

Flash point  
testers



Instruments for chemical and  
petroleum products



# It's time for a **new era** in flash point testing

As a longstanding innovator in the field of flash point testing, Anton Paar adds a new instrument to its diverse portfolio – PMA 500 – a Pensky-Martens flash point tester that guarantees high sample throughput and maximum safety, and shines in a perfectly sized benchtop design ahead of its time.

Anton Paar has the ideal flash and fire point tester for each measuring task. Tests according to standardized methods in the temperature range of -30 °C to 400 °C are possible to cover a wide range of applications. This includes the petrochemical field, calibration and regulation authorities, transportation and shipping, engineering, waste management, and the cosmetics and food industries.

The closed-cup methods even feature a multi-detector which combines the flash point detector and the temperature probe in a solid housing to ensure full conformity with ASTM standard requirements.



## **PMA 500**

### **Premium technology for the highest sample throughput**

With PMA 500 you are able to process more samples than with any other instrument on the market. Operators save up to 10 % of the time per measurement compared to using competitive instruments. The optimized cooling technology of PMA 500 ensures fast readiness for subsequent testing – even for different sample types.

The new encapsulated hot-wire-type electric igniter makes PMA 500 a sturdy product. Thanks to the high-quality ignition, PMA 500 gives you the opportunity to perform efficient measurement cycles and requires maintenance effort nearing zero. The new electric igniter increases product life by 10 times, lowering operational costs.

### **Unrivaled ease of use and automation**

The fast and straightforward handling, the automatic motor-driven multi-function head, the 7" color display, the flexible data processing, and the self-explanatory user interface make your daily flash point testing easier and more convenient than ever before. Measuring data is displayed in real time on a fully customizable dashboard. Simply pour a sample into the test cup, select your method, and start the measurement.

PMA 500 offers a library of pre-defined methods so you can be sure that your flash point tests are performed according to the corresponding standard, or you can easily create user-defined methods.

### **Maximum safety combined with a perfectly sized design**

No exposed cables or open wires – the high-end and space-saving instrument guarantees safe operation and simple measurements. It offers the highest safety level, which is complemented by the unique fire-detection concept with a built-in fire extinguisher.

#### **Pensky-Martens methods**

closed-cup determination for expected flash point in the range of

**40 °C to 370 °C  
(140 °F to 698 °F)**

#### **Abel method**

closed-cup determination for expected flash point in the range of

**-30 °C to 70 °C  
(-22 °F to 158 °F)**

#### **Tag method**

closed-cup determination for expected flash point below

**93 °C (200 °F)**

#### **Cleveland method**

open-cup determination for expected flash and fire point in the range of

**79 °C to 400 °C  
(175 °F to 752 °F)**

# All methods – all standards – one provider

## PMA 500

### Pensky-Martens flash point tester

PMA 500 is a Pensky-Martens closed-cup flash point tester and the first-class solution for automatic high-precision flash point testing. Thanks to the new electric igniter design, operational costs and maintenance time are minimized. The advanced cooling technology ensures fast readiness for subsequent testing which saves valuable time and guarantees high sample throughput. Using state-of-the-art technology, the instrument guarantees optimal heating control as well as the highest precision, ensuring flash point testing according to the given standards.

#### Standard methods PMA 500

- ASTM D93
- EN ISO 2719
- IP 34



## PMA 5

### Pensky-Martens flash point tester

PMA 5 provides all essentials for flash point tests according to the Pensky-Martens method. The instrument is flexible and provides everything you need for measurements fully compliant to all relevant standards, with the results shown on a clear user interface. The rugged design, easy handling, and well-proven reliability make PMA 5 the perfect choice for your laboratory.

#### Standard methods PMA 5

- ASTM D93
- EN ISO 2719
- JIS K 2265-3
- IP 34
- GOST R



## ABA 4 / TAG 4

### Abel and Tag flash point testers

ABA 4 and TAG 4 are instruments with two cooling systems. Anton Paar offers the economical air cooling option for measuring ranges from 10 °C to 110 °C and a liquid cooling system for low-temperature flash point analyses in a range from -30 °C to 110 °C. The multi-function head offers useful one-hand operation to get the instrument into the correct position for a quick start of the measurement. Together with the electric and the gas ignition, this gives you full flexibility for your flash point tests.

