



BHARAT HEAVY ELECTRICALS LIMITED

CORPORATE RESEARCH & DEVELOPMENT DIVISION

VIKASNAGAR, HYDERABAD - 500 093, INDIA

ENQUIRY

PHONES: 23774494 (EXCHANGE)

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To

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Enquiry No: Enq Date: Due Date: Delivery By:

500608701 28-FEB-07 29-MAR-07 30-JUN-07

PLEASE SUBMIT YOUR QUOTATION IN SEALED COVER SUPERSCRIBED WITH ENQUIRY NO, ENQUIRY DATE AND DUE DATE SUBJECT TO OUR TERMS AND CONDITIONS ENCLOSED, FOR THE FOLLOWING MATERIALS SO AS TO REACH US ON OR BEFORE THE DUE DATE BY 12 NOON. THE TENDERS WILL BE OPENED AT 2 PM ON THE SAME DAY

Pin

Email :

Attn. .

PLEASE GIVE REFERENCE OF ENQ NUMBER , ENQ .DATE AND DUE DATE IN ALL YOUR CORRESPONDENCE FOR PROMPT ACTION. IN CASE IF YOU ARE NOT MAKING THE OFFER PLEASE POST A REGRET LETTER AND RETURN THE DOCUMENTS.

SL NO	DESCRIPTION / SPECIFICATION	UNIT	QTY
1	DATA ACQUISITION MODULE AS PER SPECIFICATION TML50 _ DAS1 _ 02	NO.	1

NOTE: PLEASE SUBMIT YOUR OFFER IN TWO PARTS AS PER THE ENCLOSED ANNEXURE "AA" IN SEPARATE SEALED COVERS AS DETAILED BELOW:

1) FIRST COVER SHALL CONTAIN THE FOLLOWING:

- TECHNICAL COMMERCIAL BID ALONG WITH COMPLIANCE STATEMENT, MENTIONING APPLICABLE DUTIES, TAXES etc., AND DELIVERY TIME CLEARLY, (TERMS, CONDITIONS AND COMPLIANCE FORM ENCLOSED)
- A COPY OF THE PRICE BID WITHOUT THE PRICES (UNPRICED PRICE BID)

2) SECOND COVER CONTAINING PRICE BID

3) IF THE PRICE BID IS FOUND TO BE DIFFERENT FROM THE UNPRICED PRICE BID IN ANY WAY, YOUR OFFER WILL BE REJECTED

Important:

Taxes & Duties quoted by you will be taken for cost evaluation and order placement and no change will be entertained later except in the case of changes made by the Government. Changes in Taxes and Duties because of the changes in Turnover etc. also be to the supplier's account. In case no tax/duty is included, a self declaration for the exemption may be attached along with the offer.

AS WE ARE ENGAGED IN R&D ACTIVITY "C" FORM WILL NOT BE ISSUED

Yours faithfully

for

BHARAT HEAVY ELECTRICALS LTD

PLEASE FILL UP THE ENCLOSED VENDOR REGISTRATION FORM AND SEND IT ALONG WITH YOUR QUOTATION. OTHERWISE YOUR QUOTATION WILL NOT BE CONSIDERED. (IGNORE THIS IF YOU HAVE ALREADY SUBMITTED THIS FORM)

N Narsimha Rao

Dy Manager

Email: nnrao@bhelrnd.co.in

BHEL R&D HYDERABAD	TECHNICAL SPECIFICATION OF THE DATA ACQUISITION MODULE	Ref: TML50_DAS1_02
		Rev. No. 02
		Page. 1 of 1

1.0 Purpose:

The purpose of the proposed equipment is automatic data acquisition, monitor, and display the pressure, temperature and position signal from the field along with probe motion control during performance test in rotating test rigs and testing or calibration of static test components.

2.0 Specification:

Details of the system required are as follows,

2.1 General:

1. The system shall essentially consists of the following:
 - a) Data acquisition controller.
 - b) Data acquisition modules for analogue current / voltage inputs from transmitters/ transducers and digital inputs form secondary pressure measuring devices.
 - c) High precision temperature and voltage logger module.
 - d) Following two modules for aerodynamic probe position control of the traversing mechanism motors.
 - i) Four axis stepper motor controller
 - ii) Two axis integrated stepper drive power unit.
 - e) Hardware chassis with rack mount kit.
 - f) Communication between main data acquisition controller and acquisition or motion control modules.
 - g) Data acquisition software.
 - h) Control panel.
 - i) Accessories and spares.

BHEL R&D HYDERABAD	TECHNICAL SPECIFICATION OF THE DATA ACQUISITION MODULE	Ref: TML50_DAS1_02
		Rev. No. 02
		Page. 1 of 2

2.2 Data Acquisition and control details

- All the data acquisition modules should be extended bus, rugged with Euro or similar end connector and meant for instrumentation purpose.
- Various instruments and sensors required for testing shall be connected to the data acquisition or controller module as specified in the channel list. The system should be capable of signal conditioning, excitation, multiplexing, digitizing and communicating with the main controller. Data acquisition software should be based on Windows XP.
- Data Acquisition Module hardware and controller to access and monitor primary data, control the same and display derived data in graphical and other modes.
- Data Acquisition Module working as secondary hardware should remotely control and access the following primary instruments and hardware referred as BHEL scope of supply and existing in BHEL R&D Turbomachinery Laboratory (TML).

Micromanometer

Set of RTD or thermocouple

Selection box

Probe actuator and Indicator control

Pressure transducer

Pressure transmitter

- Data acquisition module should have the provision to connect with the following existing temperature/ pressure measuring instruments, for data acquisition and display and to connect the probe traversing mechanism for monitoring and motion control
 - Three micromanometers, which measure pressure signals and two sequence signals from the selection box
 - 14 no of RTDs, which measure temperature.

