TORONTECH

POUR POINT, FREEZING POINT & COLD FILTER POINT TESTER

Pour Point, Freezing Point & Cold Filter Point Tester – ToronPP™ FPC 1000

ToronPP™ FPC 1000 is a multi-function automatic low-temperature properties tester combining pour point, freezing point, and cold filter plugging point (CFPP) testing in a single instrument. Manufactured in compliance with ASTM D7510 and ASTM D2386 standards, the instrument is designed for the simultaneous or sequential determination of three critical low-temperature parameters in lubricating oils, aviation fuels, diesel fuels, and dark petroleum products.

Its 10-inch true-color touch control LCD, high-precision Peltier and compressor refrigeration system (room temperature to −70°C, ±1°C accuracy), automatic optical fiber photoelectric detection, and dual simultaneous detection positions make it a comprehensive, multi-purpose low-temperature testing platform. The expandable Cold Filter Plugging Point (CFPP) unit connects simply and quickly for distillate fuel testing, while multiple communication interfaces (Ethernet, RS-232, USB) enable seamless LIMS integration.

ToronPP™ PSP 97	ToronPP™ FPC 1000
✓ Pour point (ASTM D97)	✓ Pour point (ASTM D97)
✓ Solidifying point	✓ Freezing point (ASTM D2386)
✗ No CFPP function	✓ Cold filter point (ASTM D6371, EN 116)
→ For lubricating oils & dark petroleum	→ For diesel, aviation fuel, biodiesel
→ 800 × 650 × 650 mm	→ 800 × 600 × 650 mm

APPLICATIONS

Pour Point, Freezing Point & Cold Filter Point Tester – ToronPP™ FPC 1000 Applications

- Pour point determination of lubricating oils, base oils, and formulated petroleum products per ASTM D97
- Freezing point measurement of aviation turbine fuels and jet fuels per ASTM D2386
- Cold filter plugging point (CFPP) testing of diesel fuels, biodiesel blends, and heating oils per ASTM D6371 and EN 116
- Low-temperature operability assessment of diesel and aviation fuel for cold-weather performance certification
- Multi-parameter low-temperature profiling of petroleum products in a single test run
- Quality control in refineries, fuel distribution terminals, aviation fuel supply chains, and lubricant manufacturers
- Research and development of pour point depressants, flow improvers, and cold-flow additive packages

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Standards & Compliance

- ASTM D97: Standard Test Method for Pour Point of Petroleum Products
- ASTM D2386: Standard Test Method for Freezing Point of Aviation Fuels

FEATURES

Pour Point, Freezing Point & Cold Filter Point Tester – ToronPP™ FPC 1000 Key Features

- 10-inch true-color touch control LCD for a user-friendly human-machine interface and intuitive operation
- High-precision temperature control system capable of regulating sample temperature from room temperature to −70°C for broad-spectrum low-temperature petroleum testing
- Automatic optical fiber signal detection for high-accuracy pour point, freezing point, and cold filter point determination with excellent repeatability
- Pour point and freezing point tilt mechanism fully compliant with ASTM D97 and ASTM D2386 automatic testing procedures
- High-performance compressor refrigeration system with extended service life for sustained, reliable low-temperature operation
- Multiple testing modes for rapid detection and standard method compliance across pour point, freezing point, and CFPP in a single platform
- Integrated fault diagnostics with real-time operational alerts for proactive instrument maintenance
- Expandable Cold Filter Plugging Point (CFPP) unit featuring simple and quick connection for distillate fuel cold-flow testing
- Multiple communication interfaces (Ethernet, RS-232, USB) for LIMS system integration across various laboratory data management protocols
- Dual detection positions allow simultaneous testing of two samples for improved throughput

- Measurement repeatability: freezing point ±2°C, pour point ±3°C, cold filter point ±1°C

THEORY & METHOD

Theory and Method

The ToronPP™ FPC 1000 performs three independent low-temperature test methods within a single refrigerated platform. Pour point and freezing point are determined using the standardized automatic tilt mechanism: the sample is cooled at a controlled rate and the test jar is automatically tilted at each test temperature interval to detect cessation of flow (pour point, ASTM D97) or solidification of the fuel (freezing point, ASTM D2386). Photoelectric optical fiber sensors provide objective, automated observation of the sample surface, eliminating the subjectivity of visual inspection and ensuring reproducible results.

For Cold Filter Plugging Point (CFPP) testing, the expandable CFPP unit — which attaches quickly to the instrument — draws the cooled fuel sample through a standardized wire mesh filter under vacuum; the CFPP is the highest temperature at which the fuel fails to pass through the filter in the prescribed time. All three parameters are fully compliant with their respective ASTM standard automatic testing procedures, ensuring results are directly interchangeable with those from manual methods.

TECHNICAL SPECIFICATIONS

Pour Point, Freezing Point & Cold Filter Point Tester – ToronPP™ FPC 1000 Technical Specifications

Parameter	Specification

Measuring Range	Room temperature to -70 °C
Measurement Accuracy	± 1 °C
Resolution	0.1 °C
Detection Positions	2 (can be measured simultaneously)
Detection Method	Photoelectric
Repeatability	Freezing point: ± 2 °C; Pour point: ± 3 °C; Cold filter point: ± 1 °C
Display	10-inch True Color LCD
Total Power	≤ 1000 W
Main Unit Size (W × D × H)	800 × 600 × 650 mm
Weight	80 kg
CFPP Unit	Expandable; simple and quick connection
Communication	Ethernet, RS-232, USB
Voltage	AC 220 V ± 10%, 50 Hz ± 10% (110V is also available)
Relative Humidity	< 80% RH
Ambient Temperature	10 – 28 °C
Other Notes	No strong vibration, airflow, strong electromagnetic interference, or corrosive gases near instrument

TORONTECH.com

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Torontech Inc.
251 Consumers Road, Suite 1200
Toronto, Ontario, M2J 4R3, Canada

Phone: +1 416 368 2721 | Fax: +1 416 981 7652
Email: info@torontech.com

Torontech, LLC
601 Brickell Key Drive, Suite 700
Miami, FL 33131, USA

Toll-Free: 1-866-383-7919
Email: sales@torontech.com

Torontech ME FZE
Meydan Grandstand, 6th Floor,
Meydan Road, Nad Al Sheba,
Dubai-261440, UAE

Phone: +971 488 19252
Email: me@torontech.com

USA | Canada | EU | UAE | GCC | KSA | India | Africa | Latin America | Asia