INDIA)



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PHS 553

Dated: 17/02/2024

**M/s. Scionix Holland BV**  
Dedicated Scintillation Detectors  
P.O. Box 143, 3980 CC Bunnik  
The Netherlands

Dear Sir,

You are requested to quote the prices of Compton Suppression Shield SCIONIX model: 124x51AC146/8x1.5E-BX as per SCIONIX drawing VS-0060-2 (BGO Anti Compton shield) for the HpGe detector – 2. Detailed specification alongwith the Geometrical Diagram is also enclosed herewith. Please quote the price under **two bid system (Technical Bid & Commercial Bid)** by POST/by hand. In the Financial Bid quote the price of the equipment along with the accessories including the freight cost from factory to Amsterdam Airport, Air freight & Insurance Charges from Amsterdam Airport to Delhi AirPort and other charges. The Technical Bid accompanied with Sole Manufacturer/Proprietary certificate and other related documents to the undersigned at the earliest possible

**Note: You are further requested to kindly provide the following documents with the quotation:-**

1. TECHNICAL BID and FINANCIAL BID should be in separate sealed envelope.
2. Sole Manufacturer/Proprietary certificate along with terms and conditions.
3. Copy of the purchase order of the same item/ equipment, which had been supplied to any Government/Semi Government Organization in India.
4. A certificate on your letter head may also be provided that the rates being charged to the University are reasonable and not more than what is being charged from other government institution/ organization.
5. We have been exempted for paying Custom Duty as well as Excise Duty Exemption in terms of Govt. notification No.51/96-Customs dated 23.7.1996 and Central Excise Duty Exemption in terms of Govt. notification No.10/97-Central Excise dt.1.3.1997 as amended from time to time is valid upto 31.08.2020. Jt. Director General of Foreign Trade has issued a new Importer Export Code.
6. **Special Discount for educational institutions, University teaching department may be mentioned.**

Thanking you,

Yours faithfully,

*Asnon Kumar*  
Chairperson, Deptt. of Physics

Deptt. of Physics  
P U., Chandigarh

**Detailed Specifications of the Compton Suppression Shield (BGO Anti Compton shield) Scionix Model 124x51AC146/8x1.5E-BX as per SCIONIX drawing VS-0060-2 for the available HpGe Gamma Ray Detector (Geometrical drawing enclosed) - 2 nos., are attached herewith**



## Specifications for Compton-suppression (BGO Anti-Compton) Shield

**Expected number of units to be procured = Two**

### **BGO Anti-Compton Shield for HpGe Gamma-ray Detector**

Anti-Compton shield SCIONIX model: 124x51AC146/8x1.5E-BX as per SCIONIX drawing VS-0060-2 for the HpGe detector (30% Ge detector, Coaxial horizontal configuration, Geometrical specifications shown at the end) consisting of BGO side shield with NaI(Tl) nose cone. The BGO shield should be mountable horizontally for regular use with coaxial HpGe horizontal configuration. The stand for the purpose will be manufactured locally at Chandigarh, India, as per suggestions of the supplier.

BGO suppression shield consisting of 8-segment BGO array (thickness of each BGO segment ~ 35 mm for best Compton-suppression at around 1 MeV gamma ray energies) around a cylindrical shaped well (Aluminium, 72 mm diameter, ~170 mm deep), designed to hold HpGe detector (Coaxial horizontal configuration) with end-cap diameter 70 mm. (Figure given below).

Diameter of front cone NaI(Tl) nose ~ 50 mm

Calibrated assembly, Energy resolution <20% FWHM at 662 keV, Peak-to-valley ratio for  $^{241}\text{Am}$  (59 keV) better than 20:1 using a 1 mm thick absorber of low energy X-rays (12-15 keV) emitted from the source. Noise level at operational voltage should be below 15 keV.

The assembly should include:

Compatible Hamamatsu Photo-multiplier tubes mounted for each BGO segment. Supply one spare PMT.

