FLASH POINT

GRABNER INSTRUMENTS

MINIFLASH TOUCH

Embrace the New Age in Flashpoint Testing

MINIFLASH TOUCH is the latest addition to the Grabner Instruments line of portable flashpoint testers, and combines all of the field-proven advantages of the MINIFLASH tester line with a new convenient touch-screen design. The touch-screen runs on a Microsoft® Windows® platform, the analyzer offers full compatibility with network, PCs and LIMS, user access control, new flashpoint methods and additional features for standard and advanced users.

KEY FEATURES

- **Advanced Flash Point Methods**
  Measurements are performed according to the safest flash point methods ASTM D6450 and D7094. The results are rated equivalent to ASTM D93/ISO 2719 Pensky Martens Method and are in excellent correlation with the standards ASTM D56, ISO 13736, IP 170. Also available are methods for simulation of ISO 3679 and ISO 3680 testing, fuel dilution measurement for used oil analysis and fast screening programs.

  OFFICIAL ASTM FLASHPOINT COMMITTEE STATEMENT
  "There is no statistically significant bias observed between ASTM D7094 and ASTM D93 Procedure A."

- **Combustion Analysis ™**
  Sometimes samples contain small concentrations of flammable compounds, which do not show a definite flashpoint. MINIFLASH TOUCH detects even very small flames and graphically visualizes the presence of sample contamination.

- **Peltier Protection Technology ™**
  For a quick sample turnaround and extended instrument life time Grabner Instruments developed fast thermoelectric regulation of heating and cooling. This technology allows to extend the measuring temperature to well above 400°C and optimizes Peltier performance and lifetime.

- **Automatic ignition cleaning program**
  This method removes tenacious residuals from the ignition system.

- **Maximum Safety**
  Ignition Protection Technology ™ is intrinsic to the MINIFLASH design. Only 1-2 ml of sample are required for testing the flashpoint - without an open flame! The continuously closed cup design, automatic explosion probing and a controlled air feed protect against fire and offensive fumes - for unmatched safety in flashpoint testing.

- **Ease of Use**
  MINIFLASH TOUCH features intuitive menu navigation, no training is required. Hassle free communication with USB, LAN, LIMS and PC is assured.

- **Flexibility for all applications**
  Almost any flash point method can be simulated by controlling the parameters heat rate, air feed and ignition.

AMETEK®

AVAILABLE METHODS

- ASTM D6450 & D7094
- Excellent correlation to Pensky Martens Method - ASTM D93, ISO 2719, DIN 51758, IP 34, JIS K 2265 TAG Closed Cup Method - ASTM D56 Abel Closed Cup - ISO 13736, IP 170
- Excellent correlation to Equilibrium and Small Scale Methods EN ISO 3679/3680, ASTM D3828 A/B, IP 523/IP 524
- Fuel Dilution Flashpoint Testing
- Flash / No Flash methods
- Fast screening methods

MINIFLASH TESTER LINE

- Maximum Safety
- No open Flame
- 1-2 ml Sample Size
- Automatic Stand-Alone Operation
- Fast and Accurate
- Easy to use, Easy to clean
- Portable for Field Use
- US D.O.T, RCRA, NAVY, NATO approved
- Approved for various ASTM specifications for fuels and oils
- World wide market leader for the flavors and fragrance industry

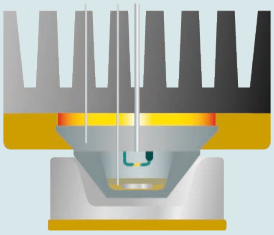
FEATURES MINIFLASH TOUCH

- Intuitive Menu Navigation on Large Color Touch-Screen
- Runs on Microsoft® Windows®
- Full network, PC and LIMS integration via LAN
- USB printer support
- USB data transfer
- Extended FLPH temperature range (0-400°C with external cooling)
- User Rights Management (GLP)
- Unlimited number of methods and results
- Automatic ignition cleaning program

Peltier Protection Technology ™

Ignition Protection Technology ™

Combustion Analysis ™



Principle of Operation

TECHNICAL DATA

Temperature Range	FLP: 0 to 200°C (32 to 390°F) FLPH: 0 to 400°C (32 to 750°F)
Temperature Stability	+/- 0.1°C (0.18°F)
Sample Volume	1 ml (ASTM D6450) or 2 ml (ASTM D7094)
Safest Technology	Electric Arc Ignition Continuously Closed Cup Technology No open flame, no hazardous vapors Flash detection by built-in pressure sensor
Fast Sample Throughput	Up to 12 samples/hour, depending on method
Interfaces	3x USB, 1x LAN, 2x PS/2, 1x VGA
Remote Control	Remote Control via Web-Browser (no remote control software required)
Power Supply	100/110/230 V AC, 50/60 Hz, 150 W (optional car adapter for field use)
Dimensions (WxHxD)	253 x 368 x 277 mm (10 x 14.5 x 10.9 inch)
Weight	12 kg (26 lb)

Your distributor:

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FLASH POINT

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MINIFLASH FLP / FLA

Safety Standard in Flashpoint Testing

The MINIFLASH is a uniquely designed tester for the determination of flashpoints of liquids and solids. The analyzer uses the Grabner flash detection method for measuring the instantaneous pressure increase inside the continuously closed chamber at the flashpoint temperature. Heating the test chamber from the top avoids condensation of highly volatile compounds, significantly improving the test results. Fast thermoelectric cooling by Peltier Protection Technology ™ saves expensive labor time.

