

**INDIAN INSTITUTE OF ASTROPHYSICS**  
**IIND BLOCK, SARJAPUR ROAD, KORAMANGALA,**  
**BANGALORE-560 034**

**PUBLIC TENDER NOTICE NO: PR/UVIT-ISRO/CAP/27 dt. 28.05.2008**  
**TWO BID SYSTEM**

1. The Director, Indian Institute of Astrophysics invites Bids from reputed firms for supply of the following item(s). The firm(s) interested in offering bids should have executed similar works.

Sl.No.	Description In Brief	Quantity	E.M.D (refundable) Rs.	Tender Fee (non-refundable) Rs.
1.	Fabrication machining & supply of Aluminum Components for Ultra Violet Imaging Telescope- as per the technical details of requirements in Annexure II of this Tender.	As per List	75,000/-	300/-

**Note:** (1) The Tender documents with Technical details are available on IIA website [www.iiap.res.in/tenders.htm](http://www.iiap.res.in/tenders.htm). Hence the interested tenderers may at their option only download the same from our website and submit their offer alone with EMD (refundable) & Tender fee (non-refundable) as prescribed therein, (only in the form of Demand Draft drawn in favour of Director, IIA. If there is any difficulty to download this tender document you may arrange to collect hard copy from this office on payment of tender fee of Rs.300/- by DD. However, your offer (both Technical & Commercial bids) should be superscribed in separate envelopes mentioning the tender notice no., Date of opening and submit both the Bids in a sealed envelope addressed in favour of Director, IIA, Bangalore - 560 034.

2. The firms who fulfill the following requirements shall be eligible to apply.

- (a) Tendering Company shall be professionally managed and equipped with facility for fabrication and machining of precision components, and should have the necessary inspection facility.
- (b) Tendering Company should have adequate shop floor space for assembly.
- (c) Tenderer should have completed, in the last 3 financial years (i.e., current year and two previous financial years) atleast one similar work for a minimum value of Rs.30 lacs.

- (d) The tenderer should submit Audited Balance Sheet duly certified by the Chartered Accountant to this effect. They should also submit Bankers Solvency Certificate to a minimum of Rs.30 lacs.
- (e) The Contractor will be required to produce the TDS Certificate indicating the Income Tax deducted by the client for similar works completed individually for the last 03 financial years of value not less than Rs.30 Lacs.
3. There may be a meeting before **20.06.2008** at IIAP, Koramangala, Bangalore-34 for technical discussions/clarifications if any, in relevant to the tender notice on our web site.i.e., before submitting Technical /Commercial / price Bids.
4. The firms should submit both Technical and Commercial / price bids separately superscribed along with EMD amount **upto 1500 Hrs. Latest by 30.06.2008**. The Technical Bids will be opened in presence of the bidders or their representatives **at 1530 Hrs. on 30.06.2008**.
5. Technical Bids supported by the above information should be submitted in Sealed envelope duly superscribed with the name of work. The completed Bids will be received **upto 1500 Hrs. on 30.06.2008**.
6. If any information furnished by the Vendor(s) is found incorrect at a later stage, the firm shall be liable to be debarred from tendering. The Institute reserves the right to verify the particulars furnished by the tenderers independently.
7. Incomplete Technical Bids are liable for rejection. Commercial / price Bids will be considered only for the successful Technical Bidders.
8. Late & / delayed offer will not be considered.
9. IIA is not responsible for any delay / loss of documents in transit.
10. The Commercial / price Bids will be opened on **15.07.2008 at 1530 Hrs.** of those firms technically qualified, in the presence of bidders or their authorised representatives.
11. IIA reserves the right to reject any tenders without assigning any reason and to restrict the list of Technically qualified & recommended firms to any number deemed suitable.

Administrative Officer  
IIA, Bangalore-34.

**Annexure-I**

**IMPORTANT: TWO PART TENDER INSTRUCTIONS**

**1. It is proposed to have a two cover system for this tender.**

Part I: (a) Technical and (b) commercial part (without price) is one cover.

Part II: Price part alone is another cover.

**2. TECHNICAL PART :**

Technical part should clearly indicate the technical details. A compliance statement indicating whether the specifications are met is to be submitted with reasons for deviations if any. Complete with Drawings, in relevant to the offer are also to be enclosed to the technical part.

**3. COMMERCIAL PART (without price)**

Commercial part should indicate commercial terms like, delivery period, place of delivery, payment terms, validity, warranty/guarantee etc. and should be sent along with the technical part. Both technical and commercial part shall not contain price details. The Technical and Commercial part should be kept in one cover along with tender Fees superscribing tender number and due date and should be sealed.

**4. PRICE PART** alone should be kept in a separate cover superscribing the tender number and due date.

**5.** Both the technical and commercial part (with tender fee wherever applicable) in one cover and **price part** in another cover should be put in one large cover and the cover should be super scribed with the tender number, due date and time of opening.

**6.** The Sealed covers should be sent to the following address:-  
THE DIRECTOR, INDIAN INSTITUTE OF ASTROPHYSICS.  
II ND BLOCK, KORAMANGALA, BANGALORE – 560 034.

**7.** The offer should be valid for a minimum period of 120 days from the due Date.

**8.** Offer shall be submitted in sealed covers only.

**9.** No conditional discounts will be allowed.

- 10.** Tender fee of requisite value shall be sent along with the tenders by demand draft drawn in favour of “The Director, Indian Institute of Astrophysics., Bangalore” drawn from any Indian Nationalised Banks/Reputed Banks in India..
- 11.** The interested tenders may refer to Tender notice also released in the leading News Papers for the convenient to down load the Tender documents from the IIA website [www.iiap.res.in/tenders.htm](http://www.iiap.res.in/tenders.htm).
- 12.** Tender shall be submitted as above without fail.

Phone: 25530672-676  
Fax : 25534043  
E-mail: Astron@iiap.res.in

**INDIAN INSTITUTE OF ASTROPHYSICS**  
IInd Block, Koramangala, Bangalore-560 034

**No.PRUVIT-ISRO/CAP/27**

**Dt: 28.05.2008**

**M/s.**

**Dear Sirs,**

The Director, Indian Institute of Astrophysics, Bangalore invites Sealed Tenders for the supply of Stores detailed in the Tender Form hereto annexed. The Tender Terms are also enclosed may be noted carefully. If you are in a position to quote for the supply in accordance with the requirement, please submit your quotation in the attached Tender Form.

Your Tender (both Technical & Commercial / price Bids) must reach this office on or before the date and time indicated in the Tender Schedule.

**Thanking you,**

**Yours faithfully,**

**Encl: as above.**

**(AJ Raghupathy)**  
**Admn. Officer**  
**For Director**

**INDIAN INSTITUTE OF ASTROPHYSICS**  
**BANGALORE-560 034**

**PUBLIC TENDER DOCUMENT NO:PR/UVIT-ISRO/CAP/27**  
**DT: 28.05.2008**

**TENDER FORM**

FROM:

TO

THE DIRECTOR,  
Indian Institute of Astrophysics.,  
Bangalore-560 034.

Sir,

I/We hereby offer to supply the stores indicated below at the price hereunder quoted and agree to hold this offer open till **120 Days**. I/We shall be bound to supply the store hereby offered upon the issue of the Purchase Order communicating to the acceptance thereof on or before the expiry of the last mentioned date. You are at liberty to accept any one or more of the items of such stores. I/We notwithstanding that the offer in this tender has not been accepted in whole, shall be bound to supply such items and such portion or portions of one or more of the items as may be specified in the said Purchase Order communicating the acceptance.

<b>Sl.No.</b>	<b>Description of the item(s)</b>	<b>Quantity</b>	<b>Unit</b>	<b>Rate</b>	<b>Dely. Period</b>
1.	<b>Fabrication machining &amp; supply of Aluminum Components for Ultra Violet Imaging Telescope- as per Technical details in Annexure II.</b>	<b>As per List</b>			

Place at which the Delivery is required : IIA, Bangalore-560 034.

Date by which the supplies are required : 6 Months, FDO.

I/We have understood the items of the tender annexed to the invitation to the Tender and have thoroughly examined the specifications/drawing and /or pattern quoted or referred to herein and/are fully aware of the nature of the stores required and my/our offer is to supply the stores strictly in accordance with the requirements subject to the terms and conditions contained in the Purchase Order communicating the acceptance of this tender either in whole or in part.

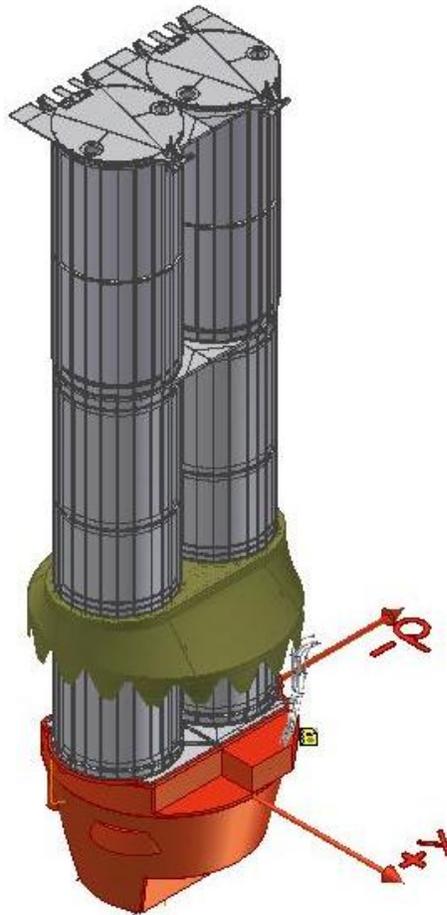
Date:

Signature and seal of Tenderer

**ANNEXURE II- TO PUBLIC TENDER NO. PR/UVIT-ISRO/CAP/27**  
**Dated 28.05.2008**

## **REQUEST FOR PROPOSAL (RFP)**

TECHNICAL SPECIFICATIONS FOR FABRICATION AND DELIVERY  
OF  
ALUMINIUM COMPONENTS  
FOR  
ULTRA VIOLET IMAGING TELESCOPE (UVIT)



**May 2008**  
**Version – 1.1**

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**1.0 Introduction:** The Indian Institute of Astrophysics (IIA) is an autonomous organization under the Department of Science and Technology, Government of India, headquarters at Koramangala, Bangalore. The Institute conducts research in Astrophysics and allied subjects. The Institute is developing an Ultraviolet Imaging Telescope (UVIT) on board Astrosat, India's first satellite for astronomy research.

An isometric view of the UVIT payload, showing the main parts is given in fig-1 of **annuxure-1**. The brief description of the system is given in section 3 of this RFP. The structure of the UVIT employs invar 36, aluminum AA6061 -T6 and titanium Ti6Al4V alloy. The scope of this RFP is limited to the aluminum components of UVIT only. The main objective and scope of work connected to this RFP is listed in the section-2.

**2.0 Scope of work:** The vendor shall be responsible for the manufacture, which includes fabrication stress relieving, inspection and delivery of the components listed in the RFP. The items shall be supplied in accordance with the applicable drawings/documents/standards specified here in and the schedules set forth. The following are the objective and scope of work of this RFP in detail.

**2.1** The primary scope of this RFP includes that the vendor shall manufacture and deliver the aluminum components as per the drawings supplied by IIA. The delivery of the components will be as per the mutually agreed time schedule between IIA and the vendor.

**2.2** The pictorial views of the Aluminum components are given in annuxure-2

**2.3** The engineering drawings of the aluminum components to be manufactured are given in the annuxure-3. The vendors are requested to take note of the “important notes” given in the section 11 of this RFP.

**2.4** The details about drawing and number of components required are furnished in in section-6 of the RFP.

**2.5** The vendor shall provide information on process plans used in/during manufacturing, the methodology of job tracking and QA plans for approval by IIA. The vendor shall provide a complete list of machines/facilities proposed to be used for manufacture of components.

2.6 The vendor shall generate fabrication drawings for all the parts/components, consistent with all specifications, dimensions and tolerances given in the design drawings. The fabrication drawings shall be submitted with components list to IIA for comments.

2.7 The free issue materials supplied by IIA are detailed in section 5.

2.8 The delivery of the components will be as per the section 6.

2.9 The inspection and metrology to be as per specifications in section 7.

2.10 cleaning, handling, storage, packing and transport of all the parts are to be as per the section 8.

2.11 All terms and conditions regarding manufacturing and delivery of the components are listed in the section 12,

**3.0 System and components description:** The system consists of two telescopes mounted on common base, which will be interfaced with satellite as show in fig-1 of annexure-2. The annexure-2 and 3 gives the complete 2D and 3D details of the telescope components respectively. As the scope of this RFP confines to aluminum parts only, the components made out of aluminum are described here. The 3D CAD models will be supplied on CD for reference.

The following are the main aluminum components:

1. Main baffles MB1, MB2
2. Primary baffles
3. Secondary baffles
4. Detector mount brackets.
5. Aluminum compensator.
6. Filter wheels
7. Filter wheel covers
8. Thermal cover.
9. View port blanks
10. Primary heater base
11. Secondary heater base
12. Side brackets
13. Patch break

**4.0 Dimensions and tolerances:** All dimensions and tolerances to be strictly followed as per the drawings issued by IIA. Until unless specified all dimensions in the drawings are in “mm”, All drawings are to be in first angle projection. THE GENERAL TOLERANCE OF +/- 0.05 MM TO BE FOLLOWED ON ALL DIMENSIONS WHERE EVER TOLERANCE'S ARE NOT SPECIFIED. The drawings that will be given along with purchase order(PO) updated with detailed tolerances.

**5.0 Free issue materials:** The raw materials for all the components will be supplied by IIA. The list of components and respective raw material volumetric dimensions along with the quantities are listed in the annexure-1.

**6.0 Deliverables and schedule:** The complete quantity of the components are to be delivered in two batches. The first batch consists of components required for engineering model(EM) of the telescope, the second batch is for the flight model. The components bearing serial numbers 3, 10,11,23 and 24 are defined as critical components. The machining of these components-flight model , in batch-2, are to be taken up only after receiving clearance from IIA. The expected delivery schedule for components listed under batch-1 column is 3 months and for the components listed under batch-2 column is 6 months from the date of PO.

**Table-1**  
**List of Aluminum components and its quantity required in UVIT.**

Sl No	Component name (as specified in drawing title)	Drawing No.	Qty. Reqd. batch-1	Qty. Reqd. Batch-2
1.	Main baffle MB1	IIA-UVIT-PL-MB1	1	2
2.	Main baffle MB2	IIA-UVIT-PL-MB2	1	2
<b>3.</b>	<b>Aluminum compensator ALC</b>	<b>IIA-UVIT-PL-ALC</b>	<b>1</b>	<b>2</b>
4.	Secondary mirror heater-SMHT	IIA-UVIT-PL-SMHT	1	2
5.	Secondary baffle SB	IIA-UVIT-PL-SB	1	2
6.	Primary mirror heater-PMHT	IIA-UVIT-PL-PMHT	1	2
7.	Primary baffle top segment-PBTS.FUV	IIA-UVIT-PL-PBTS.FUV	-	1
8.	Primary baffle top segment-PBTS.VIS	IIA-UVIT-PL-PBTS.VIS	1	1
9.	Primary baffle base segment-PBBS.FUV	IIA-UVIT-PL-PBBS.FUV	-	1
<b>10.</b>	<b>Primary baffle 45 deg segment-PB45.Up.VIS</b>	<b>IIA-UVIT-PL-PB45.UP.VIS</b>	<b>1</b>	<b>1</b>
<b>11.</b>	<b>Primary baffle 45 deg segment-PB45.Down.VIS</b>	<b>IIA-UVIT-PL-PB45.DN.VIS</b>	<b>1</b>	<b>1</b>
12.	Detector mount bracket DMB.FUV	IIA-UVIT-PL-DMB.FUV	-	1
13.	Detector mount bracket DMB.VIS	IIA-UVIT-PL-DMB.VIS	1	1
14.	Detector mount bracket DMB.NUV	IIA-UVIT-PL-DMB.NUV	1	1
15.	Filter cover FWC.L.FUV	IIA-UVIT-PL-FWC.L.FUV	-	2
16.	Filter cover FWC.R.FUV	IIA-UVIT-PL-FWC.R.FUV	-	2
17.	Filter cover FWC.L.VIS	IIA-UVIT-PL-FWC.L.VIS	1	1
18.	Filter cover FWC.R.VIS	IIA-UVIT-PL-FWC.R.VIS	1	1
19.	Filter cover FWC.NUV	IIA-UVIT-PL-FWC.NUV	1	1
20.	Side bracket SB.VIS	IIA-UVIT-PL-SB.VIS	2	2
21.	UVIT patch break PBK	IIA-UVIT-PL-PBK	1	1
22.	View port blank	IIA-UVIT-PL-VPB	2	4
23.	View port disc	IIA-UVIT-PL-VPD	2	4
<b>24.</b>	<b>Thermal cover TC</b>	<b>IIA-UVIT-PL-TC.</b>	<b>1</b>	<b>1</b>

PS: The components bearing serial numbers 3, 10, 11 and 24 are defined as critical components. The machining of these components-flight model, in batch-2, are to be taken up only after receiving clearance from IIA.

**7.0 Metrology and inspection.** IIA shall have the right, to perform inspection of the work at various stages listed in 7.6 either at vendor's/sub vendors sites. The vendor shall promptly rectify at his expense any deviations from the specifications/drawings or any assembly level deviations. Trial assembly of the components wherever applicable, will be done at the vendor site by the vendor, if found any corrections are necessary it will be done by the vendor at his site. A typical example is shown for the components Main baffle assembly (MB1 & MB2) and thermal cover.

**7.1** All dimensions of the components to be as per the drawings supplied by IIA. Any deviations/non-conformance at any steps of manufacture should be reported to IIA and a clearance to be obtained for further action.

**7.2** All dimensions to be measured at 20<sup>0</sup> C (+/- 0.5) temperature to be specified by IIA.

**7.4** Visual inspection to be done to ensure no scratches and burrs are present in the components.

**7.4.1** IIA shall issue serial numbers for various components. The vendor shall mark them at appropriate locations as per mutually agreed plan/drawings (for identification and traceability). These numbers shall not be changed when any part is reworked etc. unless it is approved by IIA.

**7.5** It should be seen that the final hardness should match with the initial hardness value nearest to +/- 5% of initial value.

**7.6** The inspection will be done in the following stages, to ensure that the machining of the components is progressing as per the specs. The following are the different stages,

- Primary stage: Needed on raw material dimensions, hardness of the material, etc.
- Intermediate stage: Inspection and metrology of pre-machined parts.
- Final stage: Inspection and metrology of final machined parts, hardness tests and assembly checks of all critical parts.
- Pre-shipment stage: Visual inspection packaging etc

complete data base and records of measurements and inspection of all stages of manufacturing and test reports should be maintained by the vendor and made available to IIA during delivery of the components.

**8.0 Cleaning, packing and transport:** All components after deburring to be cleaned (by petroleum based solvent) and degreased by ultrasonic cleaning before packing. All components to be packed in proper (TBD) containers to ensure that no damages occur while transporting it to IIA.

**9. Documentation:**

**9.1** Overall plan for executing the work order shall be submitted by the vendor providing visibility of all matters relating to the phases of the activity specified here in along with the technical quote.

**9.2** The vendor should –identify the milestones for completing the entire job and should send a list of it with time schedule along with the technical bid.

**9.3** The vendor shall maintain complete files of all documents relating to product assurance, such as inspection process and non conformance and reworks etc.

**10.Meetings, reviews and site visits :** Meetings/visits will be held periodically to evaluate the following.

10.1 Facility readiness review

10.2 progress reviews

10.3 pre-shipment reviews.

**11.0 Important notes:**

11.1 The drawings enclosed with this RFP have been made primarily to serve as an input to the vendors for price quotes, making process plans and to prepare delivery schedules.

11.2 The finalised set of 2D-drawings will be provided to the vendor along with the PO

**12.0 Terms and conditions:** The following are the terms and conditions with respect to this RFP,

12.1 IIA reserves the access to vendor/sub-vendor sites during the contract period.

12.2 Any deviation in the manufacturing process need to be brought to the notice of IIA, before proceeding.

12.3 The bid for this RFP to be in two parts, **technical** and **commercial**.

**12.4** In the technical bid the vendor shall furnish the following details.

12.4.1 Experience on aluminum machining of the size of components comparable to UVIT parts (ref table-1)

12.4.2 The machining and metrology facilities in house with the vendor.

12.4.3 Process planning for machining and metrology with details of machine's used for each stage, done in house or subcontracted.

12.4.4 QA plans and schedules.

12.4.5 Overall plan for executing the work order shall be submitted by the vendor providing visibility of all matters relating to the phases of the activity specified here in.

12.4.6 The vendor should identify the milestones for completing the entire job and should send a list of it with time schedule, separately for components listed under batch-1 and batch-2.

**12.5 In the commercial bid the vendor shall quote prices as per the following format.**

12.5.1 Price for manufacturing and delivering of unit components listed in the table-1 of this RFP.

12.5.2 price for manufacturing and delivering of **all the components** specified in the RFP in table 1, (Batch-1 and batch-2 separately)

# Annuxure-1

## List of Free issue Materials

**List of Free Issue materials:** The following table-2 shows the sizes of the raw material supplied by IIA as free issue material describing component name, its drawing number, quantity required raw material size and its quantity.

