

PORTABLE LIQUID AND OIL PARTICLE COUNTER



Portable Liquid and Oil Particle Counter - ToronOPC™ 300W

Portable Liquid and Oil Particle Counter – ToronOPC™ 300W is a precision Portable Liquid and Oil Particle Counter engineered for reliable measurement of solid particle contamination in oils and other liquid media.

Using optical light-blocking detection, this instrument measures the size and concentration of particles in hydraulic oil, lubricating oil, transformer insulating oil, turbine oil, gear oil, engine oil, aviation kerosene, and water-based hydraulic fluids, as well as insoluble contaminants in organic liquids and polymer solutions.

ToronOPC™ 300W delivers precise contamination analysis for oils and liquids using optical light-blocking detection. It supports both offline and online operation, making it valuable for field testing, maintenance checks, and laboratory quality control.

APPLICATIONS

Application Areas:

The particle counter system is utilized across several key sectors for contamination control and fluid condition monitoring:

- **Military Industry:** Deployed for both field and laboratory assessment of hydraulic oils, lubricants, and fuel systems in military vehicles and equipment. This application is vital for ensuring fluid cleanliness, minimizing component wear, and upholding the reliability of mission-critical assets.
- **Aerospace:** Instrumental in the contamination analysis of aviation hydraulic fluids, turbine oils, and fuel systems. It facilitates the early identification of particulate contamination that poses risks to flight safety and system performance.
- **Electrical Power:** Used to analyze transformer insulating oils and turbine lubricants. This helps assess the fluid's condition, detect wear particles, and ensure the stable operation of power generation and transmission infrastructure.

- **Transportation:** Serves as a portable condition monitoring tool for lubricants and hydraulic fluids in various transportation modes, including rail, marine, automotive, and heavy-duty vehicles. This optimizes maintenance scheduling and extends the operational service life of the equipment.



Standards

The Portable Liquid and Oil Particle Counter – ToronOPC 300W supports key international and industry cleanliness standards for particle counting and fluid contamination levels:

- ISO 4402 — Hydraulic fluid particle size distribution and count.
- ISO 11171 — Calibration and verification of automatic counters.
- ISO 4406 (1999/2007/1987) — International cleanliness coding for hydraulic fluids.
- NAS 1638 — U.S. aerospace fluid contamination classification.
- AS4059E / AS4059F — SAE fluid cleanliness classifications.
- ROCT 17216 — Russian contamination standard.
- JTS-005, SAE749D, AETF1A — Other common reporting standards.

FEATURES

Portable Liquid and Oil Particle Counter - ToronOPC™ 300W Key Features

- Photoresist (Light-Blocking) Detection Principle
 - Uses proven optical occlusion technology to accurately count and size particles in liquid samples.
- Wide Particle Size & Concentration Range
 - Detects particles from 1 µm to 500 µm with high resolution across 32 channels.
- Offline and Online Operation
 - Supports manual sampling or in-line connection for real-time monitoring; optional pressure reducing device enables high-pressure operation up to 40 MPa.
- High-Performance Large Particle Counting Sensors
 - Equipped with large-format, high-sensitivity particle counting sensors to enhance measurement capability across a wide particle size range and improve detection stability.

- Industrial Windows-Based Computer System
 - Integrated industrial computer running a Windows operating system supports full instrument control, data calculation, and reliable long-term operation.
- Multiple Calibration Curve Options
 - Optional calibration curves include ACFTD, ISOMTD, latex sphere, GOST, and other standardized calibration methods to meet different testing requirements.
- Comprehensive Data Storage and Output
 - Test results can be printed via the embedded printer, stored within the software database, or exported through USB storage for reporting and traceability.

TECHNICAL SPECIFICATIONS

Portable Liquid and Oil Particle Counter - ToronOPC™ 300W Technical Specifications

Model	ToronOPC™ 300W
Light Source	Semiconductor laser
Detection Method	Offline or online sampling
Online Viscosity Range	<100 cSt (optional positive pressure sampler for higher viscosities)
Online Pressure Detection	0.1-0.6 MPa (optional up to 40 MPa)
Sample Temperature Range	0 °C-80 °C
Particle Size Range	1 µm - 500 µm
Sensitivity Thresholds	1 µm (ISO 4402); 4 µm (ISO 11171)
Detection Channels	32 channels (0.1 µm interval)

Sampling Volume	10–100 mL
Sampling Flow Rate	5–60 mL/min
Cleaning Flow Rate	5–60 mL/min
Resolution	<10%
Overlap Error Limit	12,000–40,000 particles/mL
Repeatability (RSD)	< 2%
Counting Error	± 10%
Oil Water Content Detection	10–500 ppm
Operating Temp	-20 °C–60 °C
Storage Temp	-30 °C–80 °C
Voltage	110–240 V AC, built-in lithium battery



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