BHEL R&D HYDERABAD	TECHNICAL SPECIFICATION OF THE DATAACQUISITION MODULE	Ref: TML50_DAS1_02
		Rev. No. 02
		Page. 1 of 3

- iii) Data acquisition module should be able to operate three multichannel (number of channels -20) selection box for control of the channel no. and other selection box operations.
- iv) Two stepper motor (one linear traverse & one angular traverse) of the probe traversing mechanisms for probe actuation.
- v) 5 number of transducers output pressure signals.
- vi) 5 number of transmitters output pressure signals

2.3 Channel details & module configuration

The following table describes various parameters to be measured, acquired, controlled :

Sl. No	Channel Description	Module Configuration
1	4 wire Resistance Temperature Detector- 14 channels.	16 differential analogue inputs or 14 thermocouple inputs, 24 bit A/D conversion with 60 readings/ Sec. in single Channel mode, 25 μ A precision current source for excitation of RTDs. 8 nos 5v/TTL digital lines, 15mA source/sink.
2	Stepper Motor (2 Nos) for Probe Actuation	i) Stepper motor controller of the following specification. 4 stepper control, 32 digital I/O lines, 12 bit A/D conversion. ii) 2 axis stepper motor drive of the following specification. 24volt with front panel enclosure and microstepping selectable. Compact current/ axis diagnostic LED. Motor drive 1.4A or higher.
3	Micromanometer (3 Nos)	Multifunction DAQ of the following specification. 16 bit resolution, 16 analogue inputs, 2 analogue outputs, 16 bit output resolution, 24 protected digital I/O lines, high speed clock digital I/O, Min. 8 mHz.
4	Selection Box. (3 Nos)	

BHEL R&D HYDERABAD	TECHNICAL SPECIFICATION OF THE DATA ACQUISITION MODULE	Ref: TML50_DAS1_02
		Rev. No. 02
		Page. 1 of 4

5	Pressure Transducers (10-50 mV) 5 Channels	Suitable data acquisition module high accuracy pressure measurement. Pressure modules must be able to provide excitation supply 24Volt DC to the transducer. Over voltage protection $\pm 42v$. Module should provide higher impedance path (10M Ohm) from the negative input terminal to ground so that the system works reliably with either floating or grounded signals. 32-Channel thermocouple Amplifier of following specification: Programmatic input range of $\pm 100mV$ or $\pm 10 V$ per channel, Thermocouple, millivolt, volt and current input.
6	Pressure Transmitters (4-20mA) 5 Channels	

3.0 Deliverables

List of deliverables (hardware & software modules) is given in Table no.1.

4.0 BHEL Scope

BHEL will provide a Windows based PC, Pentium 4 or a higher version for connection of signals from data acquisition system and display in the monitor.

The detail of the instruments referred as BHEL scope of supply are described below. Vendors will have access to study the BHEL instruments and take copies of the instrument manuals if necessary before quoting for the job.

a) Micromanometer

The micromanometer is based on a differential pressure transducer in conjunction with a 16 bit micro-controller. The internal signal processing is carried out by a 16 bit A/D convertor. The instrument has a LCD display of pressure in various units and logged data is stored in a battery backed RAM. An EEPROM holds the calibration and factory set data. An RS232 interface allows data to be sent to a computer. Analogue output of 0-5 volts is configured.

BHEL R&D HYDERAB AD	TECHNICAL SPECIFICATION OF THE DATA ACQUISITION MODULE	Ref: TML50_DAS1_02
		Rev. No. 02
		Page. 1 of 5

b) Selection Box

The unit is designed to operate a maximum of 20 internal solenoid valves either coupled in pairs or singly. This allows pressure inputs to be read in sequence by a single pressure transmitter stationed in the micromanometer described above. BCD output is provided for remote sensing.

c) Probe Actuator

The Probe Actuator is a device to position an aerodynamic probe fitted to the device at different transverse and angular position. A ball bearing screw rod mounted with ball bearings into a base plate rotates due to gear connection with a traverse stepper motor. A nut fitted in the screw rod gets linear motion as it is prevented from rotation. The probe inserted in the carriage plate fitted with the nut gets the same linear motion. The probe is mounted in a probe clamp. The probe clamp gets angular motion from a yaw stepper motor through a gear arrangement.

d) Indicator Control for probe actuator

The indicator control is used to position and read the location of the traverse motion and angular motion, one motion at a time. The readout is a 3½ digit panel meter and the readout of probe actuator position is accomplished by placing a DC precision voltage across the actuator potentiometer. The stepper motor type is unipolar L/R stepping motor drive 15Volt DC 4 Amps max.

e) Pressure transducer

Pressure transducer output voltage (DC) is 10 mV to 50 mV.

f) Pressure transmitter

Pressure transmitter output is 4-20 mA.

g) RTD

Data acquisition module input from RTD PT100.

BHEL R&D HYDERABAD	TECHNICAL SPECIFICATION OF THE DATA ACQUISITION MODULE	Ref: TML50_DAS1_02
		Rev. No. 02
		Page. 1 of 6

5.0 Data Acquisition and Presentation Software.

The software shall cater to the data acquisition, control alarm management, communication, graphics and other requirements. It shall have the following features:

- a) Windiows – XP based software.
- b) Cater to analog, digital, thermocouples, frequency, RTD's etc.
- c) Real time graphical display and tables.
- d) User programmable mimic displays and report format
- e) Selectable Triggering-automatic, based on time, speed other parameter or manual.
- f) Selectable scan rate for each parameter.
- g) Selectable data storage modes-delta speed, delta time, event based or manual
- h) Sealing in engineering units & selectable gain/offset setting for each channel in $Y=mX+c$ form
- i) Selectable alarm and danger set points, real time alarm display, annunciation, printout, acknowledge/reset facility. Alarm status screen at the click on mouse or press.
- j) User programmable channel configuration on screen
- k) Provision for display/print list of selected channels.
- l) Provision to verify instrument connections with user-friendly screen with OK/Not OK information. The verification serene should provide probable causes for Not OK cases.
- m) Provision for running plots (X Vs Y) screen for minimum four plot windows. Selectable X & Y selectable from any configured channels. Provision to print any of the configured channels.
- n) After testing the data shall be retrieved and printed ina specific format.
- o) Provision for software modifications for future improvement.

BHEL R&D HYDERABAD	TECHNICAL SPECIFICATION OF THE DATA ACQUISITION MODULE	Ref: TML50_DAS1_02
		Rev. No. 02
		Page. 1 of 7

- p) Animation facility like colouring, horizontal, vertical/ angled movements at the operations choice.
- q) Provision for the automatic up-gradation of the data storage information.
- r) Provision for creating the test summery sheet after the test.

6.0 Accessories and spares:

- Backup of all software shall be provided in CD form.
- List of essential spares for two years of trouble free operation should be quoted separately. BHEL will have the choice of including/excluding the spares while placing the purchase order.
- Supply of Interconnecting, power, communication and interface cables and terminals for all peripherals and modules.
- Supply of 2 sets of hard copy and one soft copy (CD form) of operation, maintenance and software manuals and other documents for data acquisition system and software.
- Programmable software environment of data acquisition software.

