

**Government of India  
Bhabha Atomic Research Centre  
Multidiscipline Research Group  
Applied Physics Division**

Ref: APD/CB/MF/22/AMR/413

May 19, 2022

To,

Sub: Minor Fabrication - invitation of quotations for the job of "**Fabrication, Supply, inspection of half round and cylindrical type S.S. SHIELDED ENCLOSURE along with other accessories**" as per drawing and specifications.

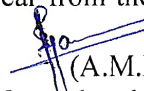
Due Date: 25/05/2022

**Kind attention: A.M.RAWOOL , EXT - 21317**

Dear Sirs,

1. Quotations are invited for the minor fabrication job, as per the enclosed specifications and drawings.
2. Bidder shall quote for fabrication of these components with material in **TWO PART (i.e) TECHNICAL AND COMMERCIAL)** in separate envelope. **Supplier should quote quantity as 1 set for all parts.**
3. Bidder shall take out an insurance policy in favour of BARC for any free issue material supplied.
4. Taxes shall be quoted separately. Form H shall be provided where necessary.
5. **The quotations must reach, Head, Applied Physics Division on or before the due date referred above and must be sent in a sealed envelope super scribed with the above reference number and due date. By SPEED POST only.**
6. The address on the envelope should read :

The Head,  
Applied Physics Division, PURNIMA LABS,  
Bhabha Atomic Research Centre  
Trombay, Mumbai - 400 085.  
Attn : Mr. A.M.Rawool
7. The fabrication work shall be subject to inspection by our representative. The finished components shall not be dispatched prior to approval by our representative at the bidder's works. Necessary inspection facilities should be provided to our engineers during fabrication at bidder's premises.
8. The bidder shall deliver the finished components after approval by our representative, within 3 months from the date of the firm purchase order issued to the bidder. The finished components shall be delivered by the bidder at APD,BARC,TROMBAY,MUMBAI
9. Head, Applied Physics Division, BARC, reserves the right to accept/reject any or all quotations without assigning any reason.
10. Payment will be made by cheque only after satisfactory completion of work on production of bill, delivery challan and advance stamped receipt. It may be noted that IT @ 2% and surcharge on tax shall be deducted from your bills.
11. Job will be guaranteed against material and manufacturing defects for 1 year from the date of supply.

  
(A.M.Rawool)  
for and on behalf of.  
Head, Applied Physics Division

A) Specification

a) EMI shielded half round S.S. enclosure along with other accessories as per drawing qty- 2 set

b) HDPE SHETS for half round enclosure along with hardware qty- 10 nos

c) EMI Shielded cylindrical s.s. enclosure along with accessories qty- 2 SET

d) CIRCULAR HDPE SHEETS FOR CIRCULAR SHIELDED ENCLOSUE QTY- 10 NOS

e) Other accessories Qty as per attached drawing and specifications

\*All dimensions are in mm

\*All the enclosure are to be made out of at least 2 mm thick S.S.sheets.

\*None of the faces should have any visible gap between the sheets.

\*Opening face will have easily removable nut and bolt arrangement (as per sketch).

\*Finishing of all welded joints should be smoothed and cleaned.

\* All the boxes are to be buffed finish (inside as well as outside the box).

- 1) The PCD for all the holes should be within  $\pm 0.02$  mm and all holes to be done by indexing method only for equal placement within  $\pm 0.02$  mm.
- 2) The vertical straight lines for long drilling is within  $\pm 30$  arc minute.
- 3) All material test certificates are to be submitted.
- 4) All threads, taps, holes should be concentric, parallel and straight w.r.t. OD and ID's
- 5) All components should have interchangeability.
- 6) For all lifting the proper wide and radius handle to be provided.
- 7) No sharp corner to be allowed put 2r whenever not specified.
- 8) The welding brazing or any joint should be smoothed and ground
- 9) All hardware (S.S. 304), O rings (VITON) to be supplied by the supplier.
- 10) Lead gasket to be used will have purity (99.5 %) and thickness as per requirement. (~5kg)
- 11) All usable items for one year or as per requirement to be supplied by the supplier.
- 12) The jib should be proper in cube shaped, no war pages will be allowed.
- 13) 2 set of hardware to be supplied extra by the supplier.
- 14) Tool box with required tools to be supplied by the supplier.
- 15) No alternation in dimension of O RING will be allowed.
- 16) If there is any change in dimension, Fabricator/ Supplier should inform to indenter before machining.
- 17) Vacuum testing will be done at site and if there is any change in dimension .Material will be accepted after modification and vacuum test report.
- 18) Quantity are as per drawing called as one set.

For details contact Mr .A .M .Rawool, APD Ext 21317



## **Note to Supplier /Manufacturer**

### **1) Material Testing and Acceptance**

All materials under the scope of supplier shall be tested for chemical composition and mechanical properties as per applicable standards stipulated above. The materials qualified as per standard shall be accepted

**2) Material Identification:** Materials immediately after procurement and testing shall be offered to the purchaser for identification and stamping.

- i) Each cut length of material shall be identified with the original mill heat markings.
- ii) Purchaser approval of the material in the beginning shall not in any case relieve the responsibility of the supplier in supplying the materials as per this specification. Whenever correlation with the original test reports is in doubt, purchaser shall be at their liberty to insist for retesting of the material at intermediate stage or on the finished component at supplier's cost. However such retesting shall be limited to chemical analysis of critical elements on one sample each from a lot of 5 Nos or part thereof. In such retesting if the material found unacceptable, the purchaser shall reject any or all lots with no liability to their account.

### **3) Workmanship**

- i) Workmanship shall be of high standard of engineering and shall be good enough to achieve necessary quality of the items, surface finish etc., as required by the highest standard of manufacturing.
- ii) The supplier shall have necessary qualified operators, supervisors and inspectors to achieve the quality of the item. They should have a through knowledge to the machining procedure, quality planning, gauge designing, and packing

### **4) Sub-contracting**

- i) Sub-contracting is generally not permitted. However in cases where it is unavoidable, the same shall be subject to prior approval by Purchaser.
- ii) The bidder shall define the part or services they plan to subcontract in the technical bid. Reasons for subcontracting shall be described.
- iii) Detailed profile of the sub-contractor shall be attached with the quotation with their past experiences and submit some purchase order proof done by them in this product range.
- iv) All sub-contractors are subject to assessment and qualification by the purchaser.

