

**TENDER NOTICE**  
**NO. MPPCB/PURCHASE/02/2011-12**

**TENDER DOCUMENT**  
**FOR**  
**LABORATORY EQUIPMENTS**



**Year: 2011 - 12**

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**M. P. Pollution Control Board**  
**E-5 Sector, Paryawaran Parisar,**  
**Arera Colony, Bhopal – 462016**

**PBX : +91(0755) 2464428 / 2466191**  
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# M. P. POLLUTION CONTROL BOARD

PARYAWARAN PARISAR, E-5, ARERA COLONY, BHOPAL – 16

Phone: [0755] 2466191/2464428 Fax: [0755] 2463742 E-mail: [it\\_mppcb@rediffmail.com](mailto:it_mppcb@rediffmail.com)

## SHORT TENDER NOTICE NO. MPPCB/PURCHASE/02/2011-12

Sealed tenders are invited from the reputed manufacturers [approved by BIS/ISO] or their authorized representatives, specially authorized for this tender, for the supply of following laboratory equipment:

SI. No.	PARTICULARS OF ITEM	QTY.	APPROX. COST [Rs.]	EARNEST MONEY [Rs.]
1.	Meteorological Equipment	07	3700000.00	74000.00
2.	Global Positioning System [GPS]	14	400000.00	8000.00
3.	PM 2.5 Sampler	33	9900000.00	198000.00
4.	Rotary Evaporator	01	200000.00	4000.00

The tender document including technical specifications of equipment shall be issued up to 3.00 PM on dated 20.01.2012 on payment of Rs. 1000.00 [Rupees One Thousand only] by cash or demand draft [Rs. 50.00 extra for supply of documents by post] in favor of Member Secretary, M. P. Pollution Control Board, Bhopal. The application for sending tender document by post shall not be accepted after 17.01.2012. The earnest money of requisite amount shall be submitted in a separate sealed envelop mentioning the details thereof. No tender shall be considered without requisite earnest money. The last date for submission of tender is 23.01.2012 by 1.00 PM and the same shall be opened on the same day at 3.00 PM in the presence of bidders, who wish to participate. The detailed terms & conditions are available in tender document. This Tender Notification may also be downloaded from Board's Web site [www.mppcb.nic.in](http://www.mppcb.nic.in) and [www.govtenders.nic.in](http://www.govtenders.nic.in) and the cost of tender document should be submitted in the form of demand draft along with Earnest Money in Envelop "A".

**[R. K. Jain]**  
**Member Secretary**

**M. P. POLLUTION CONTROL BOARD**  
**PARYAWARAN PARISAR, E-5, ARERA COLONY, BHOPAL – 16**  
Phone: [0755] 2466191/2464428 Fax: [0755] 2463742 E-mail: [it\\_mppcb@rediffmail.com](mailto:it_mppcb@rediffmail.com)

To,

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**Sub.: Sealed tenders for purchase of laboratory equipment.**

Dear Sir,

M. P. Pollution Control Board desires to procure laboratory equipments for its laboratories spread over whole of the state. Sealed tenders are invited from the reputed manufacturers [approved by BIS/ISO] or their authorized representatives, specially authorized for this tender, who are capable of supplying laboratory equipment, which are shown on tender notice. The terms and conditions are as follows:

[A] SPECIAL CONDITIONS:

1. All prices quoted should be CIF New Delhi for imported equipment. Other charges like transportation, insurance, F.O.R. destination and installation charges should be quoted separately. For indigenous equipment prices should be F.O.R. destination.
2. Prices should be quoted for complete set of equipment including the cost of installation, minor civil works, electrical fittings and cabling etc.
3. Accessories required [if any] for maintenance for a period of three years should be given separately.
4. Annual Maintenance charges for three years should be quoted separately in Annexure – 2.
5. The technical specifications of the equipment are given on page no.15 to 22. The technical specifications of the offered equipment should be furnished in annexure – 1. Schedule of requirement is annexed as annexure-5. The check list is shown as annexure -6.

6. The equipment offered should necessarily contain a guarantee for its trouble free performance for a period of one year from the date of installation.
7. The offer should clearly mention make, name of the manufacturer, detailed specifications, detailed literature about the equipment/circuit diagram/drawing of the mechanism and any other information relevant to the equipment. For any printing error / mistake in final bid will be the responsibility of the bidder and no correspondence will be entertained by the Board in future.
8. The tenderer should furnish details of supplies made by him to important institutions, along with performance certificate, during last one year [Users' list].
9. The firm / manufacturer submitting the offer shall only quote for one most suitable model of the offered equipment whose specification matches the Board's specifications. No alternate offers shall be considered and, if submitted, the offer shall be rejected.
10. Earnest money be furnished by a demand draft in favor of Member Secretary, M. P. Pollution Control Board, Bhopal in envelop "A". Offers without earnest money shall not be considered and the relevant envelopes [B & C] will not be opened and their offer shall be treated as rejected.
11. Bidders using downloaded tender forms must submit tender fee by demand draft along with Earnest Money in Envelop "A" drawn of Member Secretary, M. P. Pollution Control Board, Bhopal. The tender will not be accepted from the firm to whom the document is not issued by the Board and the bid downloaded from net without tender fee will not be accepted
12. The bidder shall have to submit the copy of sales tax registration and Income Tax registration [PAN] along with envelop "B" otherwise the offer shall be liable for rejection.
13. An undertaking shall be submitted by the tenderer that they are not black listed in any Govt. organization / institutions along with envelop "B".
14. The bidder shall provide exclusive company profile including necessary certificates / license for manufacture the product from DGTD / SSI/SIA etc.
15. The specifications are clearly mentioned in the document and the Bidder is requested to submit Bid only if their offer strictly comply to these specifications. Please note that no deviation in the required specification will be permitted. The bidding for the instruments having different

specification will be on Bidder's risk as the Board will not entertain such Bids.

#### 16. **PROCEDURE FOR SUBMISSION OF TENDERS :**

Each bidders shall submit his offer in three sealed envelops A, B and C. Envelop "A" shall contain earnest money and tender cost, if the tender document is downloaded from the web site. The Envelop "B" should contain technical specification, terms & conditions, company profile, copy of sales tax registration number, PAN number and authorization certificate from manufacturer for submission of offer for this tender, if offer is submitted by authorized representative. In case the manufacturer of any equipment authorizes more than one firm for submitting offer, then such offers shall be treated as rejected. Envelop "C" shall contain financial offer.

**[a] Envelop – "A" :** Envelop "A" should contain demand draft for the requisite amount of earnest money in favor of Member Secretary, M. P. Pollution Control Board, Bhopal. If the tender document is downloaded from web site, then separate demand draft for tender cost shall be submitted with envelop" A". The name of instrument and the amount of the demand draft should be inscribed on the top of envelop. Envelop "A" shall be opened on 23.01.2012 at 3.00 pm in the presence of the bidders or their authorized representatives. Insufficient amount furnished as earnest money and tender cost shall make the offer liable for rejection.

**[b] Envelop – "B":** Bidders, who have furnished the desired amount of earnest money and tender cost shall be liable for opening of the Envelop "B" of their offer. The Envelop "B" should contain detailed technical specifications in annexure –1, make & model of the equipment, functioning procedure of the equipment and other literature relevant to the equipment and company profile. If the offer is submitted by authorized representative, he should submit authorization letter in envelop "B" from the manufacturer for submitting offer for this tender, otherwise tender offer of the firm shall not be considered and liable for rejection. The tenderer should furnish users' list and details of supplies made by him to important institutions along with performance certificate. The bidder shall have to submit the copy of sales tax registration and income tax no. [PAN] along with the envelop "B", otherwise the offer shall be liable for rejection. An undertaking shall be submitted by the tenderer, regarding whether they are not black listed in any Govt. organization / institutions, along with envelop "B". The details of service station in Madhya Pradesh and India should be furnished with other details.

