



TORONTECH



DUAL ANALYSIS FERROGRAPH - TORONFG™ 100

Dual Analytical Ferrograph - ToronFG™ 100

A Ferrograph helps maintenance and oil analysis teams see wear and contaminant particles pulled from in-service lubricants. The ToronFG™ 100 Dual Analytical Ferrograph prepares ferrograms using a controlled magnetic field so particles deposit in patterns that support fast microscopy-based interpretation.

Two independent preparation channels let you build two ferrograms in parallel for higher throughput in routine condition monitoring. Operators can run automatic, semi-automatic, or manual ferrogram preparation, depending on lab workflow and sample load.

APPLICATIONS

Dual Analytical Ferrograph - ToronFG™ 100 Applications

- **Transportation and rail fleets (locomotives and engines):** Tracks abnormal wear trends in gearboxes, bearings, and engine lubrication systems so teams can plan corrective actions before unplanned downtime.
- **Steel and heavy industry fans and rotating assets:** Supports root-cause screening for abrasive, fatigue, and sliding wear signatures in circulating oil systems used on large rotating equipment.
- **Power generation (generator sets and auxiliaries):** Helps condition-monitor turbines, gear drives, and hydraulic systems by correlating particle type and size distribution with operating risk.
- **Marine and defense drive systems (transmission gearboxes):** Enables routine oil debris surveillance where reliability is tied to early detection of ferrous wear and mixed contaminant debris.