#### Standard methods ABA 4

- EN ISO 13736
- EN ISO 1523
- IP 492
- EB 924
- EN ISO 1516
- IP 491
- DIN 51755-1

#### Standard methods TAG 4

- ASTM D56
- FTM 791-1101
- ASTM D3941
- EN ISO 1523
- IP 492
- EN 924
- ASTM D3934
- EN ISO 1516
- IP 491



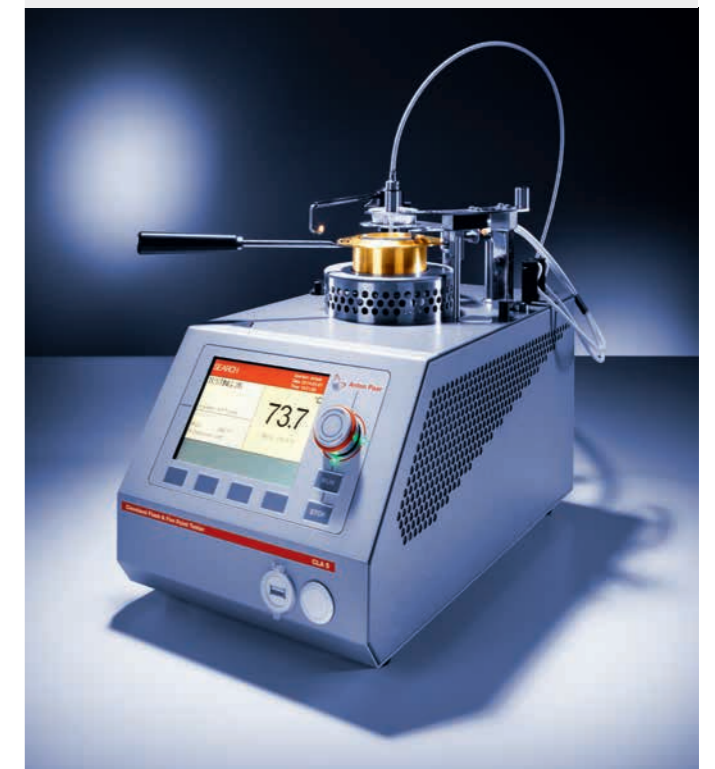
## CLA 5

### Cleveland flash and fire point tester

CLA 5 automatically determines the flash and fire point of samples such as lubricants, silicone oils, residual fuels, and bitumen. The instrument provides user-friendly measurements according to the fully integrated open-cup standard flash and fire point methods. User-defined flash and fire point tests can be performed on CLA 5 as well.

#### Standard methods CLA 5

- ASTM D92
- EN ISO 2592
- JIS K 2265-4
- AASHTO T48
- FTM 791-1103
- IP 36
- GOST 4333





# Specifications

	PMA 500	PMA 5
Test programs	ASTM D93   EN ISO 2719   IP 34   >1000 user-defined test programs	ASTM D93   EN ISO 2719   JIS K2265-3   IP 34   GOST-R   EN ISO 2719   15 user-defined test programs
Configuration	–	–
Application range (°C/°F selectable)	Up to 410 °C (770 °F)	Up to 405 °C (761 °F)
Ignition type	Electric (encapsulated hot wire)	Gas and electric (open hot wire)
Stirring speed	According to standard or user-defined	According to standard or user-defined
Heating rate	According to standard or user-defined	According to standard or user-defined
Cooling	High-performance built-in fan	Built-in fan
Barometric pressure correction	Flash point is automatically corrected to barometric pressure	
Flash detection	Thermocouple	
Sample temperature	Intelligent Pt100 with built-in calibration at up to 12 calibration points	Pt100
Safety	Overheat protection, automatic shut-off   Automatic fire-extinguishing system   Different access levels   Detects a “flash” outside the cup   Fire detection by a unique optical system   Remote alarm	Overheat protection, automatic shut-off   Automatic fire-extinguishing system   Remote alarm   Password protection   Detects a “flash” outside the cup   Test aborted by warning message
Calibration	Calibration and adjustment of sample temperature sensor by user: dynamic calibration using a certified thermometer or with calibration data from an external calibration certificate   Barometric pressure sensor calibration, stirrer speed	Calibration and adjustment of sample temperature sensor by user: dynamic calibration using a certified thermometer or with up to 21 user-defined temperature points from an external calibration certificate or by reference resistors   Barometric pressure sensor calibration
Handling	TFT touchscreen   Small footprint   Fully automatic multi-function head   No open cables   Test parameters and units user-definable   Display of test progress in real-time	Color display   Operation by soft keys and jog shuttle   User interface in English, German, French   Small footprint   Test parameters and units user-definable   Display of test progress
Memory	1 GB space for approx. 50000 tests and 1000 users	1000 tests, 20 users, and 100 sample names
Statistics	Mean, Min, Max, Repeatability, Standard deviation	Mean, Min, Max, Repeatability
Interfaces	5 × USB, 1 × LAN	3 × USB, 1 × RS232, 1 × LAN
Input options	Optional USB keyboard/mouse/bar code reader	Optional keyboard/bar code reader
Display	7" TFT, PCAP touchscreen	5.7" QVGA color
Power supply	100 V to 120 V/220 V to 240 V, 50/60 Hz, 800 W	115/230 V, 50/60 Hz, 1000 W
Gas supply	50 mbar of propane or butane   Fire extinguisher: CO <sub>2</sub> or N <sub>2</sub> inert gas; inlet pressure 400 kPa to 500 kPa	50 mbar of propane or butane   Fire extinguisher: 600 kPa to 1200 kPa of N <sub>2</sub> or CO <sub>2</sub>
Dimensions	262 mm × 506 mm × 486 mm (W × D × H)	230 mm × 410 mm × 460 mm (W × D × H)
Weight net	13 kg	14 kg
Options	Gas igniter, mini-cup, calibration set, potential-free alarm relay contact	Mini-cup, stainless steel cup (standard and mini), FPPNet software, calibration set

