

## Pensky-Martens Flash Point Tester: PMA 5

ASTM D93-A, ASTM D93-B, ASTM D93-C, ISO 2719-A, ISO 2719-B, ISO 2719-C, IP 34-A, IP 34-B, IP 34-C, JIS K 2265-3

**Product group(s):** Volatility

**User group(s):** Biodiesel, Biofuel, Bitumen, Engine Oil, Fuel, Jet Fuel, Lube Oil, Mastics, Paint, Power Plant, Regulatory Authorities, Solvent, Turbine Fuel, Turbine Oil, Varnish

**Scope:** The flash-point determination of petroleum products is using:

Method A:

for distillate fuels (diesel, kerosene, heating oil, turbine fuels), new lubricating oils, paints, vanishes and other homogeneous liquids.

Method B:

for residual fuel oils, cutback residual, used lubricating oils, non-homogeneous materials like mixtures of petroleum liquids & solids, surface-film building petroleum liquids or liquids with a viscosity above 5.5 cSt at +40°C.

Method C:

for biodiesel (FAME, B100). Electronic flash point detection required.

Used in shipping & safety regulations to define flammable and combustible materials.

### Features of the Petrotest unit:

**Automatically lights test flame, relights if necessary during the test, suppresses gas source at end of test**

**Built-in sensor for automatic barometric pressure correction**

**Overheating detection with automatic heat shut-off during the test**

**Integrated Fire-Extinguishing System**

**Suitable for standard & small sample volumes**

**Swivel-around Multi-Function-Head - ONE- TWIST**

**Dome-Shaped Top-Plate**

**Internal memory of 1000 tests, 20 operator & 100 sample names**



### Pensky-Martens Flash-Point Tester - PMA 5

**Flash Point Range:** +40 to +360 °C (standardized), ambient to +405 °C (technical).

**Test Programs:** ASTM D 93 (A, B, C) • EN ISO 2719 (A & B) • JIS 2265-3 (A & B) • Rapid • Search Run • Search A & B (ASTM & ISO) • Bitumen • pPM (Milli-PM, 5 - 15 ml sample) • 15 individually designable test programs • manual ignition test

**Integrated Fire-Extinguishing System:** Automatically controlled by thermocouples or manually released by hand, from external extinguishing gas-supply through a ring-jet covering the test section; as well as additionally potential-free signal-port for e.g. alarm or relay of external fire-extinguishing system.

**Instrument-Calibration:**

- Pt-100 Sample-Temperature-Sensor-Calibration (dynamic), against a certified ASTM-Thermometer (either 9C or 10C) or alternative
- Pt-100 Sample-Temperature-Sensor-Correction using up to 21 user- defined temperature points out of external calibration certificate
- Heater-Block-Pt-100 Calibration
- Barometric-Pressure-Sensor Calibration

**Display:** Large 5.7" QVGA color LCD (115 X 85 mm), sample temperature indication 20 mm high in °C or °F (visible from up to 10 m distance)

**Operating-Elements:** Splash-proof membrane key panel and jog-shuttle for input of test parameters, sample name and program selection; selection of °C or °F, as well as further test parameters.

**Menu-Operation:** By jog-shuttle with LED indication, progress of test displayed in different colors (by users option), multi-language user support (English, German, French); statistical result analysis (Mean, MIN, MAX, Repeatability);

memory for 1000 tests, 20 operator names and 100 sample names.

**Test-Data Acquisition:** Multi-Detector with a Pt-100 as Sample-Temperature-Sensor and a thermocouple as Flash-Point-Detector.

**Data-Safety:** Password protected access for service and configuration level (Supervisor Master Password)

**Data handling:** Easy data handling via USB stick and import into EXCEL or data transfer to LIMS via RS232.

**Interfaces:** 1 RS232 and 3 USB

## Technical Data

<u>Measuring Range:</u>	ambient to +405 °C (+761 °F)
<u>Ignition Type:</u>	gas and electric (included)
<u>Stirring speeds:</u>	60 to 250 rpm (adjustable)
<u>Sensing System:</u>	Differential-Thermocouple
<u>Barometric Pressure:</u>	automatic correction of the measured values
<u>Safety:</u>	overheat protection, automatic shut-off
<u>Hardware Clock:</u>	included
<u>Interface:</u>	1x USB (front), 2 x USB (rear), 1x RS232
<u>Gas Connection:</u>	for propane/butane or natural gas (max. 0.05 bar)
<u>Display:</u>	°C or °F (selectable)
<u>Dimensions / Weight:</u>	230 x 470 x 460 mm (WxDxH) / 12 kg
<u>Power Supply:</u>	230/115 V, 50/60 Hz (selectable)

