

	SPECIFICATION FOR TOTAL ORGANIC CARBON ANALYSER	SPEC. No.: ROS 400
		REV: 03

**BHARAT HEAVY ELECTRICALS LIMITED,
RANIPET- 632 406.**

**TECHNICAL SPECIFICATION
FOR
TOTAL ORGANIC CARBON (TOC) ANALYSER WITH ACCESSORIES**

03	20.05.13	<i>R. Raghu</i> RRaghu	<i>M. Natarajan</i> M Natarajan	<i>Arumugam</i> Arumugam	Spec revised
02	29.12.11	RRaghu	MNatarajan	M Satya	Spec revised
01	17.11.08	RRaghu	SKailasam	KSK	Spec revised
00	30.08.08	RRaghu	SKailasam	KSK	Fresh issue
Rev.No	Date	Prepared	Checked	Approved	Remarks



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01. Item : TOC ANALYSER WITH ACCESSORIES.
02. Application : To measure Total Organic Carbon (TOC), Total Carbon (TC) and Total Inorganic Carbon (TIC) in water Samples like **Sea Water (TDS upto 45 g/l)**, DM Water, Surface Water, Borewell Water, Treated Water, Wastewater, Drinking water etc.
03. Measurement method & reference Standard Number } High temperature (680 deg C) combustion method and
} The offered instrument shall conform to the Standard
} Method 5310 B
04. Model Number : Bidder to offer the latest model
05. Parameters to be measured : Total Carbon, Total Organic Carbon & Total In-organic Carbon
06. Measurement range : 0 to 500 ppm as C
07. Minimum Detection Limit : 6 ppb minimum.
08. Accuracy : Bidder to indicate
(Measuring value shall be ± 0.5 ppb maximum)
09. Repeatability : less than 2%
10. Sample injection : Suitable for both by manual injection and through auto sample injection kit of the grab sample.
11. Operation & Control : The TOC instrument shall be fully computer controlled and operated through a data-logger (laptop)
12. TOC instrument software : The offered software for the operation / testing, automatic control & data evaluation of TOC analyser shall be suitable for the data logger (laptop) of operating system of Microsoft Windows-7.
13. Data logger (Laptop) Compatibility of the Offered TOC Analyser } The offered TOC instrument should work on any IBM / HP/
} Compaq / Sony / Dell system available locally.
} The applicable softwares should be made available on
} CD ROM in ENGLISH



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14. Data logger (Laptop) Specifications
}: Data logger (Laptop) consists of Intel i-5 processor,
} original Intel motherboard with minimum 4 GB RAM,
} 500 GB HDD, DVD read & write, output, minimum of 15"
} screen, Serial (RS 232) port, USB ports, parallel printer port
} The datalogger (laptop) shall be pre-loaded OS of
} Microsoft Windows-7 version.
15. TOC output data : Test results should indicate curves for easy reading along with data for evaluation through a data-logger (laptop).
16. Calibration : Automatic multi point calibration
17. Power Supply available At purchaser's site
}: AC, 230 V, Single phase, 50Hz.
} Also Vendor to indicate the power supply variation allowed for the offered instrument.
18. Power Consumption : Bidder to indicate
19. Accessories required along with the TOC analyzer }
} a) Data logger (Laptop) meeting the sl.no.14 of this spec & latest configuration with pre loaded OS of Microsoft Windows-7 version in English & suitable for TOC operating software
} b) High purity Zero air / Nitrogen cylinder (filled condition) with air/ gas purifier & moisture trap.
} c) Double stage pressure regulator with 25 meter SS tubing
} d) Free supply of reagents & consumable along with TOC analyser offered if any.
} e) Additional reagents / consumables as complete set for doing 500 analysis, if reagents are needed for analysis.
} f) Any other accessories offered – Bidder to specify clearly & separately along with extra cost implication



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20. SCOPE OF SUPPLY & SERVICE:

- | | |
|---|-------------------------------|
| a) TOC Analyser with applicable software in English | }: 1 set. |
| b) Data-logger (Laptop) of latest configuration with pre loaded operating software (OS) & applicable operating soft ware TOC/TIC | }: 1 set |
| c) All SOFTWARE back-up in CD / DVD in English | : 1 set |
| d) High purity zero air / Nitrogen cylinder (filled condition) as carrier gas with air purifier / moisture trap | }: 1 set |
| e) Double stage pressure regulator (suitable for the offered gas cylinder) with 25 meter SS tubing | }: 1 set |
| f) Additional reagents / consumable as complete set for doing 500 analysis if reagents are needed for analysis} | }: 1 set |
| g) Calibration standards if applicable | }:1 set |
| h) Annual Maintenance Charges for next three Years after the warranty period (from 2nd year onwards) i.e. Minimum three visits per annum including breakdown visit if any | }: to be quoted separately |
| i) Erection and Commissioning of the TOC instrument with accessories at BHEL /Ranipet | }: by supplier |
| j) Training to Purchaser in operation & routine maintenance for two visit each of 2 days excluding commissioning period, at instrument site | }: by supplier |
| k) Any additional other accessories required for proper functioning of TOC analyser | }: bidder to indicate clearly |

21. DOCUMENTS along with offer

- a) Offer should contain complete details for analyser and its model number, range etc.
- b) Catalogues of the offered model with detailed specification in ENGLISH
- c) Copy of daily / weekly calibration / Check up procedure for the offered model in ENGLISH
- d) Typical output analysis result of the offered instrument (graph etc)
- e) Vendor to enclose the **unpriced** commercial offer along with **break-up** of the components considered in their scope of supply.
- f) Reference list of customers for the offered model.
- g) Performance certificate for minimum one year in ENGLISH for the offered model from the end user.
- h) List of service centers availability in India and its Location.
- i) Filled-up confirmation format enclosed (Annexure-1) of this specification.
- j) Filled-up QR format enclosed (Annexure-2) of this specification.
- k) Vendor to indicate the consumption requirements like power supply, carrier gas etc. for commissioning & testing of the instrument.
- l) Vendor to confirm specifically that the offered TOC analyzer should handle seawater samples.
- m) Bidder to note that **Incomplete bid shall be liable for rejection.**



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22. DOCUMENTS after order

- a) O & M manual for the ordered instrument in ENGLISH model - 2 sets and also in CD/DVD
- b) Test certificate in ENGLISH Calibration Certificate in ENGLISH
- c) Guarantee Certificate in ENGLISH for 12 months from the date of commissioning.

23. Delivery : **BHEL Stores, RANIPET-632406, TAMIL NADU.**

24. INSPECTION : By BHEL on receipt of material at BHEL stores.

25. Packing

The instrument shall be wrapped in a bubbled polyethylene sheet and packed in a suitable weatherproof box along with the accessories ordered. Such boxes shall be packed in a carton or case with adequate cushioning materials to take care of transit during delivery.

26. Erection & Commissioning of the offered TOC analyser: (site visits)

1st visit shall be for unpacking the instrument, ensuring the complete availabilities as per BHEL P.O. Necessary tubing connection from the air cylinder to the instrument, fixing of air purifier & double stage regulator at appropriate place / wall. Power supply connectivity from the power source to the instrument.

2nd visit shall be for final commissioning, testing & trouble free operation of the TOC instrument to the satisfaction of the purchaser. In addition to these two visits, bidder to plan for two more visits for Training to BHEL personals after successful of commissioning the instrument. Necessary transport and stay for the erection & commissioning engineers shall be under the scope of bidder. Duration of each visits site dependant and cannot be estimated precisely.

27. This bid will be evaluated on total cost basis to BHEL (i.e. Equipment supply, Erection & Commissioning, Annual maintenance charges and Reagents for 500 sample testing & calibration standard).

28. Payment for AMC will be payable after the expiry of Guarantee period and each AMC year.



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ANNEXURE-1.