### **5). Inspection, Marking and Reports.**

#### **i) Quality Assurance Plan (QAP)**

A detailed Quality Assurance Plan in line with this specification shall be submitted and the same shall be got approved by the purchaser before commencing the manufacturing activities

#### **ii) Visual Inspection**

All the items after the final machining shall be visually inspected for any scratches, dent marks, cracks, folds, other material defects, damages or any other surface irregularities

#### **iii) Surface Finish**

a) Surface marked N6 has to be checked with suitable roughness testing instruments and a report generated has to be enclosed with the inspection report.

b) The supplier shall carry out inspection as per approved QAP. Reports of inspection in format acceptable to the purchaser shall be prepared and offered to the purchaser's authorized representative at the time of purchaser's inspection.

c) Only items found acceptable by the supplier shall be offered for purchaser's inspection.

#### **vi) Dimensional Inspection**

a). The supplier shall carry out inspection of all dimensions for 100% of the items using standard inspection procedures acceptable to the purchaser.

b). Supplier shall use suitable inspection gauges, instruments and comparators designed and made to relevant IS standard for inspection.



The calibration of instruments and gauges has to be made at a reputed labs and a reference has to be kept with them for the same.

c) All GO and NOGO gauges shall be got done from standard gauge manufacturer confirming to IS 2334.

d) For dimensions and forms having tolerances of 100 microns or less special comparators with dial gauge of suitable least count shall be preferred.

e).6.1.5. Measuring instruments when used for inspection shall have a least count better than 10% of the corresponding dimensional tolerance.

f). Suitable positional gauges shall be made for inspection of hole positions.

g) All gauges comparators instruments shall be got approved from the purchaser before their actual use.

h) An identical set of inspection gauges and comparators used for inspection of the part shall be given to the purchaser free of cost, which shall be used as a reference for site inspection.

#### **6) Marking**

All items (components) have to be marked for identification with a numbering system & the location of the marking shall be decided in consultation with the purchaser.

#### **7) Reports**

a) The supplier shall prepare inspection reports for each component with the serial number after their inspection, as per the format agreed.

b) The report shall contain all dimensions and geometrical features as shown in the drawing. Where instruments are used for inspection, absolute values as measured may be indicated.

c) The supplier shall prepare 3 copies inspection reports for submission to the purchaser.

d) Correspondence to components and reports shall be maintained.

e) The supplier shall inform for purchaser's inspection after their inspection reports are ready. The purchaser's representative shall cross check the inspection reports for their dimensional conformance to the drawing and correspondence to the components. In case of satisfactory results, he shall issue necessary inspection memo authorizing the supplier to dispatch the parts.

f) Purchaser or his authorized representative shall be permitted free access to the supplier's or his sub-contractor's premises at all reasonable times for the purpose of inspection at all stages of manufacture of the parts.

g) Purchaser or his authorized representative shall be given full assistance in the form of tools, gauges, instruments, skilled manpower etc., to facilitate inspection.

h) Purchaser shall be at their liberty to specify additional inspection procedures if felt necessary or change the one being used, to ascertain the conformance of the parts with this specification and drawings.

i) In addition to the pre-dispatch inspection at the supplier's premises by the purchaser, these parts are also subject to a final inspection by the purchaser at BARC, Mysore before the parts are taken up for assembly. The supplier shall rectify or replace free of cost, any rejections during this final inspection which shall be intimated as and when this final inspection is completed.

#### **8) Acceptance criteria**

i) Conformance of raw material to the stipulated standard.

ii) Dimensional & geometrical conformance of parts with the drawings

#### **9) Guarantee**

The supplier shall guarantee the parts for materials, workmanship and geometry for a period of 12 months from the date of final acceptance. The supplier shall make free replacements for any rejections during the guarantee period due to reasons indicated above.

#### **10) Preservation, Packing and Delivery:**

##### **a). Preservation:**

i). All the components shall be suitably protected for the entire period of storage and dispatch against damage due to atmospheric factors, rough handling and transportation.



ii) Special care shall be taken to protect N6 surfaces, thin sections etc.

**b) Packing :**

i). The components shall be packed individually in dust free condition.

ii) The components may be further packed in molded thermocol boxes in a manner that will prevent any damages to the component, especially during transit or handling. Individual packing shall be marked with Sl. No. and Part No. for identification.

iii). These boxes shall be arranged in wooded boxes. Size of the boxes shall be convenient to handle. Gaps inside the box may be filled with suitable soft packing to prevent rattling of the components.

iv) Sound packing material suitable to the size and weight of the contents shall be used.

v) All packages at the final stage (Outer Boxes) shall be clearly marked on with a) destination, b) purchase order No. and date, c) dimensions, d) gross weight, e) handling instructions if any, in block letters with water proof paint.

vi) 6. A copy of the inspection report must be sent along with the consignment.

**C) Delivery :**

I) The parts shall be delivered in batches of full set of components only.

II) **Delivery Schedule:** The supply of parts shall be completed within **02 Months** from the date of receipt of the Purchase Order by the supplier.

The following delivery schedule shall have to be followed.

III) Procurement of first batch of raw material for all parts, testing and obtaining approval by the purchaser within 1 months from the date of receipt of Purchase Order.

IV) FEW sets of parts and gauges for approval shall be Supplied with in 1 month after the approval of raw material.

V) Any departure from the accepted delivery schedule after placement of the PO would be viewed very seriously and the same shall be treated as sufficient reason for canceling the order at any stage without any liability to the purchaser. In such case the materials shall be procured from alternate sources at suppliers cost and risk to fulfill the purchasers requirement.

Vi) Purchaser however reserves the right to modify the qualifying levels depending upon the response in the tender to ensure fair competition and hassle free supply of parts.

**11. Confidentiality, Restricted Information, Prohibition against use of BARC's name.**

**a) Confidentiality**

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-contractors, consultants, advisers or the employees engaged by the party with equal force.