**Table-2**

Sl No	Component name (as specified in drawing title)	Drawing No.	Qty	Raw material size (mm)	Qty *
1.	Main baffle MB1	IIA-UVIT-PL-MB1	3	Rod $\Phi$ 483 x 483 long	3
2.	Main baffle MB2	IIA-UVIT-PL-MB2	3	Rod $\Phi$ 483 x 483 long	3
3.	Aluminum compensator ALC	IIA-UVIT-PL-ALC	3	Rod $\Phi$ 180 x 500 long	1
4.	Secondary mirror heater-SMHT	IIA-UVIT-PL-SMHT	3	Rod $\Phi$ 120 x 750 long	1
5.	Secondary baffle SB	IIA-UVIT-PL-SB	3	Rod $\Phi$ 180 x 900 long	1
6.	Primary mirror heater-PMHT	IIA-UVIT-PL-PMHT	3	Rod $\Phi$ 350 x 250 long.	2
7.	Primary baffle top segment-PBTS.FUV	IIA-UVIT-PL-PBTS.FUV	1	Rod $\Phi$ 165 x 1000 long.	1
8.	Primary baffle top segment-PBTS.VIS	IIA-UVIT-PL-PBTS.VIS	2	Rod $\Phi$ 135 x 1100 long.	2
9.	Primary baffle base segment-PBBS.FUV	IIA-UVIT-PL-PBBS.FUV	1	Rod $\Phi$ 135 x 600 long.	1
10.	Primary baffle 45 deg segment-PB45.Up.VIS	IIA-UVIT-PL-PB45.UP.VIS	2	Rod $\Phi$ 150 x 600 long.	1
11.	Primary baffle 45 deg segment-PB45.Down.VIS	IIA-UVIT-PL-PB45.DN.VIS	2		
12.	Detector mount bracket DMB.FUV	IIA-UVIT-PL-DMB.FUV	1	Rod $\Phi$ 370 x 300 long.	1
13.	Detector mount bracket DMB.VIS	IIA-UVIT-PL-DMB.VIS	2	Rod $\Phi$ 390 x 450 long.	2
14.	Detector mount bracket DMB.NUV	IIA-UVIT-PL-DMB.NUV	2	Rod $\Phi$ 360 x 335 long.	2
15.	Filter cover FWC.L.FUV	IIA-UVIT-PL-FWC.L.FUV	1	Rod $\Phi$ 280 x 50 long.	2
16.	Filter cover FWC.R.FUV	IIA-UVIT-PL-FWC.R.FUV	1		
17.	Filter cover FWC.L.VIS	IIA-UVIT-PL-FWC.L.VIS	2	**	
18.	Filter cover FWC.R.VIS	IIA-UVIT-PL-FWC.R.VIS	2		
19.	Filter cover FWC.NUV	IIA-UVIT-PL-FWC.NUV	2	Rod $\Phi$ 280 x 30 long.	2
20.	Side bracket SB.VIS	IIA-UVIT-PL-SB.VIS	2	Rod $\Phi$ 165 x 675 long.	1
21.	UVIT patch break PBK	IIA-UVIT-PL-PBK	2	Plate $\Phi$ 350 x 125 x40 long.	2
22.	View port blank	IIA-UVIT-PI-VPB	4	Rod $\Phi$ 70 x 600 long.	1
23.	View port disc	IIA-UVIT-PL-VPD	2		
24.	Thermal cover TC.	IIA-UVIT-PL-TC	2	Sheet metal 1800 x900x 1 mm thick	4

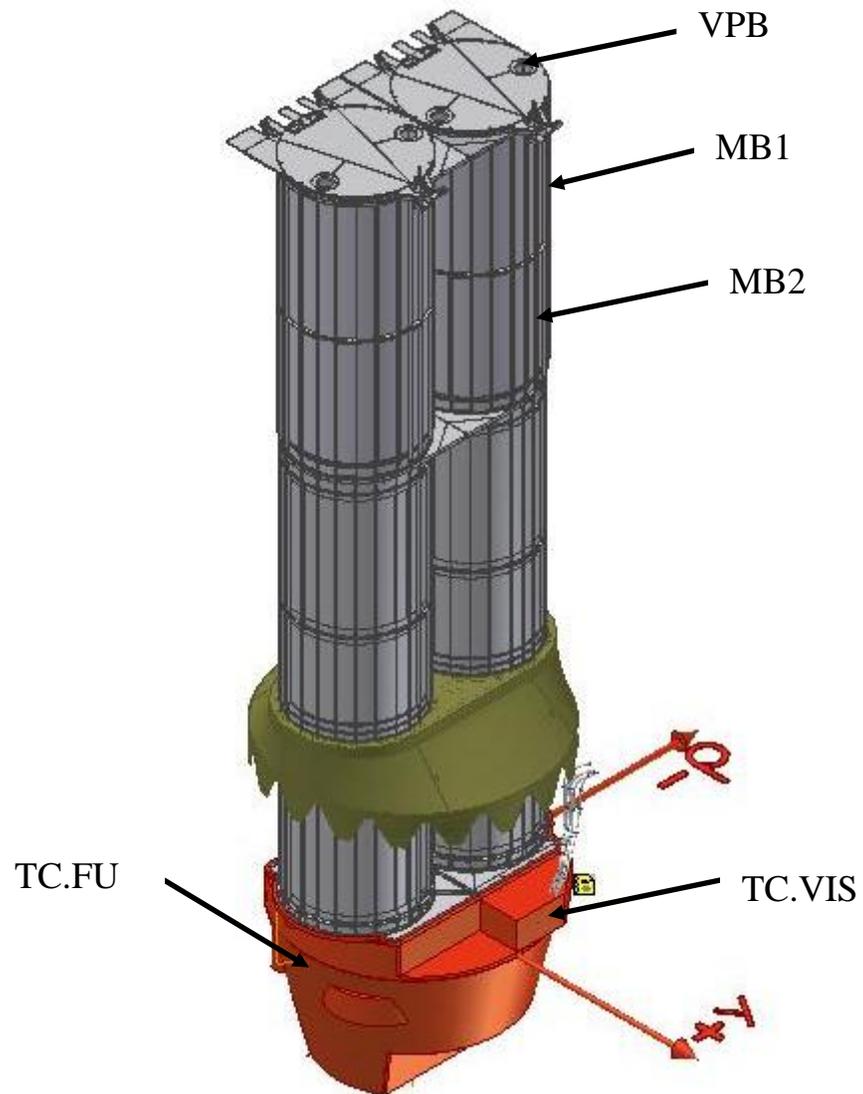
\*Excess raw material shall be returned to IIA along with the finished components

\*\*Included in item 8

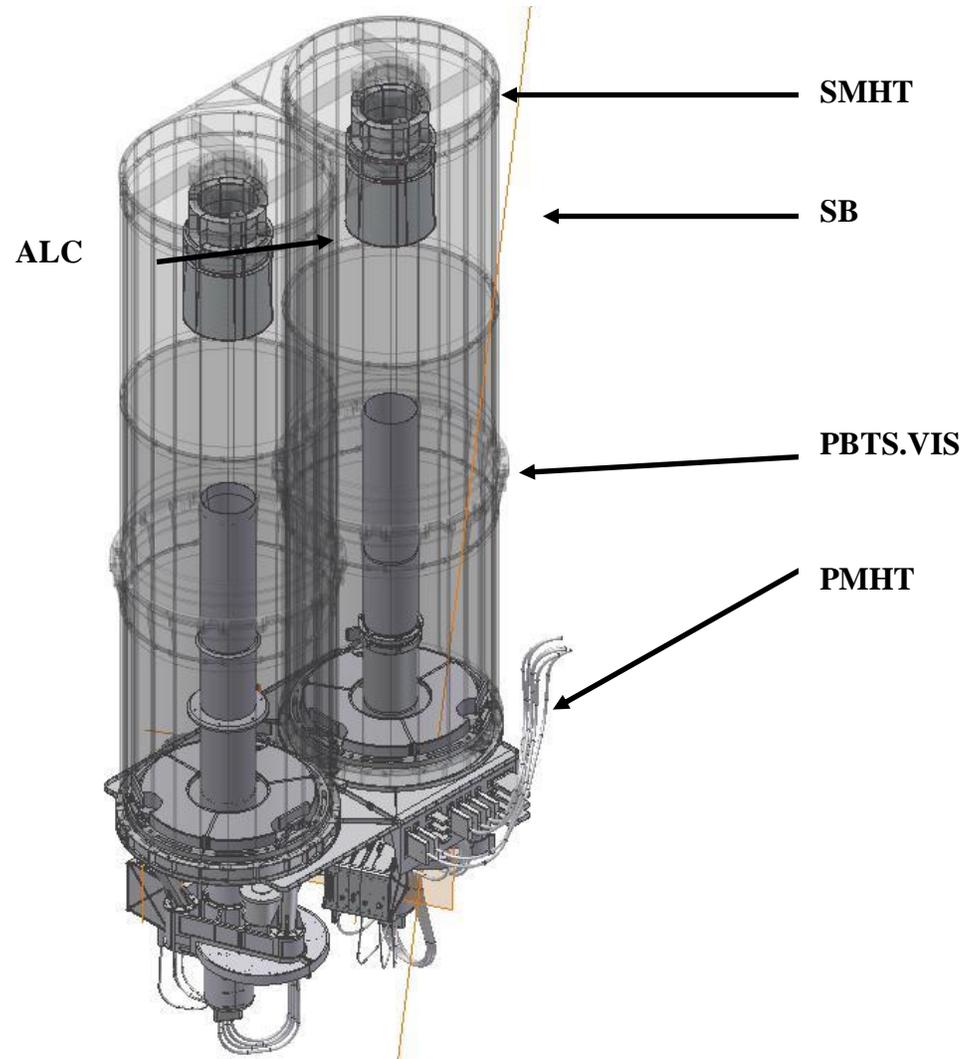
\*\* For item# 1 and 2 the unused central portion of the rod shall to be scooped out to fit the maximum possible diameter and the same to be supplied to IIA along with the finished component.

# Annuxure-2

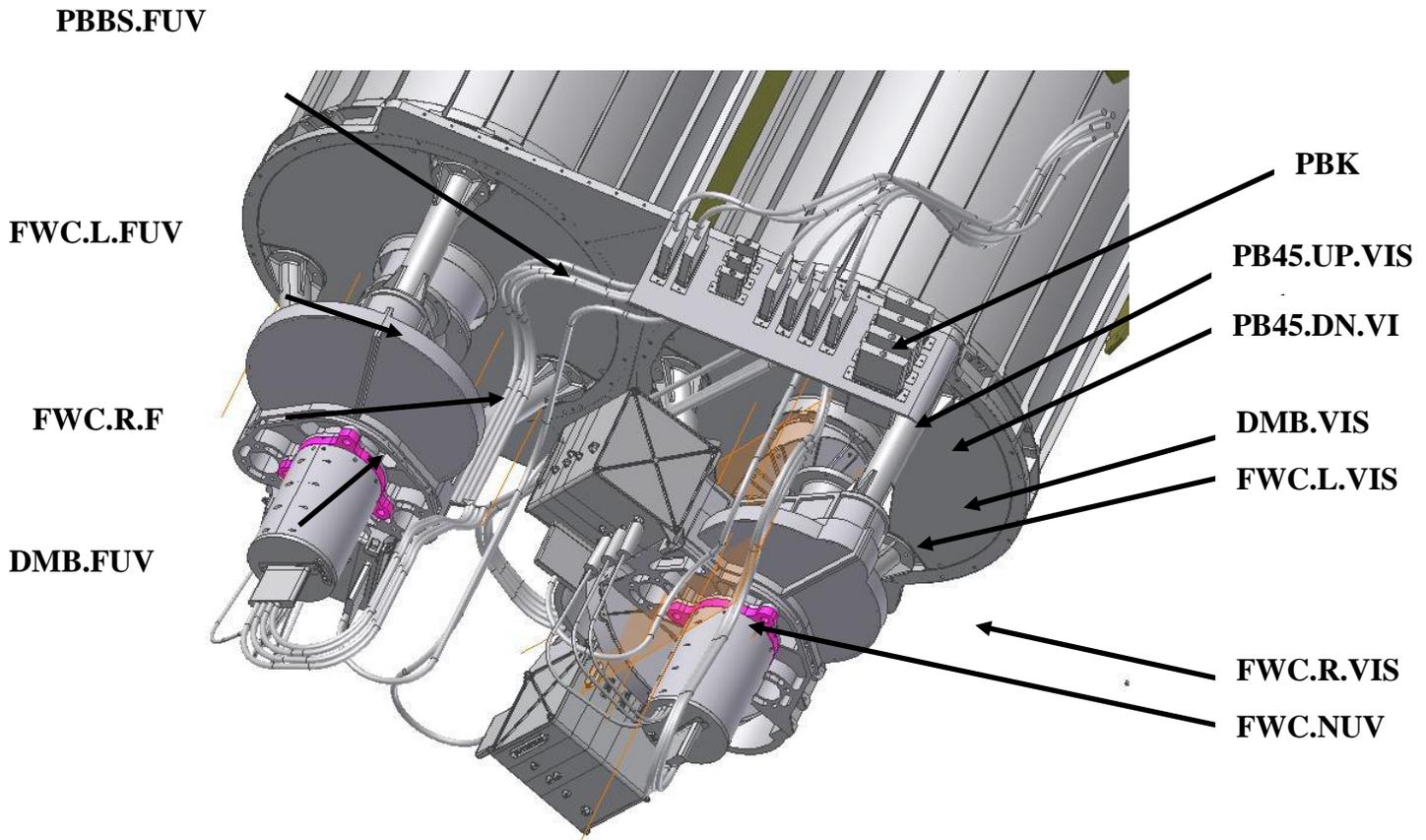
## Pictorial views of UVIT components



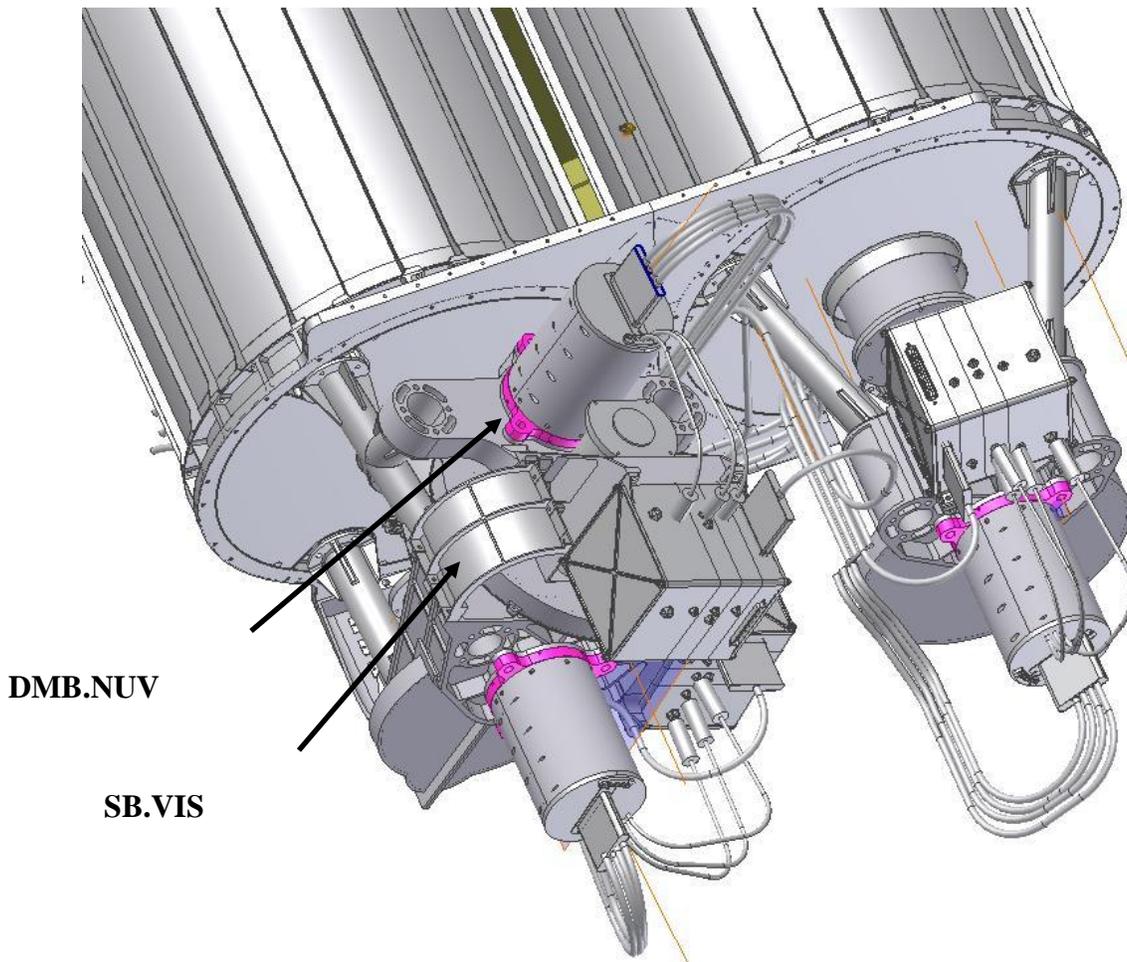
**Fig A: UVIT PAY LOAD**  
(Showing Aluminum components)



**Fig B: UVIT PAY LOAD**  
(Showing Aluminum components inside the optical cavity)



**Fig C: UVIT PAY LOAD**  
 (Showing Aluminum components at back focal region)

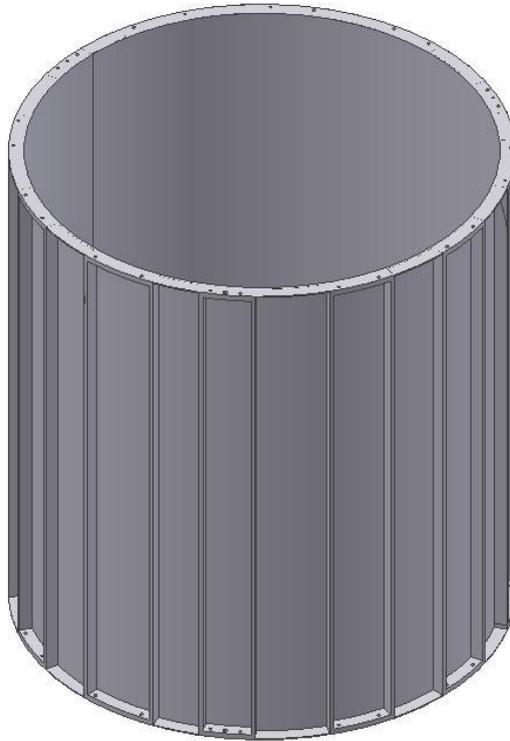


**Fig D: UVIT PAY LOAD**  
(Showing Aluminum components at back focal region, rotated by 180<sup>0</sup>)

### Table-3

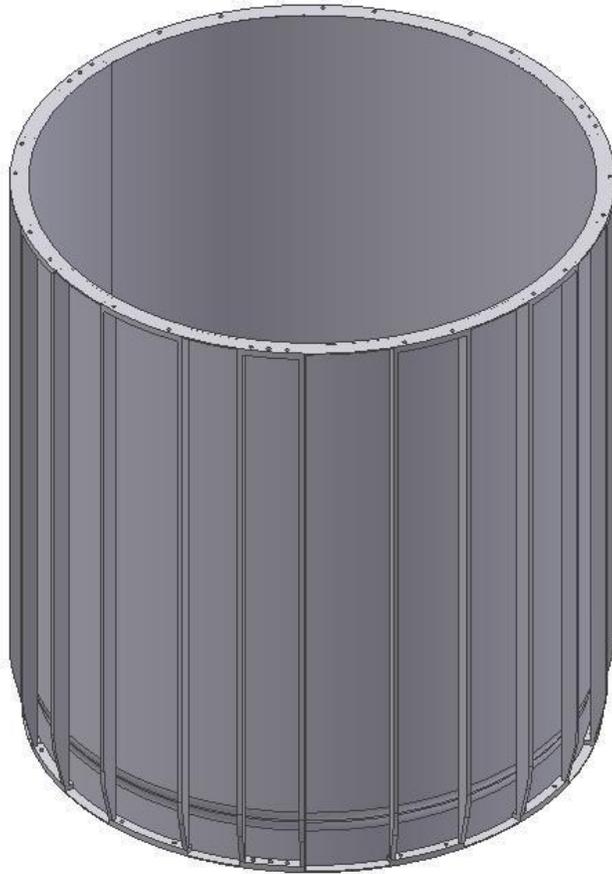
#### Fig Captions - Aluminum components in the UVIT.

