

Government of India
Bhabha Atomic Research Centre
Control & Instrumentation Division

Ref: CnID/RCMS/MKM/INQ/2021/P21906

Date: Dec 30, 2021

Sub : Minor Fabrication - Invitation of Quotation.

Manufacture, Inspection, Packing & Supply of Worm Gear and Worm Wheel (Qty: 5 Pairs) for Reactivity Control Mechanism, as per Annexure- 1 & Annexure- 2 of Technical Specifications.

Dear Sir/Madam,

1. Quotations are invited for Manufacture, Inspection, Packing & Supply of Worm Gear and Worm wheel for Reactivity Control Mechanism, as per Annexure – 1 & Annexure – 2 of TSP.
2. Bidder must quote the tender in a sealed envelope duly super scribed with the name of work, name and address of bidder, reference number & the due date as given below.

Vendor must attach the following with the bid:

- a) PAN No & GST registration certificate/number.
 - b) List of Facility & Machinery available.
 - c) Proof of having satisfactorily completed similar kind of works.
3. Bidder shall quote for Machining, Inspection, Packing & Supply of these components with material and inclusive of tooling cost, if any.
 4. Bidder shall thoroughly read and understand the job, drawing as given in annexures before submission of quotation.
 5. Taxes and Excise Duties, if any, shall be quoted separately. Form AF / H whichever is applicable shall be provided, if required.
 6. The quotation must reach The Head, Control & Instrumentation Division, by **21.01.2022** and must be sent in a sealed envelope by **speed post** only.
 7. The address on the envelope should read:
Head, CnID (RCnD Building)
BARC, Trombay, Mumbai - 400 085
(Attn.: Shri M. K. Mishra, SO/G)
 8. The fabrication work shall be subjected to inspection by our engineer(s) at bidder's premises. The finished components shall not be dispatched prior to approval by our engineer(s). Necessary inspection facilities should be provided to our engineer(s) during fabrication at bidder's premises.
 9. After placing the work order, as given in the tender specification, supply of finished components should be done within **4 months**.
 10. Head, Control & Instrumentation Division, BARC reserves the rights to accept/reject any or all quotations without assigning any reason.
 11. Incomplete offer/offer received after the due date, shall not be considered.
 12. Quotations should be preferably neatly typed and any corrections in the offer are not acceptable.
 13. Quotation received in computer generated form shall not be acceptable. Quotation must be submitted in print letterhead, mentioning clearly GST registration No., PAN No. & service tax registration no., submission of challan and invoice shall also comply the same, in case work order is placed.
 14. In case of any further enquiry and clarification, please contact on 022 2559 5019

Encl.: Annexure -1 & Annexure – 2 of TSP

Head, CnID
BARC, Trombay.

Annexure- I

General Specifications

(A) Scope of work:

Manufacture, Inspection, Packing & Supply of Worm Gear and Worm Wheel (Qty: 5 Pairs) for Reactivity Control Mechanism, as per Annexure- 1 & Annexure- 2 of Technical Specifications.

(B) Work quality

All work shall be done with good workmanship. Our supervisor/engineer will witness the working and procedures on time to time.

(C) Security permission

All BARC security rules will be applicable.

(D) General Specifications

1. Quality surveillance, inspection

1.1 All work covered shall be subject to quality surveillance / inspection by the purchaser or his authorized representative.

1.2 Supplier shall issue the warranty certificate for the period of one year from date of delivery for material for quality and workmanship.

2. Delivery

2.1 The bidder shall finish the work after approval by our engineer within 4 months from the date of firm Work Order is issued to the bidder.

2.2 Any delay which is attributable to contractor is liable to penalty @0.5% per week (Max 5%) to be imposed on the contractor.

3. Sub-Contract

3.1 The fabricator shall not sub-contract any or all the work without written consent from the purchaser. The fabricator shall be responsible to the purchaser for all work the sub-contracted by the fabricator, if allowed by the purchaser.

