TORONTECH

OIL PARTICLE COUNTER

Oil Particle Counter - ToronOPC™ 100

ToronOPC™100 uses the light-blocking method to measure the size and quantity of solid particles in various liquids. It helps determine contamination levels in hydraulic oil, lubricating oil, shale oil, transformer (insulating) oil, turbine oil, gear oil, engine oil, aviation kerosene, water-based hydraulic fluids, and other similar liquids. It also analyzes insoluble particles found in organic liquids and polymer solutions.

APPLICATIONS

Application Areas:

- **Military Industry**

  Used to monitor contamination levels in hydraulic fluids, lubricants, and fuel systems for military vehicles and equipment, helping ensure operational reliability, reduce wear, and support preventive maintenance in critical defense applications.

- **Aerospace Industry**

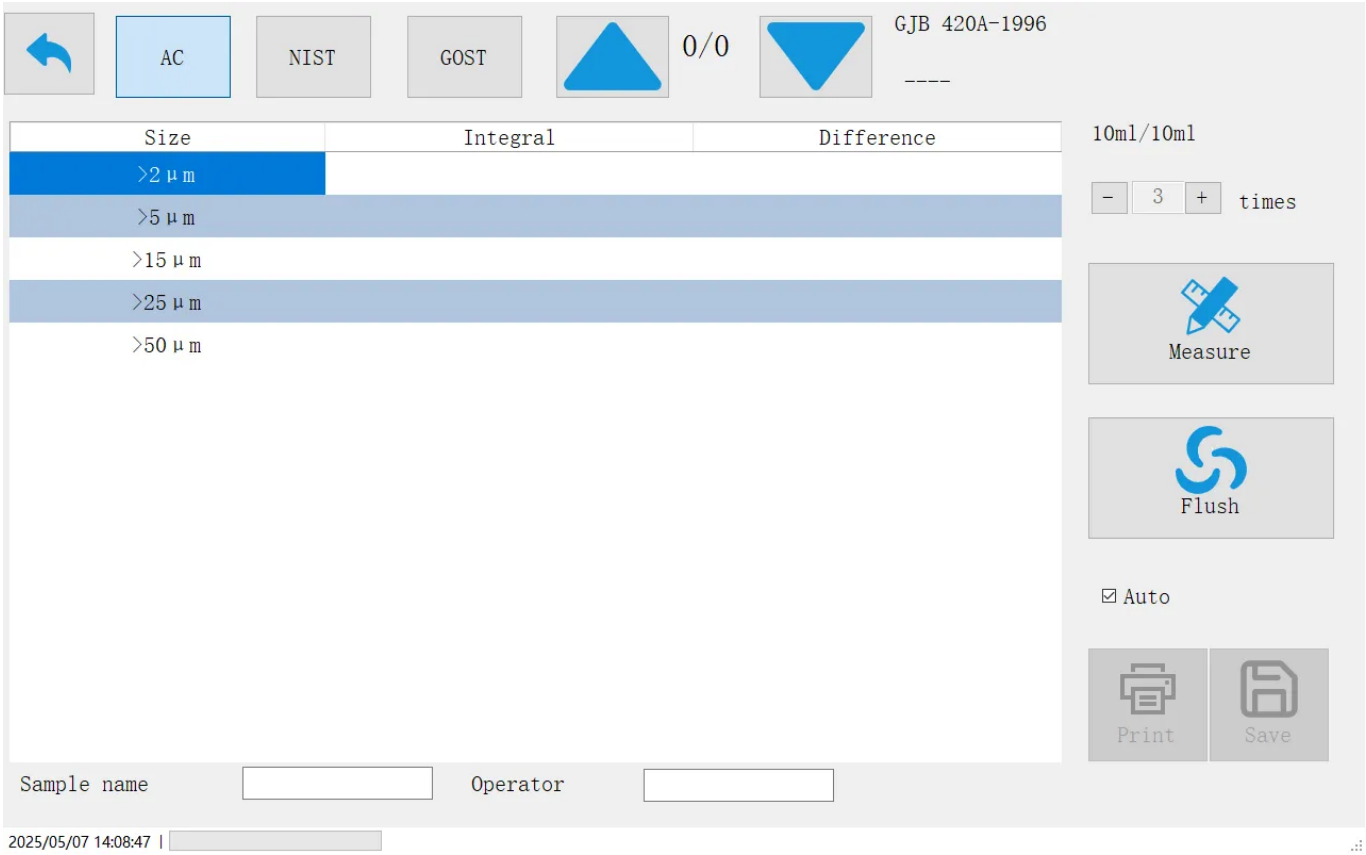
  Supports cleanliness control of aviation hydraulic oils, turbine lubricants, and fuel systems, enabling early detection of particulate contamination that could impact flight safety, component lifespan, and regulatory compliance.