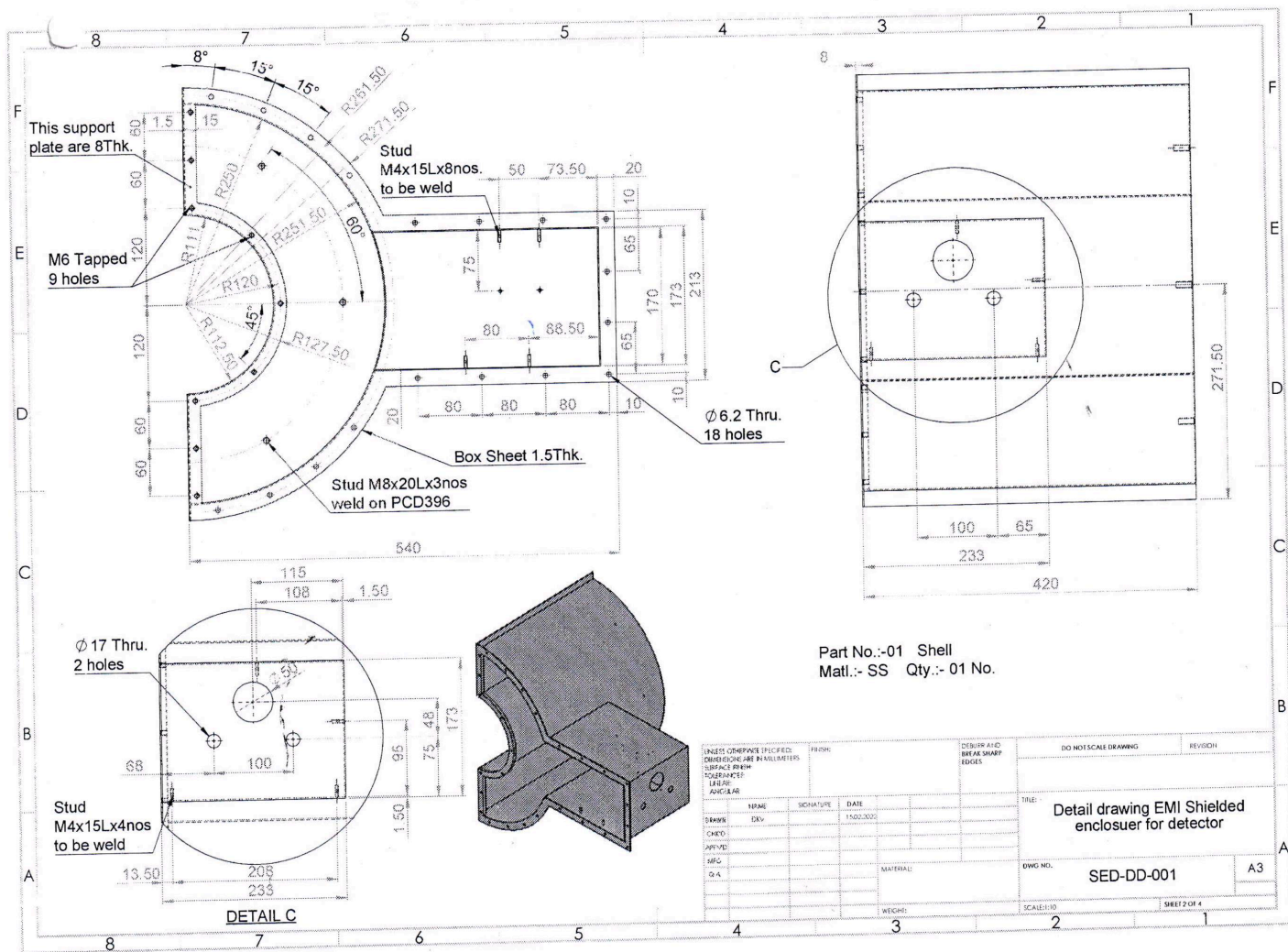
**B) Restricted information**

**"Restricted information" categories under section 18 of the Atomic Energy Act, 1962 and "Official secrets" under section 5 of the Official Secrets Act, 1923**

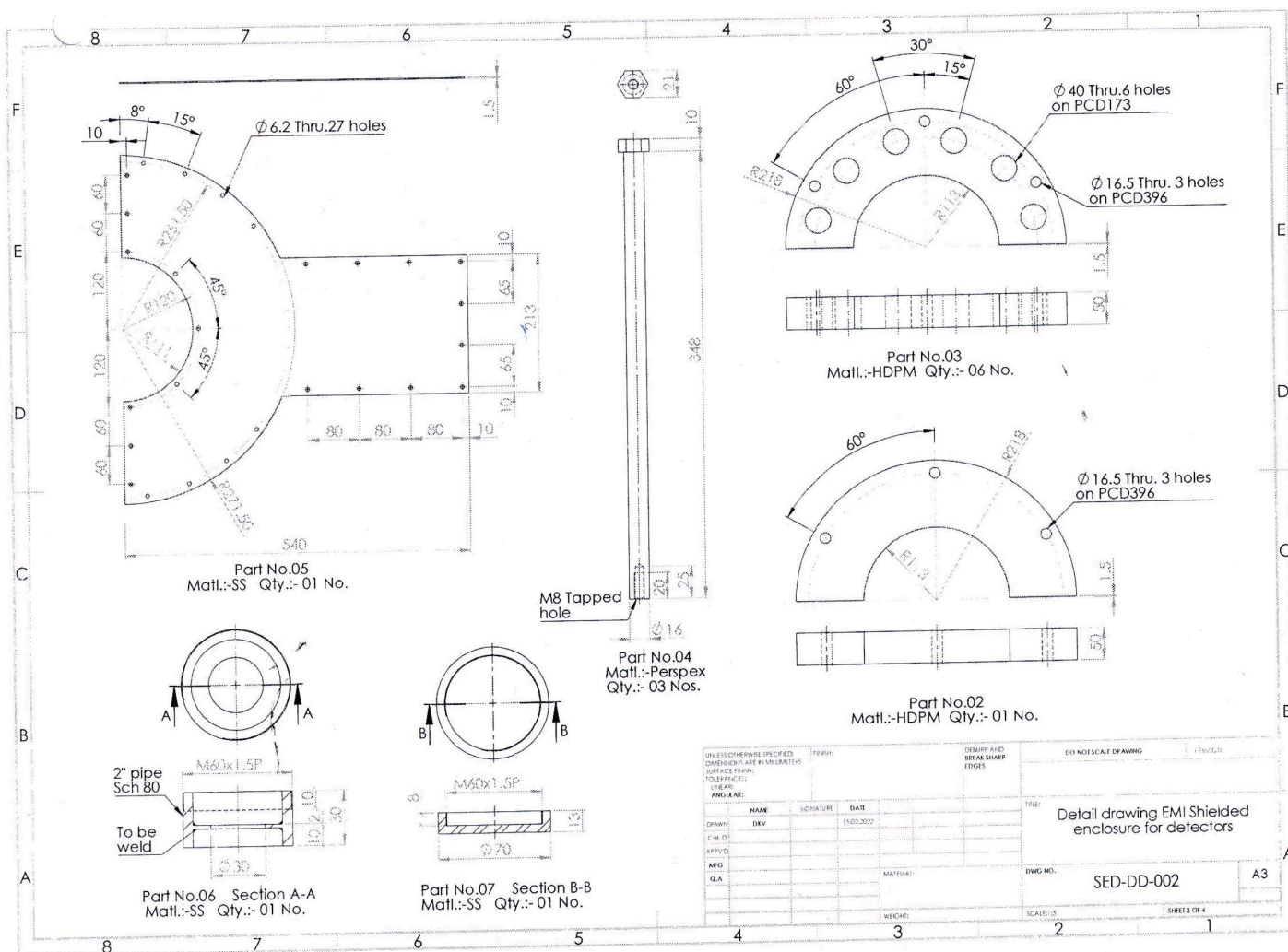
Any contravention of the above mentioned provisions by any contractor, subcontractors, consultants, advisers or the employees of a contractor would invite penal consequences under the aforesaid legislation.