4. Payment

4.1 Payment will be made only after satisfactory completion of work and against submission of original bill in triplicate and advance stamped receipt.

4.2 Supplier is requested to fill up for the option for payment through ECS/RTGS with pre-stamp receipt at the time of payment.

5. Tax

5.1 Income Tax @ 2% and GST @2% will be deducted from your bill.

5.2 GST will not be exempted to the party.

6. Confidentiality

6.1 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 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 sub-contractors, consultants, advisors or the employees engaged by a party with equal force.

6.2 "Restricted information" categories under section 18 of the Atomic Energy Act,1962 and "Official Secrets" under section 5 of the Official Secrets Act, 1923:-

Any contravention of the above mentioned provisions by any contractor, sub-contractor, consultant, advisor or the employees of the contractor will invite penal consequences under the aforesaid legislation.

6.3 Publication against use of BARC's name without permission for publicity purpose: -

The contractor or sub-contractor, consultant, advisor or the employees engaged by the contractor shall not use BARC's name for any publicity purpose through any public media like Press, Radio, T.V. or Internet without the prior written approval of BARC.

Head, CnID
BARC, Trombay

ANNEXURE - 2

Technical Specifications

Introduction:

Worm gear and worm wheel (Qty – 5 Pairs) are required for Fine Control Rod drive mechanism for Apsara research reactor. These are required for testing and qualification of worm Gear sub-assembly of drive mechanism. The drive mechanism is used for moving the absorber material inside reactor core for raising and lowering the power, as required during the operation of reactor.

Scope of work:

The supplier has to manufacture these worm gear and worm wheel (Qty: 5 Pairs) along with material, as per TSP.

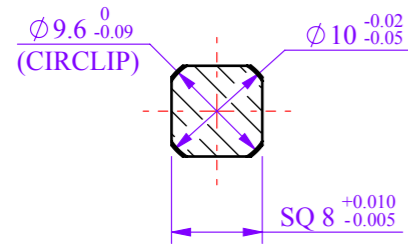
Table No1: Bill of material

S N	Item	Qty.	Applicable Drawing (Attached)
1.	Worm Integral with shaft Material: SS 17-4PH, as per ASTM A-564 Type 630 (Heat treated to H 1100 condition)	5 Nos.	A3-DRHR/209/AU/FCR/2.2 REV 1
2.	Worm wheel Material: Phosphor bronze, as per ASTM-B-139	5 Nos.	A3-DRHR/209/AU/FCR/2.3 REV 1

