TORONTECH

AUTOMATED COLD CRANKING SIMULATOR TT-CCS-III

Automated Cold Cranking Simulator TT-CCS-III by Torontech is a fully automatic Cold Cranking Simulator designed to test the apparent viscosity of lubricating oils. Utilizing a semiconductor refrigeration system, it ensures precise temperature control and efficient testing. Its advanced structure supports dynamic sampling, automatic cleaning, testing, data storage, and printing, making it a versatile and reliable solution for viscosity measurement in both research and industrial settings.

APPLICATIONS

The Torontech TT-CCS-III is a high-throughput, fully automated system for determining the low-temperature cranking viscosity of engine oils. This test is the definitive measure of an oil's ability to flow during a cold start, a fundamental performance requirement that dictates engine startability and protection in cold climates. By providing the essential data for classifying oils according to SAE J300 specifications, it serves as a cornerstone for both high-volume quality control and product development.

This critical, high-throughput analysis is indispensable for ensuring reliability in:

- **Lubricant Manufacturing & Blending:** As a primary quality control instrument for large-scale production facilities, its 16-position autosampler enables the rapid, unattended testing of every batch of multi-grade engine oil, ensuring products meet stringent SAE and OEM specifications.
- **Automotive R&D & OEMs:** For the extensive testing and validation of new oil formulations, particularly modern, low-viscosity oils for fuel efficiency, and for establishing the low-temperature performance requirements that guarantee reliable engine startability across all specified operating climates.
- **Petroleum Additive Development:** As a fundamental tool for the high-throughput screening and development of new viscosity index improvers and pour point depressants, providing the precise data needed to prove their effectiveness in improving the low-temperature fluidity of base oils.
- **Commercial & Third-Party Testing:** For high-volume, independent verification and certification of engine oil quality, ensuring that products sold in the market meet their claimed performance levels for the protection of consumers and commercial fleets.

FEATURES

Comprehensive Data Management

The instrument automates data storage and allows seamless connection to printers for result documentation. It supports calibration with standard oils and can store results for up to 20 samples. Its Windows-compatible control system enhances operational convenience.

Patented Technologies

The TT-CCS-III incorporates patented technologies for lubricating oil viscosity testing and features an automatic sampling and cleaning structure, ensuring superior performance and compliance with global standards.

Versatility and High Capacity

With a measurement range of 1500 to 15000 cP, the TT-CCSIII can simultaneously process up to 16 tubes, making it suitable for high-throughput testing environments

Accurate Performance and Automation

The TT-CCS-III is driven by an high-precision motor, which automatically detects speed and controls current to minimize human error. All test processes are fully automated, including calibration curve generation, testing, and post-test adjustments, ensuring maximum efficiency and accuracy.

Advanced Temperature Control

Equipped with a semiconductor refrigeration system, the TTCCS-III supports a wide temperature range from -5°C to -35°C, with an optional range extending to -40°C. Its temperature control accuracy of ±0.02°C ensures reliable results under varying conditions. The system also includes a dedicated low-temperature refrigeration cycle for enhanced performance.

TECHNICAL SPECIFICATIONS

NO.	SPECIFICATION	DETAILS
1	Applicable standard	ASTM D2602, ASTM D5293
2	Refrigeration method	Semi-conductor
3	Circulation method	Multifunctional plastic steel pump
4	Temp. controlling method	Digital PID temperature controller

NO.	SPECIFICATION	DETAILS
5	Detection method	Automatic sampling, cleaning, and testing
6	Data processing	Automatic store
7	Temp. controlling range	-5°C, -10°C, -15°C, -20°C, -25°C, -30°C, -35°C (optional -40°C)
8	Power supply	AC220 V 50Hz (110V also available upon request)
9	Working units	16 tubes
10	Temperature controlling accuracy	±0.02°C

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