

Design and Development of NiCr based Thin Film on Cu Substrate

Thin NiCr coating is designed and on a base Cu substrate (of micron thickness). This NiCr coated Cu substrate is generally used for design of repetitive/periodic surface (such as the screen on a microwave oven) which is used to reflect, transmit, or absorb electromagnetic fields based on the frequency of the impinging electromagnetic field used for various aeronautics applications. In general, the resistive coating on conductive sheet is typically achieved using Physical Vapour Deposition (PVD), Sputtering, or thermal spraying, depending on the required thickness and technical specifications. In the proposed technology, PVD process is used for coating of resistive material on copper substrate. The coating of NiCr thin film is highly challenging task as resistance of coating varies with coating thickness. The multiple R&D iteration was carried out to develop the desired resistance coating on Cu substrate. The innovation provides fabrication process of NiCr based thin film on Cu substrate. This NiCr based thin sheet on Cu substrate will be used as Radar Absorbing Material (RAM) for airborne applications.

Interested industries are requested to forward their Expression of Interest (EoI) (with attachments of supporting documents) to **Director, Aeronautical Development Establishment (ADE)** with a copy to Director DIITM, DRDO HQ (no attachments are required to be forwarded to DIITM) on following address:-

Director
Aeronautical Development Establishment(ADE)
Defence Research & Development Organization
Suranjan Das Rpad PO, New Tippasandra, Bengaluru - 560075
Phone: 080-2528 3404
Fax : 080-2528 3188
E-mail : director.ade@gov.in

Copy to

Director
Directorate of Industry Interface & Technology Management (DIITM)
Room No 447, DRDO Bhawan, DRDO HQrs, Rajaji Marg, New Delhi – 110011
Phone: 011-23013209/ 23015291
Fax: 011-23793008
Email: diitm.hqr@gov.in

All industries interested in seeking ToT are requested to apply in the format given below. Kindly fill in the fields. The list of documents to be attached is provided in Annexure – I. Kindly provide the reference of page no. of supporting document in the relevant field of form.

PART-1

General Information

(Please enclose documents in support of information provided)

| | | |
|----|-----------------------------------------------------------------------------------------------------------------------|--|
| 1. | Name of the Technology requested for Technology Transfer (Technology name and concerned Lab, Category) | |
| 2. | Name of the industry/ organization | |
| 3. | Complete Address and other details | |
| | Registered Office State Phone No Fax Email Website | |
| | Factory State Phone No Fax Email Website | |
| 4. | Point of Contact Name Designation Address Mobile No Ph No Email ID | |
| 5. | NAME OF CMD/ MD /PARTNERS/ PROPRIETOR/ etc Name Designation Address Mobile No Ph No Email ID | |
| 6. | Date of Incorporation of company | |
| 7. | Foreign Direct Investment in company (if any in %) | |
| 8. | Shareholding pattern | |
| 9. | Turn over as per Audited Balance Sheet for the preceding three years. Year _____ Year _____ | |

| | | |
|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| | Year _____ | |
| 10. | Annual budget for R&D during last three years (if any) Year _____ Year _____ Year _____ | |
| 11. | Income Tax returns for the preceding three years period Year _____ Year _____ Year _____ | |
| 12. | Nature of company DPSU, Private Limited, Public Limited, Partnership, Proprietary, Ex- Serviceman Unit | |
| 13. | Category of industry Large Scale, Medium Scale, Small Scale, Micro, Startup | |
| 14. | MSME Registration No | |
| 15. | Certificates of registration as a manufacturing unit, if any. | |
| 16. | If Startup, DPIIT Registration No | |
| 17. | UDYOG AADHAR No | |
| 18. | PAN Number | |
| 19. | Details of Industrial license for defence manufacturing issued by DPIIT (if any) | |
| 20. | Details of PESO license (if any) | |
| 21. | GST Number | |
| 22. | Nature of business Manufacturing/ Sole Selling or Authorized Agent/ Assembler/ Traders/ Dealer/ Processor/ Repacker/ Others | |
| 23. | Details of current products and services Products and services Supplied (please specify Govt/ Domestic market/ Export) | |
| 24. | Record of past performance (e.g., Supply orders executed against of Ministry of Defence orders, Public Sectors and Paramilitary Forces, if any). | |
| 25. | Details of registration with NSIC / SSI, DGS&D, other Defence Department, other Govt. Dept, membership of FICCI/ASSOCHAM/CII or other Industrial Association (Attach relevant copies of registration letters) | |
| 26. | Have you already taken any technology from DRDO (If yes, give details attaching separate sheet) Name of the Technology, Lab, Year, License number & Status | |
| 27. | ISO/ ISI certification or any other certification (If | |