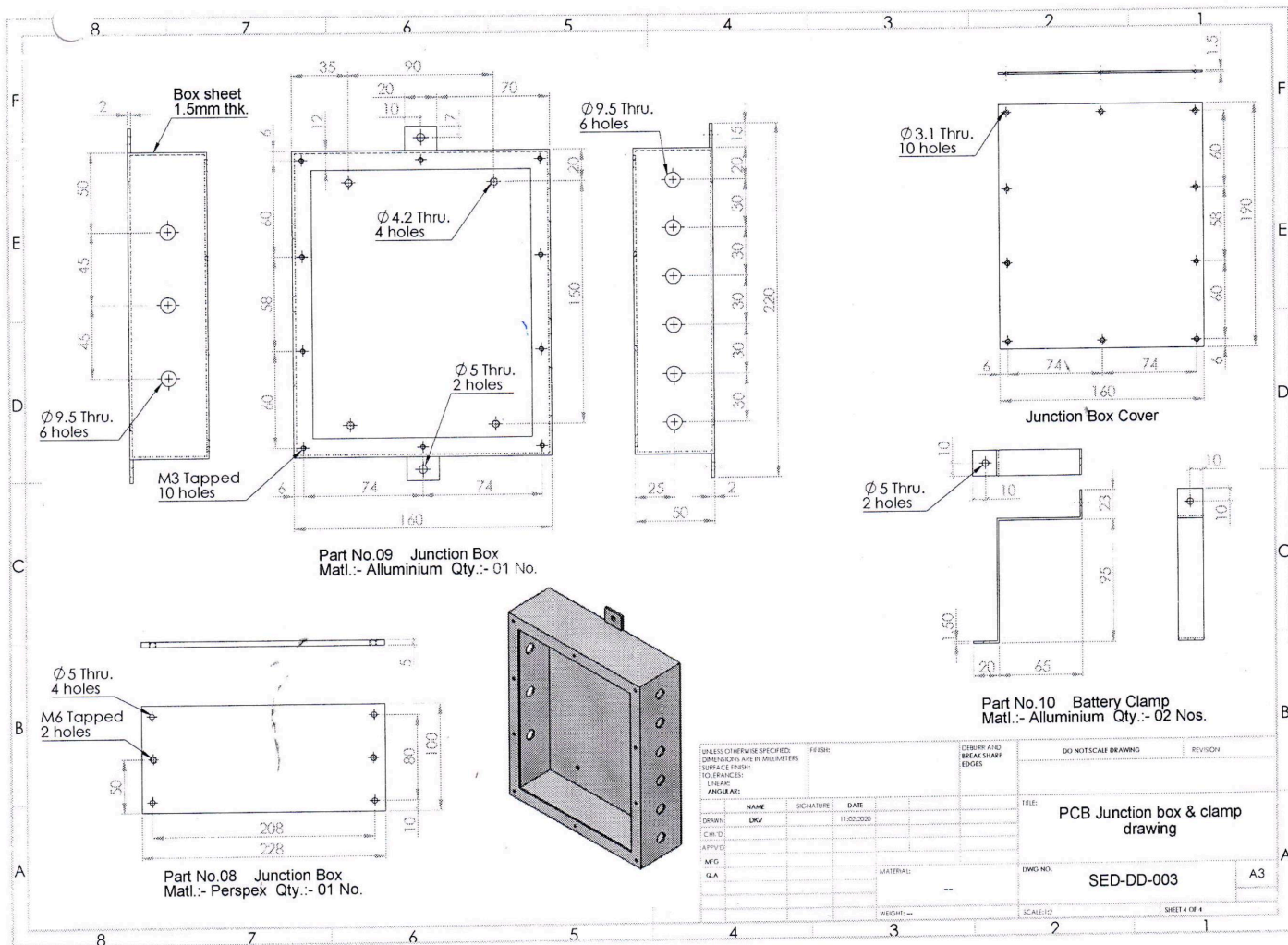
**C) Prohibition against use of BARC's name**

The contractor, sub-contractors, consultants, advisers or the employees engaged by the contractor shall not use BARC's name for any publicity Purpose through any public media like press, radio, TV or internet without the prior written approval of BARC.



