



An ISO 9001  
Company

## Bharat Heavy Electricals Limited

(High Pressure Boiler Plant)

Tiruchirappalli – 620014, TAMIL NADU, INDIA

CAPITAL EQUIPMENT/ MATERIALS MANAGEMENT

<b>ENQUIRY</b>	Phone: +91 431 257 7980 Fax : +91 431 252 0719 Email : <a href="mailto:Insekar@bheltry.co.in">Insekar@bheltry.co.in</a> Web : <a href="http://www.bhel.com">www.bhel.com</a>
<b>NOTICE INVITING TENDER</b>	

<b>TWO PART BID</b>	<b>Enquiry Number:</b>	<b>Enquiry Date:</b>	<b>Due date for submission of quotation:</b>
Tender to be submitted in two parts.	2621400028	09.07.14	01.08.14

You are requested to quote the Enquiry number, date and due date in all your correspondences. This is only a request for quotation and not an order.


Please note that under any circumstances both delayed offer and late offers will not be considered. Hence vendors are requested to ensure that the offer is reaching physically our office before 14.00 hrs on the Date of tender opening.

Item	Description	Quantity	Delivery
10	<b>Portable Flue Gas Analyser</b> as per the technical specification, BHEL commercial terms & conditions applicable (to be downloaded from web site <a href="http://www.bhel.com">www.bhel.com</a> or <a href="http://tenders.gov.in">http://tenders.gov.in</a> )	20 Nos.	24.12.14

### Important points to be taken care during submission of offer

1. Compliance Form to be duly filled and enclosed along with your offer, failing which the offer will not be considered for evaluation.
2. All updates, amendments, corrigenda, etc., (if any), for each tender will be posted only on the above websites from time to time, as and when required, until each tender is opened. There will be no publication of such updates, amendments, corrigenda, etc., through newspapers or any other media.

BHEL's General guidelines / instructions including bank guarantee formats and list of consortium banks, commercial compliance form can be downloaded from BHEL web site <http://www.bhel.com> or from the Government tender website <http://tenders.gov.in> (public sector units) Bharat Heavy Electricals Limited page) under Enquiry reference "2621400028".

<p>Tenders should reach us before 14:00 hours on the due date Tenders will be opened at 14:30 hours on the due date Tenders would be opened in presence of the tenderers who have submitted their offers and who may like to be present</p>	<p>Yours faithfully, For <b>BHARAT HEAVY ELECTRICALS LIMITED</b></p>  Engineer / MM / Capital Equipment <b>KUMAR GAUTAM SINGH</b> Engineer MM / Capital Equipment BHEL, TRICHY - 620 014
---	--


## PORTABLE FLUEGAS ANALYSER

Portable fluegas analyser to measure fluegas sample, the components of Oxygen O<sub>2</sub>, Carbon Monoxide CO, Nitric Monoxide, Sulphur di oxide SO<sub>2</sub> and Carbon di oxide CO<sub>2</sub>-calculated at various Steam Power Stations. Instrument should be capable of working in a dusty environment with ambient temperature of 5°C-50°C with low / high relative humidity.

## QUALIFYING CRITERIA

The BIDDER has to meet the following requirements to get qualified for considering the technical offer

Sl.No.	REQUIREMENTS	VENDOR'S RESPONSE
1	The uncontrolled ambient room conditions are a) Temperature 5°C to 50°C b) Relative Humidity 20% to 100% c) Power station dusty environment coal/ash	
2	The Technical offer should be supported by product Catalogues & Data sheets. The Technical details of Bought-Out-Items with copies of Product catalogue to the extent possible.	
3	Copy of certificate of 'Distributor Authentication Certificate' given by principle should be produced.	
4	Details on SERVICE-AFTER-SALES set-up in India including the address of Agents/Service centres in South India.	
6	Name and postal address of customers or companies wherein similar system is installed & under operation.	
7	To evaluate offer, demo should be conducted free of cost at BHEL/Trichy unit, if required by BHEL.	
8	Complete Training on Operation & Maintenance of the offered items should be given to BHEL Engineers at BHEL Trichy unit.	
9	Offered items should be commissioned at BHEL works.	
10	Attached compliance report must be submitted along with offer.	