**[c] Envelop – “C”** : The envelop “C” shall contain financial offer in annexure 3 or 4 [whichever is applicable] of the tender document. Offers received in due time shall be evaluated technically by a committee constituted by the Chairman, M. P. Pollution Control Board and as per the recommendation of committee , depending upon the suitability of equipment with respect to application, performance, after sale service and service centers in Madhya Pradesh or in India etc., the financial offer shall be opened.

**[B] OTHER CONDITIONS :**

1. The Madhya Pradesh Pollution Control Board reserves its rights to reject any or all the tenders without assigning any reason there for.
2. Tender found incomplete shall be rejected forthwith.
3. The indigenous equipment, for which an order has been placed, after acceptance of the tender, shall have to be delivered, installed & demonstrated to the consignee mentioned in the supply order within 60 days from the date of issue of supply order. In case of late supply of the material, 2% per month penalty shall be charged up to one month, there after supply order shall be treated as cancelled and earnest money shall be forfeited and the supply order shall be issued to the second lowest firm. In case of unavoidable delay in supply a prior permission shall be obtained for extension in delivery period.
4. The time limit for the supply of imported equipment shall be 90 days, which can be relaxed for additional 30 days by the Member Secretary. After scheduled time limit, 2% per month penalty should be levied.
5. If the bidder is not a manufacturer himself, should have a facility for repairing and maintenance of the instrument. The details of service centers in Madhya Pradesh and India should be furnished along with other details.
6. It shall be the responsibility of the bidder to deliver the material to the consignee in sound condition without any damage. Any damage or loss during transit shall be on the account of the bidder.
7. The tenders shall be valid for a period of 180 days from the date of opening of envelop “A”. In case the validity is to be extended; the Board may solicit the Bidder’s consent to an extension on the period of validity and the bid shall remain valid for the extended period mutually agreed for.

8. The prices should include all taxes like sales tax, excise tax or any other tax.
9. Approved firm / manufacturer shall have to submit 5% security deposit of the ordered value in the form of Bank Guarantee for a period of 12 months.
10. In case the approved bidder fails to effect supply, within the specified period as per supply order, the earnest money is liable to be forfeited.
11. The consignee or any other officer authorized by the Board shall have the right to reject any or all the items of the supply, if they do not confirm to specifications mentioned in the supply order. The rejected items shall be lifted by the bidders at their own cost. The consignee will not be responsible for the custody and safety of such items.
12. The Board reserves its rights to effect any reasonable increase or decrease in the quantity or number of items at the time of issue of supply order in the interest of the Board.
13. All the clearance including the obtaining NMI [Not manufactured in India] certificate, custom clearance and custom duty will be the responsibility of the tenderer. This office will open the letter of credit [L/C] as may be required and will only sign the documents wherever required.
14. In case, if any supplier quote their rates in Indian Rupees for imported equipment and do not require custom duty exemption certificate from the Board, then the supplier has to submit import document like bill of entry, custom duty paid and NMI [Not manufactured in India] certificate from the manufacturer.
15. The bidder is expected to examine all instructions, forms, terms and conditions and specifications mentioned in the bid document. Failure to furnish all information required by the bid documents of submission of a bid not substantially irresponsive to the bid document in every respect will be at the bidder's risk and may result in the rejection of its bid.
16. The terms of payment shall be as under:  
  
[A] 75% of the cost of machinery / equipment would be paid after receipt of the material by consignee for instrument made in India. For imported goods, the letter of credit will be opened for 75% cost of the instrument.  
  
[B] The balance 25% shall be released only after satisfactory installation and demonstration of equipment.
17. Conditional offers will not be accepted and liable for rejection.

18. In case of human error regarding labeling of envelop, the committee constituted for the opening of envelop shall take appropriate decision.
19. In case of any dispute the decision of Chairman, M. P. Pollution Control Board shall be final & binding.
20. In order to comply the instructions of Department of Commerce & Industries, Govt. of M.P., minimum 30% of the quantity of the items shall be reserved for the manufacturers / entrepreneurs from Scheduled castes/ scheduled tribes based at Madhya Pradesh.

