



भारत सरकार  
Government of India  
कृषि एवं किसान कल्याण मंत्रालय  
Ministry of Agriculture and Farmers Welfare  
कृषि, सहकारिता एवं किसान कल्याण विभाग  
Department of Agriculture, Cooperation and Farmers Welfare  
दक्षिणी क्षेत्र कृषि मशीनरी प्रशिक्षण एवं परीक्षण संस्थान  
Southern Region Farm Machinery Training and Testing Institute  
ट्रैक्टर नगर, गार्लदिन्ने – 515 731, जिला: अनंतपुर (आं. प्र.)  
Tractor Nagar, Garladinne- 515 731, District: Anantapur (A.P.)  
[An 9001:2015 CERTIFIED INSTITUTE]

फ़ाइल संख्या/File No. 10-03/2017-CPS

दिनांक / Dated: 20<sup>th</sup> January, 2018

**e-PROCUREMENT TENDER NOTICE**

Two Bid e-Tenders namely Technical Tender & Commercial Tenders are invited **online through e-procurement** by Director, Southern Region Farm Machinery Training and Testing Institute, Garladinne, Dist. Anantapur (AP) from I.S.O. Certified manufacturers/agencies or experienced/reputed firms for supply, satisfactory installation & commissioning of the following described item under a turnkey project. The item to be supplied must be exactly as per the requirement of cited Indian Standards.

Sl. No.	Equipments	Quantity	Standards
1.	<b>Air cooled Axial field AC absorption Dynamometer</b> With fully digitally automatic Controller with separate Gravimetric fuel flow meter for petrol and diesel engine. Data Acquisition systems with latest configuration PC peripherals along with Printer and supporting software.	One No.	IS 7347:1974 (Reaffirmed 2006)& IS 12036:1995

**Essential Pre-requisite:**

1. Tenders must be submitted **on line** in CPP portal <http://eprocure.gov.in>, in the prescribed format only, otherwise these are liable to be rejected by the Institute.
2. Tenders must be submitted **on line** mentioning Tender No, Item of procurement and due date. Two bid systems (technical bid, price bid) will be followed.
3. Tender forms along with technical details, terms and conditions can be obtained from the Office of the Director, SRFMTTI, Anantapur, A.P. between 10.00 A.M to 5.30 P.M. on any working day (except Saturdays, Sundays and Holidays) on payment of **Rs1000/- (Rupees One thousand only)** by cash or demand draft drawn in favour of **Director, SRFMTTI, payable at State Bank of India, Sai Nagar Main branch (code 0806) Anantapur.** The tender form can also be downloaded from the website of the Institute <http://srfmtti.dacnet.nic.in>.
4. The tender documents which are downloaded from the website of the Institute or CPPP(Central Public Procurement Portal) needs to be submitted along with a demand draft for the cost of complete tender fee of Rs.1,000/-.
5. The copy of EMD, tender fee deposited should be uploaded with the technical tender in pdf format. Original EMD, tender fee must be sent in the form of demand draft for technical evaluation of tender to the office on or before of the due date i.e. **12.02.2018** otherwise it will liable to be rejected.
6. Those firms who are registered with Central Purchase Organisation or National Small Scale Industries Corporation are exempted from EMD, but certificate of registration will need to submit along with Technical tender.
7. Issue of the Tender forms will **start from date 22.01.2018** at the Institute.
8. **Pre-bid conference:** Those firms who are interested for consultation prior to bid, a pre-bid consultation will be given on **29.01.2018** to supply the information on the requirements, specifications, drawings and demonstration of existing dynamo set-ups etc. at site.
9. Tenders duly submitted **on line** will be accepted **up to 5.30 PM of 12.02.2018** and shall be **opened at 11.00 A.M. on 13.02.2018.** Late/delayed, post tender will not be accepted at all.
10. The Director, reserves all rights to cancel/reject any or all the tenders without assigning any reason whatsoever.

**DIRECTOR**

**TENDER FOR SUPPLY OF DYNAMOMETER**

**AT S.R.F.M.T.&T.I, GARLADINNE, DIST. ANANTAPUR -515731 (A.P) INDIA**

Tender document No:

Dated \_\_\_\_\_

From: M/s.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

To,  
The Director  
Southern Region Farm machinery Training & Testing Institute,  
Tractor Nagar, Garladinne Dist. Anantapur (AP) 515731

Sir,

With reference to your Tender Notice dated \_\_\_\_\_ we offer our rates for the supply of --

S. No.	Name & description of Equipment	Make & Model Type of equipment	Whether ISO Certified company	Qty.
1.	<b>Air cooled Axial field AC absorption Dynamometer</b> With fully digitally automatic Controller with separate Gravimetric fuel flow meter for petrol and diesel engine. Data Acquisition systems with latest configuration PC peripherals along with Printer and supporting software.			One No.