  
**R. MOHAN**  
Deputy Manager  
Field Engineering Services  
BHEL, TRICHY - 620 014.

## Specification for PORTABLE FLUE GAS ANALYSER

- MEASURING MEDIUM : Suitable to measure combustion product of Coal, Oil, Natural gas, Industrial gas product etc.
- GASES TO BE MEASURED : Oxygen (O<sub>2</sub>) 0 To 21 %.  
(By volume)
- |                 |                      |
|-----------------|----------------------|
| CO              | 0 To 2000 ppm (Max). |
| NO              | 0 To 2000 ppm.(Max)  |
| SO <sub>2</sub> | 0 To 2000 ppm (Max)  |
| CO <sub>2</sub> | 0 To 25% Calculated  |
| NO <sub>x</sub> | Calculated           |
| SO <sub>x</sub> | Calculated           |
- ACCURACY : Oxygen (O<sub>2</sub>) ±0.2 %.
- |                 |                    |
|-----------------|--------------------|
| CO              | ± 5% upto 1000 ppm |
| NO              | ± 5% upto 1000 ppm |
| SO <sub>2</sub> | ± 5% upto 1000 ppm |
- RESOLUTION : Oxygen (O<sub>2</sub>) 0.1 %.
- |                 |        |
|-----------------|--------|
| CO              | 1 ppm  |
| NO              | 1 ppm  |
| SO <sub>2</sub> | 1 ppm  |
| CO <sub>2</sub> | 0.1 %. |
| NO <sub>x</sub> | 1 ppm  |
| SO <sub>x</sub> | 1 ppm  |
- SENSOR TYPE : Electrochemical cell.
- SENSOR - MAKE : CITICEL
- SENSOR LIFE : Instrument should have self diagnosed program for sensor emf / value of all sensors.
- CALIBRATION : a) Self calibration on ambient air for O<sub>2</sub>.  
b) User friendly manual calibration facility to be provided for O<sub>2</sub>, CO, NO & SO<sub>2</sub>(by software using calibration gas).
- DISPLAY : LCD/LED programmable display with backlight
- COMPUTATION of CO<sub>2</sub> : a) CO<sub>2</sub> calculation has to be integrated for fuel selection like Coal, Oil, Natural gas etc.(i.e) Capable for calculating CO<sub>2</sub> in combustion products of Coal, Oil, Natural gas etc.  
b) User defined fuel slot to be provided for minimum 4 fuels
- DATA STORE : Instrument should have data storing facility.
- OPERATION : Capable of continuous operation on battery (without direct power supply) for a minimum of 3 hours with pump in service.



R. MOHAN  
Deputy Manager  
Field Engineering Services  
BHEL, TRICHY - 620 014.

- SAMPLE DRAWING : To be built in pump, continuously operable for >4 hours,  
Create a suction minimum of 1500mmWC.  
Sampling gas temperature measuring facility to be provided  
Sampling gas pressure measuring facility to be provided.
- PROCESS CONNECTION : Suitable to connect to 6mm/8mm ID tube
- WATER CATCH POT : Water catch pot to be provided at gas inlet point.
- FILTERS : Dust pre-filter to be provided at inlet of Water catch pot and at outlet  
of pump/inlet of sensors.
- MEASUREMENT OUTPUT : Programmable display printout
- COMMUNICATION PORT : USB communication port  
USB card and software protocol to be provided
- PURGING FACILITY : a) Auto-purging facility for all gases, while on unit shut down.  
b) Higher CO cut off facility to be provided.
- ADDITIONAL FACILITY : Measurement of flue gas temperature and draft
- POWER : a) Direct operation on 230VAC power supply and also with  
re-chargeable battery.  
b) Machine should have provision for on-line battery re-  
charging i.e while on recharging, battery should not be  
disturbed from machine.  
c) Indicator for Battery potential level/value.  
d) Indicator for charging, when unit is under charging.
- SPARES : 10 nos. of gas pre-filters to be provided with equipment.
- PORTABILITY : a) Equipment must be portable  
b) Weight should not be more than 6 kg.  
c) Equipment has to be provided with Leather carrying bag  
exclusively prepared for instrument (No metal case).
- MANUAL : Detailed Operation & Maintenance manual should to be provided.