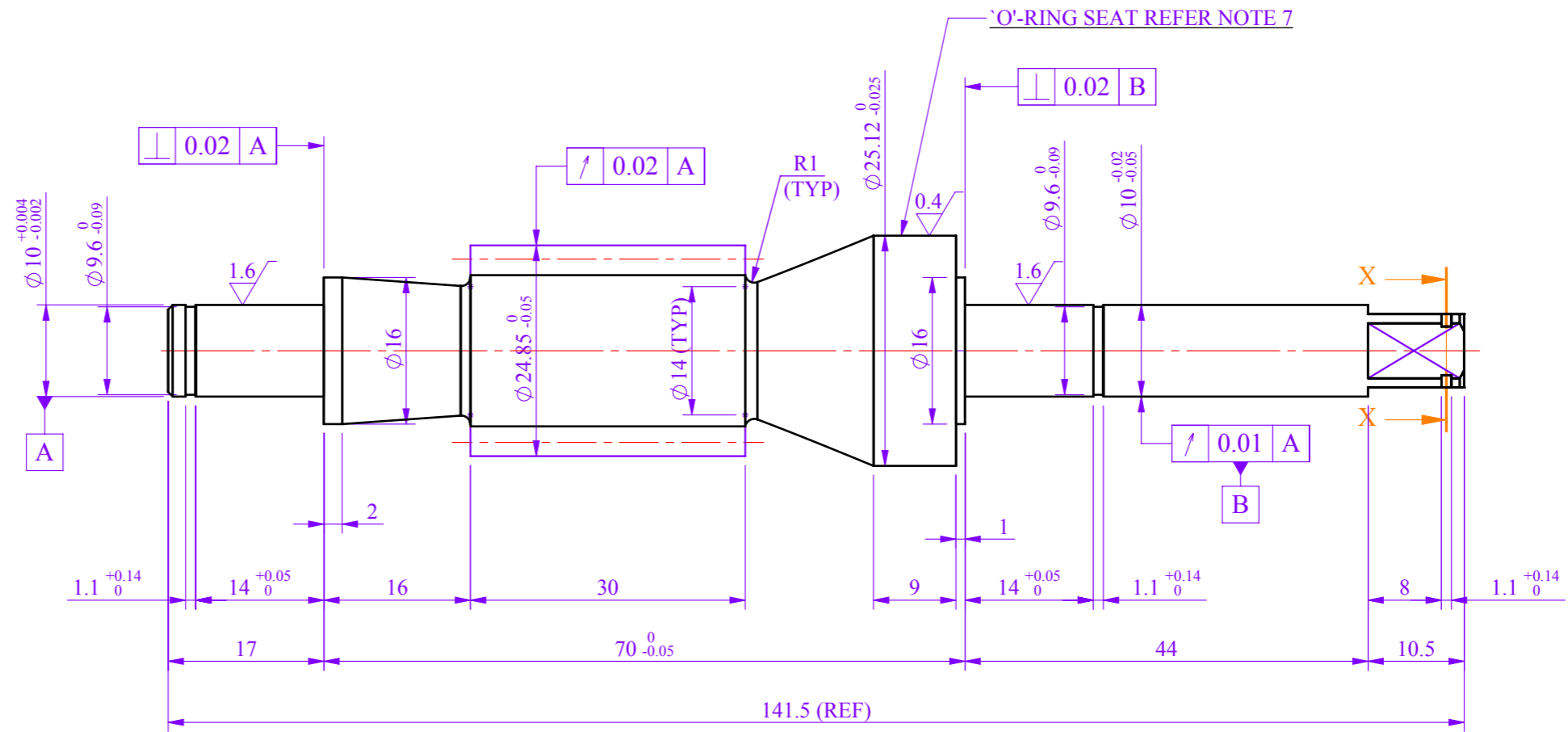
Additional/ general specifications:

- 1) The supplier has to arrange the material and submit the material test certificates and submit the same to the purchaser for approval before starting the work.
- 2) Offer should have 3 months' validity from the due date.
- 3) The supplier has to give support as well as guarantee/warranty of at least one year for items manufactured.
- 4) The supplier has to submit detailed inspection report of the items manufactured.
- 5) The delivery of items shall be made only after clearance given by the purchaser.
- 6) The safe delivery of items should be done by the supplier, at his own cost at the RCnD building, BARC, Trombay, Mumbai.
- 7) The supplier has to take the approval before sub-contracting the work.