7.0 General Requirements:

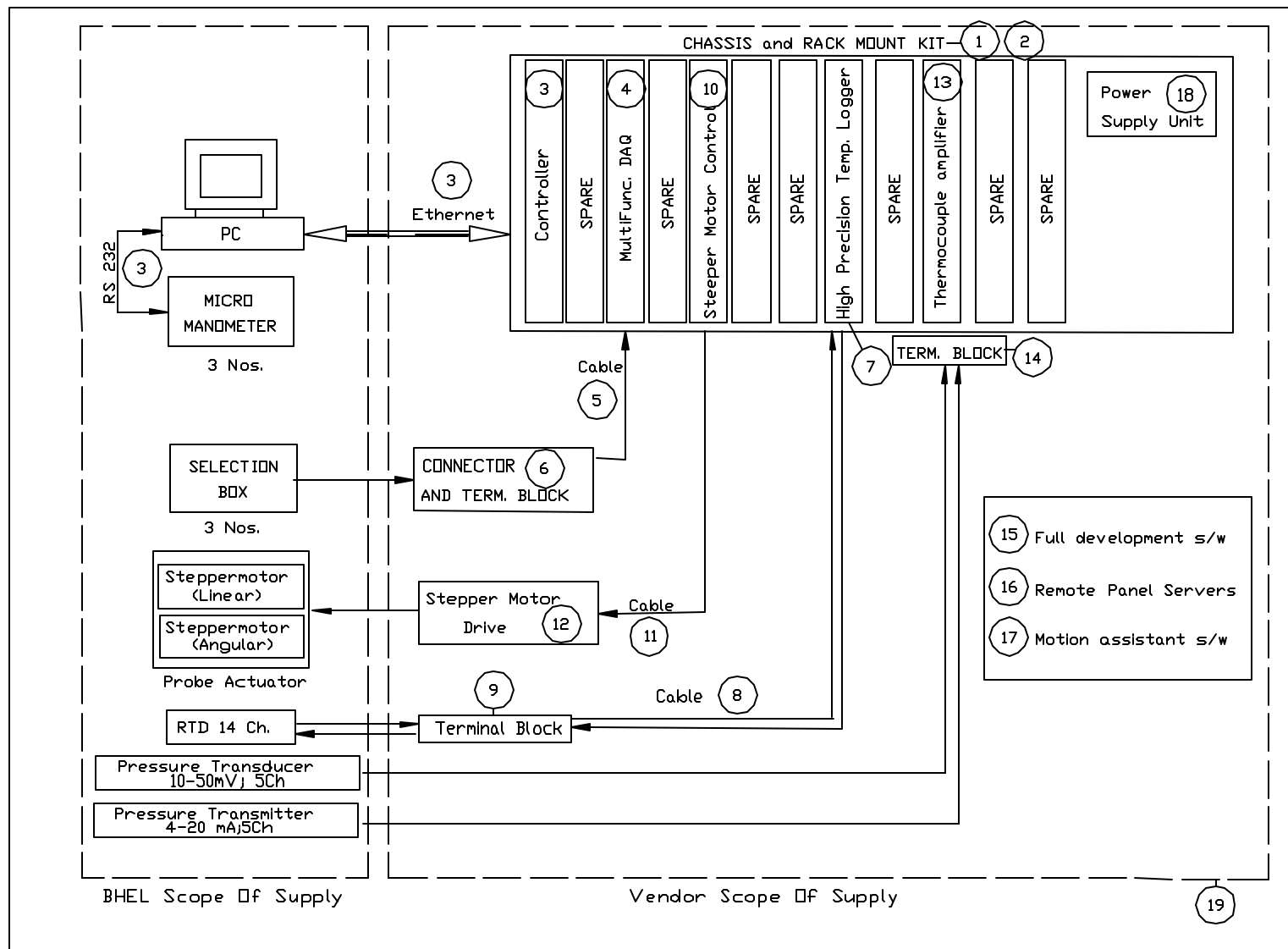
- The tender is to be submitted as a two part bid, Part-A-Technical bid, part B-Price bid. The technical evaluation of the bids may necessitate a visit to an existing installation where such or similar systems have been supplied by the Vendor. In such a case the supplier shall obtain necessary approval for the visit of BHEL Technical team to these installations.
- The Vendor must provide cost break up in the price bid of items as per the list of deliverables shown in Table no.1. Unless the price break up of items is shown, the price bid will not be accepted. BHEL has the option of placing order for all the items or part there of.

BHEL R&D HYDERABAD	TECHNICAL SPECIFICATION OF THE DATA ACQUISITION MODULE	Ref: TML50_DAS1_02
		Rev. No. 02
		Page. 1 of 8

- The vendor shall indicate specifically the optional items, if any which shall enhance the performance of system. Such items shall be quoted separately under the caption 'optional' and the price indicated exclusively.
- Vendor shall have the servicing facility within India for after sales services.
- List of references to be attached indicating the customer's Name and location in India.
- The installation and commissioning of the system shall be in the scope of the supplier. After successful installation and commissioning the supplier shall provide training to the operating personnel. This shall consist of 10 days of hands-on training in operational, hardware, maintenance and programming aspects. Easy to understand course material shall be provide for 2 persons.
- The vendor should provide 1 year comprehensive warranty. Three years of AMC to be quoted separately.