*NOTE: The tenders shall be liable for rejection in breach of any of the special or other general conditions of the tender document and no correspondence in this regard shall be entertained in future.*

**[R. K. Jain]**  
**Member Secretary**

# **M. P. POLLUTION CONTROL BOARD**

## **TENDER AND CONTRACT FOR SUPPLY OF MATERIALS**

### **[GENERAL RULES AND DIRECTIONS FOR GUIDANCE TO THE SUPPLIERS]**

1. All suppliers proposed to be obtained by contract will be notified in a form of invitation to tender posted in public places / News Paper.
2. The tender form will state the supplies to be made, as well as the date for submitting and opening tenders and the time allowed for supply, also the amount of earnest money to be deposited with the tender.
3. In the event of tender being submitted by a firm it must be signed separately by each member thereof or, in the absence of any partner, it must be signed on its behalf by a person holding a power of attorney authorizing him to do so, such power of attorney should be produced with the tender and it must disclose that the firm is duly registered under the partnership Act.
4. Any person who submits a tender shall fill up usual printed form stating at what rate he is willing to undertake supply of each item. Tender which propose any alteration in the work / supply specified in the said form of invitation to tender, or time allowed for carrying out work / supply will be liable for rejection.
5. The Member Secretary or his duly authorized assistant will open tenders in the presence of any tenderer who may be present at the scheduled opening time and will record the offered rates by various bidders in a comparative statement in a suitable form. Receipts for earnest money will be given to all tenderers, except those whose tenders are rejected and whose earnest money is refunded on the day that the tenders are opened.
6. The officer competent to dispose of the tenders shall have the right of rejecting all or any of the tenders.

### **CONDITIONS OF CONTRACT**

1. The time allowed for the supply of materials as entered in the tender shall be strictly observed by the supplier and reckoned from the date of which the order to commence supply of materials shall throughout the stipulated period of the contract be proceeded with all due diligence [time being deemed to be the essence of contract] on the part of the supplier and the supplier shall pay as liquidated damage an amount equal to one percent or such smaller amount as the Member Secretary, M. P. Pollution Control Board, may decide on the amount of estimated cost of the whole of the materials as shown in the estimated cost of the that the supply remains un commenced or unfinished after the proper dates. In the event of the contractor failing to comply with this condition shall be liable

to pay as liquidated damage an amount equal to one percent or such smaller amount as the Member Secretary may decide on the said estimated cost of the whole of the materials for every day basis that the due quantity of supply remains incomplete to, provided that the due quantity of liquidated damage to be paid under the provisions of this clause shall not exceed ten percent on the estimated cost of the materials as shown in the tender.

2. If the tenderer shall be hindered in the supply of the material so as to necessitate an extension of the time allowed in this tender he shall apply in writing in advance, or immediately after the cause occur, to the Member Secretary, M. P. Pollution Control Board who shall, if in his opinion (which shall be final) reasonable grounds be shown therefore authorize such extension for a period not exceeding in 15 days. Any further extension shall be subject to the previous sanction of the Chairman.
3. The supplier shall give notice to the consignee officer of his intention of making delivery of materials and on the materials being approved a receipt shall be granted by him to the consignee officer or his assistant and no material will be considered for payment until so approved.
4. On the completion of the delivery of the materials, the supplier shall be furnished with a certificate by the consignee officer of M. P. pollution Control Board.
5. The material shall be of the best description and in strict accordance with the specification and the supplier shall receive payments for such materials only as are approved and passed by the Member Secretary/ consignee officer.
6. In the event of materials being considered by the consignee officer to be inferior to that described in the specification the supplier shall on demand in writing forth with remove the same at his own charge and cost and in the event of his neglecting to do so within such period as may be named by the consignee officer, that officer may have such rejected material removed at the contractor's risk and expenses incurred being liable to be deducted from any sum due or which may become due to the supplier.
7. Receipts for payment made on account of a supply when executed by a firm must also be signed by several partners except where the contractors are described in their as a firm in which case the receipt must be signed in the name of firm by one of the partners or by some other person having authority to give effectual for the firm.
8. Under no circumstances whatever shall the contractor be entitled to any compensation from the Board on any account.