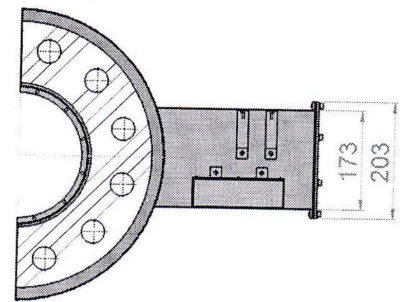




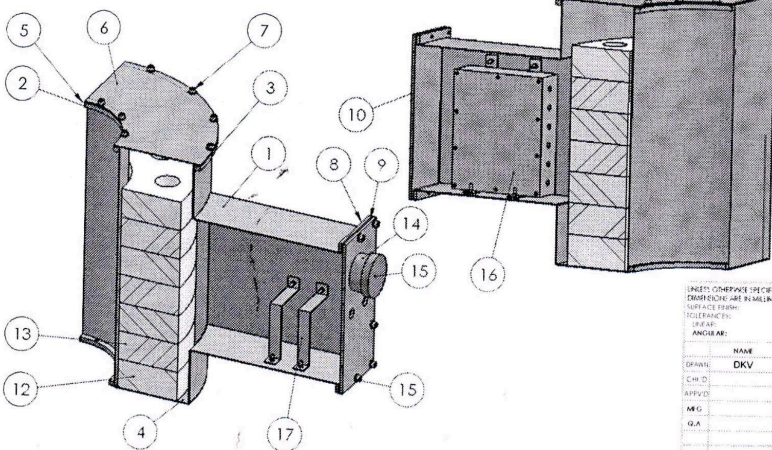
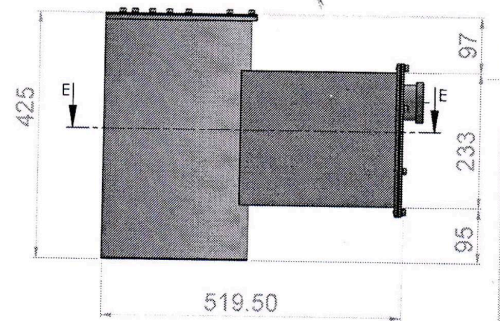




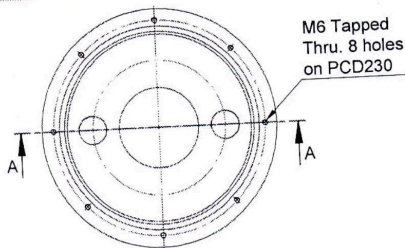
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1	Shell		1
2	Plate Support-1		2
3	Plate Support-2		1
4	Bottom cover plate		1
5	Gasket 2mm Thk.		1
6	Top cover plate		1
7	Socket head bolt M6 x 1Px12L with washer		14
8	Cover plate-1		1
9	Gasket 3mm Thk.		1
10	Cover plate-2		1
11	Socket head bolt M6 x 1Px16L with washer		12
12	HPDM Ring-1		1
13	HPDM Ring-2		6
14	2" Pipe sch 80 x30L		1
15	Pipe cover		1
16	PCB Aluminium junction box		1
17	Battery clamp		2



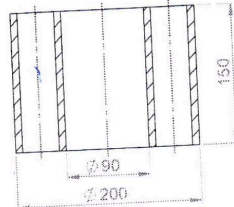
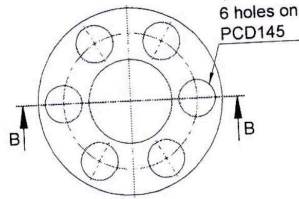
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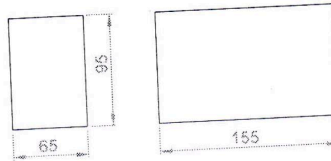
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APP'D:	APP'D:	APP'D:	APP'D:	APP'D:	APP'D:	SHEET 1 OF 1			
MFG:	MFG:	MFG:	MFG:	MFG:	MFG:	A3			
Q.A.:	Q.A.:	Q.A.:	Q.A.:	Q.A.:	Q.A.:				
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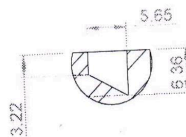
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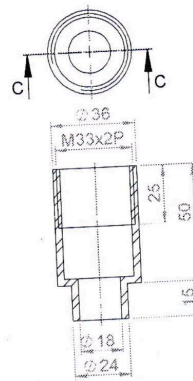
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Matl:- HPDM Qty:- 01 No.



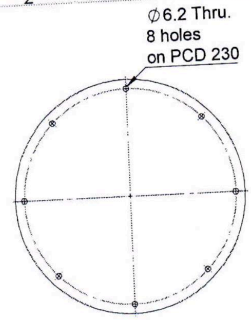
**Part no.-05**  
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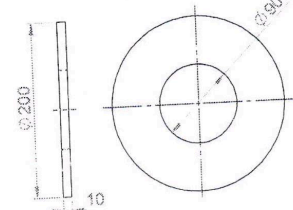
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Groove Detail



**Part no.-04 Section C-C**  
Matl:- SS Qty:- 02 Nos.



**Part no.-02**  
Matl:- SS Qty:- 01 No.

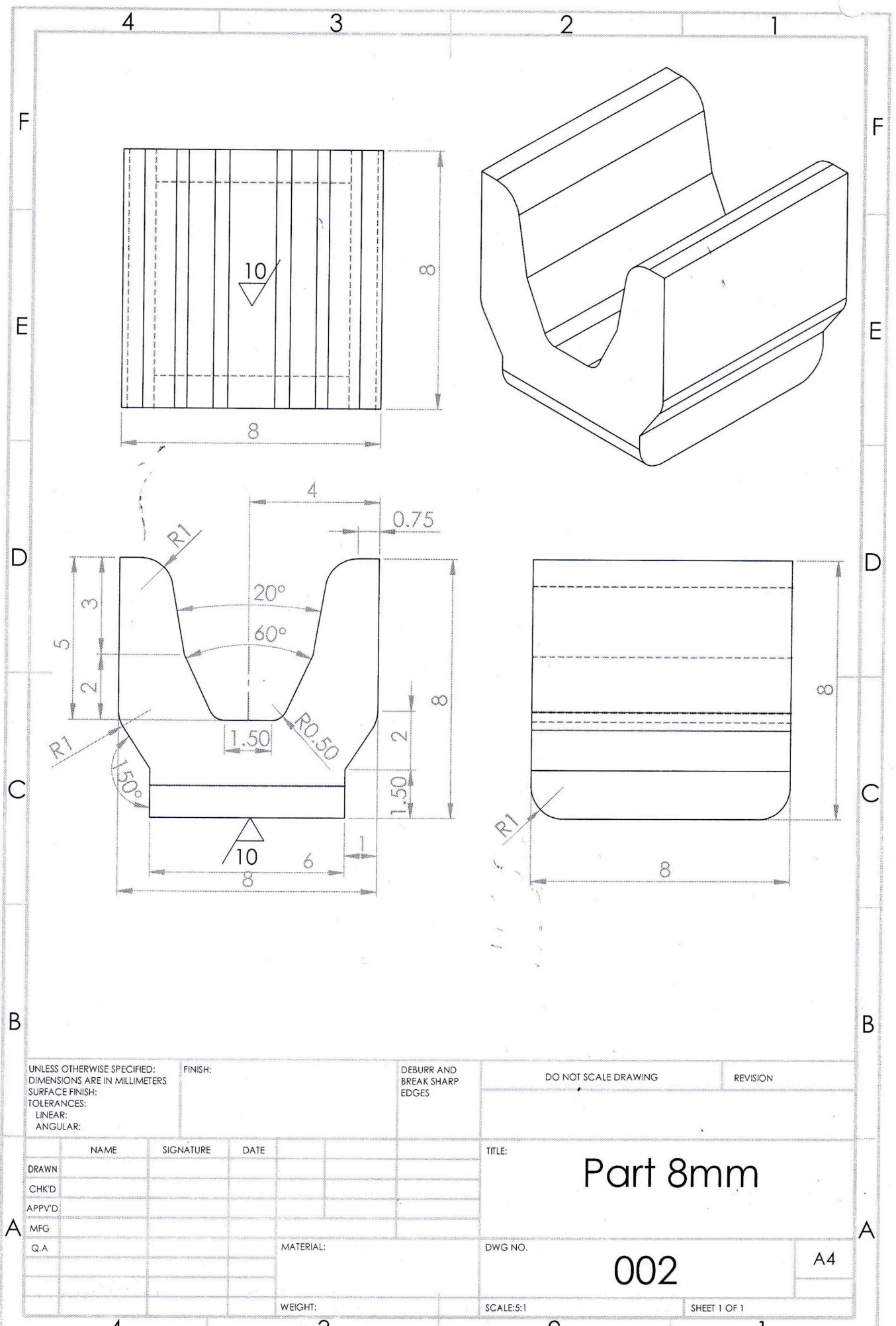


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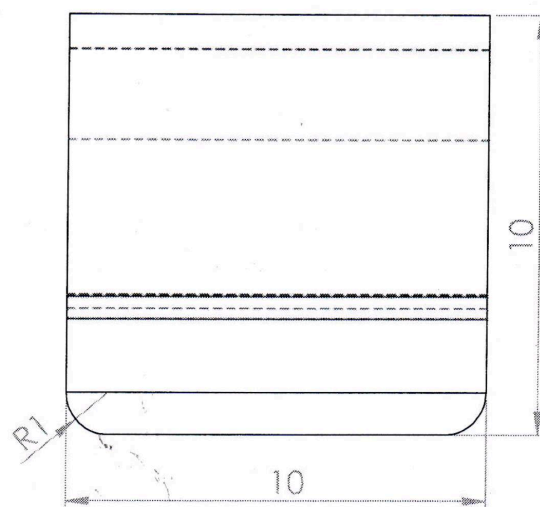
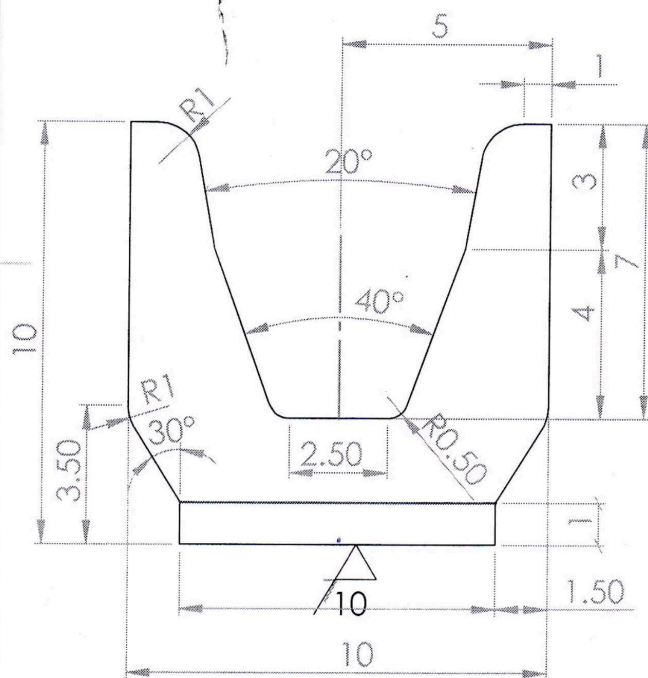
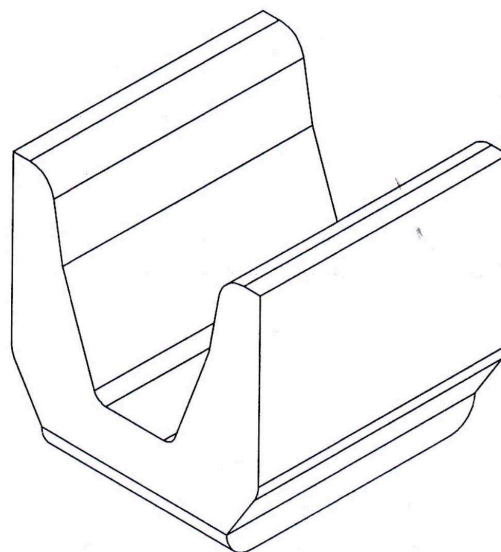
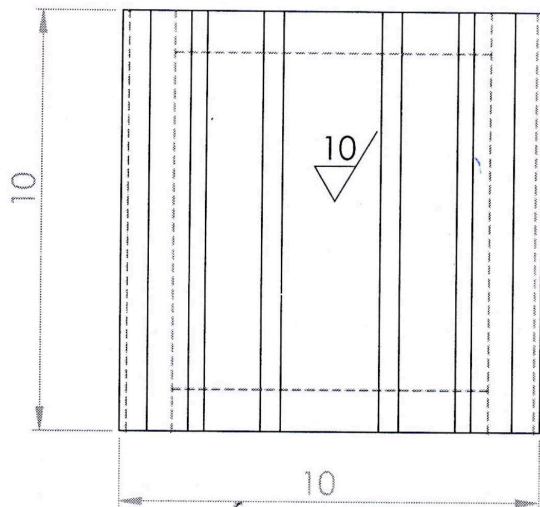
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DRAWN	CHK'D	DWG. NO.
APPROV.		EMI SED-DD-01
MFG.		A3
Q.A.		SCALE: 1:1
WEIGHT:		SHEET 1 OF 1