Table No. 1 List of Deliverables

SI No	Specification	Qty
1	12-Slot Main chassis: 8 PXI slots, additional 4 slots with integrated signal conditioning and multiplexed and parallel operating models. Slandered 240V.	1
2	Rack Mount kit for SI no. 1	1
3	PC Control interface kit with high performance link 132MB/s peak, 78MB/s sustained for multichassis configuration, 3m copper Cable.	1
4	High Speed Multifunction DAQ : 1 bit, 16 Analogue Inputs, 24 Digital I/O, 2 Analogue Outputs, 2.8 MS/s	1
5	Suitable shielded cable for digital I/O from field to multifunction DAQ, 2m	1
6	Noise Rejecting, Shielded I/O Connector Block	1
7	High-Precision data acquisition Temperature and Voltage Logger: PXI bus, with RTD accuracy $\pm 0.12^{\circ}$ C, 16 V of 12 thermocouples inputs, upto 60 readings/s, 24 bit ADC, Precision 25 μ A current sources for RTD excitation, 8 no.s 5volt/TTL digital lines	1
8	Suitable shielded Cable Assembly for SI. No. 7, 2m	1
9	Isothermal Terminal Block with Cold junction Sensor	1
10	4 Axis stepper motor Controller for total 4stepper control : 32 digital I/O lines, 12 bit ADC, RTSI or PXI trigger bus capability to communicate directly with other devices.	1
11	Multipin shielded cable suitable for SI. No. 10, 2m	2
12	2 Axis Integrated Stepper Motor Drive with all required motion drive and motion I/O signals, 24Volt motor drive, 0.2 to 1.4 A with micro stepping, Power Unit, 230V	1
13	Integrated signal conditioning thermocouple Input modules and amplifier: Programmatic input range of ± 100 mV or ± 10 V per channel, Thermocouple, millivolt, volt and current input. For Pr. transducer input 10 to 50 mV and Pr. transmitter output 4 to 20mA, Gain 100 for ± 100 mV.	1
14	Current Input terminal block for SI. No. 13.	1
15	Lab VIEW or equivalent standard full development software system for Windows with 1 Yr standard Service	1
16	Lab VIEW or equivalent Remote Panel Servers License – 5 Users	1
17	Motion Assistant Software for Motion Control Programming	1
18	12VDC external power supply	1
19	Control Panel of required height, width and depth (to be specified)	1
20	Panel engineering, Wiring and Termination Accessories	1
21	Application software development as per BHEL requirement and integration with hardware.	1 Set
22	Installation, commissioning and training at Turbomachinery lab of BHEL R&D.	1 Set
23	Printed manuals for operation and trouble shooting with CD.	2 Set



○ - Numbers in circle indicate the sl. No. of the Table no.1 (List of the Deliverables)

Table No. 2 Compliance Table

SI No	Specification	Description	Qty	Make	Supplier specification with remarks for deviation, if any
1	Text of the specification page no 1- 12 of TML50_DAS1_02	General compliance	--		
2	12-Slot Main chassis: 8 PXI slots, additional 4 slots with integrated signal conditioning and multiplexed and parallel operating models. Slandered 240V.	<ul style="list-style-type: none"> - 12-Slot Chassis with 8-slot for PXI modules and 4 slots with integrated signal conditioning and multiplexed and parallel operating models - Integrated Signal Conditioning modules. - Latest chassis technology. - 0 to 50°C temperature range - Multiplexed and parallel operating modes for Integ rated Signal Conditioning modules - Built-in Integrated Signal Conditioning slots offer internal cabling to Integrated Signal Conditioning modules - HALT tested for increased reliability 	1	TO BE SPECIFIED	
3	Rack Mount kit for SI no. 1	- Rack Mount kit for various module assembly.	1	TO BE SPECIFIED	
4	PC Control interface kit with high performance link, 3m copper Cable.	- 132MB/s peak, 78MB/s sustained for multichassis configuration	1	TO BE SPECIFIED	
5	High speed Multifunction DAQ	<ul style="list-style-type: none"> - 16 Analogue Inputs - Two 16-bit analogue outputs (2.8 MS/s); 24 digital I/O; two 32-bit, 80 MHz counters - 7 Programmable input ranges ($\pm 100\text{mV}$ to $\pm 10\text{V}$) per channel. -Correlated DIO (8 clocked lines, 10MHz); analog and digital triggering - Traceable calibration certificate and more than 70 signal conditioning options - analogue and digital triggering - 4 USB signal streams for high-speed data transfer. 	1	TO BE SPECIFIED	

6	Suitable shielded cable for digital I/O from field to multifunction DAQ	- 2 m lengths	1	TO BE SPECIFIED	
7	Noise Rejecting, Shielded I/O Connector Block	- Screw terminals for easy I/O connections - Shielded I/O connector block - Provides rugged and very low noise signal termination	1	TO BE SPECIFIED	
8	High-Precision data acquisition Temperature and Voltage Logger:	- PXI bus - Accuracy : $\pm 0.42^{\circ}\text{C}$ for J-type thermocouples, $\pm 0.03^{\circ}\text{C}$ for thermistors, $\pm 0.12^{\circ}\text{C}$ for RTDs - 16 voltage or 14 thermocouple inputs; up to 60 readings /s - 24-bit ADC resolution - 8 no.s 5Volt/TTL digital lines - Includes auto zero and cold-junction compensation - Precision $25\mu\text{A}$ current sources for RTD excitation	1	TO BE SPECIFIED	
9	Suitable shielded Cable Assembly for Sl. No. 8,	- To connect high precision Temperature and Voltage Meter device to 68-pin accessories - 2 m length - Features two 68-pin D-type connectors or equivalent ones - Shielded cable	1	TO BE SPECIFIED	
10	Isothermal Terminal Block with Cold junction Sensor	- For connecting temperature or voltage inputs - Built-in cold-Junction sensor and autozeroing circuitry	1	TO BE SPECIFIED	
11	4 Axis stepper motor Controller for total 4stepper control :	- 32 digital I/O lines - Quadrature encoder or analog feedback - RTSI or PXI trigger bus for powerful synchronisation with other measurement products - 3D linear interpolation for co-ordinated, multiaxis motion control - Four 12-bit ADCs with $\pm 10\text{ V}$ range - Upgradable Firmware	1	TO BE SPECIFIED	
12	Multipin shielded cable suitable for Sl. No. 11	- 2m cables for motion applications - cables for connecting to stepper motor drives and interfaces	2	TO BE SPECIFIED	

