

# AUTOMATIC PENSKY- MARTENS CLOSED CUP FLASH POINT TESTER



# Automatic Pensky-Martens Closed Cup Flash Point Tester - TT-93Z

The Automatic Pensky-Martens Closed Cup Flash Point Tester TT-93Z determines the flash point of petroleum products under ASTM D93. It covers Procedures A, B, and C in one bench-top instrument. Refinery labs, fuel terminals, and independent testing facilities use it to generate required safety and compliance data. The TT-93Z targets liquids with a kinematic viscosity of 5.8 mm<sup>2</sup>/s or higher at 37.8°C, liquids with suspended solids, and materials prone to surface film. These are the conditions where closed cup testing outperforms open cup methods.

A color touchscreen manages the entire test sequence from cup lifting through programmed heating, ignition, and final flash point judgment, so operators can start a run and walk away rather than monitor it manually. A built-in quick detection function first estimates the approximate flash point of an unknown sample, which narrows the heating program for the full-precision run that follows. This combination gives labs the accuracy of a manual Pensky-Martens procedure with the throughput of automated testing.

Because flash point data feeds directly into shipping classifications, storage permits, and product safety certifications, the TT-93Z is built around repeatable, defensible results. A precision stepper motor holds stirring speed steady at the rate each procedure requires, while automatic atmospheric pressure correction keeps every reading aligned with the standard's reference condition regardless of lab elevation or weather.

## APPLICATIONS

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## Applications

The TT-93Z supports flash point testing across the full range of petroleum products and blended fuels covered by ASTM D93 Procedures A, B, and C.

- **Diesel and Distillate Fuel Testing:** verifies the flash point of diesel, kerosene, heating oil, and turbine fuels under Procedure A as a mandatory safety specification for transport and storage
- **Aviation Turbine Fuel Testing:** confirms Jet A, Jet A-1, and other turbine fuels meet the minimum flash point required for safe handling and fueling operations
- **Marine Fuel and Lubricant Testing:** checks marine distillate and lubricating oils for compliance with bunker fuel safety and classification requirements
- **Transformer and Insulating Oil Testing:** measures flash point as part of the dielectric fluid quality checks used in transformer oil maintenance programs
- **Residual Fuel Oil and Heavy Lubricant Testing:** applies Procedure B's slower heating rate and faster stirring to viscous residual fuels, used lubricating oils, and liquids that tend to form a surface film
- **Biodiesel Blend Verification:** supports Procedure C testing for biodiesel and biodiesel blends, where automated electronic flash point detection is required
- **Petroleum Safety and Regulatory Compliance:** generates the documented flash point results that quality control, transport, and storage regulations reference for flammability classification



# Standards

The TT-93Z Automatic Pensky-Martens Closed Cup Flash Point Tester conforms to the internationally recognized test method for flash point determination by closed cup apparatus.

- ASTM D93 - Standard Test Methods for Flash Point by Pensky-Martens Closed Cup Tester (Procedures A, B, and C)

## FEATURES

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### Automatic Pensky-Martens Closed Cup Flash Point Tester - TT-93Z Key Features

The TT-93Z pairs full test automation with the stirring precision and safety interlocks ASTM D93 testing requires.

- **True Walk-Away Automation:** a color touchscreen sequences cup lifting, programmed heating, ignition, and flash point judgment from start to finish, freeing operators to run other work during the test
- **Quick Detection Mode:** estimates the approximate flash point of an unknown sample before the full-precision run, cutting the setup guesswork out of testing unfamiliar liquids
- **Standard-Matched Stirring and Pressure Correction:** a precision stepper motor holds stirring at the exact rate each procedure specifies, and automatic atmospheric pressure correction keeps results aligned with the standard's reference condition
- **Dual Ignition Options:** supports both electric and gas ignition, with the gas ignition wire included, so the tester fits labs with either infrastructure
- **Built-In Safety Interlocks:** automatic gas shut-off during power loss, user-programmable temperature limits, and an optional nitrogen purge for inert-atmosphere testing protect operators and samples during high-temperature runs

## TECHNICAL SPECIFICATIONS

# Automatic Pensky-Martens Closed Cup Flash Point Tester - TT-93Z

## Technical Specifications

| Parameter                    | Specification                            |
|------------------------------|------------------------------------------|
| Applicable Standard          | ASTM D93 (Procedures A, B, and C)        |
| Measurement Range            | 40 to 360°C                              |
| Temperature Detection        | Platinum resistance thermometer (PT100)  |
| Flash Point Detection        | Miniature thermocouple                   |
| Heating Rate (Procedure A)   | 5 to 6°C/min                             |
| Heating Rate (Procedure B)   | 1 to 1.5°C/min                           |
| Stirring Speed (Procedure A) | 105 rpm                                  |
| Stirring Speed (Procedure B) | 250 rpm                                  |
| Ignition Mode                | Electric or gas (optional)               |
| Heater                       | 220V, 0.5 kW                             |
| Rated Voltage                | AC 220V ±10%, 50Hz (110V also available) |



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