**Note**

- a) Copy of 'Distributor Authentication Certificate' given by manufacturer should be produced.
- b) Details of SALES AFTER SERVICE facility should to be indicated.
- c) List of Indian users should to be produced.
- d) Supporting documents, brochures, manuals should be submitted along with offer for all specifications.
- e) To evaluate offer, demo should be conducted free of cost at BHEL/Trichy unit, if required by BHEL.
- f) Attached compliance report must be submitted along with offer.
- g) Service centre should be available in South India



R. MOHAN  
Deputy Manager  
Field Engineering Services  
BHEL, TRICHY - 620 014.

BHEL'S SPECIFICATION		VENDOR'S CONFIRMATION	DEVIATION IF ANY
<b>The requirement is for Portable Fluegas analyser - as per the following specification:</b>			
	<b>MODEL NAME</b>		
1	Gases to be measured		
	Oxygen	Range (0-21%)	
	CO2	Calculated	
	CO	Range 0-2000ppm	
	NO	Range 0-2000ppm	
	SO2	Range 0-2000ppm	
	NOx	Calculated	
	SOx	Calculated	
2	Accuracy		
	Oxygen	±0.2%	
	CO	± 5% upto 1000 ppm	
	NO	± 5% upto 1000 ppm	
	SOx	± 5% upto 1000 ppm	
3	Resolution		
	Oxygen	0.10%	
	CO2	0.10%	
	CO	1ppm	
	NO	1ppm	
	SOx	1ppm	
	Nox	1ppm	
4	Method	Electrochemical cell	
5	Sensor make	CITICEL Sensor Type/Model No.	
6	Sensor life	a)Minimum 10 months. b)Methodology to detect remaining life of all sensors to be provided	
7	Calibration	a) Self calibration for O2 on ambient air. b) Facility for manual calibration of gases O2, CO, NO, SO2	
8	Display	LCD/LED programmable display	
9	Computation of CO2	Capable for calculating CO2 in combustion products of coal, Lignite, Oil, Natural gas etc..	
10	Data store	Data storing facility	
11	Operation	Capable of continuous operation on battery for a minimum of 3 hrs with out direct power supply.	

*R. Mohan*

**R. MOHAN**  
Deputy Manager  
Field Engineering Services  
BHEL, TRICHY - 620 014

BHEL'S SPECIFICATION		VENDOR'S CONFIRMATION	DEVIATION IF ANY
12	Sample drawing capacity	a) Built in sampling pump	
		b) Pump suction should create min 1500mmWC	
		c) Pump should be capable of continuously operating for >4 hrs	
		d) Sampling gas temperature measurement facility to be provided	
		f) Sampling gas pressure measurement facility to be provided	
13	Process connection at instrument inlet	Suitable to connect to 6mm/8mm ID tube	
14	Water Catch pot	Water catch pot to be provided at gas inlet point	
15	Filters	Dust pre-filter to be provided at inlet of Water catch pot and at outlet of pump/inlet of sensors.	
16	Measurement Output	a)Programmable display printout with printer.	
		b)USB communication port.	
		c)USB card & Software(Protocol) to be provided	
17	Purging Facility	a)Auto-purging facility for all gases, while on unit shut down	
		b)Higher CO cut off to be provided.	
18	Power	a)Direct operation on 230 VAC power with re-chargeable battery back-up.	
		b) machine should have provision for online battery recharging i.e while on recharging, battery should not be disturbed from machine	
		c) Indicator for battery charge level/Value	
		d) Indicator for charging.	
19	Spares	10 Nos gas filters to be provided.	
20	Portability	a)Equipment shall be portable and should not weigh more than 6 Kgs.	
		b) Equipment should be provided with leather carrying bag exclusively prepared for instrument (No metal case).	

Note: Supplier has to fill and submit this form seperatly against all the model for which they are submitting offer. For each model, supplier has to mention range, accuracy and resolution for all measuring gases.



**P. MOHAN**  
Deputy Manager  
Field Engineering Services  
BHEL, TRICHY - 620 014.