9. The supplier shall supply at its own expense all tools, plant & implements required for the due fulfillment of his contract and the materials shall remain at his risk till the date for final delivery, unless it shall have been in the mean time removed for use by the consignee officer.
10. No materials shall be brought to site or delivered on Sunday/holiday without the written permission of the consignee officer.
11. The supplier shall not sublet this contract without the written permission of the Member Secretary, M. P. Pollution Control Board. In the event of the contractor subletting his contract without such permission, he shall be considered to have thereby committed a breach of contract and shall forfeit his earnest money and shall have no claim for any compensation for any loss that may occur from the materials he may have collected or engagements entered into.
12. The decision of the Chairman, M. P. Pollution Control Board, Bhopal, shall be final, conclusive & binding on all parties to the contract upon all questions relating to the meaning of specification and instructions, herein before mentioned and as to quality of material or as to any way arising out of, or relating to the contract specifications, instruction orders of these conditions or otherwise concerning the supplies whether arising the progress of after the completion or abatement thereof.
13. On the breach of any term of condition of this contract by the supplier, the said Chairman shall be entitled to forfeit the earnest money, security deposit and the balance thereof that may at that time be remaining and to realize and retain the same as damages and compensation for the said breach but without prejudice to the right of the said Board to recover any further sums as damages from any sums due or which may become due to the contractor by M. P. Pollution Control Board, or other wise howsoever.

**Annexure – 1**

**TENDER SPECIFICATIONS VS OFFERED SPECIFICATIONS**

<b>Sl. No.</b>	<b>Tender Specifications</b>	<b>Offered Specifications</b>

**Signature of Bidder**            -----  
**Name**                                    -----  
**Business Address**                -----

**Place:** -----  
**Date :** -----

Annexure – 2

**PRICE SCHEDULE FOR ANNUAL MAINTENANCE AND REPAIR CHARGES AFTER WARRANTY PERIOD**

Sl. No.	Item Description	Qty.	Annual Maintenance & Repair charges for each unit including supply of spares [Price to be quoted either in Indian Rupees or in Foreign currency] Excluding guarantee period	Maintenance and Repair charges for 3 years, including supply of spares.

**Note:** In case of any discrepancy between unit price and total price, the unit price shall prevail.

Signature of the Bidder -----  
 Name -----  
 Business Address -----

Place -----  
 Date -----

**Annexure – 3**

**PRICE SCHEDULE FOR GOODS IMPORTED**

1 Sl. No.	2 Description	3 Country of origin	4 Quantity	5 Unit Price CIF New Delhi	6 Total CIF price per item	7 Unit price pf Inland delivery to final destination and unit price of other incidental services.

**Note:** In case of discrepancy between unit and total price, the unit price shall prevail.

**Signature of the Bidder.....**  
**Name .....**  
**Business Address .....**  
 .....

**Place: .....**  
**Date: .....**

Annexure – 4

PRICE SCHEDULE FOR GOODS INDIGENOUS

Sl. No.	Name of equipment with make & model	Unit Price in Rupees	VAT/CST or any other Tax/duty	Unit price including all taxes up to final destination

Note: In case of discrepancy between unit and total price, the unit price shall prevail.

Signature of the Bidder.....  
Name .....  
Business Address .....  
.....

Place: .....  
Date: .....

# TECHNICAL SPECIFICATIONS

## METEOROLOGICAL EQUIPMENT

The meteorological instrumentation should be interfaced directly with the data Acquisition System after passing through a lightning Protection Isolation box. A crank – up telescoping meteorological 10 meters tower to be used to mount the meteorological instrumentation. The relative humidity and solar radiation sensors should be mounted on the tower.