<b>Fig no.</b>	<b>Component name (as specified in drawing title)</b>	<b>Ref engineering Drawing No.</b>
1.	Main baffle MB1	IIA-UVIT-PL-MB1
2.	Main baffle MB2	IIA-UVIT-PL-MB2
3.	Aluminum compensator ALC	IIA-UVIT-PL-ALC
4.	Secondary mirror heater-SMHT	IIA-UVIT-PL-SMHT
5.	Secondary baffle SB	IIA-UVIT-PL-SB
6.	Primary mirror heater-PMHT	IIA-UVIT-PL-PMHT
7.	Primary baffle top segment-PBTS.FUV	IIA-UVIT-PL-PBTS.FUV
8.	Primary baffle top segment-PBTS.VIS	IIA-UVIT-PL-PBTS.VIS
9.	Primary baffle base segment-PBBS.FUV	IIA-UVIT-PL-PBBS.FUV
10.	Primary baffle 45 deg segment-PB45.Up.VIS	IIA-UVIT-PL-PB45.UP.VIS
11.	Primary baffle 45 deg segment-PB45.Down.VIS	IIA-UVIT-PL-PB45.DN.VIS
12.	Detector mount bracket DMB.FUV	IIA-UVIT-PL-DMB.FUV
13.	Detector mount bracket DMB.VIS	IIA-UVIT-PL-DMB.VIS
14.	Detector mount bracket DMB.NUV	IIA-UVIT-PL-DMB.NUV
15.	Filter cover FWC.L.FUV	IIA-UVIT-PL-FWC.L.FUV
16.	Filter cover FWC.R.FUV	IIA-UVIT-PL-FWC.R.FUV
17.	Filter cover FWC.L.VIS	IIA-UVIT-PL-FWC.L.VIS
18.	Filter cover FWC.R.VIS	IIA-UVIT-PL-FWC.R.VIS
19.	Filter cover FWC.NUV	IIA-UVIT-PL-FWC.NUV
20.	Side bracket SB.VIS	IIA-UVIT-PL-SB.VIS
21.	UVIT patch break PBK	IIA-UVIT-PL-PBK
22.	View port blank	IIA-UVIT-PI-VPB
23.	View port disc	IIA-UVIT-PL-VPD
24.	Thermal cover TC	IIA-UVIT-PL-TC



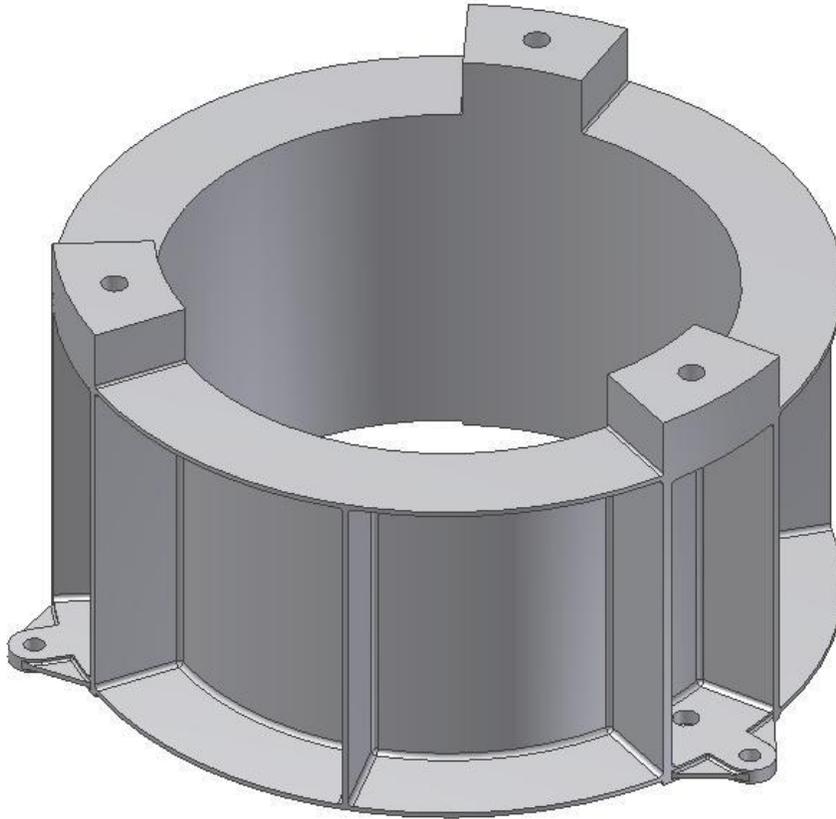
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**Fig 1: Main Baffle tube MB1  
(ref 2D drawing no IIA-UVIT-PL-  
MB1)**



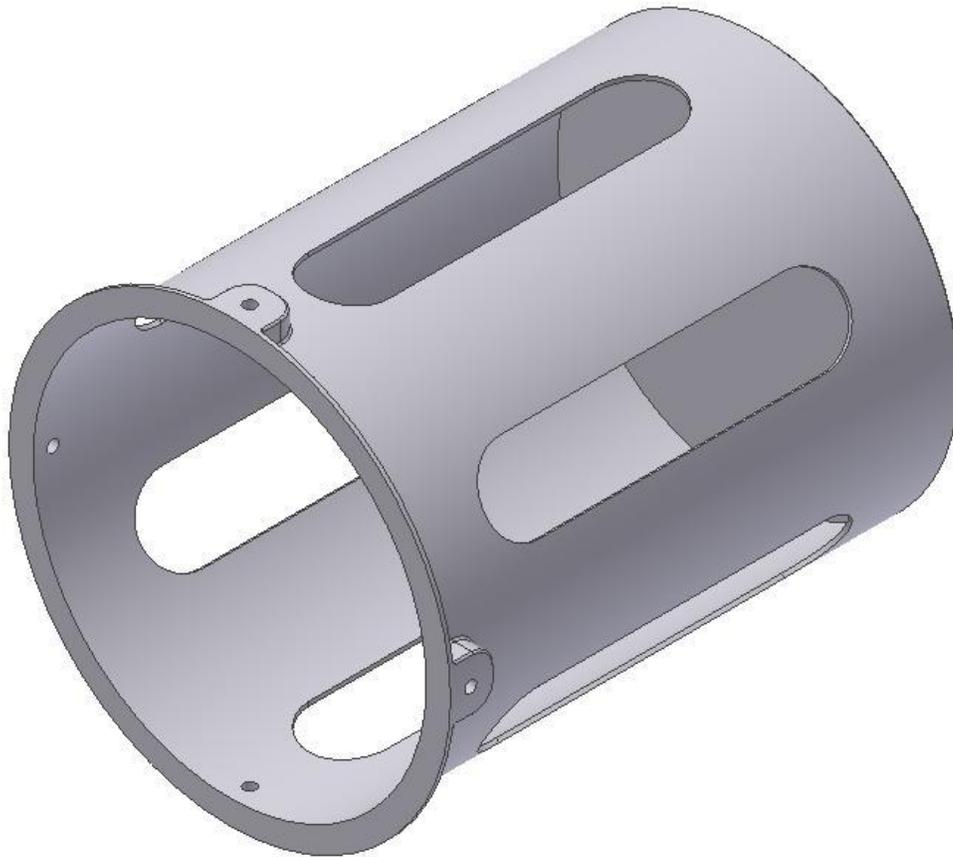
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**Fig 2: Main baffle tube MB2  
(ref 2D drawing no IIA-UVIT-PL-  
MB2)**



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**Fig 3: Aluminum compensator ALC  
(ref 2D drawing no IIA-UVIT-PL-  
ALC)**



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**Fig 4: Secondary mirror heater SMHT  
(ref 2D drawing no IIA-UVIT-PL-SMHT)**



---

**Fig 5: Secondary Baffle SB**  
**(ref 2D drawing no IIA-UVIT-PL-SB)**



**Fig 6: Primary mirror heater PMHT  
(ref 2D drawing no IIA-UVIT-PL-PMHT)**



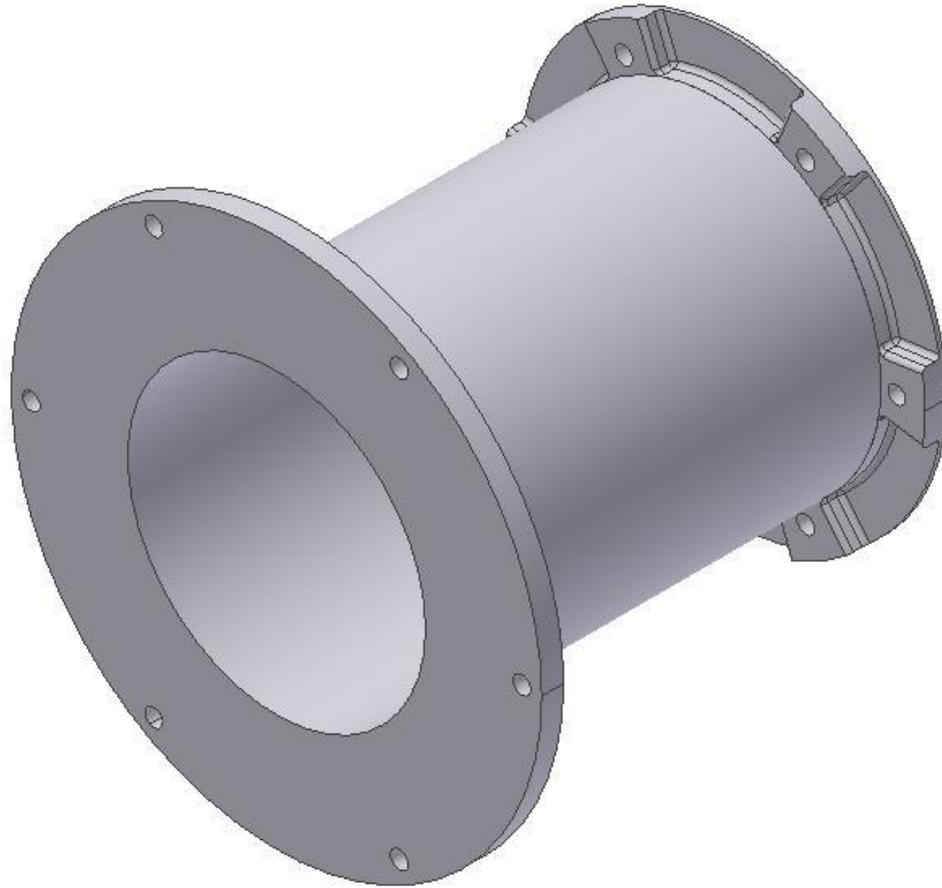
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**Fig 7: Primary Baffle Top Segment  
PBTS.FUV  
(ref 2D drawing no IIA-UVIT-PL-  
PBTS.FUV)**



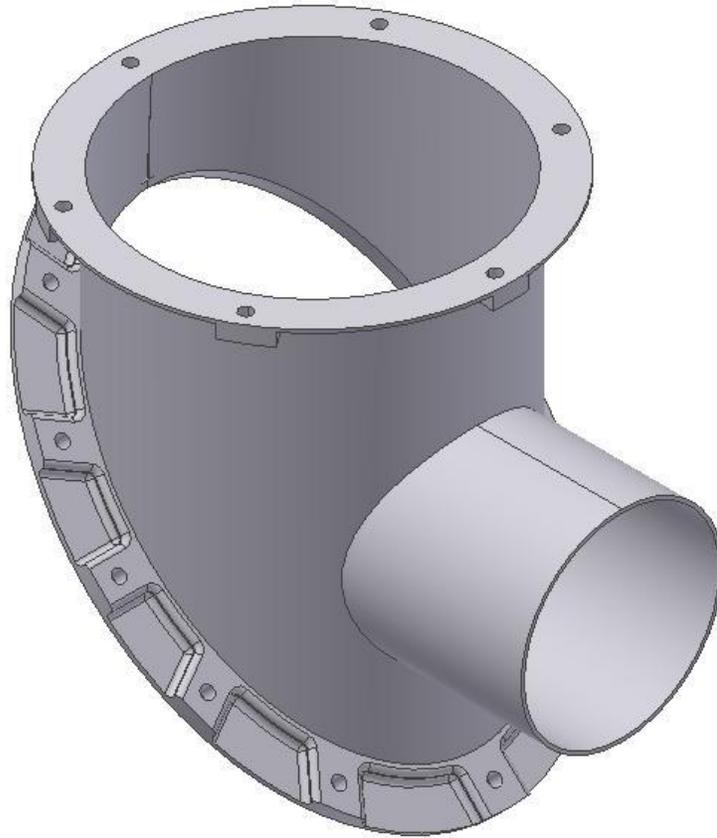
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**Fig 8: Primary Baffle Top Segment-  
PBTS.VIS  
(ref 2D drawing no IIA-UVIT-PL-PBTS.VIS)**



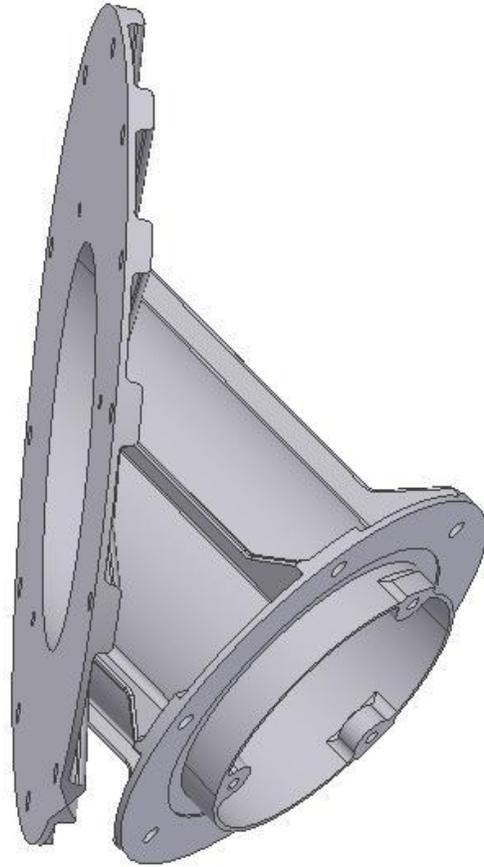
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**Fig 9: Primary Baffle Base Segment  
PBBS.FUV  
(ref 2D drawing no IIA-UVIT-PL-  
PBBS.FUV)**



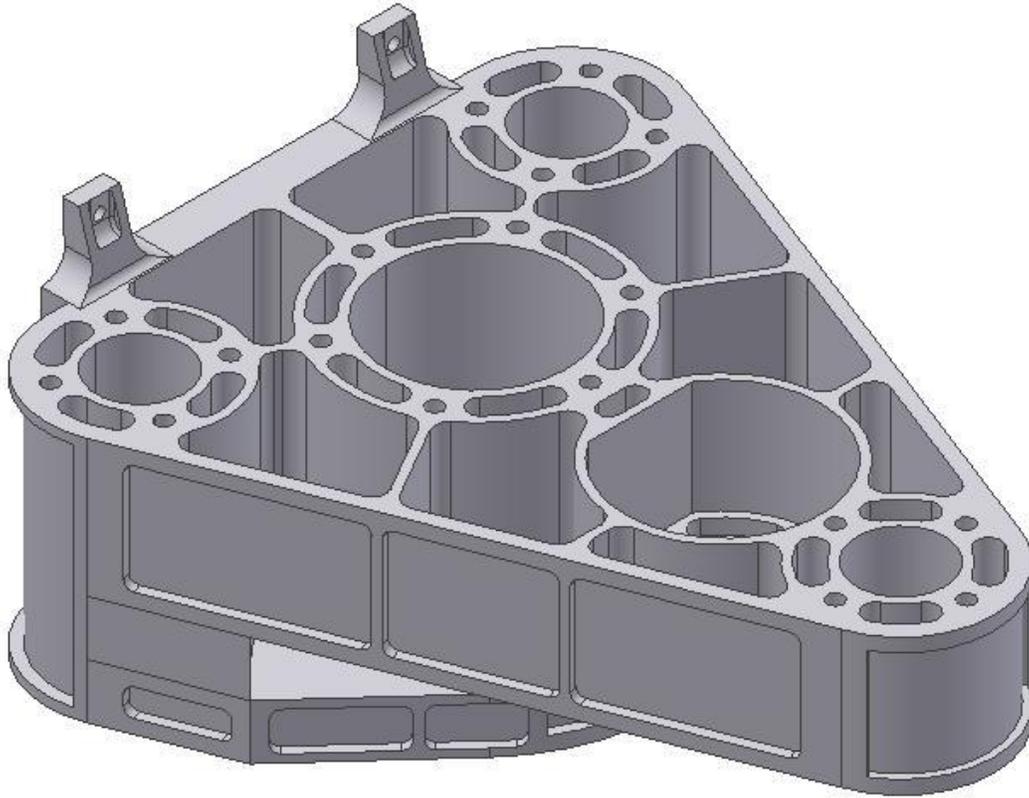
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**Fig 10: Primary Baffle 45<sup>0</sup> segment  
PB45.UP.VIS  
(ref 2D drawing no  
IIA-UVIT-PL-PB45.UP.VIS.)**



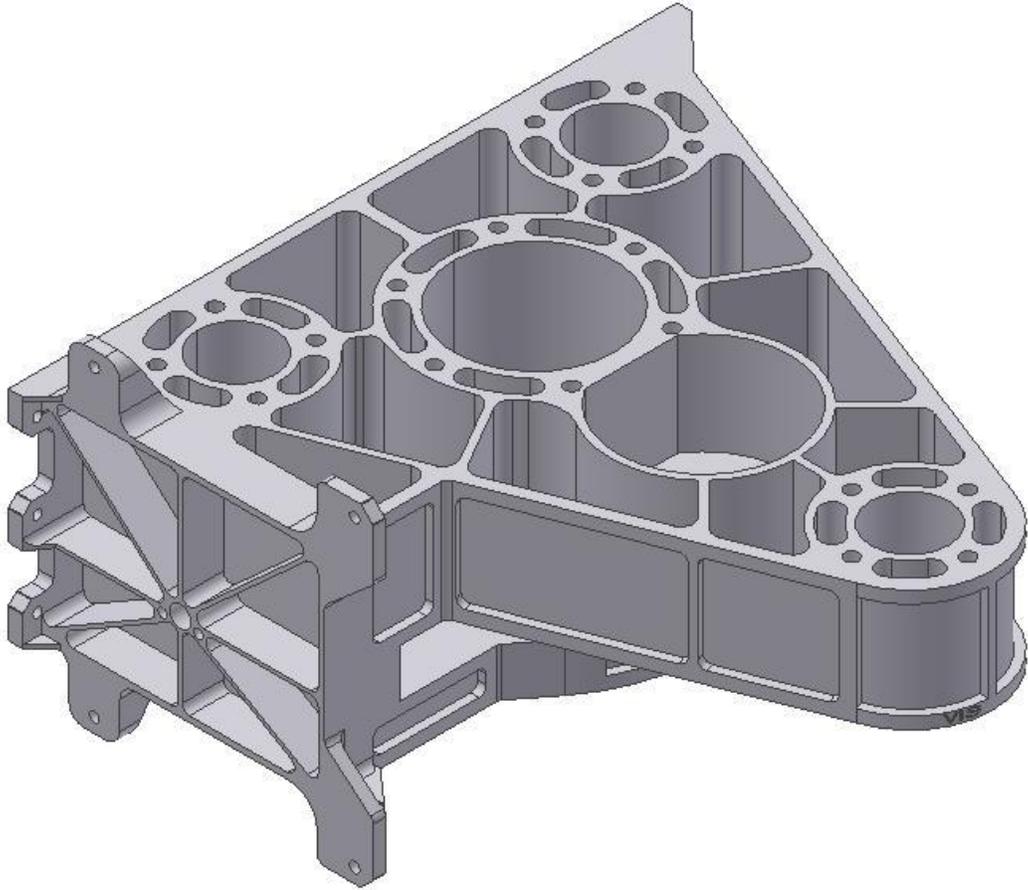
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**Fig 11: Primary baffle 45<sup>0</sup> segment PB45.DN.VIS  
(ref 2D drawing No. IIA-UVIT-PL-PB45.DN.VIS)**



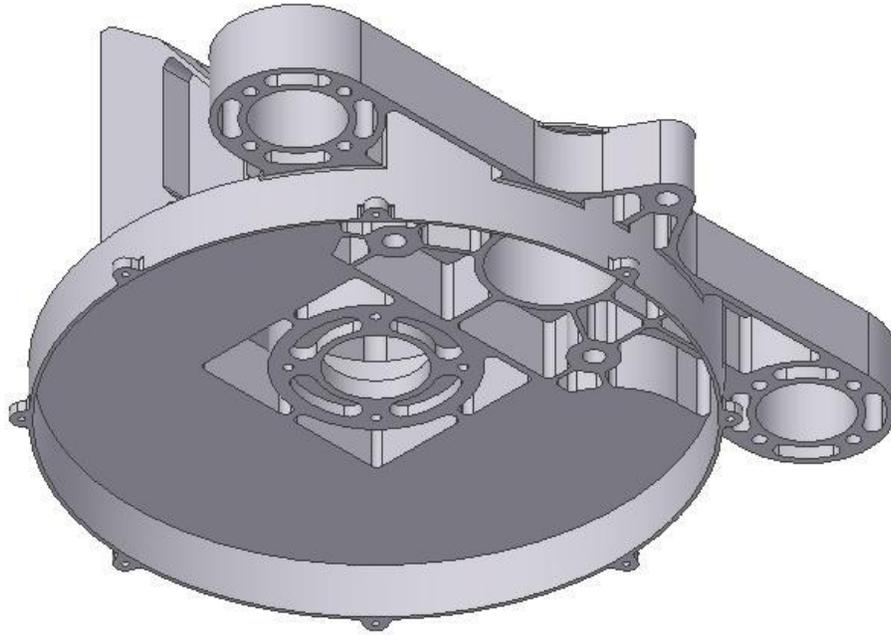
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**Fig 12: Detector mount Bracket DMB.FUV**  
(ref 2D drawing no IIA-UVIT-PL-  
DMB.FUV)



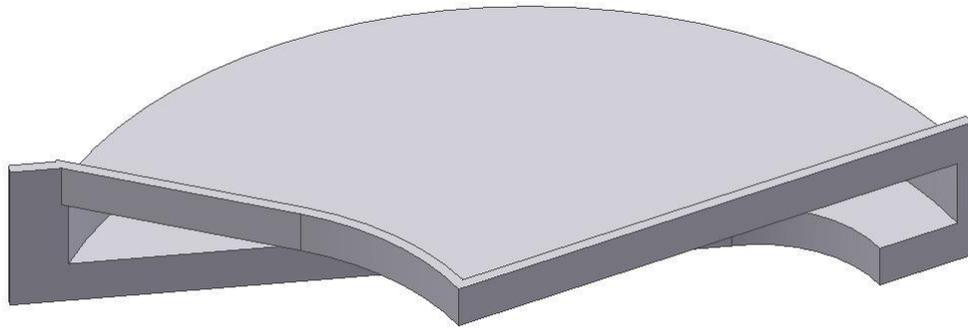
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**Fig 13: Detector Mount Bracket DMB.VIS**  
(ref 2D drawing no IIA-UVIT-PL-DMB.VIS)