13	2 Axis Integrated Stepper Motor Drive. Power Unit,230V	<ul style="list-style-type: none"> - 2-axis stepper power drive with all required motion drive and motion I/O signals , 1.4 A per axis - 24Volt motor drive - Front panel configuration - Host PC bus power monitoring /shutdown - power supply, driver, heat sink and cooling - 0.2 to 1.4 A with micro stepping (user-selectable) 	1	TO BE SPECIFIED	
14	Integrated signal conditioning thermocouple Input modules and Amplifier	<ul style="list-style-type: none"> - programmatic input range of $\pm 100\text{mV}$ or $\pm 10\text{ V}$ per channel - Thermocouple, millivolt, volt and current input. - For Pr. transducer input 10 to 50 mV and Pr. transmitter output 4 to 20mA, - Gain 100 for $\pm 100\text{mV}$ 	1	TO BE SPECIFIED	
15	Current Input terminal block for Sl. No. 14	- Current Input Terminal Block for Sl. No. 14.	1	TO BE SPECIFIED	
16	Lab VIEW Full Development software System or equivalent for Windows (Eng) w/1 Yr Standard Service	<ul style="list-style-type: none"> - Open connectivity with DLLs, ActiveX, and. NET objects - Tight integration with a wide range of hardware (data acquisition, instrument control, motion control) - Automatic code generation using DAQ Assistant and instrument I/O Assistant - Highly productive graphical programming - Measurement analysis and digital signal processing - Networking and Internet technologies (TCP/IP,SMTP E-mail, UDP) 	1	TO BE SPECIFIED	
17	Lab VIEW or equivalent software Remote Panel Servers License– 5 Users	<ul style="list-style-type: none"> -Control Lab VIEW or the relevant software through a standard Web browser -Easy configuration-based setup -Works under all operating systems under which the s/w runs -One connection included with Lab VIEWor equivalent Full Development System 	1	TO BE SPECIFIED	

18	Motion Assistant Software for Motion Control Programming	<ul style="list-style-type: none"> - Automatically convert the project to Lab VIEW or relevant code - View a 3D preview window for easy visualisation -Utilise smart contouring for better profile cutting machine performance - Use the point-and-click user interface for interpolated moves, circular moves and contouring moves. 	1	TO BE SPECIFIED	
19	12VDC external power supply	-----	1	TO BE SPECIFIED	
20	Control Panel of required height, Width and Depth	-----	1	TO BE SPECIFIED	
21	Panel Engineering, Wiring and Termination Accessories	-----	1	Standard	
22	Application software development as per BHEL request and integration with the hardware.	<p>Application software is to be generated for</p> <ol style="list-style-type: none"> 1. Multichannel data Acquisition using scanning box and micro-manometer. 2. Stepper motor control and data Acquisition of probe (potentiometer) position through motion control card. 3. Synchronised data Acquisition of micro-manometer output and probe position. 4. Dynamic display of <ol style="list-style-type: none"> a) Channel no Vs. micromanometer output b) Probe position Vs. micromanometer output. 5. Free training (Basic module of NI) for 1 week about s/w programming with LAB View for 3 persons. 	1 Set		
23	Installation, commissioning and customer training at TML lab	-----	1 Set		
24	Printed manuals for operation and trouble shooting with CD	-----	2 Set		
25	Qualification clause	Vendor should have supplied similar configurations of Data Acquisition Module to 2 customers. Customer reference to be submitted along with the quotation.			



BHARAT HEAVY ELECTRICALS LIMITED

CORPORATE R&D DIVISION, VIKAS NAGAR, HYDERABAD – 500 093, AP, India

Ph: 0091-40 – 23778474, FAX: 0091-40 – 23770698

General Terms and Conditions of Enquiry & Contract for the Purchase of Goods/ Services

1. The quotation and any order resulting from this enquiry shall be governed by these General Terms and Conditions of enquiry and contract for the supply of goods and the supplier quoting against this enquiry shall, unless specifically stipulates any different terms or conditions, be deemed to have read and agreed to the same.
2. Sealed quotations in double cover with tenderer's distinctive seal, superscribing enquiry number, date and due date are to be submitted so as to reach on or before due date & time, addressed to **Additional General Manager(MM), Bharat Heavy Electricals Limited, Corporate Research & Development Division, Vikasnagar, Hyderabad, Andhra Pradesh, India – PIN-500 093, India.**

In the case of **Two-part bid**, each inner cover shall clearly be labeled as a) **Technical & Commercial Bid** containing technical data/ drawings/ catalogues/ quality plans along with commercial terms and conditions & copy of the price bid with the price columns left blank (unpriced price bid), b) **Price bid** containing prices quotes. Installation and/or Commissioning charges shall be spelt out in absolutely lucid terms, taking into account total charges, rather than quoting vaguely, such as charges per man-day or charges per engineer per day etc. **If the price bid was found later to be different from the unpriced price bid in any way, the offer will be rejected summarily.**

3. **Tender/ Technical bid Opening:** Unless specified otherwise, tenders/ technical bids will be opened on appointed date and time as mentioned in the enquiry or as communicated changed date/time, if any, in the presence of such of those tenderers who may be present.
4. **Delayed/ Late Tender:** Tenders, which have been posted by registered post through the postal department in time before opening date but received after tender opening, shall be treated as regular tenders. Other tenders received after tender opening time shall be treated as late tenders and normally they may be rejected.
5. The Quotation should be free from overwriting and erasures. Corrections and additions, if any, must be attested. Supplier should indicate in the quotation dimensions (Size), weight, rate etc., in the metric system unless the enquiry calls for different unit.
6. **Validity of Quotation:** All quotations shall be kept open for acceptance for a period of ninety days from the date of opening of Tenders/ Technical bid and this shall be deemed to be an express condition of all quotations. The rate shall be quoted in both figures and in words.
7. In the case of Two-part bid, the vendor should furnish technical clarifications, if any, within stipulated time mentioned, failing which, it will be construed that the vendor is not interested in the tender and BHEL shall not consider the offer for further evaluation.
8. **Revision of Pricebid:** In the event of any bidder, after finalizing the technical specifications and scope of supply, opting to revise and submit their latest price bid, then BHEL reserves the right to open their original / previous price bid also while evaluating revised bid.
9. **Pricebid Opening:** Unless specified otherwise in the enquiry, the Price bids of technically qualified vendors shall be opened with prior intimation in the presence of such of those tenderers who may be present.
10. **Conformity to Specifications:** The material should be of the best quality and shall be conforming to our specification given in our enquiry. Unless otherwise agreed upon by BHEL, no payment shall be due by BHEL in respect of any sample. Offers without details of specifications/ applicable catalogues will not be considered and are liable to be rejected.
11. **Terms of Delivery:** All suppliers shall quote the lowest prices on ex-works and FOB/FCA basis. Foreign suppliers will also indicate their Indian agent's name and address with percentage of agency commission out of the quoted price, if any. Name and Address of the supplier's Bankers address should also be given. Indian suppliers for the indigenously manufactured/ imported stock shall quote on Ex-works /Free-on-Rail/Road /FOR-destination basis, indicating packing & forwarding charges, if any, separately.
12. **Taxes and Duties:** Unless specified otherwise in the enquiry, BHEL do not provide "C" or "D" Form as it is engaged in R&D. All Indian suppliers shall clearly mention Sales Tax/ VAT, Excise Duty, and Service Tax etc, if any, payable in addition to the quoted price and indicate applicable rates/ percentage, item-wise. It will be paid

only if Registration Number under State(TIN)/ Central Sales Tax or Service Tax is specifically mentioned in the Bill/Invoice. Vendors without a Sales Tax/VAT registration and applicable Service Tax registration will not be considered.