KEY BENEFITS

- **Results equivalent ASTM D93**
  All measurements are performed according to the safest flash point methods ASTM D6450 and D7094 and the results are equivalent to ASTM D93 Pensky Martens Method.

  OFFICIAL ASTM FLASHPOINT COMMITTEE STATEMENT
  "There is no statistically significant bias observed between ASTM D7094 and ASTM D93 Procedure A."

- **No open flame**
  The MINIFLASH is a continuously closed cup flashpoint tester that uses a controlled electric arc instead of an open flame. Best of all, only 1-2 mL of sample are needed for a measurement. By using the Grabner Ignition Protection Technology ™ the MINIFLASH has become the safest and most reliable flashpoint tester on the market.

- **No hazardous vapors**
  During operation hazardous fumes from the heated sample are effectively eliminated. The chamber is continuously closed and the cup is cooled down to the initial temperature before the measuring chamber opens again. Additionally, the active cooling shortens the turnaround time and significantly and reduces the risk of injuries.

- **Easy operation**
  Since MINIFLASH is a fully automatic flashpoint tester, a possible operator bias is eliminated. The sample cup is filled with the liquid and is placed onto the sample cup lift (FLP- series) or on the sample cup tray (FLA-series). RUN is pressed to start the test procedure. The menus can be preprogrammed and locked by the operator.

- **Easy cleaning procedure**
  The sample cup assembly consists of a sample cup and the sample cup carrier for insulation. The cup rests on three stainless steel pins and is easily removed from the carrier for cleaning.

AMETEK®

FEATURES

- ASTM D6450 & D7094
- Excellent correlation to ASTM D93, D56 and ISO 2719
- Maximum Safety - Continuously Closed Cup
- Built-in Peltier temperature control
- Small sample volume of only 1-2 mL
- Fully automated, fast measurement
- Easy cleaning, no solvents required
- Almost no waste
- Laboratory and field applications
- RS232 interface
- MINIWIN software (for PC)

Peltier Protection Technology ™

Ignition Protection Technology ™

WIDE RANGE OF APPLICATIONS (LABORATORY & MOBILE)

With the MINIFLASH the flashpoint is determined over a wide temperature range, to cover all standard closed cup methods as well as GO/NOGO tests. Over the years, the outstanding performance of the MINIFLASH has led to widely spread use for testing compliance with transport regulations/classifications, product specifications and for used oil analysis (programmable fuel dilution curve) in laboratories all over the world.

- Approved by US D.O.T. and RCRA
- Specified for use by NATO, US NAVY, US Marines
- Approved for various ASTM specifications for fuels and oils
- The world wide market leader for the flavors and fragrances industry

MINIFLASH FLA

8 position sampler

With the flashpoint samplers MINIFLASH FLA and FLAH, the manipulation time for 8 different samples is less than 2 minutes. After filling the cups, the fully automatic procedure is started. The samples are measured consecutively with the respective test programs.

FEATURES

- Fully automatic 8 position sampler
- Continuous operation - up to 80 samples per day
- Less than 45 minutes turnaround time for 8 samples

TECHNICAL DETAILS / MINIFLASH VERSIONS

	SINGLE POSITION UNIT			8 POSITION AUTO-SAMPLER	
MODEL	FLP	FLPH	FLPL	FLA	FLAH
Temperature range	0 to 200°C 32 to 390°F	10 to 400°C 50 to 750°F	-25 to 100°C -13 to 212°F	0 to 200°C 32 to 390°F	10 to 400°C 50 to 750°F
Fast Sample Throughput	Up to 12 samples/hour, depending on method			‹ 45 minutes for the unattended measurement of 8 samples	
Sample volume	1 mL (ASTM D6450) / 2 mL (ASTM D7094)				
Interfaces	RS 232 interface for printer and PC and/or LIMS				
Power Supply	100/110/230 V AC, 50/60 Hz, 150W (Field application 12V/8A DC)			100/110/230 V AC, 50/60 Hz, 150W	
Dimensions / Weight	WxHxD: 196 x 315 x 175 mm / 9 kg 7.7 x 12.4 x 6.9 inch / 20 lb			WxHxD: 312 x 402 x 390mm / 20 kg 12.3 x 15.8 x 15.3 inch / 45 lb	

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