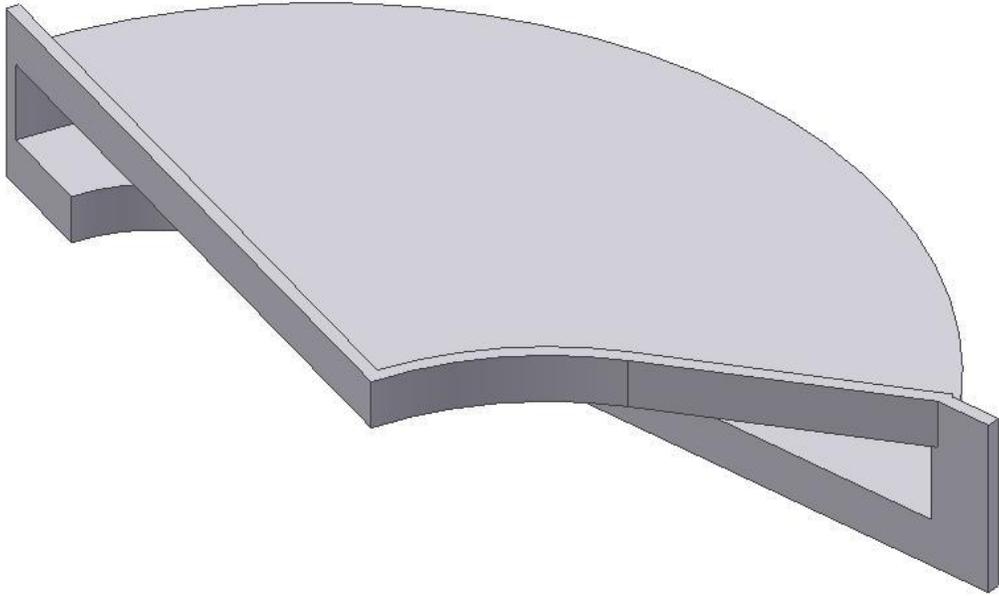
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**Fig 14: Detector Mount Bracket DMB.NUV**  
(ref 2D drawing no IIA-UVIT-PL-  
DMB.NUV)



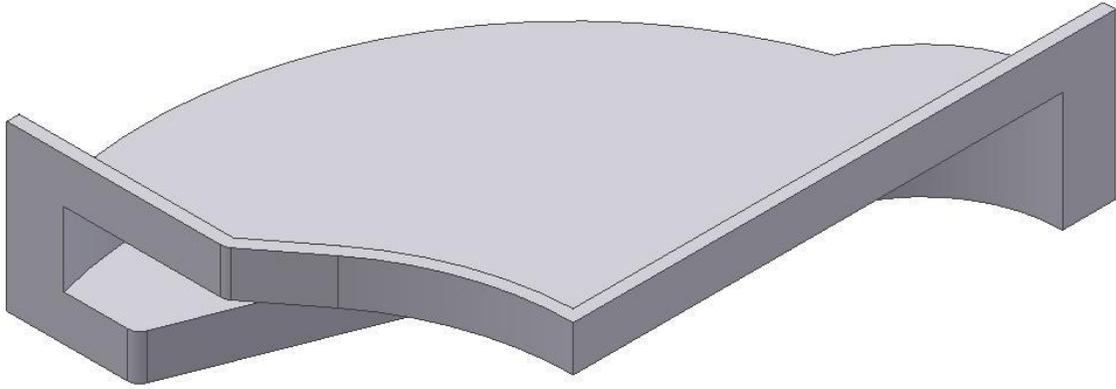
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**Fig 15: Filter wheel cover FWC.L.FUV  
(ref 2D drawing no  
IIA-UVIT-PL-FR.FWC.L.FUV)**



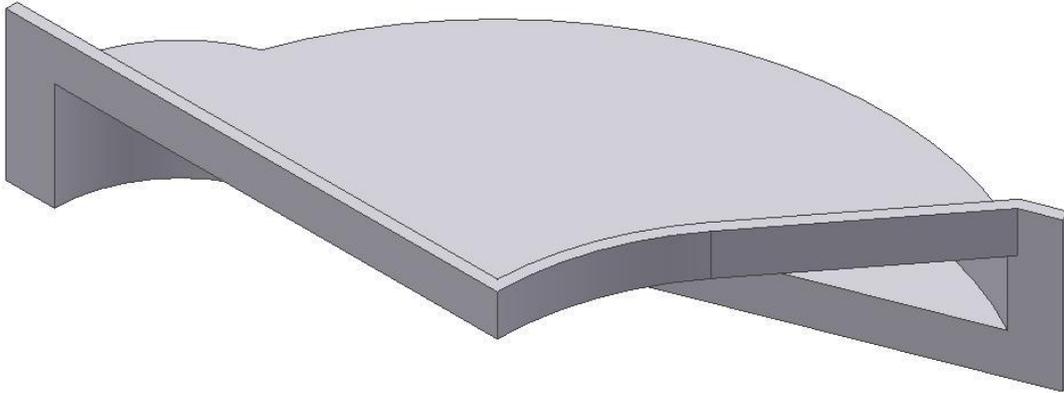
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**Fig 16: Filter wheel Cover FWC.R.FUV  
(ref 2D drawing no  
IIA-UVIT-PL-FWC.R.FUV)**



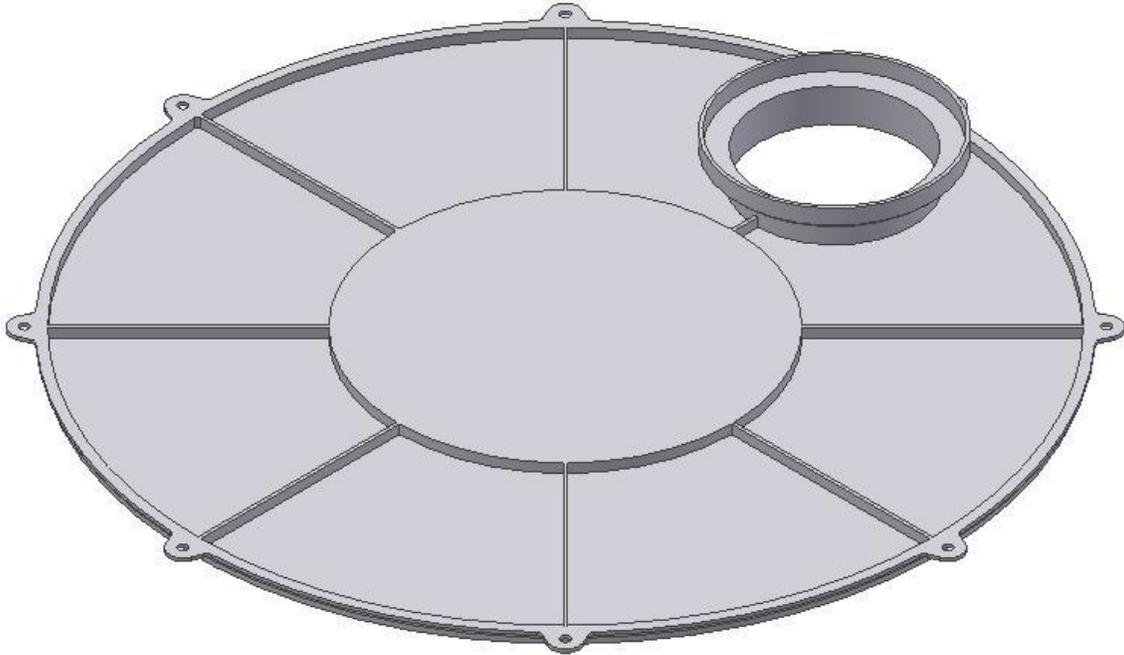
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**Fig 17: Filter Wheel Cover FWC.L.VIS**  
**(ref 2D drawing no IIA-UVIT-PL-FWC.L.VIS)**



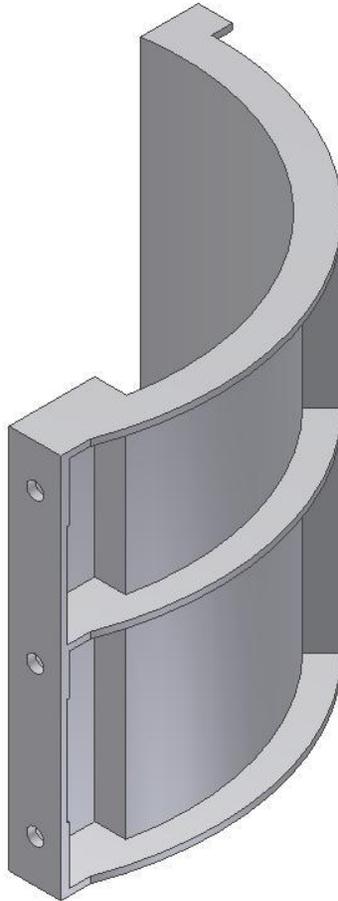
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**Fig 18: Filter wheel Cover FWC.R.VIS**  
**(ref 2D drawing no IIA-UVIT-PL-FWC.R.VIS)**



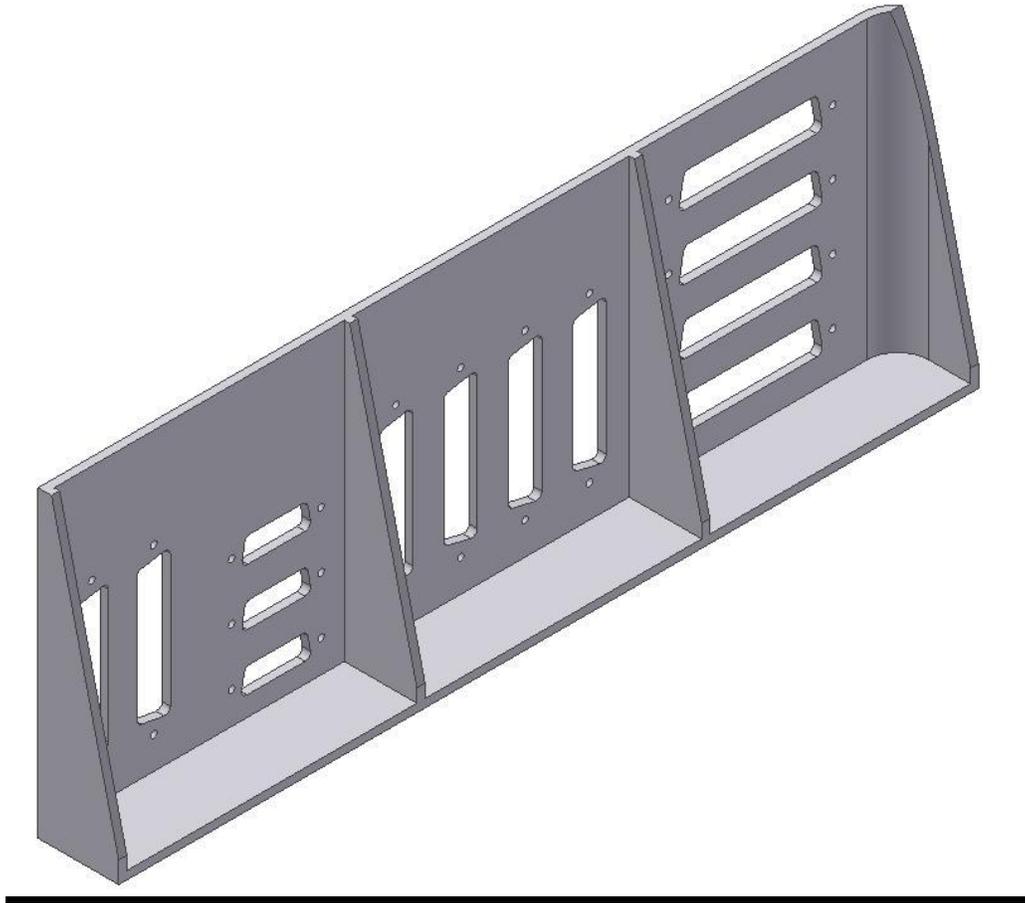
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**Fig 19: Filter Wheel Cover FWC.NUV  
(ref 2D drawing no IIA-UVIT-PL-FWC.NUV)**



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**Fig 20: Side Bracket SB.VIS**  
(ref 2D drawing no IIA-UVIT-PL-  
SB.VIS)

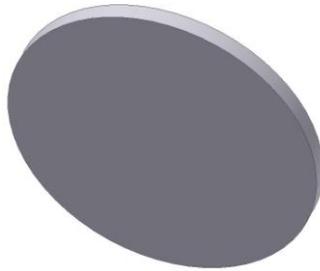


**Fig 21: UVIT Patch Break PBK  
(ref 2D drawing no IIA-UVIT-PL-PBK)**



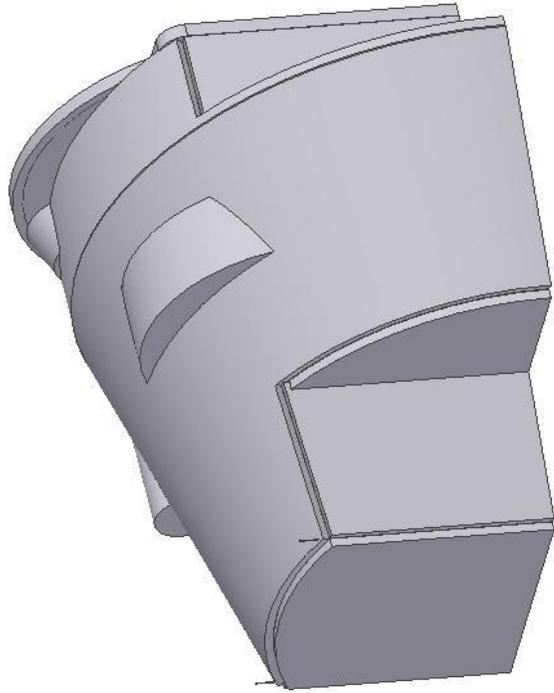
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**Fig 22: View port Blank VPB**  
(ref 2D drawing no IIA-UVIT-PL-  
VPB)



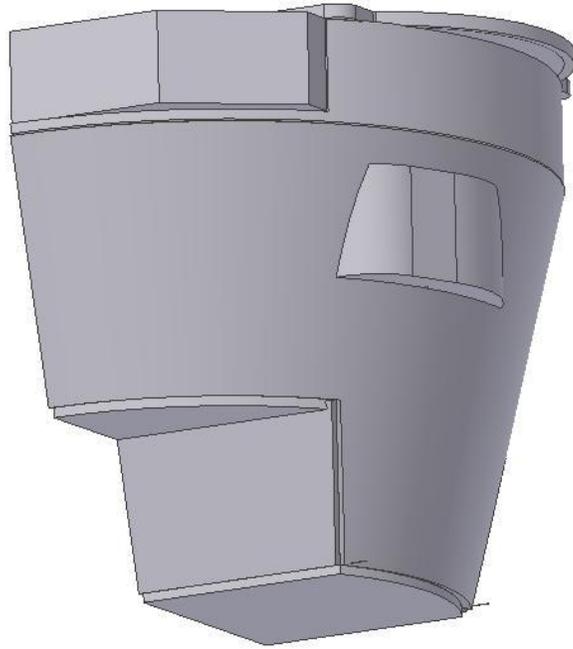
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**Fig 23: View port Disc VPD**  
(ref 2D drawing no IIA-UVIT-PL-  
VPD)



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**Fig 24-A: Thermal cover TC.FUV  
(ref 2D drawing no IIA-UVIT-TC-FUV)**



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**Fig 24-B: Thermal cover TC.VIS  
(ref 2D drawing no IIA-UVIT-PL-  
TC.VIS)**

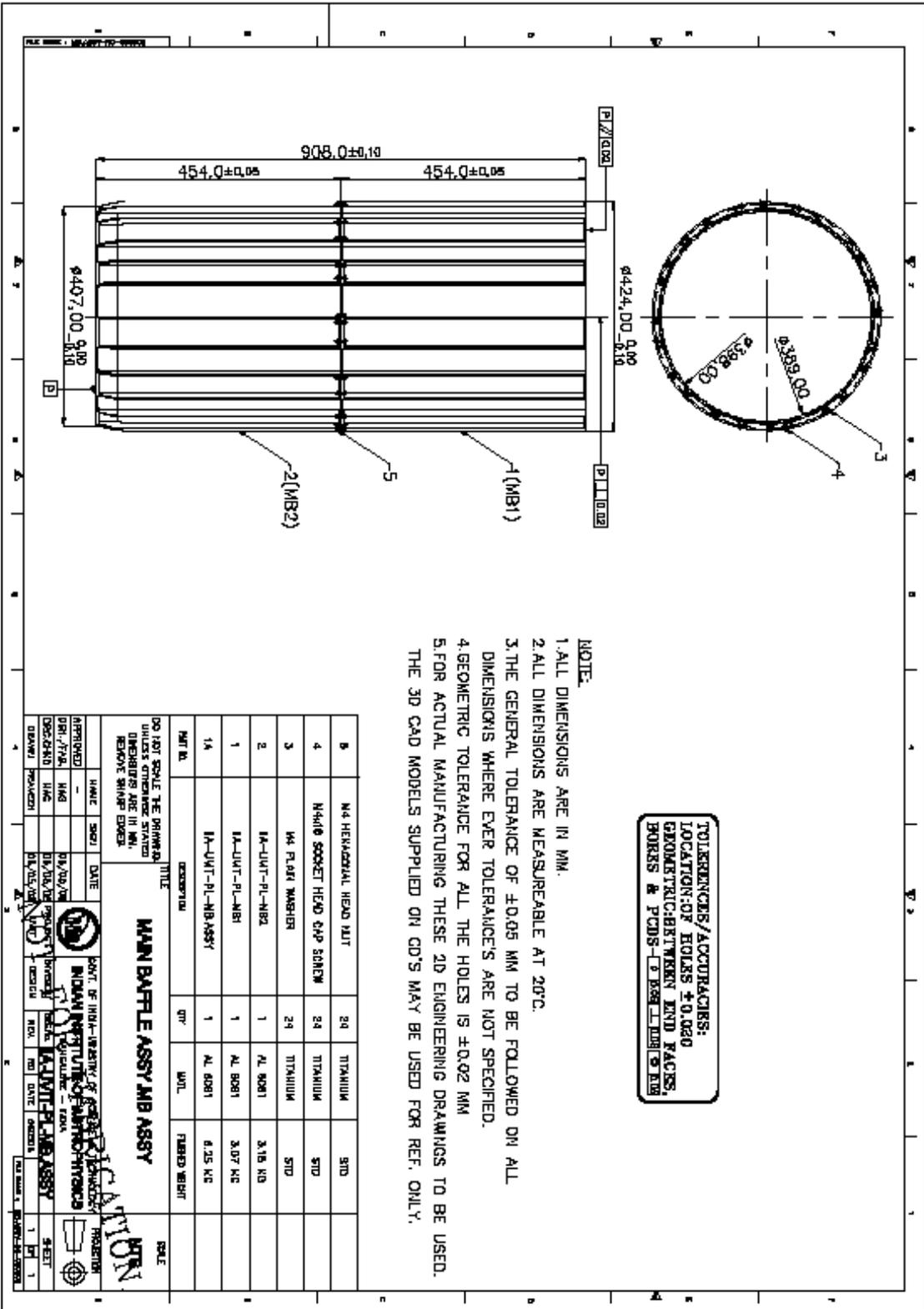
# Annuxure-3

## Engineering drawings of UVIT components (Aluminum components)

**Table-4**  
(List of engineering drawings)

Sl No	Component name (as specified in drawing title)	Drawing No.	No of Sheets	Rev/date	Rev. details
1.	Main baffle MB1	IIA-UVIT-PL-MB1	2	0-290408	
2.	Main baffle MB2	IIA-UVIT-PL-MB2	2	0-290408	
<b>3.</b>	<b>Aluminum compensator ALC</b>	<b>IIA-UVIT-PL-ALC</b>	<b>1</b>	0-290408	
4.	Secondary mirror heater-SMHT	IIA-UVIT-PL-SMHT	1	0-290408	
5.	Secondary baffle SB	IIA-UVIT-PL-SB	1	0-290408	
6.	Primary mirror heater-PMHT	IIA-UVIT-PL-PMHT	1	0-290408	
7.	Primary baffle top segment-PBTS.FUV	IIA-UVIT-PL-PBTS.FUV	1	0-290408	
8.	Primary baffle top segment-PBTS.VIS	IIA-UVIT-PL-PBTS.VIS	1	0-290408	
9.	Primary baffle base segment-PBBS.FUV	IIA-UVIT-PL-PBBS.FUV	1	0-290408	
<b>10.</b>	<b>Primary baffle 45 deg segment-PB45.Up.VIS</b>	<b>IIA-UVIT-PL-PB45.UP.VIS</b>	<b>1</b>	<b>0-290408</b>	
<b>11.</b>	<b>Primary baffle 45 deg segment-PB45.Down.VIS</b>	<b>IIA-UVIT-PL-PB45.DN.VIS</b>	<b>1</b>	0-290408	
12.	Detector mount bracket DMB.FUV	IIA-UVIT-PL-DMB.FUV	2	0-290408	
13.	Detector mount bracket DMB.VIS	IIA-UVIT-PL-DMB.VIS	2	0-290408	
14.	Detector mount bracket DMB.NUV	IIA-UVIT-PL-DMB.NUV	2	0-290408	
15.	Filter cover FWC.L.FUV	IIA-UVIT-PL-FWC.L.FUV	1	0-290408	
16.	Filter cover FWC.R.FUV	IIA-UVIT-PL-FWC.R.FUV	1	0-290408	
17.	Filter cover FWC.L.VIS	IIA-UVIT-PL-FWC.L.VIS	1	0-290408	
18.	Filter cover FWC.R.VIS	IIA-UVIT-PL-FWC.R.VIS	1	0-290408	
19.	Filter cover FWC.NUV	IIA-UVIT-PL-FWC.NUV	1	0-290408	
20.	Side bracket SB.VIS	IIA-UVIT-PL-SB.VIS	1	0-290408	
21.	UVIT patch break PBK	IIA-UVIT-PL-PBK	1	0-290408	
22.	View port blank	IIA-UVIT-PI-VPB	1	0-290408	
23.	View port disc	IIA-UVIT-PL-VPD	1	0-290408	
<b>24.</b>	<b>Thermal cover TC</b>	<b>IIA-UVIT-PL-TC</b>	<b>1</b>	<b>0-290408</b>	

The components bearing serial numbers 3, 10, 11 and 24 are defined as critical components. The machining of these components-flight model, in batch-2, are to be taken up only after receiving clearance from IIA.