On the back of PMT head, there should be atleast three connector (2 for signal and 1 for HV), LEMO connectors for signal inter-looping (one spare). All PMT signals summed output after connecting with LEMO cables – Single output available for feeding to Electronic module with BNC for further processing for anti-Compton purposes. The unit should be equipped with Pre-amplifier/line driver module (along with necessary power supply for Preamp) with 3 m cable drive capacity and final ACS Signal out should be Single BNC (Female) for further processing.

PMT's operation high voltage (positive polarity) <1200 V. Compact voltage divider network in PMT head. Overall, ACS Bias supply connector should be single SHV (male).

Junction box with cables to each of PMT, Potentiometers for fine HV control for individual PMTs and single cable with SHV connectors to connect the junction box to HV supply.

All required interconnection cables, Cables to HV supply and signal processing cables to be supplied.

Stand for keeping the ACS vertical, while not mounted with Ge detector.

**Technical bid must contain the necessary configuration and drawings.**

  
Chairperson

Deptt. of Physics

P. U. Chandigarh

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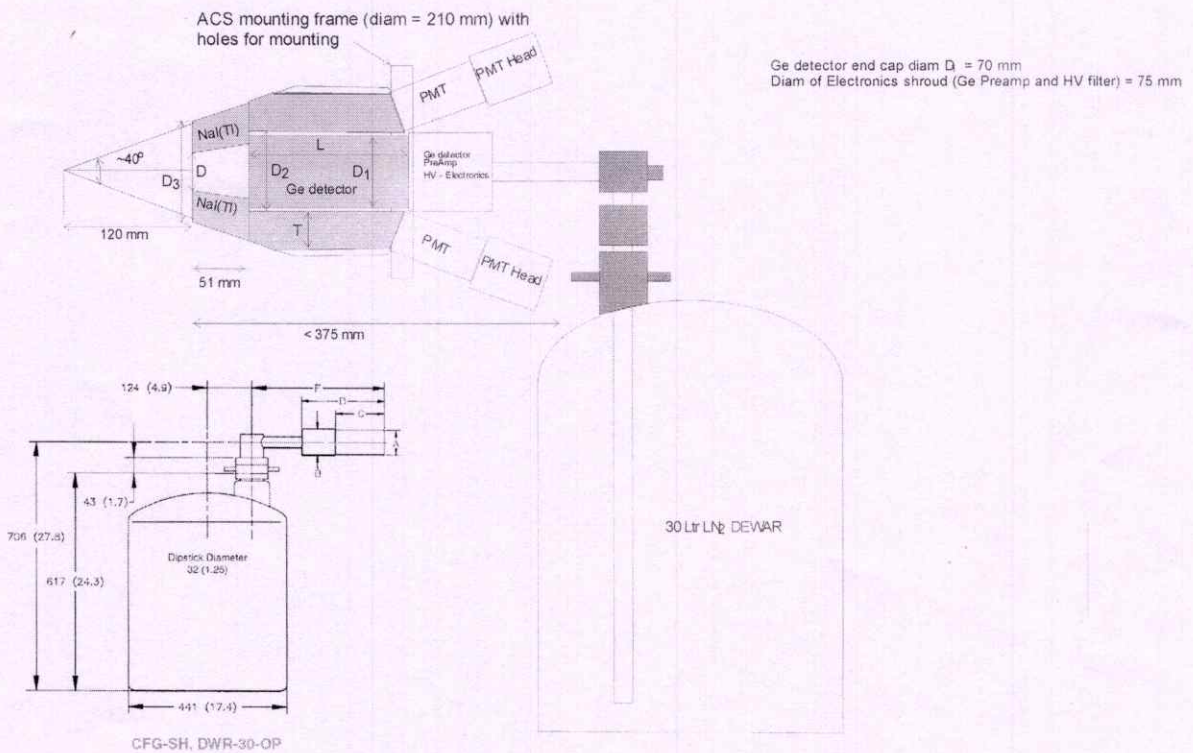