- **WIND DIRECTION**

The sensor to provide low starting threshold, fast response and accuracy over a wide operating range in adverse environmental conditions. Specifications are as follows:

Accuracy	:	± 4%
Wind Direction Operating Range	:	0 – 360
Starting Threshold	:	0.5 m/s
Distance Constant	:	1.1 m or air maximum
Damping Ratio	:	0.4 at 10 initial angle of attack
Temperature operating range	:	- 10°C to 60°C

- **WIND SPEED**

The anemometer to provide a low starting, wide dynamic response and high accuracy over a wide range of wind speeds and a variety of environmental conditions. Specifications are as follows:

Maximum Operating range:	:	0 – 50 m/s
Distance constant	:	
Vinyl	:	1.5 m of air maximum
Stainless Steel	:	2.4 m of air maximum
Heavy duty	:	3.0 m of air maximum
Temperature Range	:	- 10°C to 60°C
Accuracy	:	0.2 m/s or 1%, which ever is greater
Impedance	:	4.7 k ohm
Power Requirement	:	12VDC, 4.5 mA or 6VCD at less than 1 mA

- **AMBIENT TEMPERATURE**

Temperature measurement system specifications are as follows:

Calibrated temperature range	:	- 10°C to 60°C
Response	:	10 seconds in still air
Linearity	:	± 0.1°C
Accuracy	:	0.15°C

- **RELATIVE HUMIDITY**

Specifications are as follows:

Measuring range	:	0 to 100% RH
Accuracy	:	± 1.0 % [5 – 95% RH]
Response Time	:	< 2 minutes for RH 10% to 90% < 5 minutes for RH 40 to 90% Typically 10 seconds
Linearity	:	Better than ± 2%
Reproducibility	:	0.5%
Temperature Range	:	- 10°C to 60°C

- **SOLAR RADIATION**

The detector should be able to measure short – wave radiation which comprises the direct component of sunlight and the diffuse component of skylight. Specifications are as follows:

Sensitivity	:	80 micro amps per 1000 W m <sup>2</sup>
Temperature dependence	:	0.15 % per °C Max.
Response Time	:	10 microseconds
Linearity	:	1% from 0 to 3000 watts m <sup>2</sup>
Cosine Response	:	Corrected up to 80 angle of incidence
Orientation	:	No effect on instrument performance
Calibration	:	Calibrated against an Eppley Precision, Spectral Pyranometer [PSP] under natural day light conditions. Absolute error under these conditions is 5% maximum, typically – 3%

- **RAIN FALL**

Measuring Range	:	0.2 mm to 100 mm/hr
Accuracy	:	= 0.2mm or 1% for = 50 mm /hr, 2% for 17.50 mm/hr
Temperature Operating Range:	:	-10°C to 60°C

- **TELESCOPIC CRANK – UP METEOROLOGICAL TOWER**

The wind direction, wind speed, Humidity and temperature sensors are to be mounted on the Meteorological Tower. The Tower is to be free standing four section telescoping tower provided with a hand crank to raise lower instruments mounted on the top section. Specifications are as follows:

Extended Height	:	10 Meters
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Retracted Height	:	2 Meters
Wind load limit	:	0.7896 sq.m. (8.5 sq.Ft.) at 50 mph
Number of sections	:	4
Construction Material	:	Galvanized steel or aluminium

Note: Humidity and temperature sensors to be supplied with weather and thermal radiation shield made of anodized aluminium and sensor should be supplied with all necessary cables, connector and mounting arrangements as required.

#### • SPECIFICATION OF DATA LOGGER

Data Logger with 8 analog and 24 digital inputs. Ability to log channels at different intervals and should have capability of averaging and displaying real time data and averaged data over a period of 1 min., 10 min., ½ hr, 1 hr, 4 hrs, 8 hrs, 24 hrs, 1 month and year. Communication between data logger and computer using standard multi drop RS 232 Connector. The data logger should have internal battery with charger. The data logger should support PSTN line or GSM modem for data transfer.

#### • SOFTWARE FOR DATA ANALYSIS

Software should be compatible to Window XP. For analysis like averaging for different timings including daily and monthly averages, plotting diurnal variation and daily variation, making wind rose.