Head, CnID
BARC, Trombay

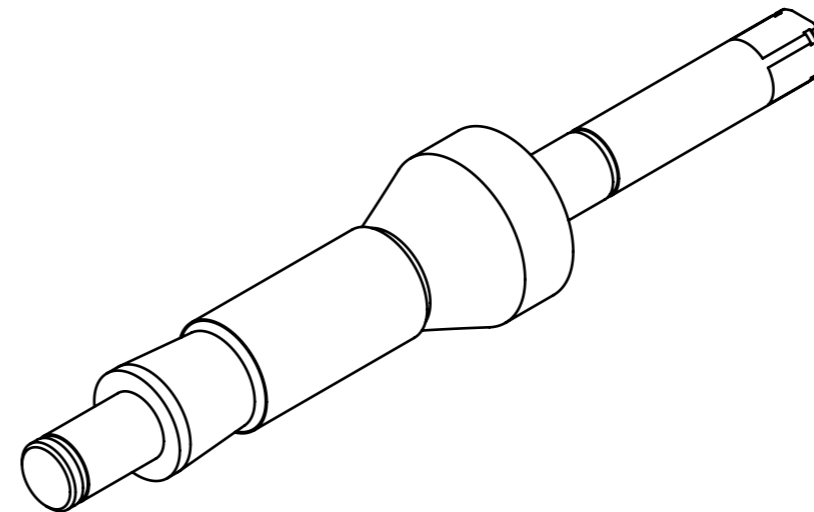


SECTION X-X



WORM GEAR DATA

NO. OF START	SINGLE
DIRECTION OF START	RHS
AXIAL MODULE	1.4
AXIAL PITCH	4.398
LEAD ANGLE	3.63°
PRESSURE ANGLE	20°
PITCH DIA	22.05
OD	24.85
CENTRE DISTANCE WITH MATING PART No.-2.3	42.25



PART NO.	2.2
MATL.	SS 17.4 PH (IN H1100 COND.)
QTY./ASSY.	ONE

NOTES :-
 1) ALL DIMENSIONS ARE IN mm.
 2) DO NOT SCALE THE DRAWING.
 3) SURFACE FINISH IN MICRON 3.2 CLA OR BETTER.
 4) ROUND ALL INTERNAL SHARP CORNERS BY 0.4R
 5) REMOVE ALL EXTERNAL SHARP CORNERS BY CHAMFER 0.5x45°.
 6) GENERAL TOLERANCE AS PER IS:2102 (MEDIUM CLASS).
 7) NO SCRATCH MARK ALLOWED INSIDE 'O'-RING GROOVE.
 8) SHAFT CENTERS (BOTH SIDES) NOT PREFERRED.
 9) MARGIN ON DIMENSIONS FOR HEAT TREATMENT GRINDING IS NOT SHOWN ON DRG.
 10) THIS IS A MATING PART TO WORM WHEEL (PART NO.-2.3)

PROJECT FINE CONTROL ROD DRIVE MECHANISM FOR APSARA UPGRADED	TITLE WORM INTEGRAL WITH SHAFT		
DRAWN BY PRAFULLA	DATE 24.12.2021	APPROVED	
DRG. CHKD.	DATE	PROJECTION	
DESIGNED BY	DES.CHKD.	FILE NAME 202	SCALE N.T.S.
GOVERNMENT OF INDIA BHABHA ATOMIC RESEARCH CENTRE DIVISION OF REMOTE HANDLING & ROBOTICS		DRAWING NO. A3-DRHR/209/AU/FCR/2.2	REV. 1

