

# ION CHROMATOGRAPH - TORON-IC™ 200 (EFFICIENT)



## **Ion Chromatograph - Toron-IC™ 200 (Efficient)**

Toron-IC™ 200 is an intelligent, high-sensitivity analytical platform engineered for precise ionic separation and quantification. By integrating high-pressure pumping with advanced electrochemical detection and automated sample handling, the system delivers accurate, repeatable results across a broad concentration range. Its versatile design ensures seamless compatibility with IC, HPLC, and UHPLC methodologies.

Beyond its core analytical power, the Toron-IC™ 200 is built for operational efficiency. It features flexible operating modes, robust system monitoring, and intelligent safety protocols to safeguard reliable performance. With modular components and automated injection capabilities, this system is an ideal solution for applications ranging from routine quality control and regulatory compliance to advanced analytical research.

### **APPLICATIONS**

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## **Ion Chromatograph - Toron-IC™ 200 (Efficient) Applications**

The Toron-IC™ 200 is a versatile analytical tool employed across diverse sectors:

- **Environmental Testing:** Precise determination of anions and cations in water, wastewater, and environmental samples.
- **Food & Beverage Analysis:** Essential for monitoring inorganic ions, additives, and contamination levels to ensure product safety.
- **Pharmaceutical & Chemical:** Supports critical workflows including raw material verification and impurity profiling.
- **Petrochemical & Industrial Control:** Enables process optimization by monitoring ionic species within production streams.
- **Academic & Research:** Provides the high sensitivity and precision required for advanced analytical research and complex method development.



## FEATURES

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### **Ion Chromatograph - Toron-IC™ 200 (Efficient) Key Features**

The Toron-IC™ 200 system is engineered with a suite of advanced features to meet the demanding requirements of modern ion chromatography, delivering exceptional sensitivity, flexibility, and reliability.

#### **Detection and Sensitivity**

- **High-Sensitivity Electrochemical Detector:** At the core of its analytical power is a versatile electrochemical detector capable of operating in multiple modes—Direct Current (DC), Pulse, and Scan—to achieve ultra-low detection limits. This multi-mode capability ensures broad application coverage, allowing for the precise measurement of a wide range of ionic species, from simple inorganic ions to complex organic molecules.
- **Multi-Flow Cell Capability:** The system is designed to accommodate diverse analytical requirements by supporting up to three independent flow cells simultaneously. This flexibility allows users to run different detection methods or analyses sequentially or in parallel without time-consuming hardware changes.

#### **Sample Handling and Automation**

- **Advanced Autosampler with Dilution Function:** High-throughput laboratories will benefit from the sophisticated autosampler. It provides flexible injection options, including micro-loop, partial-loop, and full-loop injections, to optimize sample utilization and precision. Crucially, it incorporates automatic dilution capabilities, which is essential for managing samples with high concentration variability, reducing manual preparation errors, and extending the system's linear range.

#### **Fluidics and Separation Control**

- **Quad-Pump System:** The robust fluidics platform features a powerful quad-pump system. This design allows for the operation of up to four different mobile phases simultaneously, providing the foundation for complex separations, including advanced gradient elution techniques and multi-dimensional chromatography, enabling superior resolution and faster analysis times.
- **High-Pressure Analytical Pump:** Ensuring separation integrity, the analytical pump delivers a highly stable and precise flow rate even under high-pressure conditions, up to 400 bar (5800 psi). This stability is maintained through active pulsation compensation technology, resulting in reproducible retention times and peak areas, critical for quantitative analysis.

### **System Stability and Monitoring**

- **Intelligent System Monitoring:** Operational integrity is maintained through a comprehensive intelligent monitoring system. This includes real-time leak detection to protect hardware and samples, clear status indicators for immediate operational assessment, and automatic safety interlocks that shut down the system in the event of critical issues, ensuring safe and reliable operation.
- **Column and Flow Cell Oven:** Temperature control is vital for consistent results. The dedicated, temperature-controlled chamber for both the analytical column and the flow cell significantly improves retention stability and overall analytical repeatability by eliminating the influence of ambient temperature fluctuations.

### **Connectivity and User Interface**

- **Flexible Connectivity and Control:** The Toron-IC™ 200 is designed for modern laboratory integration, offering multiple control interfaces including LAN (Local Area Network) for robust network operation, analog output for integration with legacy systems, and event-based control for automated workflow integration. An optional mobile interface provides users with the convenience of monitoring and basic control remotely.

## **TECHNICAL SPECIFICATIONS**

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# Ion Chromatograph - Toron-IC™ 200 (Efficient) Technical Specifications

| Parameter                    | Specification                             |
|------------------------------|-------------------------------------------|
| Model                        | Toron-IC™ 200                             |
| Analytical Technique         | Ion Chromatography                        |
| Detector Type                | Electrochemical (DC / Pulse / Scan modes) |
| Detector Current Range       | 10 pA - 25 mA (mode dependent)            |
| Potential Range              | -2.50 V to +2.50 V                        |
| Noise Level                  | < 2 pA (1 nA range, filter off)           |
| Column Oven Temperature      | Ambient +7 °C to 60 °C                    |
| Pump Type                    | Dual serial piston analytical pump        |
| Maximum Pressure             | 400 bar / 40 MPa                          |
| Flow Rate Range              | 0.001 - 10 mL/min                         |
| Flow Accuracy                | < 1%                                      |
| Flow Precision               | < 0.1% RSD                                |
| Autosampler Injection Volume | 1 µL - 1000 µL                            |
| Injection Precision          | ≤ 0.5%                                    |
| Carry-Over                   | ≤ 0.001%                                  |
| Degasser                     | 4-channel membrane degasser               |
| Communication Interfaces     | LAN, analog input, event I/O              |
| Voltage                      | 100-240 VAC 50/60 Hz                      |

| Parameter              | Specification      |
|------------------------|--------------------|
| Operating Temperature  | 4-40 °C            |
| Dimensions (W × L × H) | 361 × 523 × 208 mm |
| Weight                 | Approx. 14 kg      |



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