N.B: If required, separate sheet may be added to give more technical details of equipments. These should be on the letter heads duly stamped and signed.

1. Detailed leaflets/ Technical literature of proposed equipments have been enclosed.
2. The guarantee/warranty for the smooth functioning of the supplied equipment shall be minimum one year from the date of receiving the machinery/equipment/items or Installation.

## **TERMS AND CONDITIONS**

1. **The Tender is to be uploaded on CPP Portal ([www.eprocure.gov.in](http://www.eprocure.gov.in))** i.e. TECHNICAL SPECIFICATIONS and COMMERCIAL DETAILS. This tender should indicate technical specifications/details of the offered equipment only with reference to requirement of this office along with rates and commercial terms & conditions. The rates should invariably be quoted for delivery at F.O.R. destination at site i.e. at Southern Region Farm machinery Training & Testing Institute, Tractor Nagar, Garladinne, Dist. Anantapur (AP) 515731. The purchaser will not pay separately for the stores to destination. Taxes, duties and other charges on the above rates if any, should clearly indicated along with commercial bid. The rates must be quoted in Indian Rupees only.
2. The bidders shall submit their techno-commercial bids and price bids on line. No condition bid shall be allowed/accepted. Bidders will have to upload the scanned copies of various documents required for eligibility and all other documents as specified in NIT, techno-commercial bid in cover-I, and price bid in cover-II. To enable system generated techno-commercial and price comparative statements, such statements should be submitted in Excel formats.
3. The bidder will have to give an undertaking online that if the information/declaration /scanned documents furnished in respect of eligibility criteria are found to be wrong or misleading at any stage, they will be liable to punitive action.
4. **Bid Security also known as Earnest Money will be 5% of the estimated value of the item.** EMD shall be submitted in the electronic format online (by scanning) while uploading the bid. However, the bidder should send the EMD in the form of crossed non-interest bearing Demand Draft in original (**from SBI only**) drawn in favour of The Director, SRFMTTI, Payable at State Bank of India, Anantapur (**Code 0806**) through Post or by hand so as to reach by the time of tender opening. In case of exemption of EMD, the scanned copy of the document in support of exemption will have to be uploaded by the bidder during bid submission.
5. Proprietary Article Certificate should be submitted by the manufacturer.
6. Price of the material to be offered should be firm and fixed and is to be F.O.R Destination SRFMT&TI, Anantapur (AP) basis, indicating all taxes and duties.
7. The transit insurance will be the responsibility of the supplier and no separate charges will be paid for it.
8. **The validity of tender should be for minimum six months** from the date of submitting the tender and it must be expressed and specifically indicated in tender.
9. The time limit for supply of the machinery/equipment/items should be indicated in the tender. The items ordered shall be supplied within the stipulated time mentioned in the Supply Order.
10. **The Director, Southern Region Farm Machinery Training & Testing Institute does not pledge to accept the lowest tender and reserves the right for accepting any tender at his discretion.**
11. **Failure and termination:-**
  - a) If the supplier fails to supply of the required equipments within the prescribe period, Director, S.R.F.M.T.&T.I, Garladinne may without prejudice to his right recover damages for breach of the contract or damages occurred during supply of equipments.
  - b) If any equipment/stores or part thereof is found to be below the required specifications or different as mentioned in the quotation, it will be summarily rejected and returned to the supplier at his expenses. If rejected material is not lifted within one month from the date of issue of the communication of rejection, the supplier will have to bear demurrage charges at the rates prescribed by rules.
  - c) Late tender and tenders prescribing any departure from the conditions set forth above will not to be considered.
  - d) Any dispute, arising out of the supply order will be subject to the exclusive jurisdiction of the competent court at Anantapur (AP).
12. **No negotiation will be carried out.** However, the Director reserves the right to resort to negotiation on price after completing the evaluation of commercial bids under exceptional case where it is observed that price variation is abnormal. Therefore, supplier may quote their firm and final price.