- **Electricity Industry**

Applied in the analysis of transformer insulating oils and turbine lubricants to assess fluid condition, detect wear debris, and maintain stable performance of power generation and transmission equipment.

- **Transportation Industry**

  Used for condition monitoring of lubricants and hydraulic fluids in rail, marine, and heavy-duty vehicle systems, helping operators identify contamination issues early and extend equipment service intervals.



Standards

- NAS 1638: Aerospace cleanliness standard classifying particle contamination levels in hydraulic fluids.
- SAE AS4059 (E / F / FI): Modern SAE aerospace standards for fluid cleanliness, aligned with ISO particle size definitions.
- ISO 4406 (1987 / 1999 / 2007): International standards defining oil cleanliness codes based on particle counts at specific micron sizes.
- SAE ARP749D: Early aerospace recommended practice for hydraulic fluid cleanliness control.
- GOST 17216 (1971 / 2001): Russian standards for classifying particulate contamination in hydraulic systems.
- JTS-005: Industry or military-related cleanliness specification used in regulated systems.
- AETF1A: Specialized aerospace or defense fluid cleanliness classification.
- NAS 1638 / ISO 4406: Dual reporting method allowing contamination results to be expressed in both NAS and ISO codes.

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ToronOPC-100
Oil Particle Counter

FEATURES

Oil Particle Counter - ToronOPC™ 100 Features

- Wide Detection Range: Detects particles from 0.5 to 600 µm, covering both fine and coarse contamination.
- Multi-Standard Support: Calibrated to international oil cleanliness standards including ISO 11171, ISO 4402, ISO 4406, NAS 1638, and SAE AS4059.
- Precision Sampling System: High-accuracy injection pump with stable sampling speed and controlled sample volume ensures reliable measurement.
- Pressure & Vacuum Devices: Handles high-viscosity fluids and eliminates air bubbles during testing, improving result accuracy.
- Large Color Touch Display: 5.7-inch touch screen provides intuitive control, real-time readout, and easy configuration.
- Built-In Data Management: Integrated database for storage, search, analysis, and reporting of particle count results.
- ISO Compliance: Supports ISO calibration protocols and automatic reporting functions aligned with industry and laboratory standards.
- High-Performance Large-Size Particle Counting Sensors: Equipped with advanced, large-aperture particle counting sensors to deliver accurate and stable detection across a wide particle size range.
- Industrial PC with Windows Operating System: Integrated industrial-grade computer running Windows for reliable instrument control, data processing, and calculation.
- Multiple Calibration Curve Options: Supports optional calibration curves including ACFTD, ISOMTD, latex sphere, GOST, and other standardized calibration methods.
- Comprehensive Data Storage and Output: Test results can be stored via built-in printer output, internal software database, and USB storage for easy reporting and traceability.

TECHNICAL SPECIFICATIONS

Oil Particle Counter - ToronOPC™ 100 Technical Specifications

Model	ToronOPC™ 100
Particle Size Range	0.5-600 μm (ISO4402); 1-70 μm (ISO11171)
Particle Size Channels	24 channels
Maximum Detection Concentration	24,000 particles/mL
Sampling Speed	15 mL/min
Sampling Volume Accuracy	±0.4%
Counting Repeatability	< 2%
Counting Relative Error	± 5%
Maximum Vacuum	-0.08 MPa
Maximum Pressure	0.4 MPa
Detecting Liquid Viscosity	< 650 cSt
Sample Temperature	≤ 80 °C
Display	5.7-inch LCD color touch screen
Data Output	USB Interface, built-in printer support
Voltage	AC 220 V ±10%, 50 Hz
Dimensions	355 × 400 × 620 mm
Weight	~19 kg
Operating Environment	0-80 °C

TORONTECH.com

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