TORONTECH

MANUAL COF TESTER

Manual COF Tester - ToronCOF™ 2001

Static and Kinetic Coefficient of Friction Tester for Plastic Film

The ToronCOF™ 2001 is a coefficient of friction tester that measures the static and kinetic coefficients of friction of plastic film, laminated films, foils, paper, paperboard, and many other materials. The instrument uses the horizontal sled method, pulling a weighted sled across the specimen while a load cell reads the drag force. It runs the ISO method as standard, with the ASTM method available on demand, and reports both static and kinetic values.

The ToronCOF™ 2001 is a straightforward entry model that runs at preset test speeds of 100 mm/min, or 150 mm/min for the ASTM speed, for consistent routine testing. An AC-servo drive moves the sled steadily, and a high-accuracy 5N load cell resolves the small drag forces of smooth films. A color touchscreen sets the test, and the adjustable moving beam accepts specimens of different thickness.

Built-in statistical analysis and a micro-printer handle results at the bench, and compatibility with standard and non-standard sleds matches different materials. Optional computer software adds curve display, group testing, and reporting. The ToronCOF™ 2001 (Static and Kinetic Coefficient of Friction Tester) suits packaging, food, pharmaceutical, and materials QC labs that need reliable routine COF data.

APPLICATIONS

Manual COF Tester - ToronCOF™ 2001 Applications

The ToronCOF™ 2001 measures surface friction across films, packaging, paper, and related materials.

- **Plastic Films and Sheets**: measures static and kinetic COF of mono and multilayer films that must feed and slip consistently.
- **Laminates and Flexible Packaging**: checks the slip behavior of laminated and coated packaging films.
- **Paper and Paperboard**: measures the friction of papers, board, and corrugated for stacking and conveying.
- **Foils and Metallized Films**: tests the surface slip of foils and metallized structures.
- **Films with Slip Additives**: verifies the effect of slip and anti-block additives on surface friction.
- **Converting and Bag-Making Lines**: supports process control where film slip affects feeding and forming.
- **Rubber, Coatings, and Sheets**: measures the friction of rubber, coated surfaces, and sheet materials.
- **Research and Quality Control**: quantifies surface friction for material development and incoming inspection.

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ToronCOF™ 2001
Manual COF Tester
Coefficient of Friction Tester
TEST
STOP
EMERGENCY

Standards

The ToronCOF™ 2001 is designed to align with internationally recognized standards for coefficient of friction testing by the horizontal sled method.

- ASTM D1894 - Standard Test Method for Static and Kinetic Coefficients of Friction of Plastic Film and Sheeting
- ISO 8295 - Plastics: Film and Sheeting: Determination of the Coefficients of Friction
- TAPPI T816 - Coefficient of Static Friction of Corrugated and Solid Fiberboard (Horizontal Plane Method)

FEATURES

Manual COF Tester - ToronCOF™ 2001 Key Features

The ToronCOF™ 2001 is a streamlined horizontal-sled COF tester for routine static and kinetic friction testing.

- **Static and Kinetic COF**: measures both the static and kinetic coefficients of friction in one run.
- **Horizontal Sled Method**: pulls a weighted sled across the specimen while a load cell reads the drag force.
- **Preset Test Speeds**: runs at 100 mm/min, or 150 mm/min for the ASTM speed, for consistent routine testing.
- **AC-Servo Drive**: a servo drive moves the sled at a steady, accurate speed for repeatable values.
- **5N Load Cell**: a high-accuracy 5N load cell to 0.05% of full scale resolves the small drag forces of films.
- **ISO and ASTM Testing**: runs the ISO method as standard, with the ASTM method available on demand.
- **Touchscreen Operation**: a color TFT touchscreen sets parameters and runs the test without a connected PC.
- **Adjustable Moving Beam**: the beam height adjusts so specimens of different thickness can be tested.
- **Standard and Non-Standard Sleds**: works with standard sleds and custom sled mass and area.
- **Built-In Statistics and Data Query**: onboard statistical analysis and record recall handle results at the bench.
- **Built-In Micro-Printer**: prints statistics and reports directly, with programmed printing.
- **Safety Protections**: an emergency-stop button, overload protection, and travel-limit protection guard the instrument.

- **Quiet Operation**: the drive runs quietly with low power consumption.
- **RS232 Communication**: a serial port connects the instrument to a PC.
- **Optional Analysis Software**: optional computer software adds curves, group testing, and reporting.
- **Laboratory Data Management Integration**: optional lab data management software centralizes test records.

THEORY & METHOD

Theory and Method

A coefficient of friction test measures how easily two surfaces slide against each other. A sled of known weight rests on the specimen, and the instrument pulls the sled horizontally across the surface at a steady speed while a load cell records the drag force. The coefficient of friction is that drag force divided by the sled's normal force.

The test gives two values. The static coefficient comes from the higher force needed to start the sled moving from rest, and the kinetic coefficient comes from the lower, steadier force that keeps it sliding. A lower coefficient means a more slippery surface, which affects how films feed, stack, and open on packaging lines.

A steady, preset test speed keeps friction values comparable, since friction depends on speed, and a high-accuracy load cell resolves the small drag forces of smooth films. The instrument runs recognized methods such as ASTM D1894 and ISO 8295, reports static and kinetic values, and calculates statistics across a group of specimens.

TECHNICAL SPECIFICATIONS

Manual COF Tester - ToronCOF™ 2001 Technical Specifications

Parameter	Specification
Coefficient Measured	Static and kinetic coefficient of friction
Load Cell Range	5 N
Load Accuracy	0.05% of full scale (max)
Travel Distance	System auto control
Displacement Accuracy	Better than 0.1 mm
Sled Mass	200 g (customization available)
Sled Area	63 mm × 63 mm (customization available)
Test Speed	100 mm/min (or 150 mm/min for the ASTM speed)
Sample Thickness	30 mm (optional)
Voltage	AC 220 V, 50 Hz (110V is also available)
Power Consumption	25 W
Dimensions	650 mm (L) × 340 mm (W) × 210 mm (H)
Net Weight	42 kg

Standard Delivery

Item	Description
Main Unit	Horizontal-sled COF test instrument with touchscreen
Micro-Printer	Built-in printer for test reports and statistics
Sled (200 g)	Standard friction sled

Item	Description
Sample Cutter	Prepares specimens to the required size

Optional Accessories

Item	Description
Computer	Dedicated control PC
Control Software	Computer software for curves, group testing, and reporting
Sample Presser	Fixture to condition and flatten specimens before testing
Communication Cable	Connects the instrument to the control PC
Non-Standard Sled	Custom sled mass and area for specific methods
Calibration Assemblies	Reference assemblies for force calibration
Laboratory Data Management System	Centralized data management and reporting software

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