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DEBURR AND  
BREAK SHARP  
EDGES

DO NOT SCALE DRAWING

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CHK'D				
APP'VD				
MFG				
Q.A				

TITLE:

10mm Part

DWG NO.

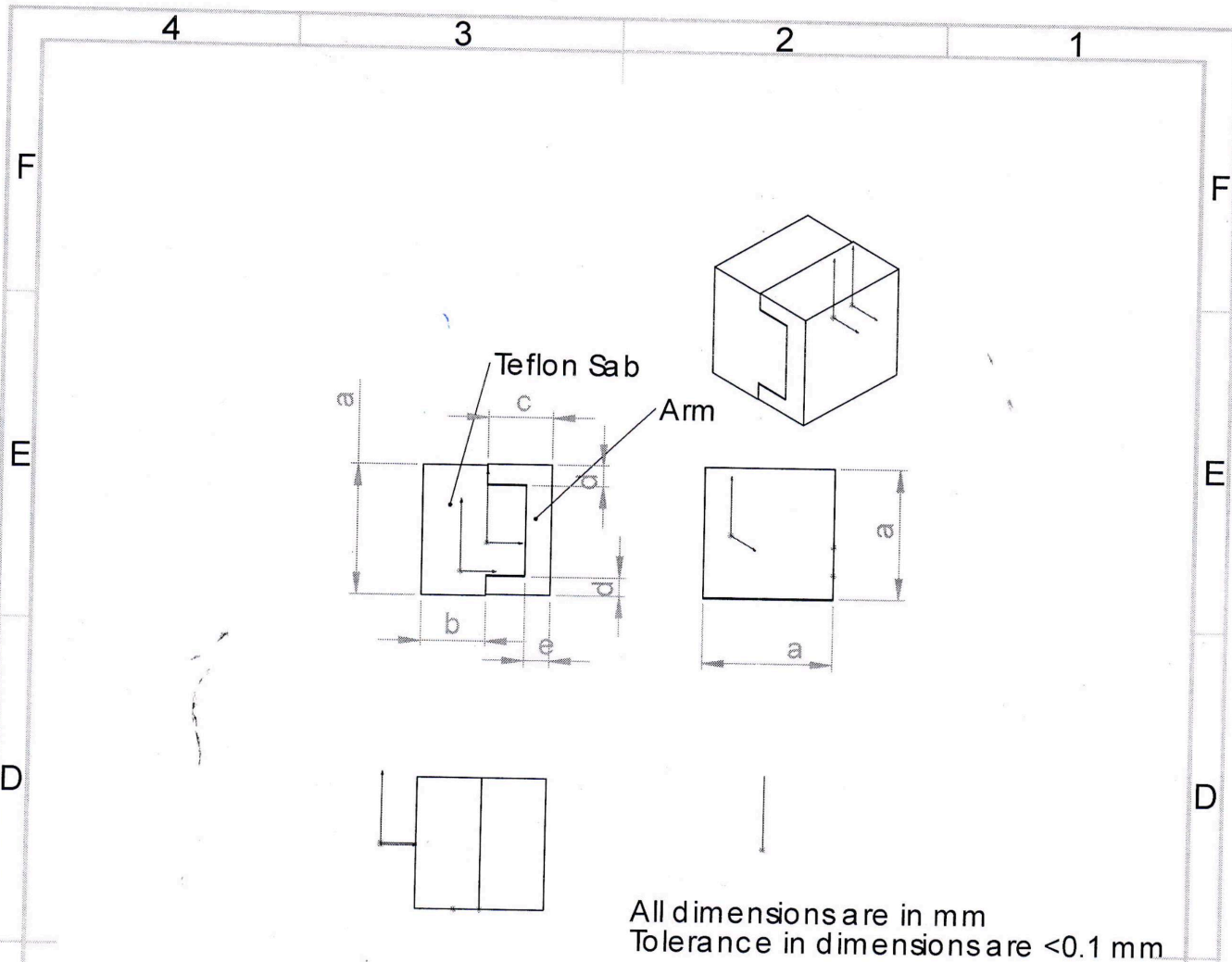
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WEIGHT:

SCALE:5:1

SHEET 1 OF 1



Dimension	6x6x6 mm	8x 8x 8 mm	10x 10x10 mm
a	6	8	10
b	2	3	5
c	4	5	5
d	1.5	2	2
e	1.5	2	2
Qty (each)	10	10	10
MOC (Arm)	Titanium and Aluminium	Titanium and Aluminium	Titanium and Aluminium