NO.	LOC.	DESCRIPTION	DRN. DATE	APPD. DATE
1	-	-	-	-
REVISIONS				

1 2 3 4 5 6 7 8

A

B

C

D

E

F

A

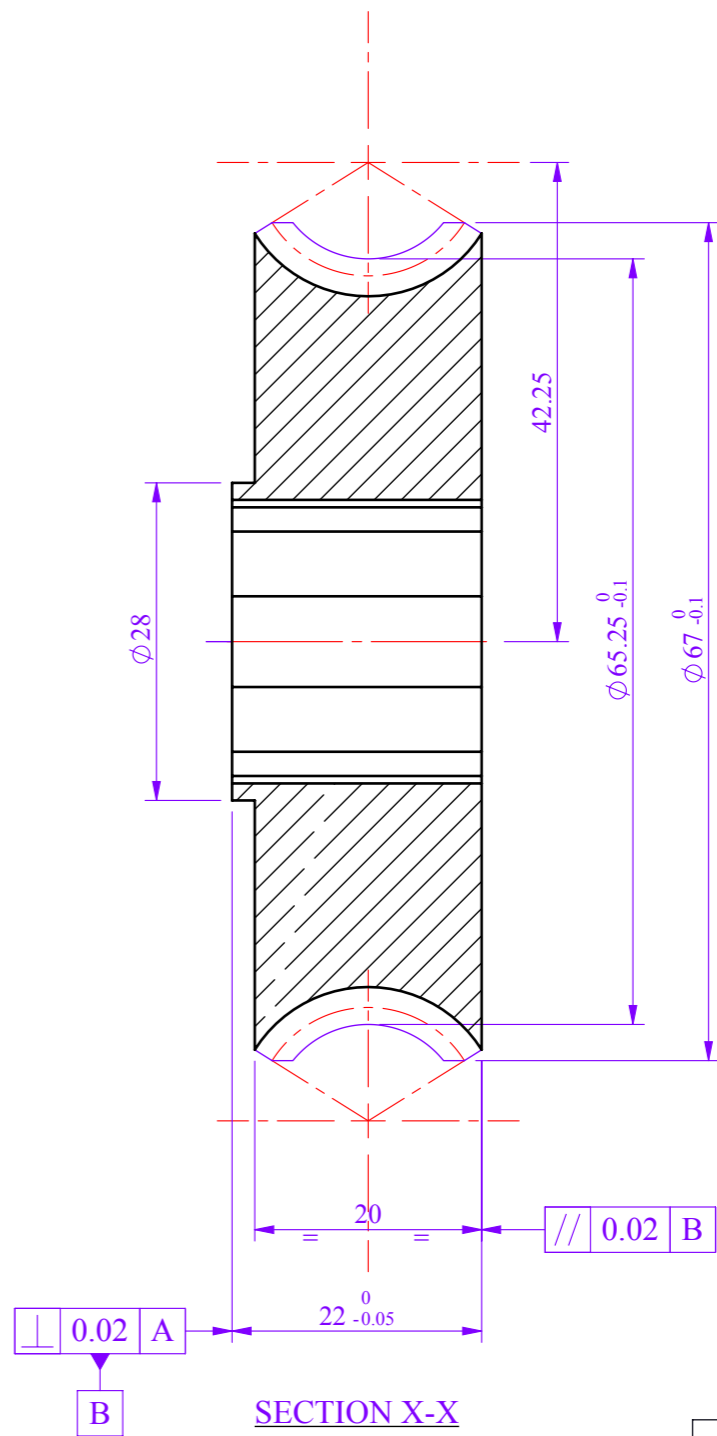
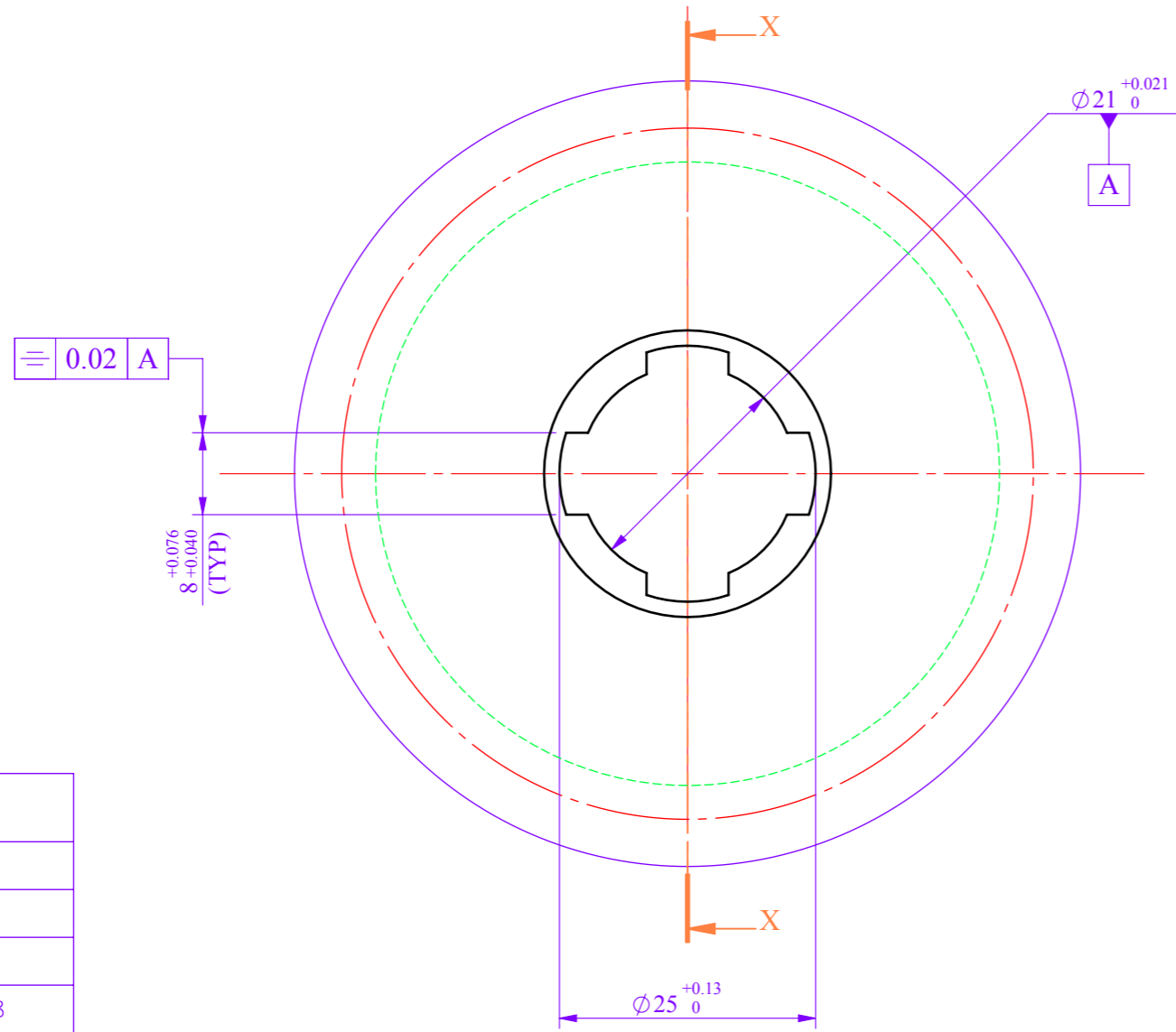
B