	ABA 4   TAG 4	CLA 5
Test programs	<b>ABA 4</b> EN ISO 13736, IP 170   Equilibrium procedures: EN ISO 1523, IP 492, EN 924   EN ISO 1516, IP 491   Optional Abel-Pensky: DIN 51755-1   2 user-defined test programs  <b>TAG 4</b> ASTM D56, FTM 791-1101   Equilibrium procedures: ASTM D3941, EN ISO 1523, IP 492, EN 924   ASTM D3934, EN ISO 1516, IP 491   2 user-defined test programs	ASTM D92   EN ISO 2592   JIS K2265-4   AASHTO T48   FTM 791-1103   IP 36   GOST 4333   10 user-defined test programs
Configuration	Air-cooled or liquid-cooled	–
Application range (°C/°F selectable)	Air-cooled 10 °C to 110 °C Liquid-cooled -30 °C to 110 °C	Up to 400 °C (752 °F)
Ignition type	Gas and electric (open hot wire)	Gas
Stirring speed	<b>ABA 4</b> According to standard or user-defined <b>TAG 4</b> –	–
Heating rate	According to standard or user-defined	According to standard, programmable and preheating
Cooling	<b>Air-cooled</b> by built-in fan <b>Liquid-cooled</b> with tap water or a low-cost circulation cooler	Built-in fan
Barometric pressure correction	Flash point is automatically corrected to barometric pressure	
Flash detection	Thermocouple	Ionization detector
Sample temperature	Pt100	
Safety	Overheat protection, automatic shut-off   Detects a “flash” outside the cup   Test aborted by warning message	Overheat protection, automatic shut-off   Test aborted by warning message
Calibration	Calibration and adjustment of sample temperature sensor by user: dynamic calibration by using a certified thermometer or with reference resistors   Barometric pressure sensor calibration	Calibration and adjustment of sample temperature sensor by user: dynamic calibration using a certified thermometer or with up to 21 user-defined temperature points from an external calibration certificate or by reference resistors   Barometric pressure sensor calibration
Handling	Membrane touch-key panel   Small footprint	Color display   Operation by soft keys and jog shuttle   User interface in English, German, French   Small footprint   Test parameters and units user-definable   Display of test progress
Memory	99 tests	1000 tests, 20 users, and 100 sample names
Statistics		Mean, Min, Max, Repeatability
Interfaces	2 × RS232	3 × USB, 1 × RS232, 1 × LAN
Input options		Optional keyboard/bar code reader
Display	4.3" LCD, membrane touch-key panel	5.7" QVGA color
Power supply	Air-cooled: 115 V/230 V, 50 Hz/60 Hz, 180 W Liquid-cooled: 115 V/230 V, 50 Hz/60 Hz, 150 W	115 V/230 V, 50 Hz/60 Hz, 600 W
Gas supply	50 mbar of propane or butane	50 mbar of propane or butane
Dimensions	230 mm × 470 mm × 470 mm (W × D × H)	230 mm × 390 mm × 460 mm (W × D × H)
Weight net	8 kg	12 kg
Options	Mini-cup, stainless steel cup (standard and mini), FPPNet software, calibration set	FPPNet software, calibration set