| | | |
|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------|--|
| | yes, give details) | |
| 28. | Relevant clearances form the authorities/ ministries (if any) | |
| 29. | Capacity and capability to undertake developmental work and to accept attendant financial and commercial risks. | |
| 30. | Capacity/capability to market the product through the marketing network, sales and service network, reliability to maintain confidentiality. | |

PART-2

Infrastructure and other Information

| | | |
|----|----------------------------------------------------------------------------------------------------------------------------------------|--|
| 1. | Total area of factory Covered (m ²), Uncovered (m ²), Bonded space available (m ²) | |
| 2. | Ownership of factory Self-owned, partnership, rental | |
| 3. | Electric power Sanctioned Installed Standby (if any) | |
| 4. | Availability of adequate infrastructure (List of machines and their production capacities) and technical expertise | |
| 5. | Name of bank & A/c No Name of bank A/c type A/c no Address of the bank Phone: Email: | |

6. Details of current products:

| S.No | Type | Description | Licensed/installed capacity | Annual production for preceding 3 years |
|------|------|-------------|-----------------------------|-----------------------------------------|
| | | | | |
| | | | | |

7. Details of foreign collaboration, if any

| S.No | Product | Name and address of collaborator | Year | Remarks |
|------|---------|----------------------------------|------|---------|
| | | | | |
| | | | | |

8. Details of products developed for services

| S.No | Nomenclature of stores | Order No. and date | Remarks |
|------|------------------------|--------------------|---------|
| | | | |

| | | | |
|--|--|--|--|
| | | | |
|--|--|--|--|

9. Please give details of important facilities & infrastructure as per following format for:

- (a) Production
- (b) Unconventional, special m/c
- (c) Testing & quality control facilities

| S.No | Description of m/c | Make & model | Qty | Date of purchase | Remarks |
|------|--------------------|--------------|-----|------------------|---------|
| | | | | | |
| | | | | | |

10. Furnish the following details with relevant certificates and documents

- (a) R&D facilities available :
- (b) Inspection quality control of raw material components :
- (c) Assistance from central agency for testing / calibration etc.:
- (d) laboratory and drawing office facility :

11. Principal customers:

| S. No | Name & address | S.O No and date | Date of last supply | Products supplied | Value |
|-------|----------------|-----------------|---------------------|-------------------|-------|
| | | | | | |
| | | | | | |

12. Future plans (if any) in respect of expansion programme/ installation of additional machines/ test facilities etc.

13. Name of the technology requested for transfer

- (give self-assessment of your capability to absorb the technology)

14. Details of employee as on date on firm's pay roll

| PERMANENT | | | | |
|------------------|----------------------------------------------------------------------------------------------------------------|--------|---------------|---------------|
| Category | Post Held | Number | Qualification | Total Service |
| Technical | Prod. Manager Q.C. Manager Supervisor Testing Staff (QC) Skilled workers Unskilled workers, etc | | | |
| Administrative | Purchase Manager Accounts Officer Office Superintendent Clerical Others, etc | | | |

| TEMPORARY | | | | |
|------------------|-----------|--------|---------------|-------|
| Category | Post Held | Number | Qualification | Total |

| | | | | |
|----------------|----------------------------------------------------------------------------------------------------------------|--|--|---------|
| | | | | Service |
| Technical | Prod. Manager Q.C. Manager Supervisor Testing Staff (QC) Skilled workers Unskilled workers, etc | | | |
| Administrative | Purchase Manager Accounts Officer Office Superintendent Clerical Others, etc | | | |

DECLARATION :

I / we confirm that the information furnished in Part 1 & 2 above is correct. In the event of any information given by me / us is found incorrect / false at any time, I / we understand our EoI for ToT will be cancelled/ rejected without notice, beside any other appropriate action against me / us.

Industry seal

Authorized signatory
Name(s) in capital
Designation and seal of authorized
signatory

Date:

Place: