



# Hach BioTector B3500ul Online TOC Analyzer

## Applications

- Dry steam condensate return
- Boiler feed
- Drinking Water from desalination



## Precise, low-level TOC measurement that you can trust

Changes in water quality for ultra pure applications are disruptive to plant operations. Accurate, on-line analysis is important to protect critical equipment that depends on ultra pure water resources. Leading manufacturers know that it is critical to analyse for contaminants precisely at ppb levels to maintain water quality. Reliability and effective oxidation of large samples ensures that manufacturers can trust the results reported by the BioTector B3500ul analyzer. With a full picture of organic contaminants in critical water applications manufacturers make water treatment decisions more efficiently.

The Hach® BioTector B3500ul provides reliable and accurate TOC analysis at ppb levels for ultrapure water applications. The patented two stage advanced oxidation technology behind the BioTector thoroughly, and reliably oxidizes samples for valuable real-time water analysis.

### Maximum uptime for your process

With uptime certified at 99.86% and two short, scheduled maintenance events per year, you will not be missing critical process information when you need it the most.

### Instant and long term savings

Reduce the costs related to water re-treatment, and save on operational expenses. On-line TOC analysis enables maximum water reuse and keeps critical water resources at their best to maximize the lifetime of high-value capital equipment.

## Technical Data\*

<b>Parameter</b>	TOC, TIC, TC, VOC, after correlation COD, BOD	<b>EExp / Hazardous Location</b>	Certification options are available to European Standards, (ATEX Zone 1, Zone 2), North American Standards (Class I Division 2) and IECEx Zone 1
<b>Measurement Method</b>	Infrared measurement of CO <sub>2</sub> after oxidation	<b>Sample Inlet Temperature</b>	2 - 60 °C (36 - 140°F)
<b>Oxidation Method</b>	Patented Two-Stage Advanced Oxidation Process (TSAO) using Hydroxyl Radicals	<b>Ambient Temperature</b>	5 - 45 °C (41 - 113 °F)  Cooling and heating options are available.
<b>Range</b>	0 - 5000 µg/L C	<b>Humidity</b>	5 - 85 % (non-condensing)
<b>Multi-Stream</b>	Up to 2 process streams and grab sample	<b>Particle Size</b>	Up to 100 µm
<b>Repeatability</b>	±2 % of reading or ±6 µg/L C, whichever is greater	<b>Data Storage</b>	Previous 9999 analysis data on screen in the microcontroller memory and storage of data archive for the lifetime of the analyser in the SD/MMC card.  Previous 99 fault data on screen in the microcontroller memory and storage of fault data archive for the lifetime of the analyser in the SD/MMC card.
<b>Accuracy</b>	±2 % of reading or ±15 µg/L C, whichever is greater	<b>Display</b>	High contrast 40 character x 16 line backlit LCD with LED backlight
<b>Limit of quantification</b>	80 µg/L	<b>User Interface</b>	Microcontroller with membrane keyboard
<b>Calibration</b>	For best performance ultra-pure water (18.2 MΩ*cm, < 5 µg/L TOC) is needed for calibration.	<b>Power Requirements (Voltage)</b>	115 V AC/230 V AC
<b>Interferences</b>	TIC Interference: At 500 µg/L TIC (as bicarbonate), 2% carryover into TOC may occur.	<b>Power Requirements (Hz)</b>	50/60 Hz
<b>pH Range</b>	pH 1-12	<b>Service Interval</b>	6 months service intervals
<b>Cycle Time</b>	TOC from 5 minutes, depending on application	<b>Dimensions (H x W x D)</b>	1000 mm x 500 mm x 320 mm
<b>Communication</b>	Modbus RTU, Modbus TCP/IP & Profibus (when the Profibus option is selected, the digital output signals are sent through the Profibus converter with its specific communication protocol)  Except for Zone 1 certification then Modbus RTU, Modbus TCP/IP & Modbus TCP/IP Redundant is available	<b>Weight</b>	50 kg
<b>Protection Class</b>	IP44, standard fan cooled, maximum ambient temperature 45 °C  IP54, air cooled, maximum ambient temperature 35 °C  IP54, vortex cooled, maximum ambient temperature 50 °C		

\*Subject to change without notice.

## Principle of Operation

### TIC

Acid is added to lower the pH so that inorganic carbon is sparged off as  $\text{CO}_2$ . This is also measured to ensure the Total Inorganic Carbon (TIC) is not carried over into the TOC.

### Oxidation

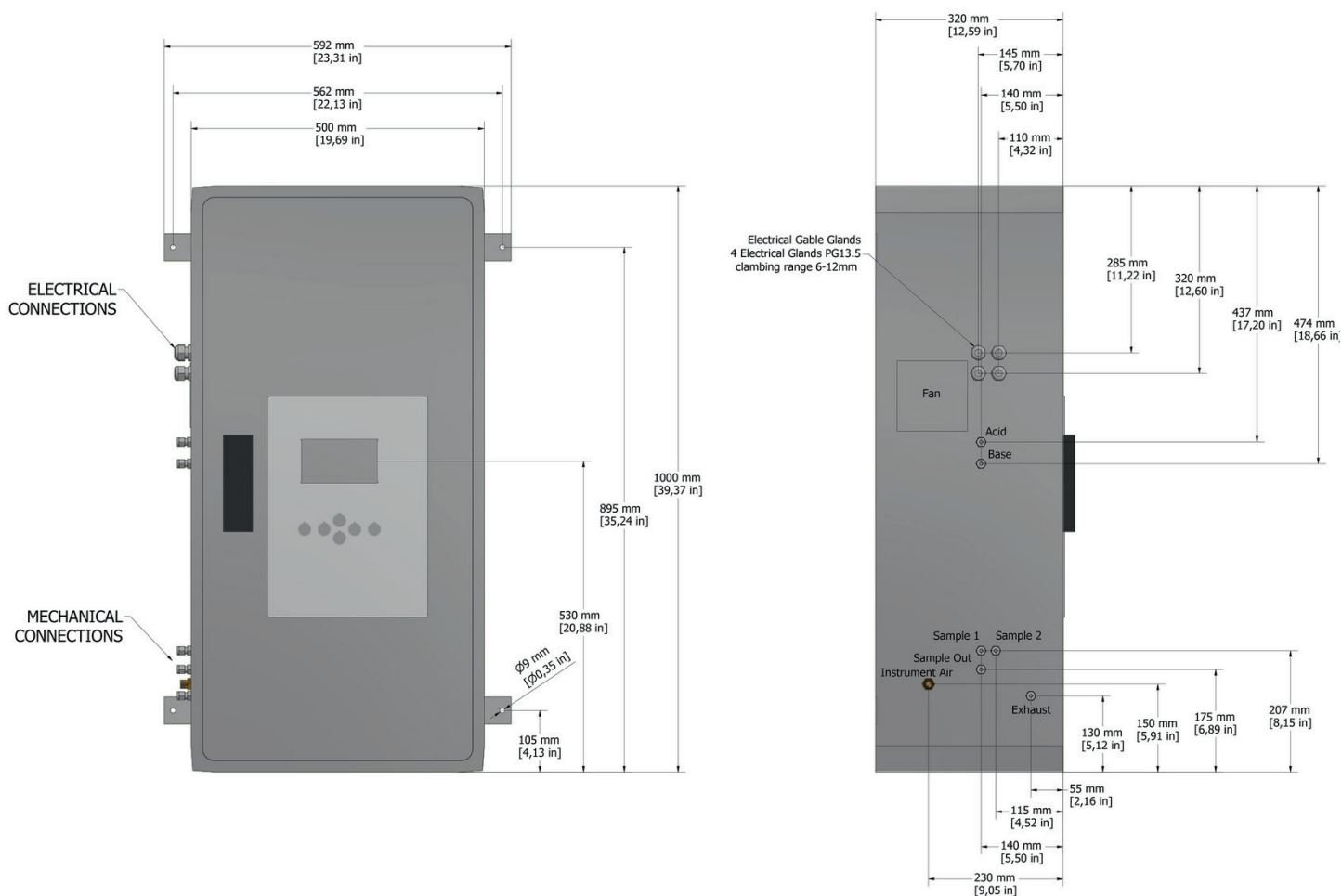
BioTectors's patented oxidation method (TSAO) efficiently oxidizes the organic carbon in the sample to  $\text{CO}_2$ . TSAO utilizes hydroxyl radicals generated within the analyzer by combining oxygen, which passes through the ozone generator, with sodium hydroxide.

### TOC

To remove  $\text{CO}_2$  from the oxidized sample, the pH of the sample is lowered again. The  $\text{CO}_2$  is sparged and measured by the specially developed NDIR  $\text{CO}_2$  analyzer. The result is displayed as Total Organic Carbon (TOC).



## Dimensions



## Order Information\*

### Instruments

**B5EBAA152EAC2** Hach BioTector B3500ul TOC analyzer, 0 - 5000 µg/L C, 1 stream, grab sample, 115 V AC

**B5EBAA152EAF2** Hach BioTector B3500ul TOC analyzer, 0 - 5000 µg/L C, 2 streams, grab sample, 115 V AC

*There are additional options available. Please contact Hach for more details.*

### Accessories

**19-COM-160** BioTector Compressor 115 V / 60 Hz

**19-COM-250** BioTector Compressor 230 V / 50 Hz

**10-SMC-001** Air supply filter pack

**19-KIT-123** Six months spare part kit for BioTector B3500

**19-BAS-031** BioTector sample overflow chamber

### Reagents

**2985562** BioTector base reagent 1.2 N sodium hydroxide

**25255061** BioTector acid reagent 1.8 N sulfuric acid containing 80 mg/L Mn

*\*Part numbers may vary by country.*



With Hach Service, you have a global partner who understands your needs and cares about delivering timely, high-quality service you can trust. Our Service Team brings unique expertise to help you maximize instrument uptime, ensure data integrity, maintain operational stability, and reduce compliance risk.



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