**TOLERANCES/ACCURACIES:**  
 LOCATION OF HOLES ±0.020  
 GEOMETRIC BETWEEN END FACES,  
 BORES & PCDS - ±0.030

- NOTE:**
1. ALL DIMENSIONS ARE IN MM.
  2. ALL DIMENSIONS ARE MEASURABLE AT 20°C.
  3. THE GENERAL TOLERANCE OF ±0.05 MM TO BE FOLLOWED ON ALL DIMENSIONS WHERE EVER TOLERANCE'S ARE NOT SPECIFIED.
  4. GEOMETRIC TOLERANCE FOR ALL THE HOLES IS ±0.02 MM
  5. FOR ACTUAL MANUFACTURING THESE 2D ENGINEERING DRAWINGS TO BE USED. THE 3D CAD MODELS SUPPLIED ON CD'S MAY BE USED FOR REF. ONLY.

PART NO.	DESCRIPTION	QTY	MATL	FINISHED WEIGHT
24	M4 HEXAGONAL HEAD NUT	24	TITANIUM	STD
24	M4 SOCKET HEAD CAP SCREW	24	TITANIUM	STD
24	M4 FLAT WASHER	24	TITANIUM	STD
12	M4-UNT-PL-MB2	1	AL 6061	3.15 K12
1	M4-UNT-PL-MB1	1	AL 6061	3.07 K12
1	M4-UNT-PL-MIB-ASSY	1	AL 6061	6.25 K12

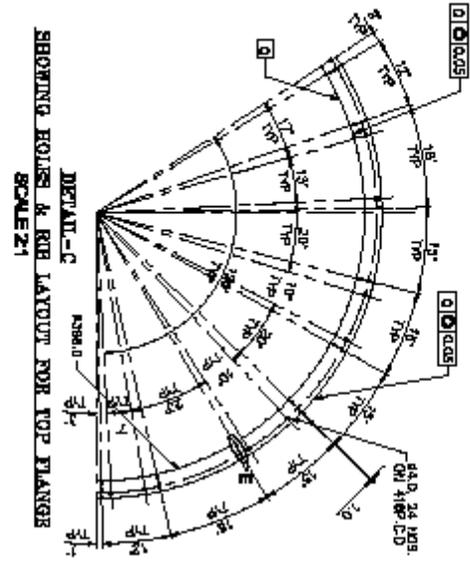
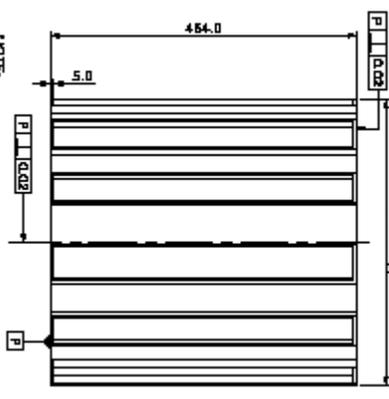
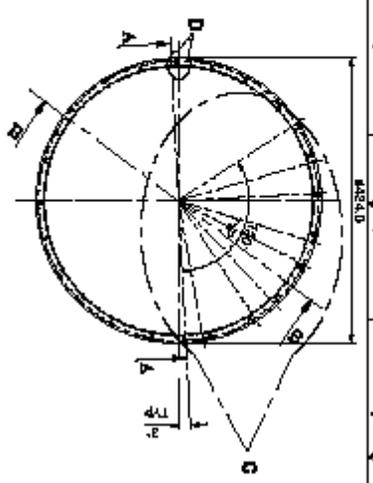
DO NOT SCALE THE DIMENSIONS  
 DIMENSIONS ARE IN MM.  
 REMOVE SHARP EDGES

**MAIN BAFFLE ASSY MIB ASSY**

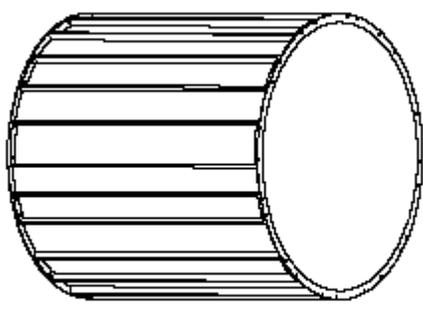
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 CHECKED: [Signature]  
 APPROVED: [Signature]

SCALE: 1:1

SHEET: 1 of 1



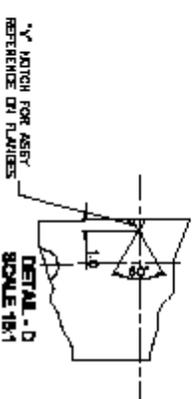
DETAIL - C  
SHOWING HOLES & RIB LAYOUT FOR TOP FLANGE  
SCALE: 2:1



PICTORIAL  
VIEW



DETAIL - E  
SCALE 4:1



DETAIL - D  
SCALE 15:1

TOLERANCES/ACCURACIES:  
LOCATIONS OF HOLES ±0.040  
GEOMETRIC/FORM/FEATURES  
BONERS & PCDs - 0.100 UNLESS OTHERWISE SPECIFIED

- NOTE:
1. ALL DIMENSIONS ARE IN MM.
  2. ALL DIMENSIONS ARE MEASURABLE AT 20°C.
  3. THE GENERAL TOLERANCE OF ±0.06 MM TO BE FOLLOWED ON ALL DIMENSIONS WHERE EVER TOLERANCES ARE NOT SPECIFIED.
  4. GEOMETRIC TOLERANCE FOR ALL THE HOLES IS F0.02 MM.
  5. FOR ACTUAL MANUFACTURING THESE 3D ENGINEERING DRAWINGS TO BE USED.
  6. THE 3D CAD MODELS SUPPLIED ON IIA CDS MAY BE USED FOR REF. ONLY.
  7. ALUMINIUM ROD OF DIA 483 & 483 LONG WILL BE SUPPLIED BY IIA AS RAW MATERIAL FOR THIS JOB. THE VENDOR SHALL SCOOP CUT THE CENTRAL PORTION TO A MAXIMUM POSSIBLE DIAMETER AND RETURN IT TO IIA.

PART NO.	DESCRIPTION	QTY	MATL	FINISH WEIGHT	SCALE
1	IIA-UVT-PL-MB1	1	AL 6061	3.07 KG	

DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES.

**MAIN BAFFLE MB1**

APPROVED: DATE: 28/04/2024

DRG./TVA: HAK DATE: 28/04/2024

DESIGNED: HAK DATE: 28/04/2024

DRAWN: JAI DATE: 28/04/2024

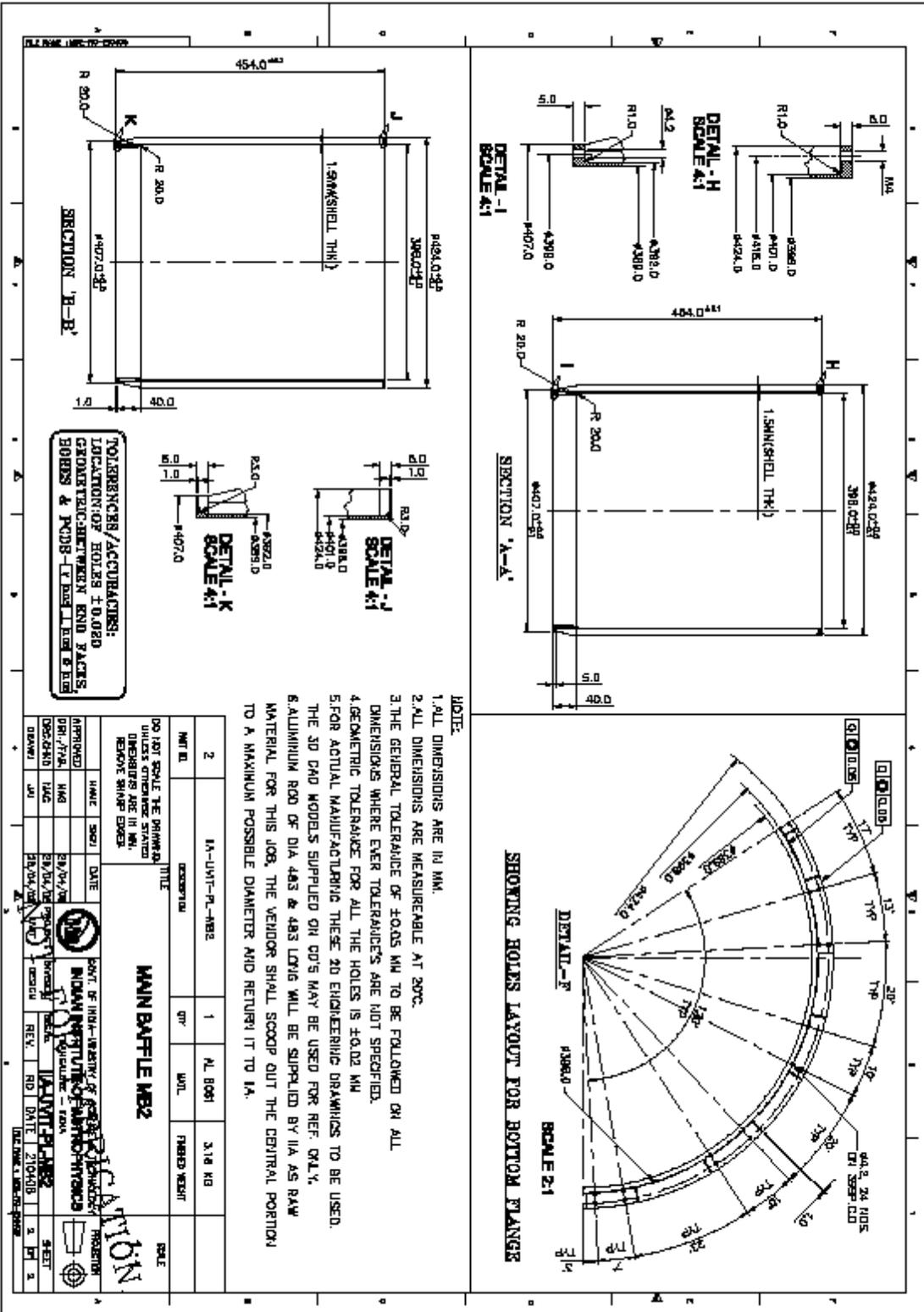
SCALE: 1:1

SHEET: 3

DATE: 28/04/2024







**TOLERANCES/ACCURACIES:**  
 LOCATION OF HOLES ± 0.020  
 GEOMETRIC TOLERANCES ± 0.020  
 HOLES & PINS ± 0.020

- NOTE:**
1. ALL DIMENSIONS ARE IN MM.
  2. ALL DIMENSIONS ARE MEASURABLE AT 20°C.
  3. THE GENERAL TOLERANCE OF ± 0.05 MM TO BE FOLLOWED ON ALL DIMENSIONS WHERE EVER TOLERANCES ARE NOT SPECIFIED.
  4. GEOMETRIC TOLERANCE FOR ALL THE HOLES IS ± 0.02 MM.
  5. FOR ACTUAL MANUFACTURING THESE 2D ENGINEERING DRAWINGS TO BE USED. THE 3D CAD MODELS SUPPLIED ON CD'S MAY BE USED FOR REF. ONLY.
  6. ALUMINIUM ROD OF DIA 48.3 & 48.3 LENGTHS WILL BE SUPPLIED BY IIA AS RAW MATERIAL FOR THIS JOB. THE VENDOR SHALL SCOOP OUT THE CENTRAL PORTION TO A MAXIMUM POSSIBLE DIAMETER AND RETURN IT TO IIA.

NO	REV	DATE	BY	CHKD	DESCRIPTION
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2	1	21/04/18	AL	AL	ISSUED FOR MANUFACTURE

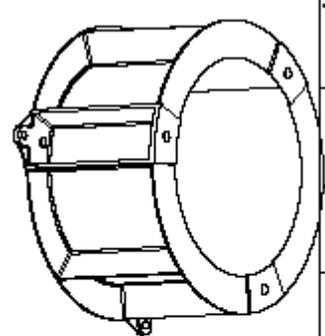
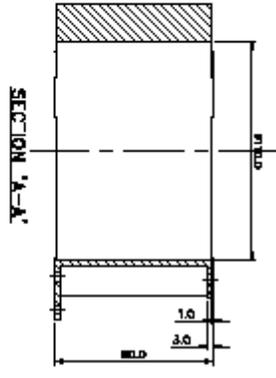
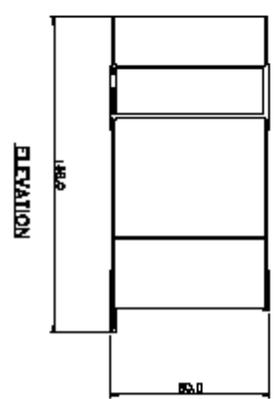
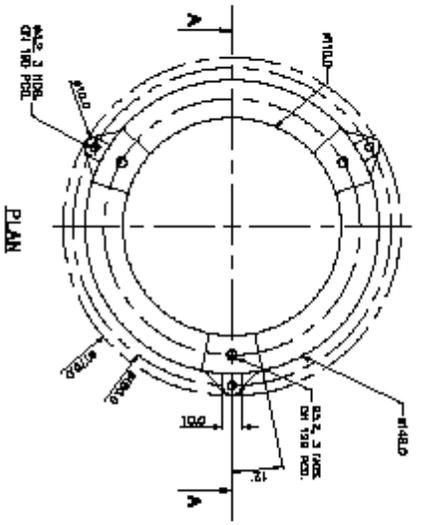
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DATE	21/04/18	BY	AL	CHKD	AL

DATE	21/04/18	BY	AL	CHKD	AL
DATE	21/04/18	BY	AL	CHKD	AL

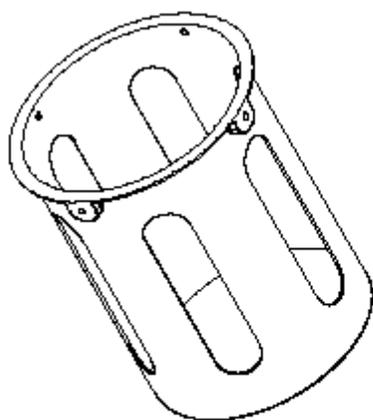
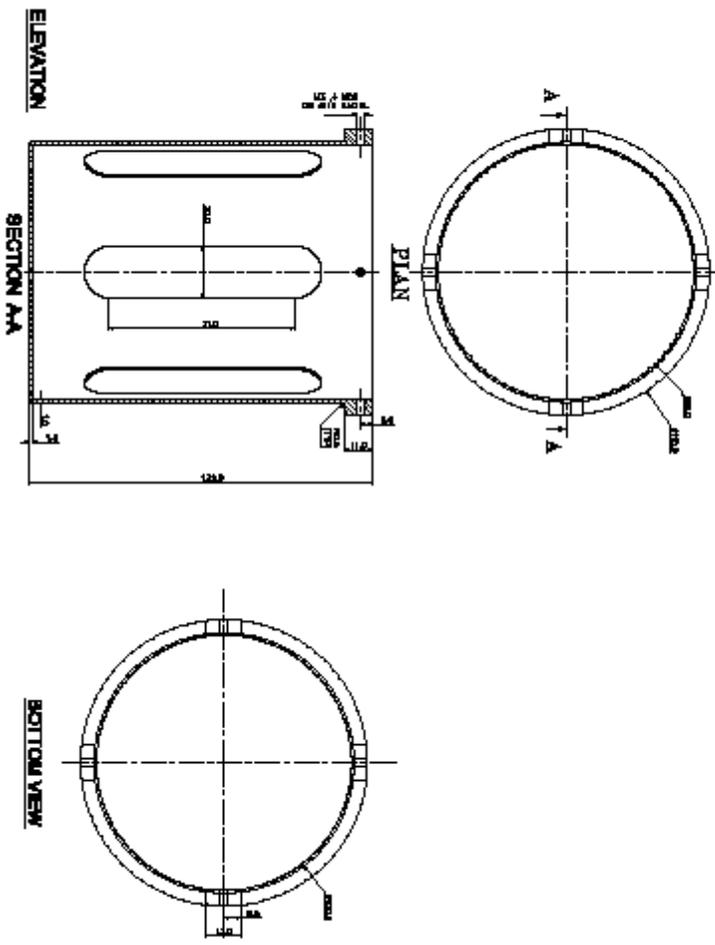
DATE	21/04/18	BY	AL	CHKD	AL
DATE	21/04/18	BY	AL	CHKD	AL



**TOLERANCES/ACCURACIES:**  
 LOCATION: OF HOLES  $\pm 0.020$   
 GEOMETRIC: BETWEEN END FACES,  
 BORES & PCD'S -  $\pm 0.020$

- NOTE:**
1. ALL DIMENSIONS ARE IN MM.
  2. ALL DIMENSIONS ARE MEASURABLE AT 20°C.
  3. THE GENERAL TOLERANCE OF  $\pm 0.05$  MM TO BE FOLLOWED ON ALL DIMENSIONS WHERE EVER TOLERANCES ARE NOT SPECIFIED.
  4. GEOMETRIC TOLERANCE FOR ALL THE HOLES IS  $\pm 0.02$  MM
  5. FOR ACTUAL MANUFACTURING THESE 2D ENGINEERING DRAWINGS TO BE USED. THE 3D CAD MODELS SUPPLIED ON CD'S MAY BE USED FOR REF. ONLY.

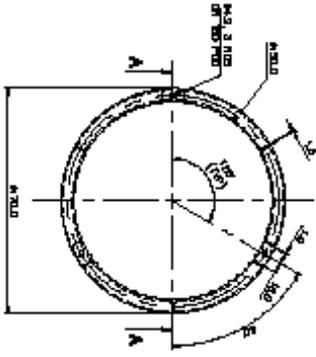
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REV. NO.	DESCRIPTION	QTY	UNIT	FLANGED WEIGHT
<p>DO NOT SCALE THE DRAWING          DIMENSIONS ARE IN MM.          REMOVE SHARP EDGES</p> <p><b>ALUMINUM COMPENSATOR</b></p>				
APPROVED	DATE	<p>DR. / P.A. H.K. 28/04/08</p> <p>DESIGNED I.A.C. 28/04/08</p> <p>DRAWN PROVISION 28/04/08</p>		
<p>DEPT. OF HIGH-ENERGY PHYSICS          INDIAN INSTITUTE OF TECHNOLOGY          ROHTAK</p>				
<p>SCALE 1:1</p>				



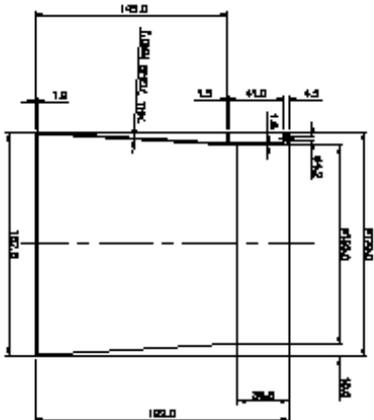
**TOLERANCES/ACCURACIES:**  
 LOCATION: OF HOLES  $\pm 0.020$   
 GEOMETRIC: BETWEEN END FACES,  
 BORES & PCDS -  $\pm 0.020$   $\pm 0.020$   $\pm 0.020$

- NOTE:**
1. ALL DIMENSIONS ARE IN MM.
  2. ALL DIMENSIONS ARE MEASURABLE AT 20°C.
  3. THE GENERAL TOLERANCE OF  $\pm 0.05$  MM TO BE FOLLOWED ON ALL DIMENSIONS WHERE EVER TOLERANCE'S ARE NOT SPECIFIED.
  4. GEOMETRIC TOLERANCE FOR ALL THE HOLES IS  $\pm 0.02$  MM
  5. FOR ACTUAL MANUFACTURING THESE 2D ENGINEERING DRAWINGS TO BE USED. THE 3D CAD MODELS SUPPLIED ON CD'S MAY BE USED FOR REF. ONLY.

