INDIAN INSTITUTE OF TECHNOLOGY, KANPUR
GT ROAD, KALYANPUR, KANPUR – 208016
UTTAR PRADESH, INDIA

ACM/IITK/NWTF/2022-23/02

BID SUBMISSION START DATE- 21.04.2022
BID SUBMISSION END DATE- 30.05.2022*Date Extended

TENDER DOCUMENTS

FOR

"UPGRADATION OF 1000 KW DIGITAL DC DRIVE ALONG WITH 2000KVA, 11KV/660V STEP DOWN TRANSFORMER"

Tender Document

National Wind Tunnel Facility (NWTF)
Indian Institute of Technology Kanpur
Kanpur (UP) 208016, India

Enquiry No: ACM/IITK/NWTF/2022-23/02

Enquiry date: April 21, 2022

Bid closing date: May 30, 2022 (1700 Hours)*Date Extended

Sealed quotation in two bid system (Technical & Financial) are invited from prospective manufacturers/Suppliers for the **Upgradation of 1000 kW Digital DC Drive System along with the Step down Transformer** to drive an existing DC Motor (1000kW, 660V, 2000Amp, 450 RPM) for an Axial Fan at NWTF, IIT Kanpur.

The bids are to be submitted in two parts: Technical bid and financial bid. The Financial bid quoted for the system whose technical bid is not acceptable will not be opened.

Part-I (Technical) should contain all the technical details cum specifications of the offered solution. Attach compliance sheet.

Part-II (Financial) should contain the price of the offered solution along with the commercial terms and conditions.

The bids (sealed envelope) can be submitted in the following address.

Dr Alakesh Ch Mandal
Coordinator,
National Wind Tunnel Facility
Indian Institute of Technology Kanpur: 208016
Uttar Pradesh
Email- alakeshm@iitk.ac.in
Contact No.-0512-259-6316

Technical Specifications:

National Wind Tunnel Facility (NWTF), Indian Institute of Technology Kanpur has a closed-Circuit Wind Tunnel. NWTF has a 1000 kW, 450 RPM DC Motor Axial Fan driven by a Digital DC Drive System to generate wind speed up to 90 m/sec. Now, we are in the process of our DC Drive System up- gradation. The required technical specifications of the various system components for our DC Drive up- gradation are mentioned below.

(1) Digital DC Drive System: A Digital DC Drive System is required for the existing NWTF 1000 kW DC Shunt Motor being used for an Axial Fan. **The Digital DC Drive is required to control/regulate the speed (RPM) of the existing DC Shunt Motor in the range of 20 RPM to 450 RPM with a 2 RPM or better speed control precision**. The other specifications of NWTF existing DC Shunt Motor are as follows:

Motor Armature:	Voltage: 0 to 660V DC,	Current: 0 to 2000 Amp
Motor Field:	Voltage: 220V DC,	Current: 35 Amp
Speed Variation:	20 RPM to 450 RPM for Constant Torque	

The offered Digital DC Drive System should also have the following additional features:

i. AC Circuit Breaker with Direct Motor Drive and Overload/Short Circuit Trip/Release
ii. Dynamic Braking Facility (if required)
iii. Local and Remote, Manual and Automatic Control Panels with Touch Screen Display and Keypads with the required Indicators.
iv. Remote Control Desk Interface Facility: The required distance of Remote-Control Panel (to be installed in NWTF Control Room) is nearly **125m** away from the Digital DC Drive installation Room.
v. Self-fault diagnosis feature for plug-in Board/Module/Contactor/Thyristor failure conditions.

1.1. Control and Monitoring System

- Drive Start/Stop, Motor Speed Increment/Decrement, Fault Reset and Emergency Stop functions are required from Drive Door Panel (Local) as well as from Remote Control Desk Panel.
- Armature Voltage and Current, Field Current and Motor Speed (in RPM) should be displayed on the Drive Panel as well as on Remote Control Desk Panel.
- Drive READY, RUN and TRIP Indications are required to be displayed on the Drive Panel as well as on Remote Control Desk Panel.
- Drive Monitoring Software along with lifetime license is required to be provided for parameterization and monitoring of Drive Parameters.

1.2 Remote Control Desk and HMI System Specifications:

- Suitable Programmable Logic Controller (PLC) System (to be installed in NWTF Control Room) with interface to Digital DC Drive (installed in Drive Room) located nearly at 125m distance. License of PLC Programming should be included in the offer.
- Manual Control System to run the drive. An additional Human Machine Interface (HMI) System with interface to PLC System (both to be installed in NWTF Control Room). The HMI should have 12 inch or higher screen size with a minimum resolution of 1280x800 display Panel with touch screen operation.
- Both the Manual and HMI control systems should have the capability of interfacing with an external data acquisition Personal Computer (PC).

(2) Step Down Converter Transformer suitable for the required Digital DC Drive

Capacity: 2250 kVA or better, Power: 3-Phase AC, Frequency: 50Hz
Voltages on 2000 Amp. Load: Primary: 11,000V Secondary: 660V
Total Harmonic Distortion (THDi)<8%
Cooling Method: Oil Natural Air Natural (ONAN) or Better Technique
Make: SIEMENS India Limited

The Step-down Transformer should have the installation of devices for the following fault diagnosis features:

i. Short circuit faults Indication using Buchholz relay.
ii. Winding Temperature Indication (WTI).
iii. Oil Temperature Indication (OTI) and Level indicator.
iv. Any other transformer fault diagnosis feature

Other Scope of Work

(1) Bus bars/Connecting Cables and Interface Cables

1. All the power and control cables required to connect 11kV HT Circuit Breaker to the Step-Down Converter Transformer will be provided **by IIT Kanpur**.
2. All the Busbars/connecting cables required to connect Step Down Converter Transformer to Digital DC Drive are required to be **supplied by the bidder**.
3. All type of communication/interface cables required to connect DC Drive to Remote Control Panel (to be installed in NWTF Control Room) and PLC System to HMI Panel are also required to be **supplied by the bidder**. The required distance of Remote-Control Panel is nearly **125m** from the Digital DC Drive installation Room.
4. The cables required to connect the supplied Digital DC Drive Output to the NWTF 1000kW, 660V DC Motor will be provided **by IIT Kanpur**.

