



HIGH PRESSURE ION CHROMATOGRAPH - TORON-IC™ 180H

High Pressure Ion Chromatograph - Toron-IC™ 180H

Toron-IC™ 180H is an advanced high-pressure ion chromatograph engineered for high-resolution separation and trace-level detection. Built to meet the rigorous demands of modern laboratories, it integrates a powerful 45 MPa pumping system with precision eluent generation and intelligent monitoring. This robust design ensures exceptional stability and analytical accuracy, even under elevated pressure conditions.

Optimized for analyzing complex matrices, the Toron-IC™ 180H offers superior method flexibility. It supports both suppressed and non-suppressed chromatography, gradient elution, and optional two-dimensional configurations. This versatility makes it the ideal solution for multi-component analysis in environmental, pharmaceutical, chemical, and industrial quality control applications.

APPLICATIONS

High Pressure Ion Chromatograph - Toron-IC™ 180H Applications



The Toron-IC™ 180H is a critical tool for high-precision analysis across a wide range of industries:

- Environmental Analysis: Enables the determination of anions and cations in drinking water, wastewater, and surface water, specifically optimized for detecting trace-level concentrations.
- Pharmaceutical Quality Control: Supports the rigorous analysis of counter-ions, impurities, and residual inorganic species within drug substances and formulations.
- Chemical & Petrochemical Testing: Facilitates the quantitative analysis of ionic species found in process chemicals, reagents, and industrial raw materials.
- Food & Beverage Assurance: Measures inorganic ions, organic acids, and additives to ensure product quality and adherence to regulatory compliance standards.
- Power & Energy: Monitors ionic contaminants in critical systems, including boiler water and cooling water, to maintain power plant process integrity.
- Research & Advanced Analytics: Ideal for method development, gradient separations, and complex multi-ion profiling requiring high-pressure capabilities.



FEATURES

High Pressure Ion Chromatograph - Toron-IC™ 180H Key Features

The Toron-IC™ 180H - High Pressure Ion Chromatograph is engineered for high performance, precision, and ease of use in demanding analytical environments. Its integrated, cutting-edge components provide scientists with a robust platform for complex ion separation and quantification.

Core Pumping and Eluent Systems

Feature	Description	Technical Specifications
High-Pressure Pumping System	The instrument features a state-of-the-art dual-piston, tandem pump design. This configuration is crucial for minimizing pressure ripple (pulse) and ensuring high flow rate accuracy and precision, which translates directly to stable retention times and reliable integration.	Supports operating pressures up to 45 MPa (6600 psi). Flow precision and accuracy are tightly controlled for optimal chromatographic performance.
High-Pressure Eluent Generator (EGen)	A powerful, built-in electrolytic eluent generator eliminates the need for manual preparation and degassing of liquid eluents. This dramatically improves method reproducibility, reduces human error, and minimizes exposure to hazardous chemicals.	Rated for pressures up to 42 MPa. Supports a wide range of common eluents including Potassium Hydroxide (KOH), Sodium Hydroxide (NaOH), Lithium Hydroxide (LiOH), and Methanesulfonic Acid (MSA). Features programmable gradient capabilities for complex separations.

Advanced Separation Capabilities

Feature	Description	Benefits for Analysis
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Advanced Gradient Capability	Beyond simple isocratic or linear gradients, the system offers nine distinct, selectable gradient curves (e.g., linear, step, convex, concave). This flexibility allows for highly optimized separation strategies, particularly for samples containing complex mixtures of ions with vastly different affinities.	Enables faster run times and higher resolution for complex ion matrices, ensuring complete baseline separation of all analytes.
Two-Dimensional Chromatography Ready (2D-IC)	The Toron-IC™ 180H is inherently designed for advanced multidimensional workflows. Seamless integration with the autosampler enables valve switching protocols, allowing for heart-cutting or comprehensive 2D-IC.	Ideal for trace analysis in complex matrices by effectively removing matrix interferences and increasing the sensitivity and selectivity of the analysis.
Suppressor Compatibility	The system architecture is designed to accommodate various suppression technologies, ensuring flexibility across different applications and chemistries.	Supports both high-capacity chemical suppressors and advanced, low-maintenance self-regenerating membrane suppressors, maximizing signal-to-noise ratio for low-level detection.

System Reliability and User Experience

Feature	Description	Impact on Workflow
Column Thermostat with Heating & Cooling	Features an accurate, high-stability temperature control compartment that can actively heat or cool the separation column and suppressor. Maintaining a consistent temperature is paramount for method stability.	Significantly improves retention time stability and enhances reproducibility run-to-run and day-to-day, a critical factor for quantitative analysis.
Intelligent System Protection	An integrated, multi-point warning and safety system actively monitors key operational parameters in real-time.	Automatically detects and alerts the user to critical conditions such as over-pressure, abnormally low pressure, and liquid leakage to protect the instrument, column, and ensure lab safety.
Void-Volume-Free High-Pressure Connections	The system utilizes specialized, high-pressure, tool-free connectors designed to minimize dead volume (void volume) throughout the fluid path.	Maximizes chromatographic efficiency and minimizes peak broadening, ensuring sharp, high-resolution chromatograms.
High-Definition Touchscreen Interface	The front panel features a modern, intuitive touchscreen for direct control and monitoring.	Provides a real-time chromatogram display, immediate visualization of system status, and includes a one-touch stabilization function for rapid instrument readiness.

Feature	Description	Impact on Workflow
Remote Monitoring & Control	A dedicated mobile application extends the control interface beyond the laboratory.	Enables analysts to track the instrument's status (e.g., pressure, flow, remaining run time) and adjust basic parameters remotely, increasing laboratory productivity and flexibility.

TECHNICAL SPECIFICATIONS

High Pressure Ion Chromatograph - Toron-IC™ 180H Technical Specifications

Parameter	Specification
Model	Toron-IC™ 180H
Instrument Type	High Pressure Ion Chromatograph
Maximum System Pressure	45 MPa (6600 psi)
Eluent Generator Pressure Rating	Up to 42 MPa
Supported Eluents	KOH, NaOH, LiOH, MSA
Eluent Concentration Range	0.1-100 mM
Gradient Accuracy	±0.15%
Flow Rate Range	0.001-15 mL/min
Pressure Ripple	≤ 0.5%
Flow Accuracy / Precision	≤ 0.1%
Degassing System	Integrated vacuum degasser

Parameter	Specification
Column Thermostat Range	15-80 °C
Temperature Accuracy	±0.1 °C
Suppressor Type	Electrolytic micro-membrane suppressor
Detector	Auto-range conductivity detector
Detection Range	0-50,000 µS/cm
Baseline Noise	≤ 0.0005 µS/cm
Instrument Linearity	≥ 0.999
Quantitative Repeatability	≤ 0.5%
Voltage	100-240 VAC, 50/60 Hz
Power Consumption	120 W
Dimensions (W × D × H)	380 × 520 × 620 mm
Net Weight	35 kg



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