UNLESS OTHERWISE SPECIFIED:  
DIMENSIONS ARE IN MILLIMETERS  
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TITLE

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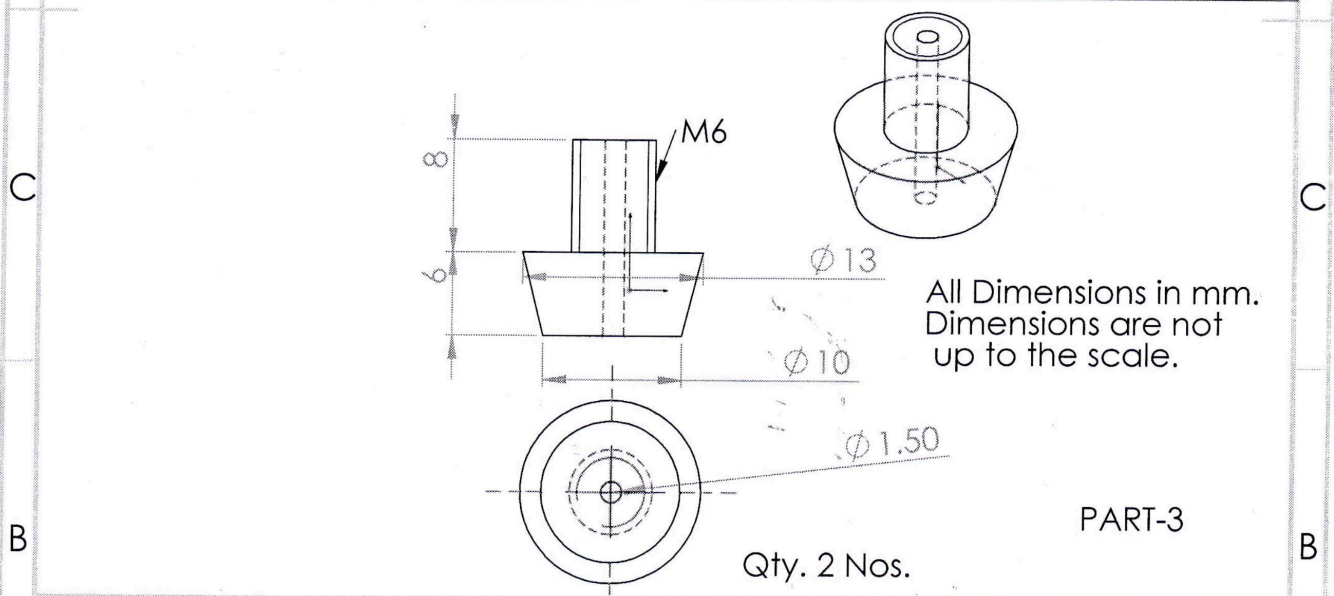
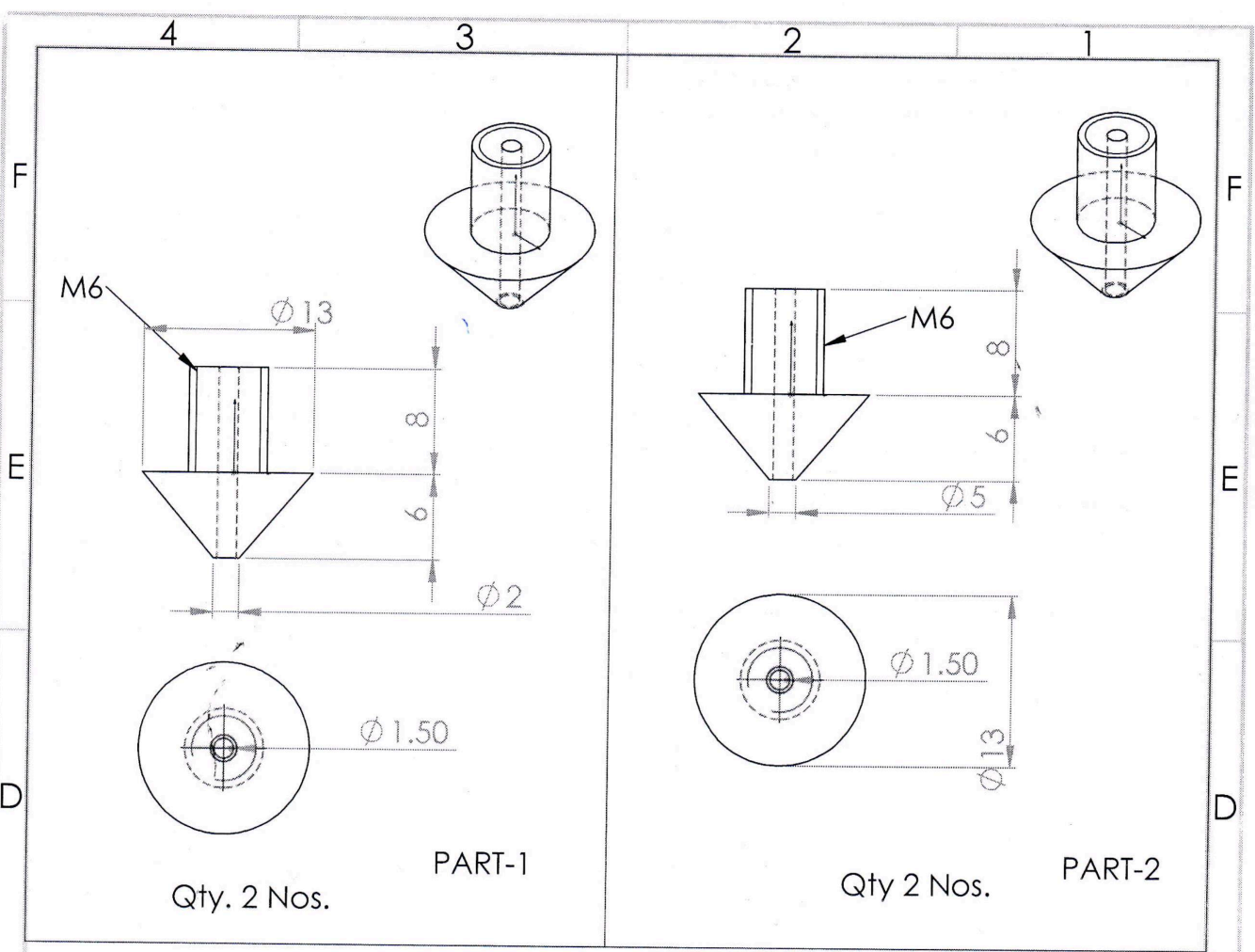
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SHEET 1 OF 1

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All Dimensions in mm.  
Dimensions are not up to the scale.

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS SURFACE FINISH: TOLERANCES: LINEAR: ANGULAR:				FINISH:		DEBURR AND BREAK SHARP EDGES		DO NOT SCALE DRAWING		REVISION	
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CHK'D											
APPV'D											
MFG											
Q.A								WEIGHT: SCALE:2:1 SHEET 1 OF 1			