(2) Drive Documents and Spare Parts

1. **Operational Manuals as well as Service Manuals** for the offered Digital DC Drive, PLC and HMI System are required to be supplied by the supplier with the system.
2. **Digital Drive System Plug-in Modules:** One spare set of all plug-in modules (electronic cards) being used in the DC drive are required to be supplied with the system.

(3) Commissioning of the Supplied System

- Erection of the drive system should be completed within 30 days after delivery.
- Commissioning of the drive system should be completed within 15 days after erection.
- After commissioning of the system, the supplier should demonstrate the performance of the drive system by running it continuously for 48hrs.
- System commissioning Certificate is required to be issued immediately after the demonstration of the system performance.

ELIGIBILITY CRITERIA FOR PARTICIPATING IN THE TENDER

The bidder shall qualify the below eligibility criteria for participating in the tender process, failing which their offer shall not be considered to evaluate for procurement process of the required system:

1. The bidder should preferably be an Original Equipment Manufacturer (OEM) or well established and authorized company in the area of DC Drive supply and installation.
2. The bidder should be authorized for providing maintenance, warranty and spare parts from the OEM of the DC Drive for at least next 10 Years.
3. The bidder should have successfully executed equivalent or higher capacity DC drive systems installation and commissioning for **at least 10 years** in major organizations like central/state government/autonomous bodies or large size industrial plants. **The letters of reference/completion certificates from at least two numbers of past customers for equal or higher capacity DC Drive should be provided.**
4. Digital DC Drive and its Plug-in Boards/Modules should be of same make. An assembled Digital DC Drive System using plug-in board/modules made by different unbranded manufacturers will not be acceptable.
5. The bidder must provide onsite training for NWTF instrumentation team.
6. Consortiums and Joint Ventures will not be entertained.

TERMS AND CONDITIONS

1. The bids must be valid for minimum of **120 days** from the Technical Bid Opening date.
2. Delivery period should not be more than **6 months**. And delivery should be for DAP, IIT Kanpur or FOR IIT Kanpur.
3. As per Notification No. 45/2017-Central Tax (Rate) dated 14/11/2017, IIT Kanpur has been allowed for GST rate of 5%. Suitable certificate can be provided by IIT Kanpur if required.
4. IIT Kanpur is partially exempted under 51/96 from payment of customs duty (Duty @5.5% is applicable). Suitable CDEC certificate can be provided by IIT Kanpur if required.
5. Payments terms: 90% on system installation and 10% after successful commissioning and working operation of the supplied system for three months.
6. Price must include installation, taxes and all other charges such as staff onsite training.
7. Ambiguous offers, without suitable technical documentation, not mapping compliance to required specifications, may be rejected without any further notification.
8. Mere compliance is not sufficient, the technical details must be supported by detailed technical datasheets from OEM of the offered product(s).
9. The bidder must provide a 3-Years comprehensive warranty for the supplied system.
10. Institute reserves the right of accepting and rejecting any quotations without assigning any reason.

Please note:

1. Bidders can contact the undersigned for any Technical Enquiry or NWTF Site visit to understand the complete scope of work to upgrade/supply and commission the required system at NWTF, IIT Kanpur.

Dr Alakesh Ch Mandal
Coordinator,
National Wind Tunnel Facility
Indian Institute of Technology Kanpur: 208016
Uttar Pradesh
Email- alakeshm@iitk.ac.in
Contact No.-0512-259-6316

Appendix

TENDER ACCEPTANCE LETTER
(To be given on Company Letter Head)

Date: _____

To,

_____
_____
_____

Sub: Acceptance of Terms & Conditions of Tender.

Tender Reference No: _____

Name of Tender / Work: - _____

Dear Sir,

1. I/We have downloaded/obtained the tender document(s) for the above mentioned 'Tender/Work' from the web site(s) namely:

_____ as per your advertisement, given in the above mentioned website(s).

2. I/We hereby certify that I/we have read the entire terms and conditions of the tender documents from Page No. __ to _____ (including all documents like annexure(s), schedule(s), etc .,), which form part of the contract agreement and I/we shall abide hereby by the terms/conditions/clauses contained therein.

3. The corrigendum(s) issued from time to time by your department/ organisation too have also been taken into consideration, while submitting this acceptance letter.

4. I / We hereby unconditionally accept the tender conditions of above mentioned tender document(s) / corrigendum(s) in its totality / entirety.

5. I / We do hereby declare that our Firm has not been blacklisted/ debarred/ terminated/ banned by any Govt. Department/Public sector undertaking.

6. I/We certify that all information furnished by our Firm is true & correct and in the event that the information is found to be incorrect/untrue or found violated, then your department/ organisation shall without giving any notice or reason therefore or summarily reject the bid or terminate the contract, without prejudice to any other rights or remedy including the forfeiture of the full said earnest money deposit absolutely.

Yours Faithfully,
(Signature of the Bidder, with Official Seal)