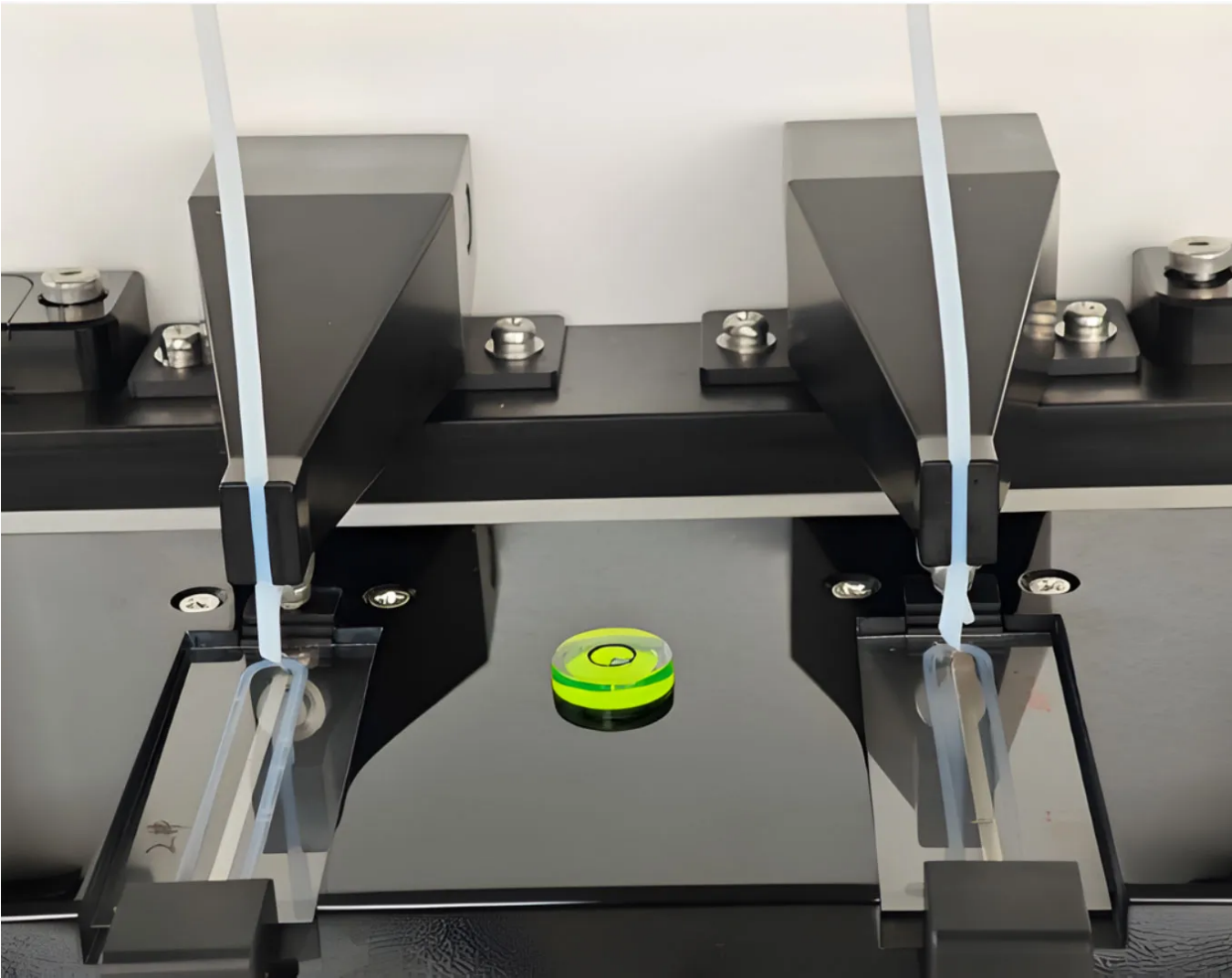
Standards

- **ASTM D7690** – Microscopic characterization of particles from in-service lubricants by analytical ferrography.
- **ASTM D7684** – Guide for microscopic characterization and reporting of particles from in-service lubricants.
- **SH/T 0573** – Test method for wear particles in used lubricating oils (analytical ferrography method).

FEATURES

Dual Analytical Ferrograph – ToronFG™ 100 Key Features

- **Dual-channel ferrogram preparation** to produce two ferrograms simultaneously for higher daily throughput.
- **High magnetic field performance** with specified magnetic flux density and field gradient to support stable particle separation.
- **Adjustable sample flow control** to improve deposition consistency and repeatability between runs.
- **Fast preparation cycle** with two spectra produced in under 20 minutes under stated conditions.
- **Transparent ferrogram** for easier differentiation between metallic, organic, and non-metallic debris during diagnosis.
- **Particle arrangement** by magnetization and size to speed interpretation of wear severity and source.
- **Integrated microscope** configuration (matching scope parameters) supporting BF/DF objectives and reflected/transmitted illumination options listed for the system.



THEORY & METHOD

Theory and Method

Analytical ferrography concentrates wear debris from an oil sample onto a ferrogram substrate while a magnetic field separates particles by magnetic response and size. The deposited pattern is then inspected under a microscope to classify particle types and relate them to wear mechanisms.

The ToronFG™ 100 uses dual, independent preparation paths so two samples can be processed at the same time. A controlled flow rate improves deposition consistency for repeatable slide preparation and easier comparison across time-based samples.

TECHNICAL SPECIFICATIONS

Dual Analytical Ferrograph - ToronFG™ 100 Technical Specification

Item	Specification
Preparation channels	Dual, independent circuits; automatic / semi-automatic / manual preparation
Magnetic flux density (max)	≈ 1.8 T
Magnetic field gradient (max)	> 0.5 T/mm
Oil transport flow range	10-30 mL/h
Oil line size	OD 2.3 mm, ID 1.7 mm
Transport method	Pneumatic
Ferrogram inclination angle	1°-5°
Ferrogram substrate size	60 × 24 × 0.12 mm (L × W × H)
Instrument dimensions	395 × 355 × 330 mm
Weight	13.5 kg

Item	Specification
Microscope system	Infinite optical system; eyepiece EW10×/22; objectives and illumination options as listed
Referenced methods	Meets ASTM D7690, ASTM D7684, and SH/T 0573



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