13. **Insurance:** Insurance will be arranged by BHEL in case of Ex-Works as well as FOB basis supplies.
14. **Terms of Payment:** Full payment will be made within 30 days after receipt, inspection and acceptance of the material (and where involved, Erection and commissioning of the material/ equipment at BHEL/Destination) by Crossed cheque and no Bank commission charges are admissible. The Cheque will be sent by registered post and BHEL is in no way responsible if loss occurs due to delay by postal authorities and cheques falling into improper hands or through forgery or fraud. Suppliers having RBI-SEFT-enabled accounts can seek payment through Electronic Fund transfer. For foreign suppliers, the preferred payment term will be on Sight Draft basis and bank charges inside India will be to BHEL account and outside India will be to supplier's account.
15. Suppliers shall quote competitive price and best delivery for all the items mentioned in the enquiry. BHEL reserves the right to reject partial quotations and to place order on overall landed cost basis. Correct date of effecting supplies in the event of an order should be indicated in the offer. If the supplier's quoted terms are different from BHEL standard payment terms, interest @10.5% per annum (or as indicated in the enquiry) will be loaded to the quoted prices for difference of payment period.
16. **Packing:** The supplier shall be responsible for the goods being properly and adequately packed so as to prevent any loss, damage or deterioration during transit and indicate packing charges, if any, separately.
17. **Part/ Split Ordering:** BHEL reserves right to Order part of the item/ quantity of the enquiry and split the order among qualified vendors.
18. In case the goods enquired are on Rate Contract basis with any other unit of BHEL, such fact should be clearly indicated in the quotation giving full particulars of Rate Contract number, validity and price and also your willingness to comply with order if placed against such Rate Contract. A true copy of Rate contract signed by the supplier should be sent with the quotation.
19. **Inspection:** On receipt, the goods shall be subjected to inspection and also test, if necessary, and our decision regarding the acceptability of the goods shall be final and binding on the suppliers.
20. **Consequences of Failure To Deliver:** The time stipulated for delivery of goods shall be deemed to be the essence of the contract and delivery must be completed within the stipulated date/s. In the event of supplier's failure to supply the goods by the stipulated date/s, BHEL shall be entitled to levy a penalty of ½% per week for the delayed no of weeks or part thereof for the undelivered portion of PO subject to a maximum of 10% total order value.
21. **Withdrawal from the Contract:** In case the supplier withdraws the quotation after its acceptance by BHEL or fails to supply the goods as per the terms and conditions of contract, or at any time repudiated the contract wholly or in part, BHEL shall be at liberty to cancel the Purchase Order and to recover from the supplier the extra cost and other loss incidental to the breach of contract on the part of the supplier.
22. **Guarantee/ Warranty certificate and Manufacturer's Test report:** Invariably in all cases where it is so stipulated, the supplier should furnish Guarantee/ Warranty certificate valid for a period of 18 months from date of supply or 1 year from the date of receipt, acceptance and commissioning(or more, if provide by oem) whichever earlier and manufacturer's Test report along with the goods, failing which, BHEL shall have the right to reject the goods.
23. All ferrous/ non-ferrous items shall be colour coded as per bureau of Indian standards/ or IS standards/ BHEL Standards.
24. **Recovery of Dues:** BHEL shall recover any amount due from the supplier or any amount outstanding to the credit of the supplier with BHEL R&D unit or any other BHEL unit(s) and/or by legal action.
25. **Arbitration & Forum for Legal Proceedings:** All disputes arising in connection with indigenous/ foreign supplies shall be settled through arbitration held at Hyderabad, AP, India and arbitration shall be appointed by Arbitration Tribunal of the Federation of Andhra Pradesh Chambers of Commerce and Industry, Hyderabad, AP, India. The Courts at Secunderabad/ Hyderabad, AP, India shall have jurisdiction in respect of any suit or other legal proceeding arising from or relating to this contract

The rights and remedies of BHEL stated in these General terms and conditions shall be in addition and supplemental to its rights and remedies under law and custom or usage of trade or business and shall in no way be deemed to limit, curtail, supercede or derogate from its said rights and remedies.



ANNEXURE “AA
BHARAT HEAVY ELECTRICALS LIMITED
CORPORATE RESEARCH & DEVELOPMENT DIVISION
VIKASNAGAR, HYDERABAD – 500 093. INDIA

MATERIALS MANAGEMENT DEPARTMENT
(Information for Technical & Commercial bids with general terms)

ENCLOSURE TO ENQ No:

DATE:

- a) Please indicate(_/) for applicable or (X) for not applicable against each clause of the enquiry
- b) Vendor shall confirm their compliance for applicable clauses (_/) in their offer without deviation.

1) Technical offer:-

- a) Vendors to confirm compliance to all points of specifications, attached if any. Deviations if any should be specified in the offer.
- b) Vendors shall furnish relevant technical Documents / Catalogues. Drawings and Quality plan duly taking care of Purchase Specification and Quality requirements along with their offer in duplicate for Purchaser’s review / Verification.

2) Two Part Bid:-

Vendor shall submit their offer in 2 parts.

2.1 Technical Bid:- Containing relevant technical data, drawings, catalogues, Quality Plan etc, along with Commercial Terms and Conditions and a copy of the price bid with the price columns left blank (unpriced price bid). If the price bid was found later to be different from the unpriced price bid in any way, the offer will be rejected.

2.2 Price Bid:- Containing the Price(s) quoted. Installation and or commissioning charges shall be spelt out in absolutely lucid terms taking into account the total charges rather than quoting vaguely such as charges as per man day or charges per Engineer per day etc.,

Technical bids will be opened on the due date of the enquiry or any other date fixed by BHEL. Further, vendor should furnish clarifications, if any, required within seven days after the same is sought by Purchaser. If no clarifications/reply received within 7 days, it will be construed that vendor is not interested in the tender and Purchaser will finalise tender accordingly. Price bids received on due date along with technical offers will be recorded and opened subsequently with due intimation to vendors after finalising of technical scope of supply.