13. **The bids will be opened as per schedule given in the e-procurement portal.** If there is any change in the opening schedule, a corrigendum will be issued prior to the date of opening of commercial bid.
14. Commercial bids prescribing any departure from the conditions set forth; conditional and also PRIMA FACIE ambiguous will be rejected.  
**The Director, Southern Region Farm Machinery Training & Testing Institute, Garladinne Dist Anantapur (AP) reserves the right to cancel any or all the tenders and also to cancel the entire process without assigning any reason whatsoever.**
15. **Installation and Commissioning**
- The machinery /equipments offered will have to be installed and commissioned in the Institute by the supplier.
  - **Spare parts:** A Set of spare parts as per supplier's recommendation to be quoted Separately.
- Manuals:** Supplier to provide operators/ instruction manuals/spare parts catalogue, Calibration certificate (wherever applicable).
16. **Training of personnel:**  
 Training to be provided on site during installation/Commissioning especially for instrumentation related personnel. Also during Installation and Commissioning supplier should give the training to minimum two engineers about system theory and description, operating function and instructions, calibration, diagnostics, instrument and system maintenance, safety precautions and general repair/ servicing for each & every items offered by the Institute.
17. **Warranty and servicing:**  
**Warranty term should be minimum of 12 months** from the date of satisfactory installation & commissioning.  
 The Supplier will have to provide warranty, servicing/ annual maintenance contract for smooth, trouble free operation of above equipment throughout their working life (Working life to be specified in terms of working hours).
18. The Institute is under the provision of RTI Act, 2005. All information provided by you under the Act is liable to be disclosed.

**DUE DATE AND TIME FIXED FOR RECEIPT AND OPENING OF TENDERS:**

1.	Date of Uploading of Tender	20.01.2018
2.	Due/Last date & Time of receipt of Tenders	12.02.2018 up to 5.30 P.M.
3.	Date& Time of opening of Commercial Tenders	13.02.2018 at 11.00 A.M.

**DIRECTOR**

**AIR COOLED AXIAL FIELD AC ABSORPTION DYNAMOMETER (I.S.O. Certified)**

**A. Technical Specifications:-**

Objective	To perform 'Engine performance test' of high speed low torque engines as per Automotive engine test according to IS 7347:1974 (Reaffirmed 2006) & IS 12036:1995.
<p><b>Air cooled axial field AC absorption Dynamometer with fully digitally automatic controller with separate Gravimetric fuel flow meter for petrol and diesel engine</b></p> <p><b>Data Acquisition systems with latest Configuration PC Peripherals along with Printer and supporting Software.</b></p>	<p>One number of dynamometer of following specifications:</p> <ul style="list-style-type: none"> <li>- Power range : <ul style="list-style-type: none"> <li>Min : 0.2 kW at 300rpm</li> <li>Max : 4.0 kW at 6000 to 15000 rpm</li> </ul> </li> <li>Torque range : <ul style="list-style-type: none"> <li>Min : 0.3 Nm @ 125 rpm</li> <li>Max : 6.5 Nm @ 6000 rpm</li> </ul> </li> <li>Speed (Max) : 15000 rpm</li> </ul> <p>Type : Air cooled axial field AC absorption dynamometer with full digital automatic controller as per the Accuracy and control modes given below:</p> <p><b>a) Measurement Resolution &amp; Accuracy:</b></p> <ul style="list-style-type: none"> <li>- <b>Speed</b> Accuracy : +/-1 rpm, Resolution : 1 rpm</li> <li>- Torque of Dynamometer Accuracy : +/-0.03 Nm Resolution: 0.01 Nm</li> <li>- Rotor inertia: 0.00090 kg.m<sup>2</sup></li> </ul> <p><b>b) Mode of operation (Selectable, bump less transfer between modes:-</b></p> <ul style="list-style-type: none"> <li>- N/Alpha : Speed/Throttle</li> <li>- T/Alpha : Torque/Throttle</li> <li>- N/T : Speed/Torque</li> <li>- T/N : Torque/Speed</li> <li>- External : Internal</li> </ul> <p><b>c) Direction of rotation – Bi-directional</b></p> <p><b>d) Calibration arm with weight for static calibration by dynamometer</b></p> <p><b>e) Air flow safety for AC absorption Dynamometer</b></p> <p><b>f) Safety protection for Dynamometer</b></p> <p><b>g) This electronics controller offers 3 modes of operation</b></p> <ul style="list-style-type: none"> <li>- Constant current mode (I)</li> <li>- Constant speed mode (N)</li> <li>- Constant torque mode (T)</li> </ul>

Maximum Torque	6.5 Nm
Maximum Speed	15000 rpm
Minimum power absorption	0.2 KW
<b>B. Standard Mechanical Accessories</b>	<p>a) Fabricated Engine Mounting bed with screw</p> <p>b) Propeller shaft/Coupling:  Suitable high speed coupling for testing engines in the range of 0.2 KW to 4.0 KW  - 02 Nos.  Operating speed range 300 to 15000 rpm</p> <p>c) Coupling Shaft Guards, 1 No. each</p> <p>d) Dynamometer calibration Kit for statistic and dynamic calibration in “Nm”</p>
<b>C. Digital control system with response time less than 200 mili seconds</b>	<p>-Standard 19 Rack system should be provided for digital display of following parameter within close limit of accuracy:</p> <p>-Power, Torque, engine rpm, Temperatures 16 Channel, Thermocouple-5 Channel, Atmosphere Pressure, Engine oil pressure, relative humidity, exhaust gas pressure, air intake pressure, cooling Fan Speed, panel hour meter.</p>

**D. Parameter, Accuracy, Resolution and Measuring Range:**

Name of parameters	Measuring range	Resolution	Accuracy
Power (kW)	0.2-4.0 KW	0.001kW	±0.015 kW
Torque (Nm)	0.3-6.5 Nm	0.01 Nm	±0.03 Nm
Speed (rpm)	0-15000 rpm	1 rpm	±1 rpm
Temperature (deg C)16-Channel	0-250 deg C	0.1 deg C	±1 deg C
Thermocouple (Cr-Al) 5-Channel	0-1200 deg C	0.1 deg C	±1 deg C
Air intake Pressure (Depression)	0-200 mm of Hg	1 mm	0.5%
Exhaust gas pressure	0-760 mm of Hg	1 mm	0.5%
Atmospheric pressure	730-1000mm of Hg	1mm	0.5%
Relative humidity	4-96%	1%	±0.5%

**E. Sensors And Transducers with spares:**

Universal Strain gauge load cell	Capacity: 5kg – 2 Nos. (“PSI” protection)
Temperature sensor	RTD (Pt-100, length-6cm, Probe dia-6mm,10 Nos).
Thermocouple (K type)	Cr-AI ,Probe length-6cm,dia-6mm, 5 Nos.
Exhaust Gas Pressure transmitter	4-20 mA-4 Nos.
Intake Air Pressure Transmitter	4-20 mA-4 Nos.
Relative humidity transmitter	4-20 mA-4 Nos.
Magnetic Pickup	Permanent magnet type-4 Nos.
Extendibility (with 10 meter cable)	To control panel of each sensor and transducers.

<b>F. Other essential equipments:</b>	
1.Gravimetric fuel consumption meter separate For Petrol and Diesel engine ( <b>one each</b> )	<p>a) Provision for 6 ranges of measurements such as 10gms, 15gms, 20gms, 25gms, 50gms and 100gms .</p> <p>b) Controller 19" standard rack type. Selection of weight through keypad.</p> <p>c) Auto weight selection through PC based system.</p> <p>d) Accuracy better than <math>\pm 0.1</math> g, over the entire weighing range from 0 to 100g of selected weight in lower range.</p> <p>e) Calibration checks facility.</p>
2. Engine mounting stand.	Engine mounting stand (X-Y-Z adjustment) for mounting engines up to 0.2 to 4 kW capacity
Safeties	<p>The following safeties and facilities should be incorporated as standard:</p> <p>High dynamometer body temperature trip with LED indication (HI-T)</p> <p>Low air flow trip with LED indication (LO-P)</p> <p>High excitation current trip with LED indication. (HI-C)</p> <p>High dynamometer overspeed safety with LED indication (HI-N)</p> <p>Adjustable current clamp facility.</p> <p>Fault reset facility. (push button)</p> <p>One set of potential free change over contacts which operates when dynamometer fault conditions occurs.</p>
Digital speed indication for the dynamometer, consisting of the following:	Digital speed indicator with 5 digit LED display, range 0-16,000 rpm, Accuracy : $\pm 1$ RPM
	Electromagnetic contact less speed sensor.
	Connecting cable between speed sensor and digital instrument with plugs (10 mtrs.).
Digital torque indication for the dynamometer, consisting of the following:	Digital torque indicator with 4 digit 7 segment, 0.5" height LED/LCD display, Accuracy : $\pm 0.03$ Nm
	Zero control potentiometer
	Calibration control potentiometer
	Damping control potentiometer
	Strain gauge load cell
	Connecting cable between the load cell and the digital load indicator with 2 plugs. (10 mtrs.)
Engine Throttle Actuator	<p>Should be suitable for cable drive as well as solid link drive.</p> <p>Two station operation.</p> <p>Torque output : 15 Nm</p> <p>Response Time : 400 m sec</p> <p>Driving power : <math>\pm 24</math> V, 2.3 Amp</p> <p>Position : <math>\pm 0</math>-100%</p> <p>Accuracy : <math>\pm 0.2</math>%</p> <p>Sensor type feedback potentiometer.</p> <p>Throttle actuator will have stroke adjustment from 25 mm to 90 mm.</p>
Other features	Material used for energizing coils should be super enameled copper wire with H class insulation giving enhanced life. The coils should be potted into canisters held the casing body halves. The special compound to be used should have excellent thermal potting.