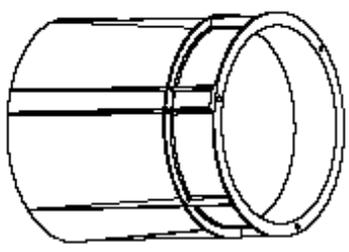
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DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES.					
<b>SECONDARY MIRROR HEATER, SHHT</b>					
SCALE					
APPROVED	DATE	SHEET NO. OF SHEETS			
DRG./PWA	28/04/08	1 1			
DESIGNED	28/04/08	SHEET			
DRAWN	28/04/08	1 1			



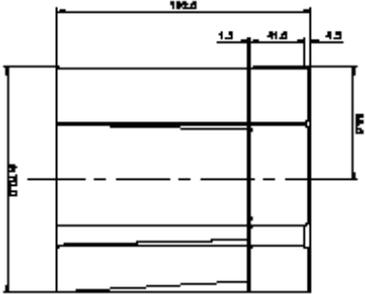
PLAN



SECTION A-A'



PICTORIAL VIEW

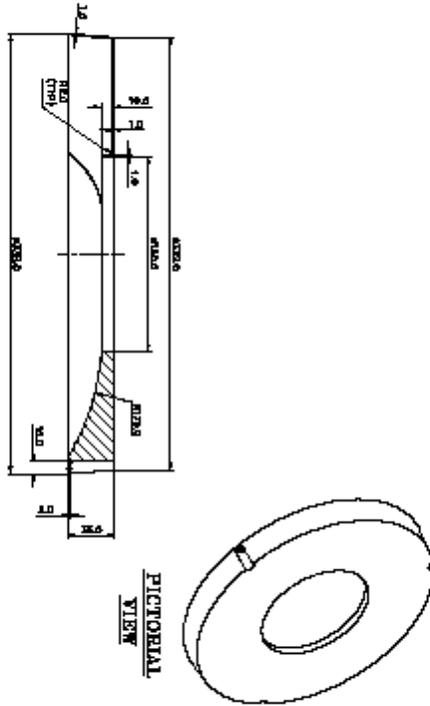
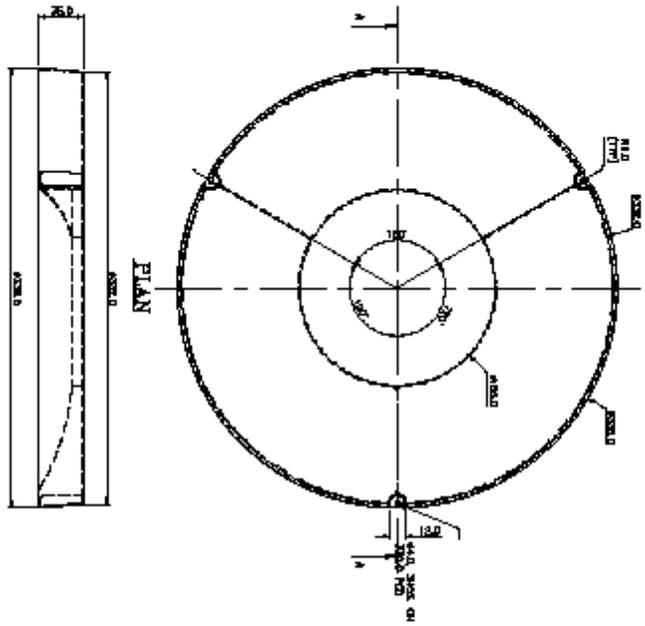


ELEVATION

**TOLERANCES/AUGMENTATIONS:**  
 LOCATIONS OF HOLES TO BE  
 DIMENSIONED FROM END FACES  
 UNLESS OTHERWISE SPECIFIED

- NOTE:**
1. ALL DIMENSIONS ARE IN MM.
  2. ALL DIMENSIONS ARE MEASURABLE AT 20°C.
  3. THE GENERAL TOLERANCE OF ±0.05 MM TO BE FOLLOWED ON ALL DIMENSIONS WHERE EVER TOLERANCE'S ARE NOT SPECIFIED.
  4. GEOMETRIC TOLERANCE FOR ALL THE HOLES IS ±0.02 MM
  5. FOR ACTUAL MANUFACTURING THESE 2D ENGINEERING DRAWINGS TO BE USED. THE 3D CAD MODELS SUPPLIED ON CD'S MAY BE USED FOR REF. ONLY.

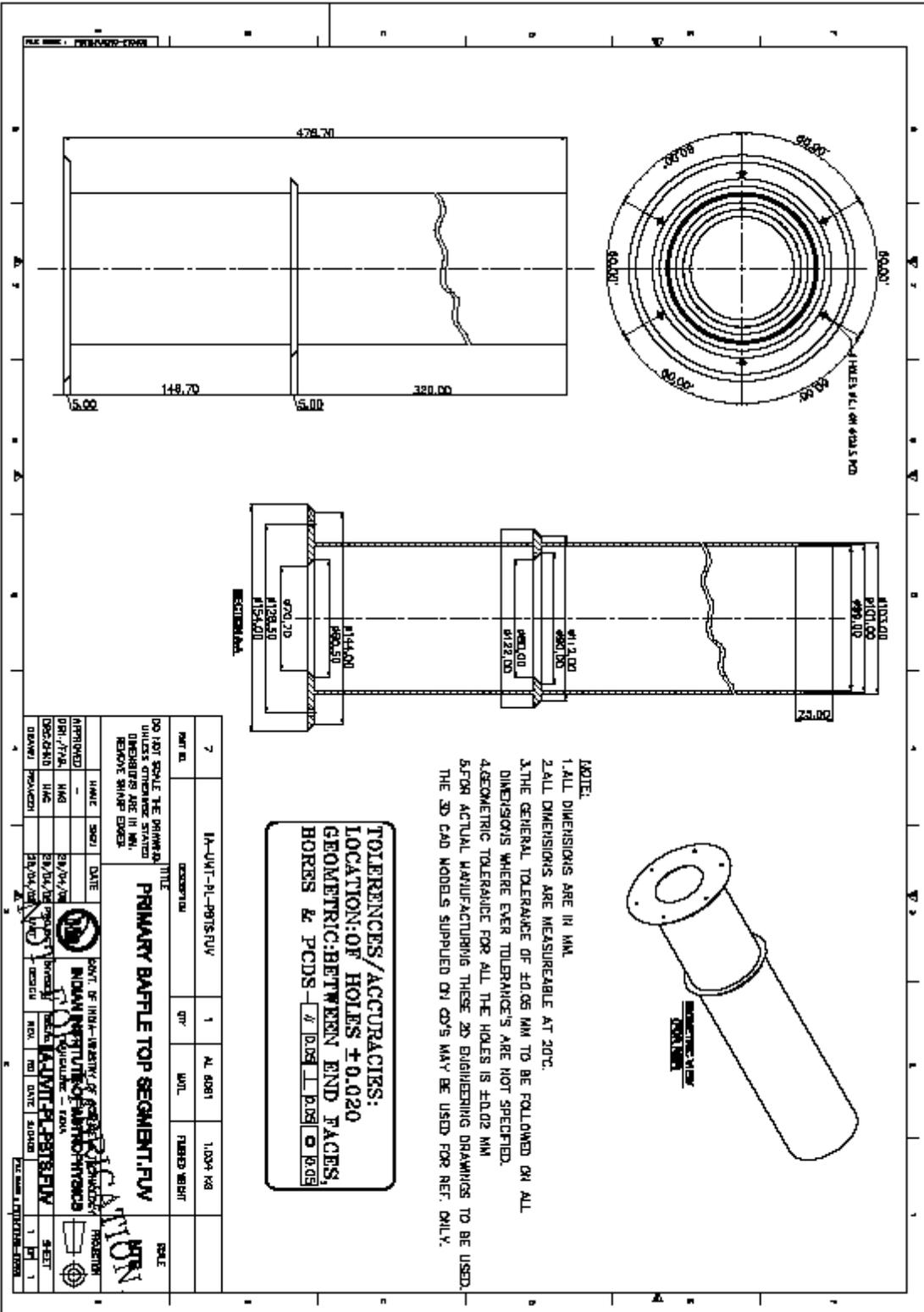
5	14-UNIT-PI-88	DESCRIPTION	QTY	AL	6081	0.242 TON	FINISHED WEIGHT	SCALE
PART NO		TITLE		DO NOT SCALE THE DIMENSIONS OF DIMENSIONS ARE IN MM. REMOVE SHARP EDGES				
5		14-UNIT-PI-88		SECONDARY BAFFLE SB				
APPROVED	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE
DR/7/04	14/07/04	29/04/04	29/04/04	29/04/04	29/04/04	29/04/04	29/04/04	29/04/04
DESIGN	CHK	APP	APP	APP	APP	APP	APP	APP
DR/7/04	14/07/04	29/04/04	29/04/04	29/04/04	29/04/04	29/04/04	29/04/04	29/04/04
DESIGN	CHK	APP	APP	APP	APP	APP	APP	APP
DR/7/04	14/07/04	29/04/04	29/04/04	29/04/04	29/04/04	29/04/04	29/04/04	29/04/04
DESIGN	CHK	APP	APP	APP	APP	APP	APP	APP
DR/7/04	14/07/04	29/04/04	29/04/04	29/04/04	29/04/04	29/04/04	29/04/04	29/04/04
DESIGN	CHK	APP	APP	APP	APP	APP	APP	APP
DR/7/04	14/07/04	29/04/04	29/04/04	29/04/04	29/04/04	29/04/04	29/04/04	29/04/04
DESIGN	CHK	APP	APP	APP	APP	APP	APP	APP



TOLERANCES / ACCURACIES:  
 LOCATIONS OF HOLES ± 0.05  
 SPACING BETWEEN END VALUES,  
 DIMENSIONS & FITS - (SEE TOLERANCES)

- NOTE:**
1. ALL DIMENSIONS ARE IN MM.
  2. ALL DIMENSIONS ARE MEASURABLE AT 20°C.
  3. THE GENERAL TOLERANCE OF ±0.05 MM TO BE FOLLOWED ON ALL DIMENSIONS WHERE EVER TOLERANCES ARE NOT SPECIFIED.
  4. GEOMETRIC TOLERANCE FOR ALL THE HOLES IS ±0.02 MM.
  5. FOR ACTUAL MANUFACTURING THESE 2D ENGINEERING DRAWINGS TO BE USED. THE 3D CAD MODELS SUPPLIED ON GD'S MAY BE USED FOR REF. ONLY.

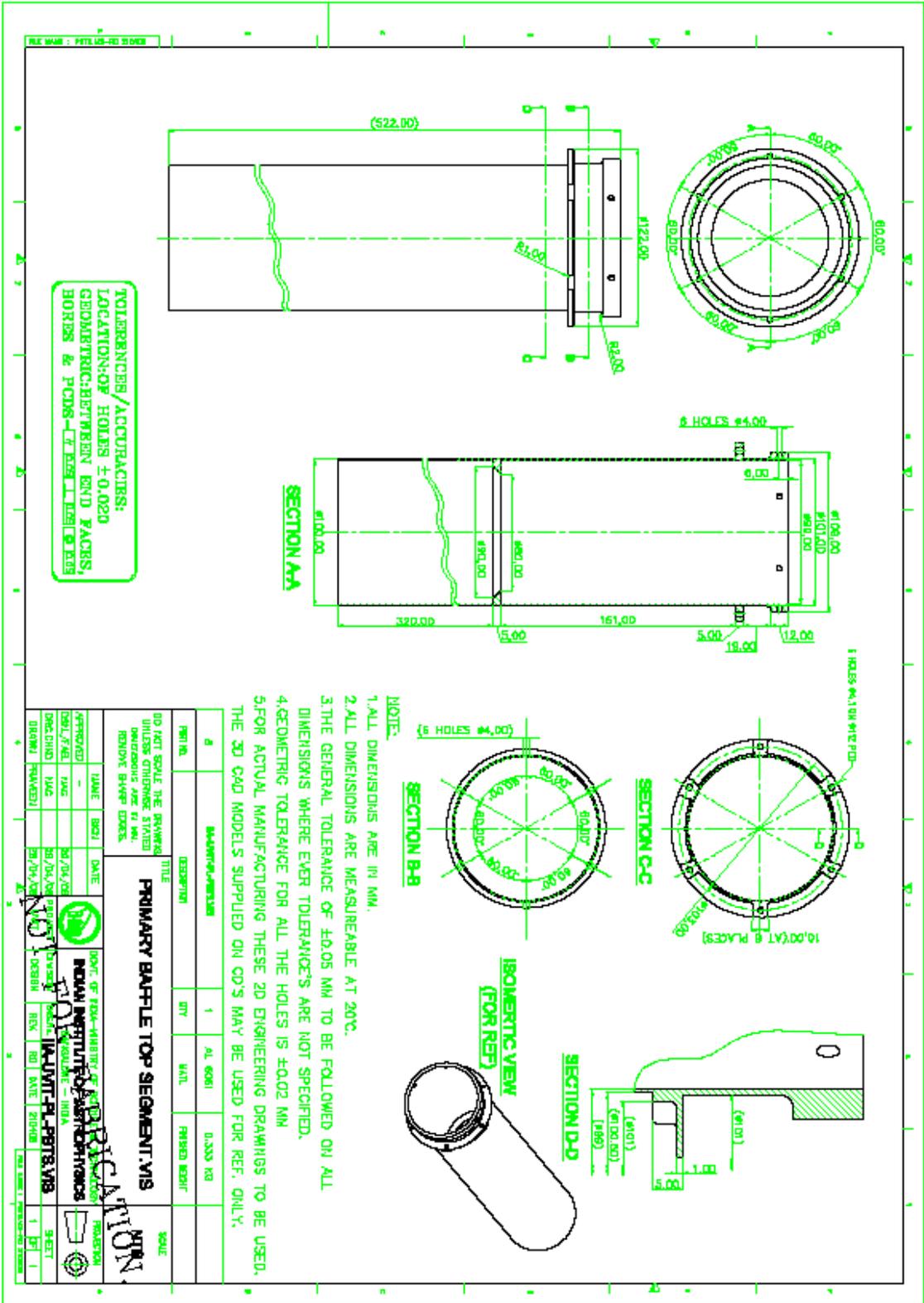
8	104-UNT-R-RHHT	1	AL BURN	0.500 KG	
PART NO.	DESCRIPTION	QTY	MATL	FINISH REQD	SCALE
DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES.					
<b>PRIMARY MIRROR HEATER PLMHT</b>					
DEPT. OF HIGH-ENERGY & SPACE SCIENCE INDIAN INSTITUTE OF SPACE SCIENCE AND TECHNOLOGY THIRUVANANTHAPURAM - 695 022 INDIA					
APPROVED	NAME	SRNO	DATE	DRAWN BY	
DR. PVA	HAG		28/04/20	M. S. S. S.	
DESIGNED	NAME	SRNO	DATE	CHECKED BY	
DR. PVA	HAG		28/04/20	M. S. S. S.	
DRAWN	NAME	SRNO	DATE	DATE SHOWN	
M. S. S. S.					
[SEE OVER SHEETS]					



**NOTE:**  
 1. ALL DIMENSIONS ARE IN MM.  
 2. ALL DIMENSIONS ARE MEASUREABLE AT 20°C.  
 3. THE GENERAL TOLERANCE OF ±0.05 MM TO BE FOLLOWED ON ALL DIMENSIONS WHERE EVER TOLERANCES ARE NOT SPECIFIED.  
 4. GEOMETRIC TOLERANCE FOR ALL THE HOLES IS ±0.02 MM.  
 5. FOR ACTUAL MANUFACTURING THESE 2D ENGINEERING DRAWINGS TO BE USED. THE 3D CAD MODELS SUPPLIED ON CD'S MAY BE USED FOR REF. ONLY.

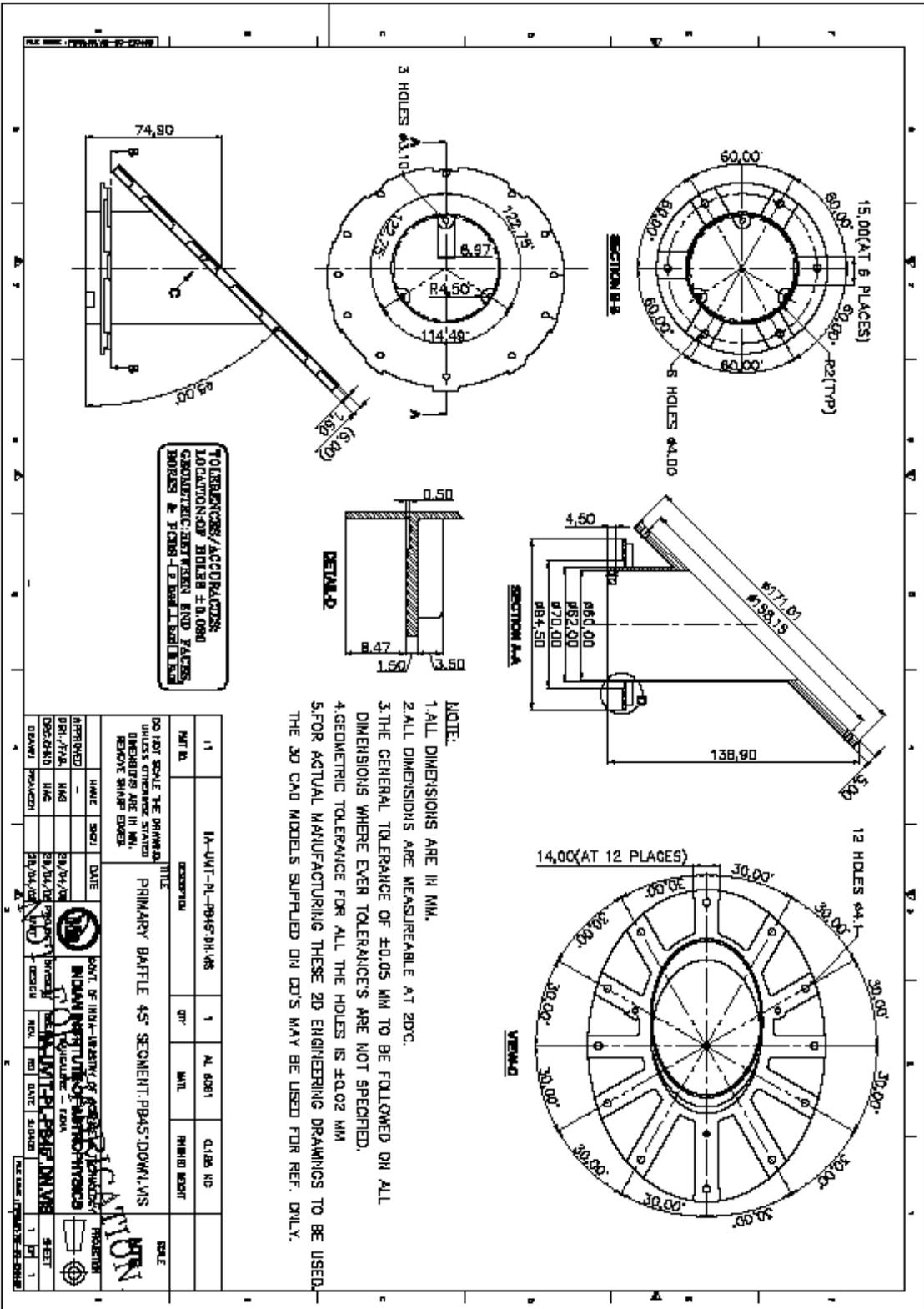
**TOLERANCES/ACCURACIES:**  
 LOCATION OF HOLES  $\pm 0.020$   
 GEOMETRIC BETWEEN END FACES,  
 HOLES & PCDS  $\pm 0.020$   $\pm 0.020$   $\pm 0.020$   $\pm 0.020$

7	IN-UNIT-PL-PTIS-FUY	1	AL 6061	1.004 KG	
PART NO.		QTY	MATL	FINISH WEIGHT	SCALE
DESCRIPTION					
TITLE					
PRIMARY BAFFLE TOP SEGMENT, FUY					
DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES.					
APPROVED	NAME	SIZE	DATE		
DRG./FWA	MM		29/07/06		
DES/CHKD	MM		29/07/06		
DRWN	PROVISION		29/07/06		
DEPT. OF HIGH-ENERGY PHYSICS, INDIAN INSTITUTE OF TECHNOLOGY, KANPUR NPTI NPTI NPTI					
SHEET 1 OF 1 DATE 29/07/06					









**TOLERANCES/ACCURACIES:**  
 LOCATIONS OF HOLES ±0.050  
 CONTOURS BETWEEN END PLATES  
 HOLES ±0.025 - ±0.025 (SEE LIST)

**NOTE:**  
 1. ALL DIMENSIONS ARE IN MM.  
 2. ALL DIMENSIONS ARE MEASURABLE AT 20°C.  
 3. THE GENERAL TOLERANCE OF ±0.05 MM TO BE FOLLOWED ON ALL DIMENSIONS WHERE EVER TOLERANCES ARE NOT SPECIFIED.  
 4. GEOMETRIC TOLERANCE FOR ALL THE HOLES IS ±0.02 MM  
 5. FOR ACTUAL MANUFACTURING THESE 2D ENGINEERING DRAWINGS TO BE USED. THE 3D CAD MODELS SUPPLIED ON CD'S MAY BE USED FOR REF. ONLY.

REV	DATE	BY	CHKD	DESCRIPTION
1	29/04/06	...	...	...
2	29/04/06	...	...	...
3	29/04/06	...	...	...
4	29/04/06	...	...	...
5	29/04/06	...	...	...