These bids shall be submitted in separate sealed covers superscribing the nature of the offer (technical bid or price bid). BHEL Enq No. Due date etc.

Note: In case of non-compliance with the TWO_-PART-BID ie.. clause number 2 and subclauses 2.1 and 2.2. Purchaser reserves the right to summarily reject all such offers.

3) Delivery:-

Vendor shall confirm supply of materials as per the delivery schedule indicated in the enquiry.

4) Negotiations:-

Vendor shall quote competitive price and best delivery to avoid negotiations.

5) Commercial Terms & Conditions:-

Terms of Delivery:

- a) **Vendors shall clearly indicate terms of delivery Viz: Ex-Works/FOR Despatching station/FOR Despatching station FOR Destination/FOB port of loading/FAS Port of loading in their offer. If the terms of delivery is Ex-Works, then vendors shall clearly indicate the following:**
 - 1. Packing and forwarding charges.**
 - 2. Documentation / Handling charges if any**
 - 3. FOB FAS charges (Inland Freight & Insurance charges from vendor works to port of Loading).**
- b) **All Indian Vendors shall clearly specify the Excise Duty in percentage applicable for their supplies. Offers containing expressions such as “Extra as applicable” or “As applicable at the time of Delivery” will be summarily rejected.**
- c) **CST/Local Sales Tax in percentage shall be clearly indicated.**

6) Validity of Quotation:-

Validity of offer should be 90 days after the opening of price bid.

7) Part or split ordering:-

Purchaser reserves the right to order part of item / quantity of the enquiry.

8) For clauses not mentioned in this document see the enclosed “GENERAL TERMS AND CONDITIONS OF ENQUIRY AND CONTRACT FOR THE PURCHASE OF GOODS”

- 9) In case your terms of payment are different from our standard payment terms, interest at the rate of 10.5% per annum (or BHEL’s standard rate of interest) will be loaded to your prices for the difference of period of payment.**



BHARAT HEAVY ELECTRICALS LIMITED
CORPORATE R&D Division
Vikasnagar, Hyderabad – 500093, India.

Suppliers' compliance statement to basic conditions of enquiry

(In case Order to be placed on Indian supplier in Indian currency)

Condition	BHEL R& D's terms	Supplier's compliance (indicate Yes/No. if 'No', state terms desired)
1) Validity of offer	90 days from the tender opening date	
2) Delivery requirements	Free delivery at our stores or FOR destination (as indicated in the enquiry)	
3) Warranty	Unless specifically mentioned in the enquiry, all supplied items to be provided with warrantee for one year (or more, if provided by the OEM) from the date of acceptance/commissioning. In case of equipment involving erection and commissioning, warrantee shall be for 18 months from the date of dispatch or 12 months from the date of commissioning, whichever is earlier	
4) Terms of payment	Full payment will be made within thirty days after receipt, inspection and acceptance of the material at BHEL R&D (and where involved, erection and commissioning of the material/equipment at BHEL/destination), by Crossed Cheque and no Bank commission charges are admissible.	
5) Taxes & Duties	Unless specifically mentioned in the enquiry, we do not provide 'C' or 'D' form. Supplier to specify rates of taxes and duties element wise and related percentages.	
6) Penalty for late delivery	0.5% per week beyond the delivery date as mentioned in the Purchase order on undelivered portion subject to a maximum of 10% of the total order value	

* BHEL R&D reserves the right to reject any offer due to non-compliance with the above conditions and/or non-receipt of this form in duly filled condition

* Any other elements of cost in addition to the above may please be specified in detail

(Signature and Stamp/Seal of Vendor)



BHARAT HEAVY ELECTRICALS LIMITED
CORPORATE R&D Division
Vikasnagar, Hyderabad – 500093.

IMPORTED

Suppliers' compliance statement to basic conditions of enquiry

(In case Order to be placed on the Principal and foreign currency)

Condition	BHEL R&D's terms	Supplier's compliance (indicate Yes/No. if 'No', state terms desired)
01) Validity of offer	90 days from the tender opening date (or as per enquiry)	
02) Delivery requirements	FCA – Nearest International Airport (or as indicated in the enquiry)	
03) Warranty	Unless specifically mentioned in the enquiry, all supplied items to be provided with warrantee for one year (or more, if provided by the OEM) from the date of acceptance/ commissioning. In case of equipment involving erection and commissioning, warrantee shall be for 18 months from the date of dispatch or 12 months from the date of commissioning, whichever is earlier	
04) Terms of payment	Sight draft. All bank charges inside India will be to BHEL R&D account and out side India will be to suppliers account. Documents through State Bank of India, HAL Complex, Balanagar, Hyderabad, AP, India-500 042.	
05) Agency commission	Pl specify percentage charges, if any. Indian agency/agent commission will be in Indian Currency only.	
06) Erection/ Commission	As per enquiry	
07) Documentation	As per enquiry	
08) Insurance	BHEL will arrange Insurance based on intimation to our Insurance agency, United India Insurance Co., DO-2, Secunderabad, AP, India.	
09) Penalty for late delivery	0.5% per week beyond the delivery date as mentioned in the Purchase order on undelivered portion subject to a maximum of 10% of the total order value	

* BHEL R&D reserves the right to reject any offer due to non-compliance with the above conditions and/or non-receipt of this form in duly filled condition

* Any other elements of cost in addition to the above may please be specified in detail

(Signature and Stamp/ Seal of Vendor)



BHARAT HEAVY ELECTRICALS LTD.
Corp. R&D DIVISION
VIKAS NAGAR,
HYDERABAD-500 093 (INDIA)

VENDOR REGISTRATION FORM

[FORM TO BE SUBMITTED* BY THE BIDDER ALONG WITH TECHNICAL-BID]

Before filling please refer to instructions on page-4

1.0 VENDOR PROFILE:

1.1 & 1.2 Name and address of the vender:

Phone Nos.:

Fax No.:

Email:

1.4 Local representative of the vender in India/ Hyderabad:

Phone Nos.:

Fax No.:

Email:

Contact person:

Mobile No.:

2.0 & 2.1 Type of Organisation:

PROPRIETORSHIP	COMPANY	SISTER CONCERN	ANY OTHER (Please specify)
PARTNERSHIP	CORPORATION	Small Scale Industry	

3.0 Annual Turn Over:

Name and address of the Banker:

Sr.No.	Bank	Address

4.0 REGISTRATION PARTICULARS

4.1 IT Permanent Account No.(PAN):

4.2 & 4.3 State and central sales tax Registration No.:

4.4 ED/ Service Tax Registration No.:

PF Account No.:

Labour Licence No.:

ESI Account No.:

5.2 Contact person:

Mobile No. :

5.3 Total Number of employees:

Graduates (Engr./Scientists/Mgmt/Fin.)	Consultants	Workers		
		Sup./Skilled	Semiskilled	Unskilled

6.0 Wish to register for supplies/ services other than one bidding for :

<u>Sr.No.</u>	<u>Service/Supplies</u>	<u>Capacity</u>
<u>1</u>		
<u>2</u>		
<u>3</u>		
<u>4</u>		
<u>5</u>		
<u>6</u>		
<u>7</u>		

6.1 Reference list :

(Only recognized public and private sector companies, attach if printed copy available)

<u>Sr.No.</u>	<u>Customer</u>	<u>Volume / Year</u>
<u>1</u>		
<u>2</u>		
<u>3</u>		
<u>4</u>		
<u>5</u>		
<u>6</u>		
<u>7</u>		

7.0 & 8.0 Infrastructure / facilities :

<u>Sr.No.</u>	<u>Facility (with specifications)</u>	<u>Age/ Year procured</u>
<u>1</u>		
<u>2</u>		
<u>3</u>		
<u>4</u>		
<u>5</u>		
<u>6</u>		
<u>7</u>		
<u>8</u>		
<u>9</u>		
<u>10</u>		

9.0 Registration with other BHEL Unit/Units:

<u>Sr.No.</u>	<u>9.1.1 Unit</u>	<u>9.1.2 Registration No.</u>
<u>1</u>		
<u>2</u>		
<u>3</u>		
<u>4</u>		

Any Other information :

Declaration:

The information furnished above is true and authentic.

(CEO / Proprietor)

SEAL:

Date:

The competent authority reserves the right to accept or reject the registration. Registered vendors will be informed by mail / email, as convenient. Contact Sr.DGM (MM) for clarification/ additional information on registration.
A separate communication will be sent to you in case of non-registration, citing reasons thereof.

Instructions

1. Answer all items, use NA for items not applicable.
2. BHEL units do not require this registration.
3. Submit the form in duplicate.
4. Use additional sheets for want of space if required.
5. Attach copies of latest documents in respect of items 4.0 (Registration no.s)
6. Photographs of registered office and the chief executive/proprietor shall be furnished.
7. Use A4 sheets for this document and the enclosures.

* REGISTERED BIDDERS, HAVING BHEL (R&D) REGISTRATION NO./ HAVE SUBMITTED THIS FORMAT EARLIER, NEED NOT FURNISH THIS INFORMATION SECOND TIME (UNLESS DESIRE TO UPDATE IT).



BHEL CORPORATE R & D
VIKAS NAGAR- HYDERABAD - 500 093
ANDHRA PRADESH – INDIA
SUPPLIER REGISTRATION FORM

(FOREIGN SUPPLIER)

ALL COLUMNS SHOULD BE PROPERLY FILLED IN THE SPACE PROVIDED FOR. WHEREVER IT IS NOT APPLICABLE PLEASE WRITE “NOT APPLICABLE”. INCOMPLETE OR INCORRECT FORMS MAY NOT BE CONSIDERED.

1.0 GENERAL INFORMATION:

1.1....NAME OF COMPANY

1.2....DETAILS OF HEAD OFFICE:

ADDRESS :
TELEPHONE :
FAX :
.EMAIL :
.WEB SITE :

1.3....DETAILS OF FACTORY/WORKS:

ADDRESS :
TELEPHONE :
FAX :
.EMAIL :
.WEB SITE :

1.4....DETAILS OF MARKETING AGENT

ADDRESS :
TELEPHONE :
.FAX :
.EMAIL :
.WEB SITE :

1.5 CHIEF EXECUTIVE

NOTE: PLEASE ATTACH SEPARATE SHEETS, IF SPACE FOUND IS INADEQUATE

AUTHORISED SIGNATORY



BHEL CORPORATE R & D
VIKAS NAGAR – HYDERABAD – 500 093
ANDHRA PRADESH – INDIA

SUPPLIER REGISTRATION FORM

(FOREIGN SUPPLIER)

- 1.6 CONTACT PERSON(S)
FOR PRODUCT OFFERED
NAME(S)
OFFICIAL CAPACITY
ADDRESS:
TELEPHONE
FAX
E-MAIL
- 1.7 YEAR OF ESTABLISHMENT
- 1.8 PRODUCTION CAPACITY PER ANNUM
- 1.9 PARTICULARS OF PRODUCT INCLUDING
SPECIFICATION AND RANGE OFFERED
FOR REGISTRATION
(ATTACH BROCHERS AND CATALOGUE)
- 1.10 NAME(S) OF BANKERS
- 1.11 BANKER’S CERTIFICATE
- 1.12 PORT OF LOADING
- 1.13 NEAREST AIRPORT
- 1.14 NAME OF THE INDIAN AGENT, IF ANY
WITH AUTHORISATION LETTER
- 1.15 ANY OTHER INFORMATION:

AUTHORISED SIGNATORY



BHEL CORPORATE R & D
VIKAS NAGAR – HYDERABAD – 500 093
ANDHRA PRADESH – INDIA

SUPPLIER REGISTRATION FORM

(FOREIGN SUPPLIER)

2.0 FINANCIAL INFORMATION

2.1...TOTAL CAPACITY

2.2...ANNUAL TURN OVER FOR LAST 3 YEARS

2.3...WHEHER CREDIT LICENSE ACCEPTABLE YES/NO

3.0 QUALITY MANAGEMENT SYSTEMS
ENCLOSED FORMAT PART-B

3.1 EXPERIENCE LIST FOR SAME/SIMILAR ITEMS
TO BE ENCLOSED

4.0.....FUTURE EXPANSION PLANS:
(GIVE DETAILS)

5.0 LIST OF ENCLOSURES:
INCLUDING BROUCHERS, CATALOGUES, TECHNICAL
LITERATURE etc...

6.0 ANY OTHER INFORMATION

SIGNATURE OF SUPPLIER
NAME
DESIGNATION
DATE
.....OFFICIAL SEAL

AUTHORISED SIGNATORY
