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ONLINE PARTICLE COUNTER

Online Particle Counter ToronOPC™ 550 provides continuous monitoring of hydraulic and lubricant oils with real-time particle analysis and automated cleanliness assessment.

APPLICATIONS

Online Particle Counter - ToronOPC™ 550

Online Particle Counter – ToronOPC™ 550 is a high-precision Oil Particle Counter engineered to provide real-time monitoring of particulate contamination in hydraulic oil, lubricants, and other industrial fluids while equipment is in operation. Designed for continuous online service, this system delivers automatic particle counting and fluid cleanliness assessment without interrupting normal machine function. Its robust hardware and intelligent software combine to provide instantaneous particle size distribution, enabling users to make timely maintenance decisions and reduce downtime.

ToronOPC-550 - Online Particle Counter
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Application

The Online Particle Counter – ToronOPC™ 550 is ideal for:

- Hydraulic System Monitoring – Continuous online cleanliness analysis in mobile and fixed hydraulic systems to prevent wear and failure.
- Lubrication Systems – Real-time detection of particulate contamination in gear, compressor, and turbine lubricants for predictive maintenance.
- Industrial Machinery Monitoring – Online fluid cleanliness tracking within presses, injection molding machines, and industrial presses.
- Energy & Power Generation – Monitoring of hydraulic and lubrication systems in turbines, gas compressors, and generator systems.
- Manufacturing Process Control – Inline contamination monitoring to ensure fluid quality during production processes.
- Heavy Equipment Maintenance – For construction, mining, and transportation equipment to optimize service intervals and improve system reliability.

Standards

The ToronOPC™ 550 supports major international and industry cleanliness standards for fluid particulate monitoring:

- ISO 4406 (International Organization for Standardization) – Cleanliness codes based on particle count at multiple micron thresholds.
- NAS 1638 (National Aerospace Standard) – Aerospace fluid cleanliness classification.
- SAE AS4059 (Society of Automotive Engineers) – Fluid cleanliness standards aligned with modern particle counting methods.
- ISO 11218 / ISO 11500 – Hydraulic fluid cleanliness standards based on online particle counting.

FEATURES

Online Particle Counter - ToronOPC™ 550 Key Features

- Continuous Online Particle Monitoring
  - Provides live fluid cleanliness data without interrupting normal equipment operation, making it ideal for predictive maintenance and condition monitoring.
- Wide Particle Detection Range
  - Detects and counts particles across a broad size range to deliver detailed particle size distribution and contamination level insights.
- Real-Time Cleanliness Reporting
  - Displays instantaneous data and fluid cleanliness status, enabling immediate response to contamination events.
- Intelligent Software & Alarms
  - Built-in software supports threshold alarms, trend logging, and historical data review to assist with condition-based maintenance strategies.
- Robust Industrial Design
  - Engineered for harsh industrial environments with stable hardware and reliable online performance.
- Standard Compliance
  - Outputs cleanliness results in formats compatible with ISO, NAS, and SAE standards to fit global maintenance and quality programs.
- Flexible Communication Interfaces
  - Supports common industrial protocols (e.g., 4–20 mA, RS-485, Ethernet) for integration with plant monitoring systems and data historians.
- Low Maintenance Operation
  - Designed for long-term online use with minimal intervention, reducing downtime and operational cost.

TECHNICAL SPECIFICATIONS

Online Particle Counter - ToronOPC™ 550 Technical Specifications

Parameter	ToronOPC™ 500
Product Name	Online Particle Counter
Model	ToronOPC™ 500
Light Source	Semiconductor laser
Detection Method	Light-blocking / shading method
Operation Mode	Online or offline
Online Monitoring Interval	1 second to 24 hours
Online Test Pressure	0.1 to 0.6 MPa, optional pressure-reducing device up to 40 MPa
Sample Temperature	0°C to 80°C
Particle Size Range	1 μm to 500 μm
Sensitivity	1 μm (ISO 4402) or 4 μm(c) (ISO 11171 reference)
Detection Channels	32 channels, particle size can be set in 0.1 μm intervals
Sampling Volume	10 to 100 mL
Sampling Volume Relative Error	Better than ±3%
Detection Speed	5 to 60 mL/min, default 25 mL/min
Cleaning Speed	5 to 60 mL/min
Resolution	Better than 10%
Coincidence Error Limit	12,000 to 40,000 particles/mL
Counting Repeatability	RSD < 2%

Parameter	ToronOPC™ 500
Particle Count Relative Error	±10%
Communication	RS485 or RS232
Display / Control	7-inch industrial display, Android system
Operating Temperature	-20°C to 60°C
Storage Temperature	-30°C to 80°C
Dimensions	380 × 280 × 170 mm
Weight	5.5 kg
Voltage	110 to 240 VAC or 24 VDC
Optional Feature	Water-content sensor

TORONTECH.com

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Torontech Inc.
251 Consumers Road, Suite 1200
Toronto, Ontario, M2J 4R3, Canada

Phone: +1 416 368 2721 | Fax: +1 416 981 7652
Email: info@torontech.com

Torontech, LLC
601 Brickell Key Drive, Suite 700
Miami, FL 33131, USA

Toll-Free: 1-866-383-7919
Email: sales@torontech.com

Torontech ME FZE
Meydan Grandstand, 6th Floor,
Meydan Road, Nad Al Sheba,
Dubai-261440, UAE

Phone: +971 488 19252
Email: me@torontech.com

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