1	14-UNIT-PL-PP45-DH-VIS	1	AL 6081	CLUB NO
PRIMARY BAFLE 45° SECTION: PP45-DH-VIS				
SCALE				



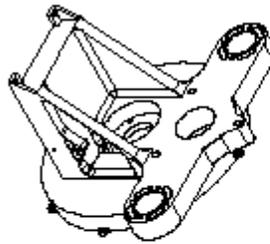
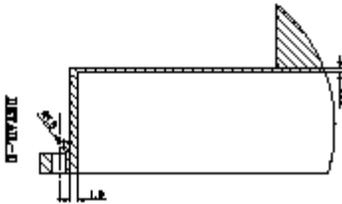
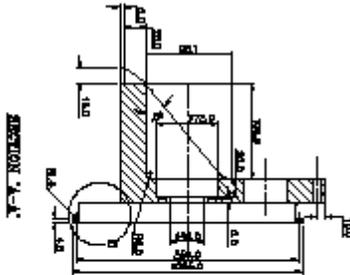
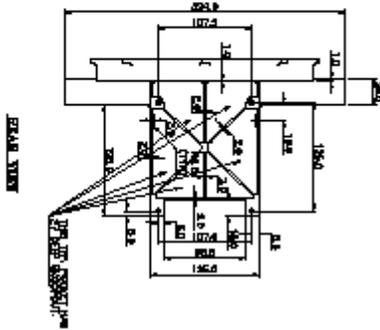






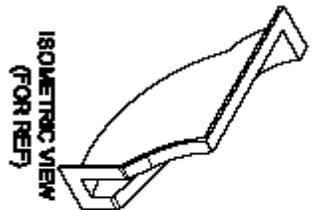
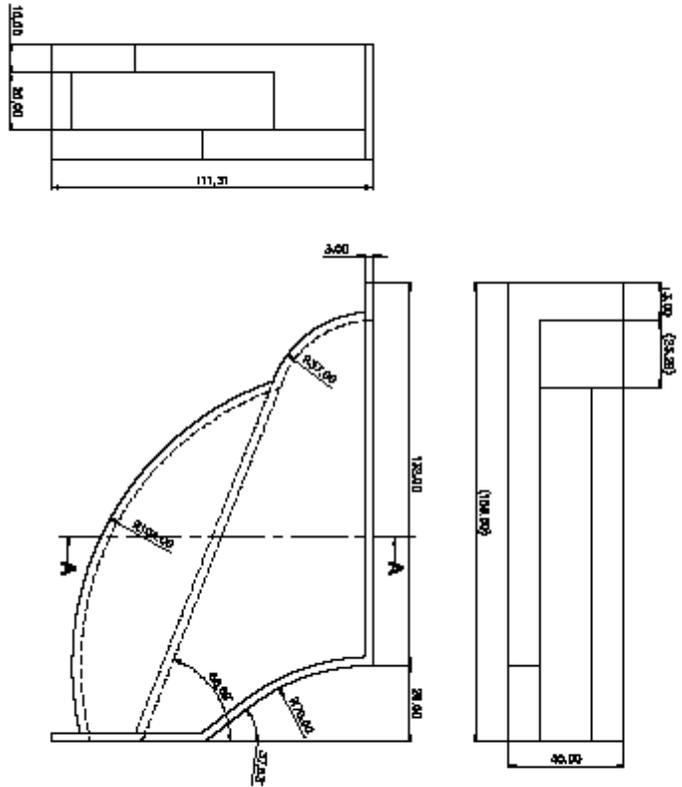


- NOTE:
1. ALL DIMENSIONS ARE IN MM.
  2. ALL DIMENSIONS ARE MEASURABLE AT 20°C.
  3. THE GENERAL TOLERANCE OF  $\pm 0.05$  MM TO BE FOLLOWED ON ALL DIMENSIONS WHERE EVER TOLERANCES ARE NOT SPECIFIED.
  4. GEOMETRIC TOLERANCE FOR ALL THE HOLES IS  $\pm 0.02$  MM
  5. FOR ACTUAL MANUFACTURING THESE 2D ENGINEERING DRAWINGS TO BE USED. THE 3D CAD MODELS SUPPLIED ON CD'S MAY BE USED FOR REF. ONLY.



TOLERANCES/ACTION/NOTES:  
 DIMENSIONS/FEATURES NOT SPECIFIED  
 SHALL BE TO THE FOLLOWING TOLERANCES  
 UNLESS SPECIFIED OTHERWISE

14	114-UVT-PL-DM8.NUV	1	AL 6061	1.71 KGS	
PART NO.		DESCRIPTION	QTY	MATL	FINISH WEIGHT
TITLE: DETECTOR MOUNT BRACKET DM8.NUV					
SCALE					
DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES.					
APPROVED	DATE	DATE	DRAWN BY		
DR: PVA	1/10	29/04/08	SHEET 3 OF 3		
DR: CHD	1/10	29/04/08	SHEET 3 OF 3		
DRAWN	1/10	29/04/08	SHEET 3 OF 3		

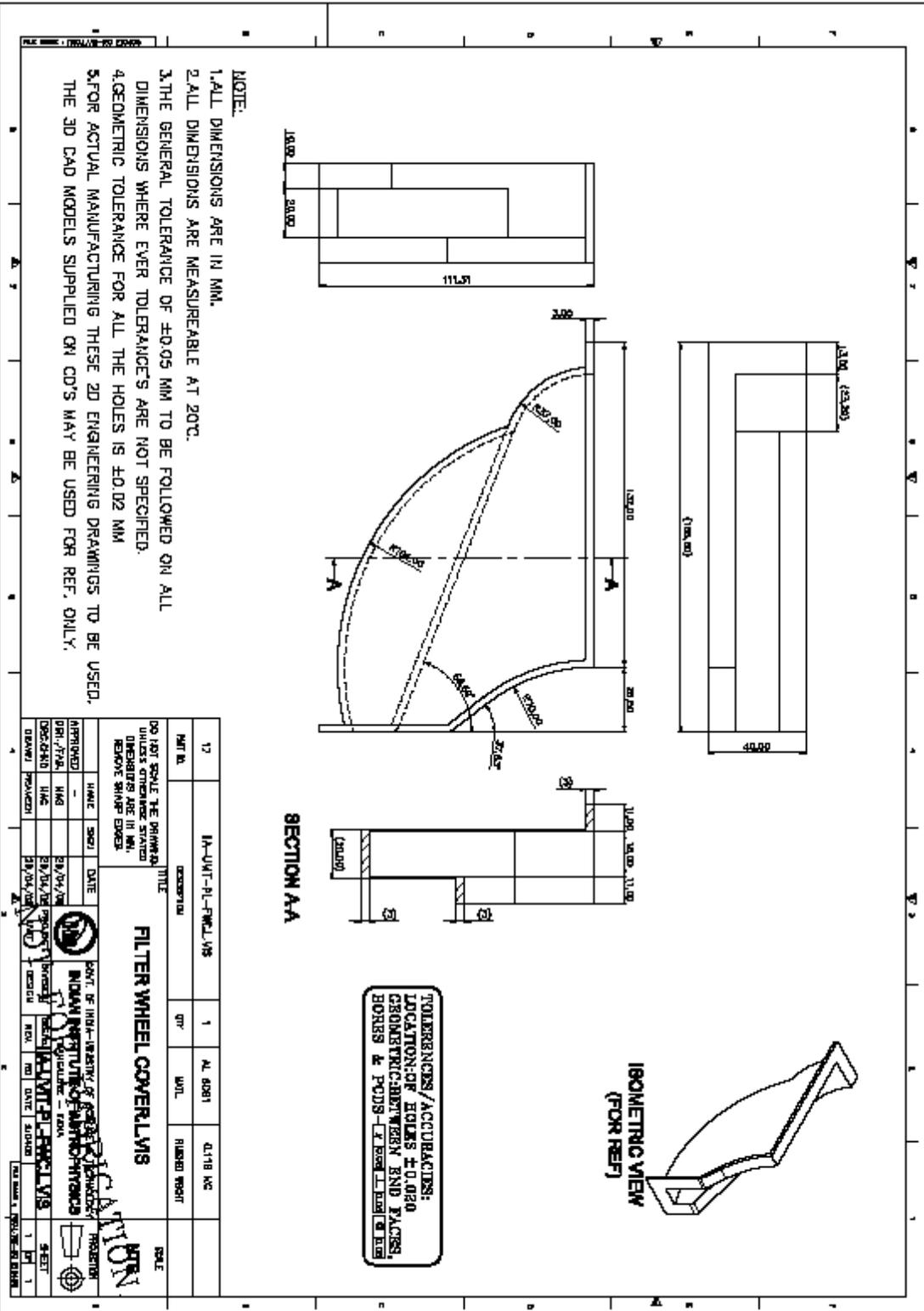


**TOLERANCES/ACCOMMODATIONS:**  
 LOCATION OF HOLES ±0.020  
 GEOMETRIC BETWEEN END FACES,  
 BORDS & FORDS - E REG - RES SURF

- NOTE:**
1. ALL DIMENSIONS ARE IN MM.
  2. ALL DIMENSIONS ARE MEASURABLE AT 20°C.
  3. THE GENERAL TOLERANCE OF ±0.05 MM TO BE FOLLOWED ON ALL DIMENSIONS WHERE EVER TOLERANCE'S ARE NOT SPECIFIED.
  4. GEOMETRIC TOLERANCE FOR ALL THE HOLES IS ±0.02 MM
  5. FOR ACTUAL MANUFACTURING THESE 2D ENGINEERING DRAWINGS TO BE USED. THE 3D CAD MODELS SUPPLIED ON CD'S MAY BE USED FOR REF. ONLY.

15	IN-UNIT-PL-FWCL.FW	2	AL 6061	Q178 K2	
PART NO.		QTY	MATL	FINISH WEIGHT	SCALE
DESCRIPTION					
TITLE					
DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES.					
APPROVED		DATE			
DRG./FW	CHK	28/07/08			
DESIGNED	DATE	28/07/08			
DRAWN	PRODUCTION	28/07/08			
DEPT. OF HIGH-ENERGY PHYSICS INDIAN INSTITUTE OF SPACE SCIENCE AND TECHNOLOGY THIRUVANANTHAPURAM - INDIA 15 IN-UNIT-PL-FWCL.FW		2 AL 6061 Q178 K2		1 1 1	

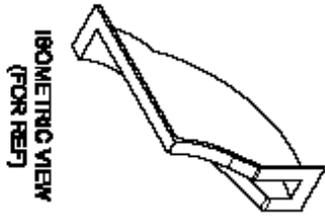
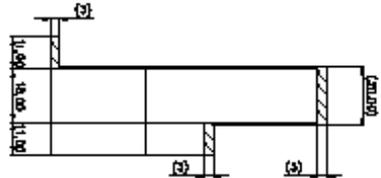
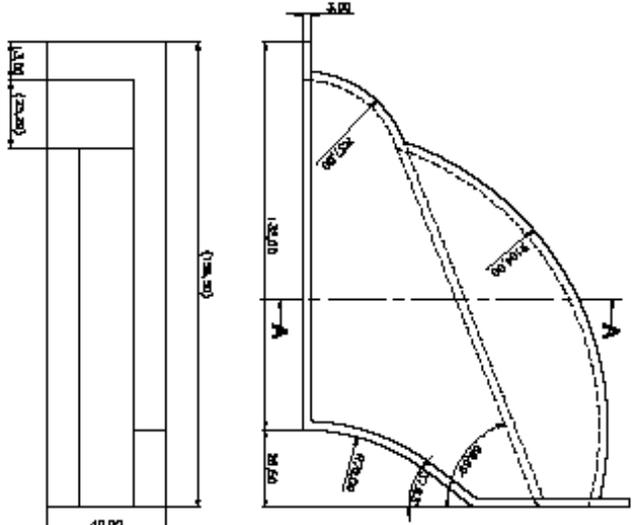
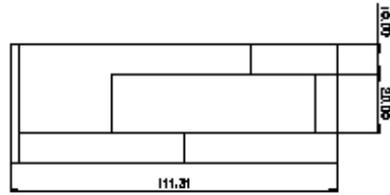




- NOTE:
1. ALL DIMENSIONS ARE IN MM.
  2. ALL DIMENSIONS ARE MEASURABLE AT 20°C.
  3. THE GENERAL TOLERANCE OF  $\pm 0.05$  MM TO BE FOLLOWED ON ALL DIMENSIONS WHERE EVER TOLERANCES ARE NOT SPECIFIED.
  4. GEOMETRIC TOLERANCE FOR ALL THE HOLES IS  $\pm 0.02$  MM
  5. FOR ACTUAL MANUFACTURING THESE 2D ENGINEERING DRAWINGS TO BE USED. THE 3D CAD MODELS SUPPLIED ON CD'S MAY BE USED FOR REF. ONLY.

12	IN-UNIT-PL-FWCLMS	1	AL 6061	4178 KC
PART NO.		QTY	MATL	FINISH WEIGHT
DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES.				
TITLE: FILTER WHEEL COVER LMS				
APPROVED	NAME	DATE	SCALE	
DRG./PWA	MMG	28/04/08	1:1	
DESIGNED	DATE	28/04/08	SHEET 1 OF 1	
DRAWN	PRODUCTION	28/04/08	REV. NO. DATE SIGNED	

TOLERANCES/ACCURACIES:  
 LOCATION OF HOLES  $\pm 0.050$   
 GEOMETRIC BETWEEN END FACES,  
 HORS & PODS - F FROM END OF HOLE



**TOLERANCES/ACCURACIES:**  
 LOCATION-OF HOLES +0.020  
 GEOMETRIC-BETWEEN END FACES,  
 BORES & PIDS -  $\pm 0.05$  UNLESS OTHERWISE SPECIFIED

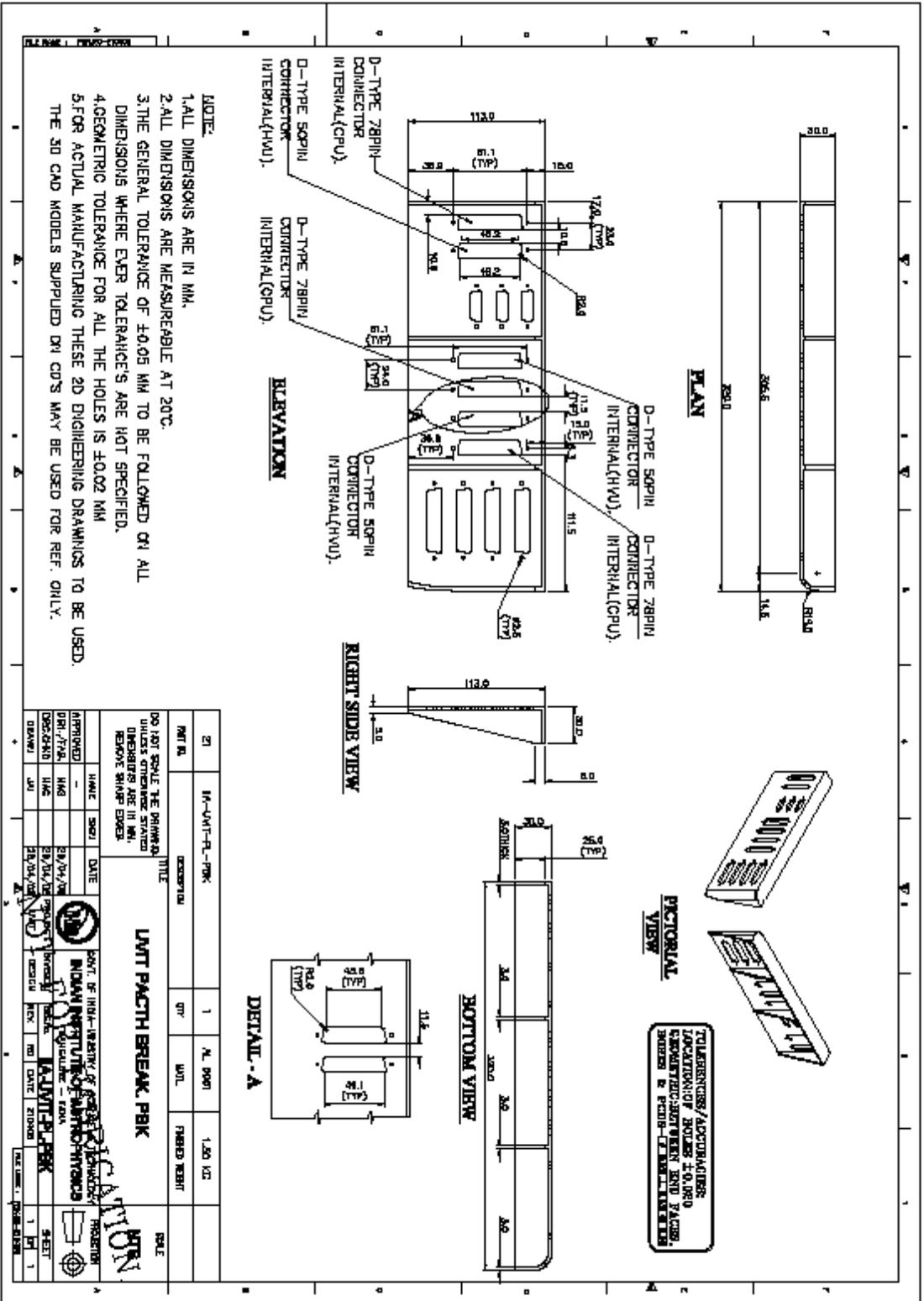
**SECTION A-A**

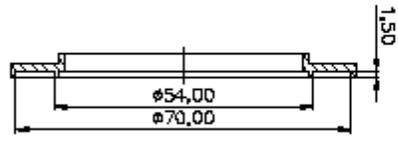
- NOTE:**
1. ALL DIMENSIONS ARE IN MM.
  2. ALL DIMENSIONS ARE MEASURABLE AT 20°C.
  3. THE GENERAL TOLERANCE OF  $\pm 0.05$  MM TO BE FOLLOWED ON ALL DIMENSIONS WHERE EVER TOLERANCE'S ARE NOT SPECIFIED.
  4. GEOMETRIC TOLERANCE FOR ALL THE HOLES IS  $\pm 0.02$  MM
  5. FOR ACTUAL MANUFACTURING THESE 2D ENGINEERING DRAWINGS TO BE USED. THE 3D CAD MODELS SUPPLIED ON CD'S MAY BE USED FOR REF. ONLY.

PART NO.		1A-UNIT-PL-FWCOVERS		DESCRIPTION		QTY	AL	QDR1	0.118 KG	SCALE
TITLE		FILTER WHEEL COVER.SVS								
DO NOT SCALE THE DIMENSIONS UNLESS SPECIFIED OTHERWISE. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES.										
APPROVED	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE
DRN / PWA	28/04/08	28/04/08	28/04/08	28/04/08	28/04/08	28/04/08	28/04/08	28/04/08	28/04/08	28/04/08
DESIGN	DESIGN	DESIGN	DESIGN	DESIGN	DESIGN	DESIGN	DESIGN	DESIGN	DESIGN	DESIGN
DRN	CHK	APP	APP	APP	APP	APP	APP	APP	APP	APP
1	1	1	1	1	1	1	1	1	1	1

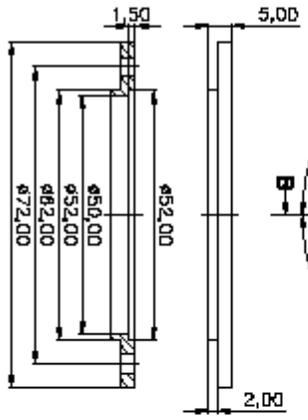
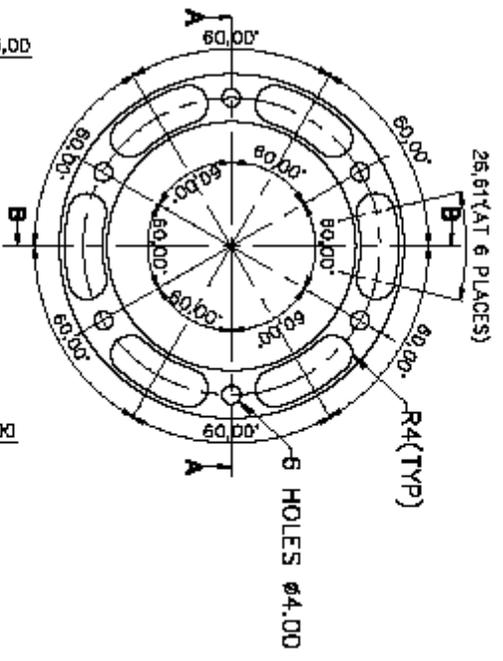




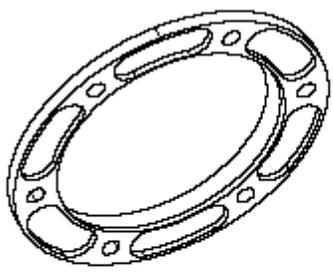




SECTION B-B



SECTION A-A

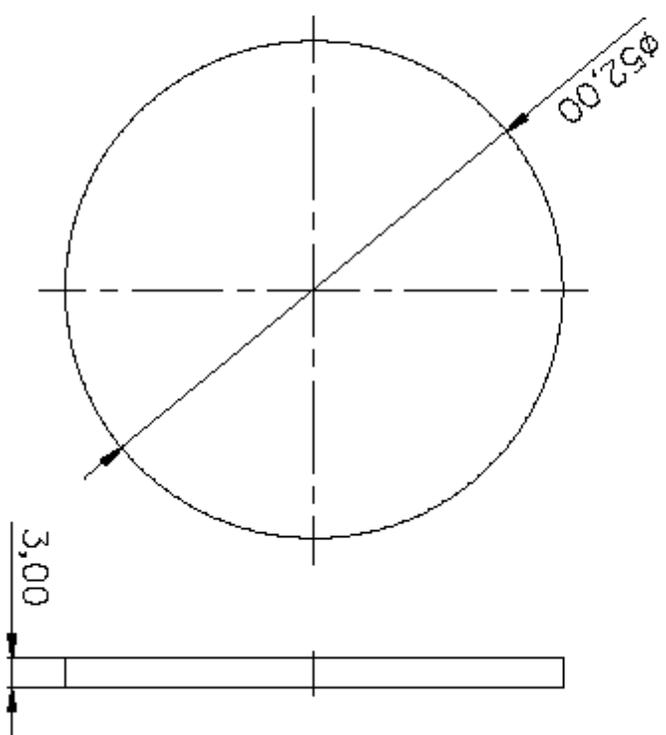


ISOMETRIC VIEW  
(FOR REF)

**TOLERANCES/ACCURACIES:**  
 LOCATION OF HOLES ± 0.050  
 GEOMETRIC BETWEEN END FACES,  
 HOLES & PDS - 1.000

- NOTE:
1. ALL DIMENSIONS ARE IN MM.
  2. ALL DIMENSIONS ARE MEASURABLE AT 20°C.
  3. THE GENERAL TOLERANCE OF ± 0.05 MM TO BE FOLLOWED ON ALL DIMENSIONS WHERE EVER TOLERANCES ARE NOT SPECIFIED.
  4. GEOMETRIC TOLERANCE FOR ALL THE HOLES IS ± 0.02 MM
  5. FOR ACTUAL MANUFACTURING THESE 2D ENGINEERING DRAWINGS TO BE USED. THE 3D CAD MODELS SUPPLIED ON CD'S MAY BE USED FOR REF. ONLY.