**Engineering drawings have to be approved by Panjab University prior to fabrication.**

**Technical qualification sheet should include the followings:**

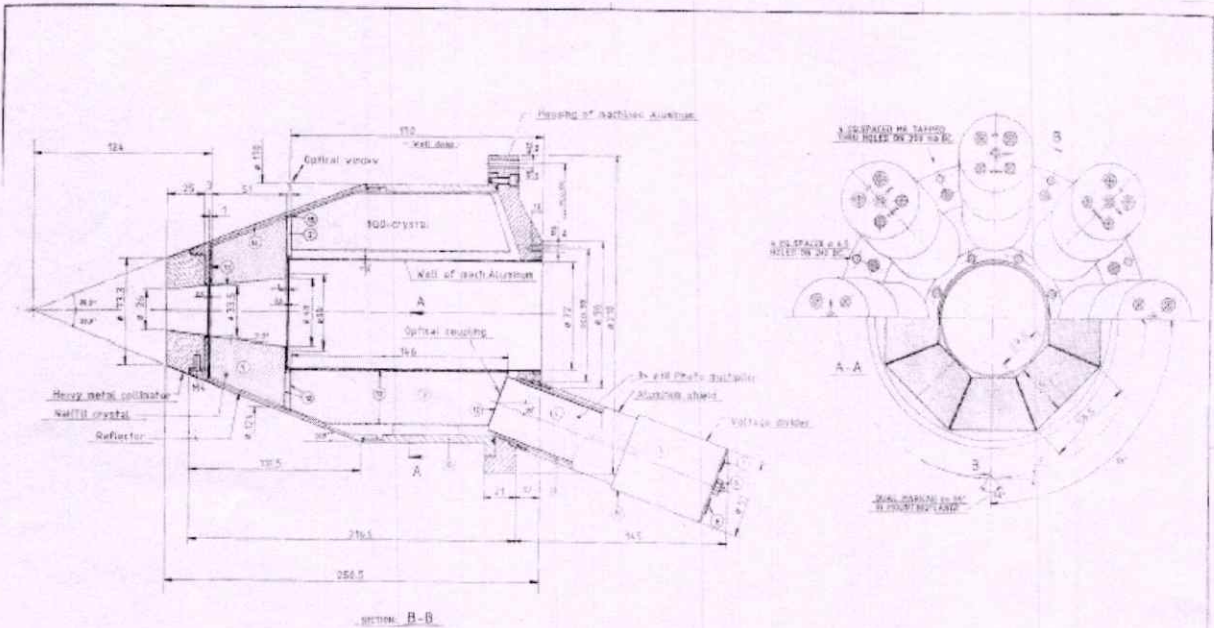
1. Detailed engineering drawings of the BGO shield.
2. List of Laboratories, where similar BGO shields for standard HpGe detectors have been provided. We may seek reports from the respective customers for long term detector performance.

**Factory Test reports to be submitted to Panjab University prior to shipment.**



Detector Diameter - A - 70mm, Electronics shroud diameter - B - 75mm  
 Detector Capsule length - C; End cap to Electronics shroud length - D, End cap to center of the Cold -finger jacket entering the dewar - F;  
 General values : C = 134 mm, D = 246 mm and F = 368 mm  
 C will be increased to match 170 mm BGO well depth,

*(Signature)*  
 Chairperson  
 Deptt. of Physics  
 Panjab University Chandigarh  
*(Signature)* Ashwini Kumar



 <b>SCIONIX</b> <small>Scientific Instruments &amp; Crystal</small>	school: <input type="checkbox"/> college: <input type="checkbox"/> institute: <input type="checkbox"/>	name: <input type="checkbox"/> letter: <input type="checkbox"/>
	date: 28-1-18	page: <input type="checkbox"/>
	set: EPG	no: <input type="checkbox"/>
	work:	no: <input type="checkbox"/>
	project: 12.4x11.1 Al. 15.6/8x1.5E. 81X	no: <input type="checkbox"/>
order/desig: - ASSEMBLY -	tekno: VS-0060-2	A 1

**Chairperson**  
 Deptt. of Physics  
 P U., Chandigarh

Ashan Kumar