C

D

E

F



SECTION X-X

WORM WHEEL DATA

NO. OF TEETH	43
DIRECTION OF TOOTH	RHS
AXIAL MODULE	1.4
CIRCULAR PITCH	4.398
LEAD ANGLE	3.63°
PRESSURE ANGLE	20°
PITCH DIA	62.45
THROAT OD	65.25
CENTER DISTANCE WITH MATING (PART 2.2)	42.25

PART NO.	2.3
MATL.	PHOS. BRONZE
QTY./ASSY.	ONE

NOTES :-
 UNLESS OTHERWISE SPECIFIED
 1) ALL DIMENSIONS ARE IN mm.
 2) DO NOT SCALE THE DRAWING.
 3) SURFACE FINISH IN MICRON 3.2 CLA OR BETTER.
 4) ROUND ALL INTERNAL SHARP CORNERS BY 0.4R
 5) REMOVE ALL EXTERNAL SHARP CORNERS BY CHAMFER 0.5x45°
 6) GENERAL TOLERANCE AS PER IS:2102 (MEDIUM CLASS).
 7) STRAIGHT SIDED INTERNAL SPLINE- 4x21x25 AS PER IS:2610.

PROJECT FINE CONTROL ROD DRIVE MECHANISM FOR APSARA UPGRADED	TITLE WORM WHEEL	
DRAWN BY PRAFULLA	DATE 24.12.2021	APPROVED
DRG. CHKD.	DATE	
DESIGNED BY	DES.CHKD.	PROJECTION
GOVERNMENT OF INDIA BHABHA ATOMIC RESEARCH CENTRE DIVISION OF REMOTE HANDLING & ROBOTICS		FILE NAME 203 SCALE N.T.S.
		DRAWING NO. A3-DRHR/209/AU/FCR/2.3 REV. 1

NO.	LOC.	DESCRIPTION	DRN. DATE	APPD. DATE
1	-	-	-	-
REVISIONS				

1 2 3 4 5 6 7 8