22	IN-UNIT-PL-VPB	2	AL 6061	0.13 KG
PART NO. DESCRIPTION QTY. MATL. FINISH WEIGHT				
TITLE				
VIEW PORT BLANK VPB				
SCALE				
DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED DIMENSIONS ARE IN MM. REMOVE SHIP DIMS.				
APPROVED	NAME	SCALE	DATE	
DRG./TVA	MMG		04/02/08	
DESIGNED	MMG		04/02/08	
DRAWN	PRODUCTION		04/02/08	
DEPT. OF INSTRUMENTATION ENGINEERING INDIAN INSTITUTE OF SPACE SCIENCE AND TECHNOLOGY KANPUR UTTAR PRADESH INDIA				
DRAWN BY:  M. K. SINGH CHECKED BY:  M. K. SINGH APPROVED BY:  M. K. SINGH DATE: 04/02/08				
SHEET 1 OF 1 100-26-6108				

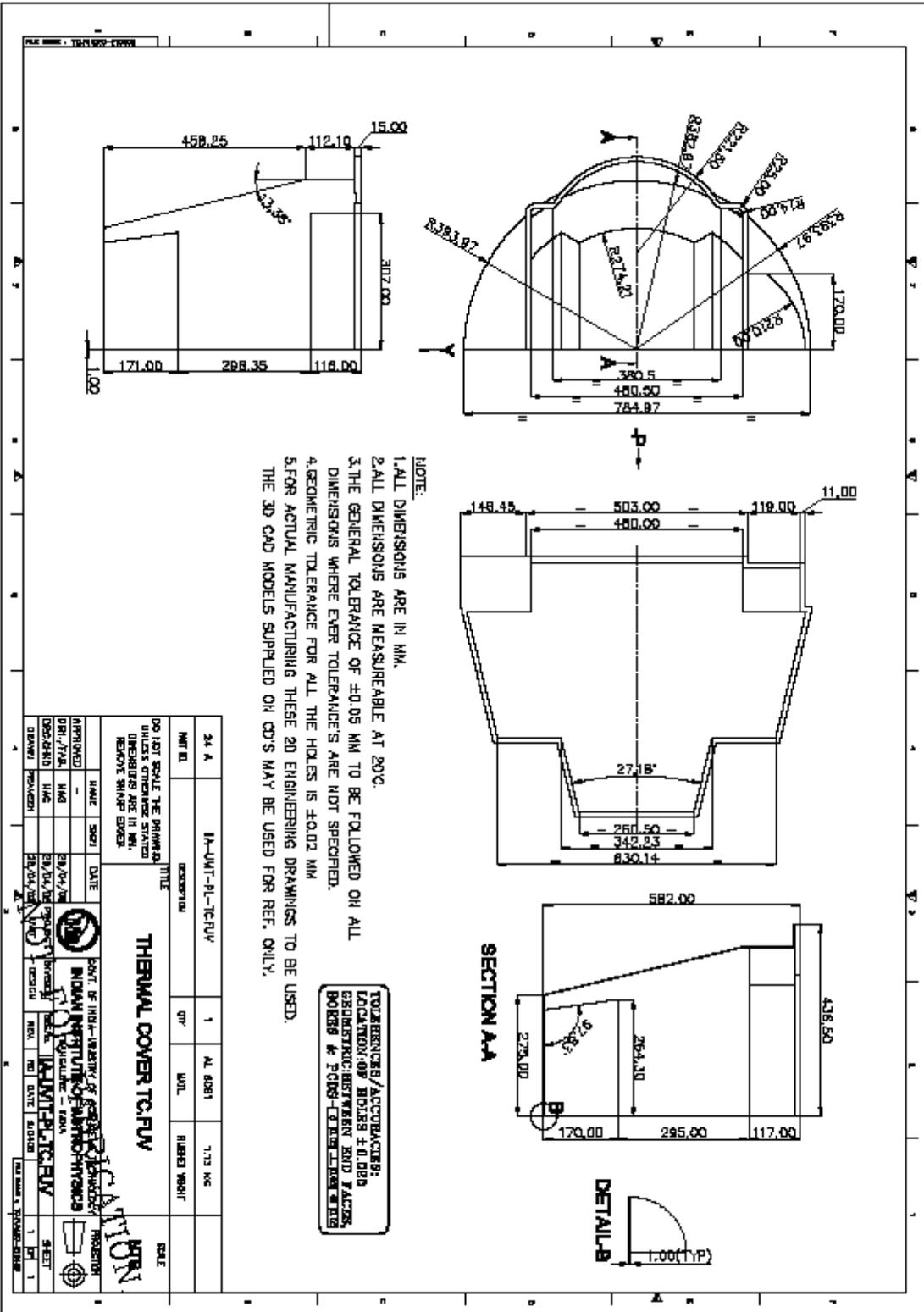


**TOLERANCES/ACCURACIES:**  
 LOCATION OF HOLES ± 0.050  
 GEOMETRIC BETWEEN END FACES,  
 HOLES & PDS ± 0.050

- NOTE:**
1. ALL DIMENSIONS ARE IN MM.
  2. ALL DIMENSIONS ARE MEASURABLE AT 20°C.
  3. THE GENERAL TOLERANCE OF ±0.05 MM TO BE FOLLOWED ON ALL DIMENSIONS WHERE EVER TOLERANCES ARE NOT SPECIFIED.
  4. GEOMETRIC TOLERANCE FOR ALL THE HOLES IS ±0.02 MM
  5. FOR ACTUAL MANUFACTURING THESE 2D ENGINEERING DRAWINGS TO BE USED. THE 3D CAD MODELS SUPPLIED ON CD'S MAY BE USED FOR REF. ONLY.

23	IN-UNIT-PL-VPO	2	AL 6061	0.000	MC
PART NO.		DESCRIPTION	QTY	UNIT	FINISH WEIGHT
DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED DIMENSIONS ARE IN MM. REMOVE SHARP EDGES					
<b>VIEW PORT DISK</b>					
APPROVED	NAME	SRCD	DATE	SCALE	
DRG./PWA	HMG		04/02/08	1:1	
DESIGNED	NAME		04/02/08	SHEET 1	
DRAWN	PRODUCTION		04/02/08	REV. 1	
<p>DEPT. OF HIGH-TECHNOLOGY OF ENGINEERING SERVICES          INDIAN INSTITUTE OF TECHNOLOGY          KANPUR</p> <p>DATE: 04/02/08</p> <p>SCALE: 1:1</p> <p>SHEET: 1</p> <p>REV: 1</p>					





- NOTE:
1. ALL DIMENSIONS ARE IN MM.
  2. ALL DIMENSIONS ARE MEASURABLE AT 20°C.
  3. THE GENERAL TOLERANCE OF ±0.05 MM TO BE FOLLOWED ON ALL DIMENSIONS WHERE EVER TOLERANCES ARE NOT SPECIFIED.
  4. GEOMETRIC TOLERANCE FOR ALL THE HOLES IS ±0.02 MM.
  5. FOR ACTUAL MANUFACTURING THESE 2D ENGINEERING DRAWINGS TO BE USED. THE 3D CAD MODELS SUPPLIED ON CD'S MAY BE USED FOR REF. ONLY.

TOLERANCES/ACTIONARY:  
 LOCATION FOR HOLES & OTHER  
 GEOMETRIC BETWEEN END FACES  
 BORES & PINS - TO BE DIMENSIONED

24 A	IN-UNIT-PL-TCFUV	1	AL 6061	173 KG	
INT. ID.	DESCRIPTION	QTY	MATL	RIBBED WEIGHT	SCALE
THERMAL COVER TOP FLV					
DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES.					
APPROVED	NAME	SCALE	DATE	SHEET NO. OF SHEETS	
DR. / P.A.	MM		28/07/08	1	1
DESIGNED	MM		28/07/08	1	1
DRAWN	PRODUCTION		28/07/08	1	1



**Annexure - III**  
**INSTRUCTIONS TO TENDERERS**

1. Tenders should be sent in sealed and superscribed envelopes with mention of Tender No. date and date of opening. Only one Tender should be sent in each envelope.
2. Late and Delayed Tender will not considered at all.
3. Duties, Taxes where legally leviable and intended to be claimed should be distinctly shown separately in the Tender.
4. As a Govt. of India Department, this office is exempted from the payment of Octroi Duty and similar local levies (but not providing any C or D forms) Tenderers shall ensure that necessary exemption certificates are obtained from the officer concerned to avoid any payment of such levies.
  1. a) Your quotation should be valid for 120 days from the date. of opening of tender.  
b) Prices are required to be quoted accordingly to the units indicated in the annexed tender form. When quotations are given in terms of units other than those specified in the tender form, relationship between the two sets of units must be furnished.
  2. Preference will be given to those tenders offering supplies from ready stocks and on the basis of F.O.R Destination/Free door delivery at Site.
  3. a) All available Technical Literature(s), Catalogue(s) and other data in support of the specifications and details of the item(s) should be furnished along with the offer.  
b) Samples, if any, called for, should be submitted free of all charges by the tenderer and the Purchaser shall not be responsible for any loss or damage thereof due to any reason whatsoever. In the event of non-acceptance of tender, the tenderer shall have to remove the samples at his own expense.

c) Approximate net and gross weight of the items offered shall be indicated in your offer. If dimensional details are available the same should indicated in your offer.

d) SPECIFICATIONS:

Stores offered should strictly conform to our specifications. Deviation, if any should be clearly indicated by the tenderer in their quotation. The tenderer should also indicate the Make/type No. of the stores offered and provide catalogue(s), Technical literature(s) and sample(s), wherever necessary along with the quotations. Test certificates wherever necessary should be forwarded along with the supplies. Whenever options are called for in our specifications, the tenderer should address all such options. Wherever specifically mentioned by us the tenderer could suggest changes to specifications with appropriate response for the same.

4. The purchaser shall be under no obligation to accept the lowest or any tender and reserves the right of acceptance of the whole or any part of the tender or portion of the quantity offered and the tenderers shall supply the same at the rates quoted.
5. Corrections, if any, must be attested. All amounts shall be indicated both in words as well as in figures. Where there is difference between amounts quoted in words and figures, amount quoted in words shall prevail.
6. The Tenderer should supply along with the tender, the name of his bankers as well as the latest Income Tax Clearance Certificate duly countersigned by the Income Tax Officer of the circle concerned under the seal of his office, if required by the Purchaser.
7. The Purchaser reserves the right to place order on the successful tenderers for additional quantity upto 25% of the quantity offered by them at the rates quoted.
8. The authority of the person signing the tender, if called should be produced.
9. Complete system configuration and system and sub-system design details should have approval of the purchaser before actual fabrication or procurement process.
10. A complete set of instruction and operation manual should be supplied at the time of installation.
11. Final performance should be guaranteed at the site.

## **TERMS AND CONDITIONS OF CONTRACT**

### **1. DEFINITIONS:**

- a). The terms 'Purchaser' shall mean the Director, Indian Institute of Astrophysics, Bangalore-560 034.
- b). The term 'Contractor' shall mean, the person, firm or company with whom or with which the order for the supply of stores is placed and shall be deemed to include the Contractor's successors, representative, heirs, executors and administrators unless excluded by the contract.
- c). The 'Stores' shall mean that contractor agrees to supply under the contract as specified in the Purchase Order including erection of Plants and machinery and subsequent testing, should such a condition be included in the Purchase Order.
- d). The terms 'Purchase Order' shall mean the communication signed on behalf of the Purchaser by an officer duly authorized intimating the acceptance on behalf the Purchaser on the terms and conditions mentioned or referred to in the said communications accepting the tender or offer of the contractor for supply of stores or plant, machinery or equipment or part thereof.

### **2. PRICES:**

Tenders offering firm prices will be preferred, where a price variation clause is insisted upon by a tenderer, quotations with a reasonable ceiling should be submitted. Such offers should invariably be supported by the base price taken into account at the time of tendering and also the formula for any such variations.

### **Duty Exemption:**

Please note that we may issue "Excise duty Exemption Certificate", if acceptable under the Govt. of India notification No. 10/97 valid till 2011.

**3. SECURITY DEPOSIT:**

On acceptance of Tender, the Contractor shall, at the option of the Purchaser and within the period specified by him deposit with him in cash or any other form as the Purchaser may determine, Security deposit not exceeding ten percent of the value of the contract as the Purchaser shall specify. If the contractor is called upon by the purchaser to deposit 'Security' and the contractor fails to provide the security within the period specified, such failure shall constitute a breach of the contract and purchase shall be entitled to make other arrangements for the re-purchase of the stores contracted for at the risk of contractor in terms of sub-clause (ii) and (iii) of clause 10 (b) hereof and/or to recover from the contractor damages arising from such cancellation.

**4. GUARANTEE AND REPLACEMENT:**

a) The contractor shall guarantee that the stores supplied shall comply fully with the specifications laid down, for material workmanship and performance.

b) For a period of (12) twelve months after the acceptance of the stores, if any defects are discovered therein or any defects therein found to have developed under proper use arising from faulty stores, design or workmanship, contractor shall remedy such defects at his own cost provided he is called upon to do so within a period of 14 months from the date of acceptance thereof by the purchaser who shall state in writing in what respect the store or any part thereof are faulty.

c) If in the opinion of the purchaser, it becomes necessary to replace or renew any defective stores such replacement or renewal shall be made by the Contractor free of all costs to the purchaser provided the notice informing the contractor of the defect is given by the purchaser in this regard within the said 14 months from the date of acceptance thereof.

d) Should the contractor fail to rectify the defects, the purchaser shall have the right to reject or repair or replace at the cost of the contract -or the whole or any portion of the defective stores.

e). The decision of the purchaser, notwithstanding any prior approval of acceptance or inspection thereof on behalf of the purchaser, as to whether or not the stores supplied by the contractor are defective or any defects has developed within the said period of 12 months or as to whether the nature of the defectives required renewal or replacement shall be final, conclusive and binding on the contractor.

f) To fulfill guarantee conditions outlined in Clause 4(a) to (d) above, the contractor shall, at the option of the purchaser, furnish a Bank Guarantee (as prescribed by the purchaser) from a Bank approved by the purchaser for an amount equivalent to 10% of the value of the contract along with first shipment documents. On the performance and completion of the contract in all respects, the Bank Guarantee will be returned to the contractor without any interest.

g) All the replacement stores shall also be guaranteed for a period of 12 months from the date of arrival of stores at Purchaser's site.

h) Even while the 12 months guarantee applied to all stores in case where a greater period is called forth by our specifications then such a specification shall apply; in such cases the period of 14 months referred to in Para 4(b) and (c) shall be 'asked for' guarantee period plus two months.

5. **PACKING, FORWARDING AND INSURANCE:**

The Contractor will be held responsible for the stores being sufficiently and properly packed for transport by rail, road, sea or air, to withstand transit hazards and ensure safe arrival at the destination. The packing and marking of packing shall be done by and at the expenses of the contractor. The Purchaser will not pay separately for transit insurance, all risks in transit being exclusively of the contractor and the Purchaser shall pay only for such stores as are actually received in good condition, in accordance with contract.

6. **TEST CERTIFICATE:**

Wherever required Test Certificate should be sent along with the relevant dispatch documents.

7. **ACCEPTANCE OF STORES:**

- a) The Stores shall be tendered by the contractor for inspection at such places as may be specified by the purchaser at the Contractor's own risk, expenses and cost.
- b) It is expressly agreed that the acceptance of stores, contracted for is subject to final approval by the Purchaser, whose decision shall be final.
- c) If, in the opinion of the Purchaser all or any of the stores that do not meet the performance or quality requirements specified in the Purchase Order, they may be either rejected or accepted at the price to be fixed by the purchaser and his decision as to rejection and the prices to be fixed shall be final and binding on the contractor.
- d) If the whole or any part of the store supplied are rejected in accordance with Clause No.7 (c) above, the Purchaser shall be at the liberty, with or without notice to the Contractor, to purchase in the open market at the expenses of the Contractor, stores meeting the necessary performance and quality contracted for in place of these rejected, provided that either the purchase, or the agreement to purchase, from another supplier is made within six months from the date of rejection of the stores as aforesaid.

8. **REJECTION OF STORES:**

Rejected Stores will remain at the destination at the Contractor's risk and responsibility, if instructions for their disposal are not received from the Contractor within a period of 14 days from the date of receipt of the advice or rejection, the Purchaser or his representative has, at his discretion the right to scrap or seal or consign the rejected stores to the Contractor's address at the Contractor's entire risk and expense, freight being payable by the Contractor at actuals.

**9. DELIVERY PERIOD:**

- a) The time for and the date of delivery of the stores stipulated in the Purchase order shall be deemed to be the essence of the Contract, and delivery must be completed on or before the specified dates.
- b) Should the Contractor fails to deliver the stores or any consignment thereof within the period prescribed for such delivery, the Purchaser shall be entitled at his option either.
- i) to recover from the Contractor as agreed liquidated damages and not by way of penalty, a sum of 2% of the price of any stores which the contractor has failed to deliver as aforesaid for each month or part of a month, during which the delivery of such stores may in arrears, or
  - ii) to purchase elsewhere, without notice to the Contractor on the account and at the risk of the contractor, the stores not delivered or others of similar description (where other exactly complying with the particulars are not, in the opinion of the purchaser readily procurable, such opinion being final) without canceling the Contract in respect of the consignment(s) not yet due for delivery or,
  - iii) to cancel the contract or a portion thereof, and, if so desired to purchase or authorize the purchase of stores not so delivered or others of similar description (where others exactly complying with the particulars are not, in the opinion of the purchaser readily procurable, such opinion final) at the risk and cost of the Contractor.

In the event of action being taken under sub-clause (ii) and (iii) of clause 9 above, the Contractor shall be liable for any loss which the Purchaser may sustain on that account, provided that the re-purchase, or, if there is an agreement to re-provided that the agreement, is made within (6) six months from the date of such failure. But the Contractor shall not be entitled to any gain on such re-purchase made against default. It shall not be necessary for the purchaser to serve a notice of such re-purchase on the defaulting Contractor. This right shall without prejudice to the right of the purchase to recover damages for breach of contract by the Contractor.

10. **EXTENTION OF DELIVERY TIME:**

As soon as it is apparent that Contractor dates cannot be adhered to, an application shall be sent by the Contractor to the Purchaser. If failure, on the part of the Contractor to deliver the stores in proper time shall have arisen from any cause which the Purchaser may admit as reasonable ground for an extension of the time (and his decision shall be final he may allow such additional time as he considers it to be justified by the circumstances of the case without prejudice to the Purchaser's rights to recover liquidated damages under clause 9 hereof.

11. **PAYMENT:**

Contractor's Bill will be passed only after the stores have been received, inspected and accepted by the Purchaser for payment.

12. **RECOVERY OF SUMS DUE:**

Whenever there is a breach of contract whether liquidated or not, money arises out of or under this contract against the contract, the Purchaser shall be entitled to recover such sum by appropriating, in part or while, the security deposited by the Contractor, if a Security is taken against the contract. In the event of the Security being insufficient or if no security has been taken from the Contractor, then the balance or the total sum recoverable as the case may be shall be deducted from any sum then due or which at any time thereafter may become due to the contractor under this or any other contract with the Purchaser. Should this sum be not sufficient to cover the full amount recoverable, the Contractor shall pay to the Purchaser on demand the remaining balance due. Similarly, if the purchaser has or makes any claims, whether liquidated or not, against the Contractor under any other contract with the purchaser, the payment of all moneys payable under the contract to the Contractor including the Security Deposit shall be withheld till such claims of the Purchaser are finally adjudicated upon and paid by the Contractor.

13. **INDEMNITY:**

The Contractor shall warrant and be deemed to have warranted that all stores supplied against this contract are free and clean of infringement of any patent, copy right or trade mark, and shall at all time indemnity the purchaser against all claims which may be made in respect of the stores for infringement of any right protected by patent, registration of design or trade mark and shall take all risk of accidents of damage which may cause a failure of the supply from whatever cause arising and the entire responsibility for sufficiency of all the means used by him for the fulfillment of contract

14. **ARBITRATION:**

In the event of any question, dispute or difference arising under these conditions contained in the purchase order in connection with this contract, (except as to any matters the decision of which is specially provided for by these conditions), the same shall be referred to the sole arbitration of the Head of the Purchase Officer or of some other person appointed by him. It will be no objection that the arbitrator is a Government Servant, that he has to deal with matter to which the Contract relates or that in the course of his duties as Government Servant he has expressed views on all or any of the matters in dispute binding on the parties of this Contract.

(a) **IT IS TERMS OF THIS CONTRACT:**

If the Arbitrator be the Head of the Purchase Office,

- i) in the event of his being transferred or vacating his office by resignation or otherwise, it shall be lawful for his successor-in-office either to proceed with the reference himself, or to appoint another person as arbitrator, or,
- ii) in the event of his being unwilling or unable to act for any reason, it shall be lawful for the Head of the Purchase Office to appoint another person as arbitrator or,

(b) If the Arbitrator be a Person appointed by the Head of the Purchase Officer:-

In the event of his death, neglecting or refusing to act, or resigning or being unable to act for any reason, it shall be lawful for the Head of the Purchase Office either to proceed with reference himself or to appoint another person as arbitrator in place of the outgoing arbitrator. Subject as aforesaid, the Arbitration Act, 1940 and the rules there under and any statutory modifications thereof for the time being in force shall be deemed to apply to the arbitration proceedings under this clause. The Arbitrator shall have the power to extend with the consent of the Purchaser and the Contractor the time for making a publishing the award. The venue of Arbitration shall be the place as the Purchaser. In his absolute discretion may determine. Work under the contract shall if reasonably possible, continue during Arbitration proceedings.

15. **COUNTER TERMS AND CONDITIONS OF SUPPLIERS:**

Where Counter Terms and Conditions/printed or cyclostyled conditions have been offered by the Supplier, the same shall not be deemed to have been accepted by the Purchaser, unless specific written acceptance thereof is obtained.

16. **SECURITY FOR PURCHASER'S MATERIAL(S):**

Successful Tenderer will have to furnish in the form of a Bank Guarantee or any other form as called for by the Purchaser towards adequate security for the materials/property provided by the Purchaser for the due execution of the Contract.