BHEL Enquiry No.

date.

Sl.No.		Tender Specification	Bidders Confirmation	Remarks
l.	TOC instrument Software	The offered software for the operation / testing, automatic control and data evaluation of TOC analyzer shall be suitable for the Microsoft windows 7 version.		
m.	Data-logger (Laptop) compatibility of the TOC analyser	The offered TOC instrument should work on any IBM / HP / Compaq / Sony / Dell system available locally. The applicable softwares should be made available on CD ROM in ENGLISH.		
n.	Data logger (Laptop) specification	Data-logger (Laptop) consists of Intel "i-5" processor & mother board with minimum 4 GB RAM, 500 GB HDD, DVD read & write, output minimum of 15" screen, serial (RS 232) port, USB ports, Parallel printer port. The data-logger (laptop) shall be pre-loaded OS of Microsoft Windows-7.		
o.	TOC output data	Test results should indicate curves for easy reading along with data for evaluation through a data-logger (laptop).		
p.	Calibration	Automatic multi point calibration		
q.	Power supply available	AC, Single phase, 230 Volt & 50 Hz		
r.	Power supply variation tolerant	Bidder to indicate the values.		
s.	Power consumption	Bidder to indicate the value in KW or Watt		



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ANNEXURE-1.

BHEL Enquiry No.

date.

30. SCOPE OF SUPPLY

Sl.No.	Description	Quantity	Bidder to fill as "YES"	Remarks
a.	TOC analyser with applicable software in English.	1 set		
b.	Data-logger (Lab top) of latest configuration with preloaded operating software (OS) of Microsoft Windows 7 version in English and applicable operating software for TOC / TIC.	1 set		
c.	All Software back-up in CD /DVD in English	1 set		
d.	High purity Zero air cylinder (filled condition) as carrier gas with air purifier / moisture trap	1 set		
e.	Double stage pressure regulator (suitable for the offered air cylinder) with 25 meter SS tubing.	1 set		
f.	Additional reagents / consumable as complete set for doing 500 analysis if reagents are needed for analysis.	1 set		
g.	Calibration standards, if applicable			
h.	Annual maintenance charges for next three years after the warranty period (i.e.: from 2nd year onwards) to be quoted separately in price offer.	2 nd year, 3 rd year, 4 th year.		
i.	Number of visit per annum during AMC period	THREE visit - minimum		
j.	Erection and Commissioning of the T.O.C instrument with accessories	at BHEL, Ranipet		
k.	Training to Purchaser in operation & routine check-up & maintenance, at BHEL, Ranipet. (Excluding the visit till commissioning.)	TWO visit each of 2 days minimum		
l.	Any additional other accessories offered by the bidder for proper functioning of instrument Bidder to specify along with cost for each item separately.			

BHARAT HEAVY ELECTRICALS LIMITED,
RANIPET- 632 406.

Qualification Requirement (QR)

20.05.2013

BHEL ENQUIRY NO.

ANNEXURE-2 of BHEL Sec; ROS 400

Sl.No.	BHEL BID REQUIREMENT	DETAILS TO BE FILLED BIDDER
1	The bidder should have supplied minimum two (2) set of TOC analyzer in India using high temperature combustion method and for the measurement range of 0 to 500ppm as Carbon (C) or higher during last five years as on the date of bid opening.	1) 2)
2	The bidder should submit supporting documents for the above Sl.No.1.	
3	The bidder should submit satisfactory performance certificate from, at least one of their customers for such equipment in operation for at lease one year during the last five years at the time of BID submission as mentioned Sl.No.1 for meeting QR.	
4	The bidder should have service center in India. The location and contact details shall be indicated / duly filled up.	
5	Reference list for the instrument supplied using High temperature combustion method shall be provided with complete contact details of the customers in India.	
6	signature and company seal	
<p>Note: Bidder must comply the above requirement and provide the details during the submission of base offer itself. Other wise the bid will be considered as incomplete and liable for rejection.</p>		