#### • SPECIFICATION OF COMPUTER [MINIMUM CONFIGURATION]

Pentium IV	:	Intel-IV processor 3.0 GHZ Original mother board
RAM	:	3GB DDR RAM up-gradable up to 4.0GB
Hard Disc	:	320 GB ultra DMA 100 HDD
FDD	:	1.44 MB 3.5"
CD Writer	:	Combo drive, Internal, latest model
Monitor	:	19" LCD / TFT
Port	:	4 bays [ 2 external & 2 internal] 2 serial, 1 parallel & 3 USB with LAN 1 PS, 2 Mouse port.
Keyboard	:	Latest multi media [Microsoft]
Mouse	:	Optical / Scroll Mouse + Pad
Software	:	Windows XP Professional [Latest version] with media documentation and certificate of authenticity, Anti virus with continuous up –gradation.
Anti Virus	:	Norton, McAfee or equivalent antivirus [latest version]
CD Writer	:	Internal, latest model
Network Card	:	Network card with remote booting facility.

Energy star compliance, screen blinking, hard disc and system idle mode in power on, set up password power supply surge protected.

- **SPECIFICATION OF LASER PRINTER**

Speed (pages per minute)	:	At least 12
Resolution	:	1200 X 1200 dpi
RAM	:	8MB expandable to 32MB
Main tray Capacity	:	At least 250 sheets
Interface	:	Parallel & USB
Operating System	:	Windows 2000, XP
Power Supply	:	230V AC, $\pm 10$ V AC, 50 Hz, $\pm 3\%$

Item No. : 2

**GLOBAL POSITIONING SYSTEM**

<b>Structure</b>	Should be made up of rubber or impact resistant plastic, water resistant seal.
<b>Base Map</b>	Built in base map of Worldwide Geographic Boundaries.
<b>Weight</b>	220 ± 10 Gms.
<b>Display</b>	2.7" [6.86 Cm] diagonal [240 X 320] resolution and touch screen [LED backlit]
<b>Memory</b>	SD Card
<b>Data Storage</b>	Secure Digital [SD] Card
<b>Antenna</b>	Built-in multidirectional patch.
<b>Keypad</b>	Nine direct access keys
<b>Operating temperature</b>	- 10°C to 60°C
<b>Receiver</b>	20 Channels
<b>Acquisition Time</b>	Hot – 20 seconds, Cold – 60 seconds, initial – 2 minutes
<b>Update Rate</b>	Once per second
<b>Accuracy</b>	< 7 meters [15 feet]
<b>Language</b>	English
<b>Coordinate systems</b>	Latitude / Longitude and UTM
<b>Power Source</b>	Two AA Batteries
<b>Battery Life</b>	10 Hours

Item No. : 3

**PM 2.5 SAMPLER**

The Instrument should be tested with any accredited laboratories like CPCB, NEERI, IIT etc. towards its compliance for USEPA norms. The instrument should possess following specifications:

Flow Rate	Fixed, 1M <sup>3</sup> /hour [16.7 lpm] controlled by Mass Flow Controller
Elapsed time indicator	Up to 9999 hours with two decimals
Vacuum Pump	Diaphragm type, brush less motor
Flow Recorder	Chart type / Memory based downloadable to computer and/or manually displayed on screen.
Dry Gas Meter [Volume totalizer]	For measuring total volume of air sampled.
Volumetric Flow rate compensation	Ambient temperature and pressure sensors to control volumetric flow rate
Power requirement	230 ± 10 VAC, 50 Hz ± 3%
Size Selective inlets	Opposed jet impaction for PM10 cut and Cyclonic /WINS impactor for PM2.5 Cut off
Special Features	The system should have an option to be used for PM10 sampling
Calibration Unit	Calibration unit to calibrate the flow rate of the instrument
Additional supply	Manufacturers standard operation kit including all required items, fittings for start up / regular operation of instrument. Operation and maintenance manual for each unit. Spares and consumables for three year operation.
Standard Accessories	<ul style="list-style-type: none"> <li>√ Pure Nylon membrane [1µm, 47mm] developed specially for acidic dry deposition measurements</li> <li>√ PTFE membrane filter with PMP [poly methyl pentene] support ring [1µm, 47mm]</li> <li>√ Pure Quartz filter [max. Operating temp.&gt; 1000°C] 47mm</li> </ul>

