



TORONTECH

PORTABLE PARTICLE COUNTER



Portable Particle Counter ToronOPC™ 300 delivers accurate oil and fluid contamination measurement using optical light-blocking technology for lab and field testing.

APPLICATIONS

Portable Particle Counter - ToronOPC™ 300

Portable Particle Counter – ToronOPC™ 300 is a versatile, field-ready Portable Particle Counter engineered for accurate measurement of particulate contamination in oils and industrial fluids. Using the optical light-blocking principle, this Oil Particle Counter detects and sizes solid particles in liquid media to assess fluid cleanliness quickly and reliably. Compact and battery-powered, the ToronOPC™ 300 supports both offline testing and optional inline (online) sampling, providing essential contamination insights in laboratories, maintenance workshops, and remote field environments.



Application

The Portable Particle Counter – ToronOPC™ 300 is ideal for contamination monitoring and fluid cleanliness assessment in:

- Military Industry
 - Used for field and laboratory monitoring of hydraulic oils, lubricants, and fuel systems in military vehicles and equipment, helping ensure fluid cleanliness, reduce component wear, and support mission-critical reliability.
- Aerospace Industry
 - Supports contamination analysis of aviation hydraulic fluids, turbine oils, and fuel systems, enabling early detection of particulate contamination that could impact flight safety and system performance
- Electrical Power Sector
 - Applied in the analysis of transformer insulating oils and turbine lubricants to assess fluid condition, identify wear particles, and maintain stable operation of power generation and transmission equipment.
- Transportation Industry
 - Used for portable condition monitoring of lubricants and hydraulic fluids in rail, marine, automotive, and heavy-duty transportation systems, helping optimize maintenance schedules and extend equipment service life.



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Standards

The Portable Particle Counter – ToronOPC™ 300 supports multiple international cleanliness standards, enabling flexible reporting and compliance:

- ISO 4402 – Hydraulic fluid particle counting method.
- ISO 11171 – Calibration and verification of automatic particle counters.

- NAS 1638 – Aerospace fluid cleanliness classification.
- ISO 4406 (1999/2007/1987) – Fluid cleanliness code based on particle counts.
- SAE AS4059E / AS4059F – Aerospace and defense fluid cleanliness standards.
- ROCT 17216 (1971 / 2001) – Russian oil contamination standards.
- JTS-005, SAE749D, AETF1A – Other common contamination classification references.

FEATURES

Portable Particle Counter - ToronOPC™ 300 Key Features

- Optical Light-Blocking Detection
 - Uses light-blocking (optical occlusion) technology to precisely measure particle size and count in fluid samples.
- Wide Particle Size Range & High Resolution
 - Detects particle sizes from 1 µm to 500 µm with a 32-channel configuration and fine 0.1 µm resolution for detailed contamination profiling.
- Dual Mode Operation (Offline & Online)
 - Supports both manual sampling and inline connection for real-time fluid monitoring, with optional high-pressure sampling (up to 40 MPa).
- Portable & Battery-Powered
 - Equipped with a built-in lithium battery for true mobility, plus AC input support for lab or field use.
- Industrial PC Control & Calibration Options
 - Integrated Windows-based industrial PC for instrument control and calculation, with optional calibration curves (ACFTD, ISOMTD, latex, GOST, etc.).
- Comprehensive Data Management
 - Test results can be printed via built-in printer, stored in software database, or exported via USB for reporting and analysis.
- High Sampling & Cleaning Flexibility

- Adjustable sampling and cleaning flow rates ensure adaptable testing across fluid types and viscosities.
- High-Performance Particle Counting Sensors
 - Equipped with large-format, high-sensitivity particle counting sensors to deliver stable and accurate particle detection across a wide measurement range.
- Industrial Windows-Based Control System
 - Integrated industrial PC running a Windows operating system supports full instrument control, data calculation, and intuitive operation.
- Multiple Calibration Curve Options
 - Supports optional calibration curves including ACFTD, ISOMTD, latex sphere, GOST, and other industry-recognized calibration standards.
- Flexible Data Storage and Output
 - Test results can be stored internally within the software database, printed using the built-in printer, or exported via USB for reporting and traceability.

TECHNICAL SPECIFICATIONS

Portable Particle Counter - ToronOPC™ 300 Technical Specifications

Models	ToronOPC™ 300
Particle Detection Principle	Optical light-blocking (photoresist method)
Operation Modes	Offline sampling; Online sampling (optional high-pressure support)
Particle Size Range	1-500 µm
Sensitivity Threshold	1 µm (ISO 4402) or 4 µm (ISO 11171)
Detection Channels	32 channels, 0.1 µm intervals
Sampling Volume	10-100 mL

Sampling Flow Rate	5-60 mL/min (default 25 mL/min)
Relative Error (Sampling)	± 2%
Counting Repeatability	RSD < 2%
Counting Accuracy	± 10%
Overlap Error Limit	12,000-40,000 particles/mL
Temperature Range (Sample)	0 °C-80 °C
Operating Temp Range	-20 °C-60 °C
Storage Temp Range	-30 °C-80 °C
Voltage	110-240 V AC / Built-in lithium battery
Optional Features	High-pressure sampling support, calibration curve packages



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