Following filter papers should be supplied along with each instrument:

- Pure Nylon membrane (1µm, 47 mm) develop specially for acidic dry deposition measurements = 10 packets (pack of 100 Nos.).
- PTFE membrane filter with PMP [poly methyl pentane] support ring [1µm, 47 mm] = 10 Packets (pack of 100 Nos.).
- Pure quartz filter (max. operating temp >1000°C) 47mm = 10 packets (pack of 100 Nos).

### ROTARY EVAPORATOR

Rotary evaporator suitable for processing of samples for analysis of organics should have a suitable design, a reproducible and digital of RPM with a Buchi type or equivalent movable and high vacuum proof sealing, should be provided with Ball servo lifter, water bath, sealing for the RE system, spare clamps for the evaporating and receiving flask, a self contained and chemical resistant. The system should have following specifications:

**[A] Rotavapor :**

Operating voltage	100 – 240 V
Frequency	50/60 Htz.
Power consumption	60 W
Rotation Speed	20 – 280 rpm
Flask size	50- 4000 ml
Max. Flask capacity	3 kg
Display	Rotation speed and vapor temperature
Approval	CE

**[B] Heating Bath:**

Operating voltage	100 – 120 V or 220 – 240V
Frequency	50/60 Htz.
Heating Power	1300W
Power consumption	1700 W
Flask size	up to 4000 ml
Controlled temperature range	20 – 180°C [water and oil]
Display	actual and specified temperature, water /oil
Temperature deviation	± 2°C
Approval	CE

**[C] Evaporating Flask:** The evaporating flask should be pear shaped with standard joint and capacity 250ml.

**[D] Drying Flask:** The drying flask should be suitable for powdery substances. The integrated baffles encourage through mixing and prevent crushing of the sample. The drying flask should be complete with standard joint having the capacity of 500ml.

**[E] Receiving Flask:** The receiving flask should be round shaped with ball joint having capacity 500 ml.

**Annexure – 5**

**CHECK LIST**

<b>ENVELOP “A”</b>	Earnest Money of requisite amount and tender cost in case of tender document is downloaded from web site.
<b>ENVELOP “B”</b>	<ul style="list-style-type: none"><li>• Technical compliance details in Annexure “1”</li><li>• Company Profile.</li><li>• Leaf let / brochure of the applied item.</li><li>• Copy of sales tax registration number.</li><li>• Copy of PAN No.</li><li>• Undertaking regarding not being blacklisted.</li><li>• User’s List &amp; Performance reports etc.</li><li>• Manufacturer’s authorization certificate, in case the offer is not submitted by Manufacturer.</li><li>• Commercial Terms &amp; conditions</li></ul>
<b>ENVELOP “C”</b>	<ul style="list-style-type: none"><li>• Price schedule for Indigenous items in annexure “4”</li><li>• Price schedule for Imported items in annexure “3”</li><li>• Price schedule for AMC in annexure “2”</li></ul>

**Annexure – 6****SCHEDULE OF REQUIREMENT**

Sl. No.	Name of Consignee	Quantity			
		Meteorological Equipment	Global Positioning System	PM 2.5 Samplers	Rotary Evaporator
1.	Indore	01	01	04	--
2.	Ujjain	--	01	03	--
3.	Central Lab. Bhopal	01	--	04	01
4.	Jabalpur	01	01	04	--
5.	Gwalior	--	01	03	--
6.	Rewa	--	01	03	--
7.	Satna	01	01	03	--
8.	Sagar	--	01	02	--
9.	Shahadol	01	01	03	--
10.	Guna	01	01	02	--
11.	Singrouli	01	01	02	--
12.	Dhar	--	01	--	--
13.	Bhopal	--	01	--	--
14.	Head Office	--	02	--	--