## Main Unit

12-5770 / 107125

### PMA 5 - Automatic Flash-Point Tester Pensky-Martens Method



Petroleum Product Method: ASTM D 93 A+B - IP 34 A+B - ISO 2719 A+B - JIS K2265-3 - AASHTO T73 - AASHTO T172 - GOST R EN ISO 2719 - (NF M07-019)

Biodiesel Method: ASTM D 93 C

Limit Test (eatable oils & fats): ISO 15 267

#### Consisting of:

Basic Instrument: Microprocessor control, CPU and power supply, stainless steel housing (23 cm wide) with two-color powder coating, electric heating with safety cut-off, re-cooling fan, built-in barometric pressure sensor for automatic correction, electric igniter with automatic energy input and life-cycle control, gas-igniter and gas-supply regulation valve.

Multi-Function-Head for easy one-hand simultaneous connection of all sensors and actuators such as shutter-actuator, stirrer, igniter and detector contacts.

Dome-Shaped Top-Plate in compliance with: ASTM D 93 pt A 1.1.2.6, ISO 2719 pt B.4 & fig B.1 pt 9 Integrated Fire-Extinguishing System

#### Supplied with:

- 1 standard test insert - PM (cover & cup without handle)
- 1 standard multi-detector - PM
- 1 gas igniter & 1 electric igniter & 1 safety detector
- 1 tray (to hold cup/lid, sensor and igniters) & 10 drip pans
- 1 PC-data-cable (0-modem)
- 1 tong & 1 handle for cup

Measuring Range: ambient ... +405 °C

Power supply: 115/230 V, 50/60 Hz (user selectable), EU-plug

12-5771 / 107126

### PMA 5 - Automatic Flash-Point Tester Pensky-Martens Method

Like 12-5770 but:

Power supply: 115/230 V, 50/60 Hz (user selectable), US-plug

## Options & Accessories

**12-0777 / 107205**
**Standard Test Insert - PM**

Consisting of:  
1 cup and 1 cover  
(standard dimensions, made of brass)


**12-0785 / 107213**
**Standard Cup - PM**

approx. 75 ml (with filling mark), made of brass

**12-0786 / 107214**
**Standard Cover - PM**

for standard cup with shutter assembly, made of brass

**12-0787 / 107215**
**Standard Multi-Detector - PM**

with flash-point detector (thermocouple) and temperature probe (made of glass)


**12-2787 / 107264**
**Standard Multi-Detector - PMA , with DKD-certificate**

Like 12-0787 but:  
with officially certified values at 0 / +35 / +70 / +100 / +105 / +200 °C


**12-1790 / 107257**
**Test Insert - PM-NIRO**

Consisting of:  
1 cup and 1 cover  
(standard dimensions, made of stainless steel)


**12-1791 / 107258**
**Cup - PM-NIRO**

approx. 75 ml ( with filling mark), made of stainless steel

**12-1792 / 107259**
**Cover - PM-NIRO**

for test cup with shutter assembly, made of stainless steel

**12-0784 / 107212**
**Multi-Detector - PM-NIRO**

with flash-point detector (thermocouple) and temperature probe (made of stainless steel)


**12-1777 / 107249**
**Milli Test Insert - pPM**

Consisting of:  
1 cup and 1 cover  
for sample quantity between 2...15 ml, ideal 7 ml,  
made of brass


**12-1785 / 107253**
**Milli Cup - pPM**

approx. 15 ml, made of brass

**12-1786 / 107254**
**Milli Cover - pPM**

for test cup with shutter assembly, made of brass

**12-1787 / 107255**
**Milli Multi-Detector - pPM**

with flash-point detector (thermocouple) and temperature probe (made of stainless steel)


**12-0791 / 107219**
**Stopper, brass (Ø 18 mm)**

to close the thermometer or multi-detector opening of the cover before use

**12-0782 / 107210**
**Calibration Set - PMA/PM**


Consisting of:

- 1 calibration cover,
- 1 thermometer ASTM 9C/IP 15C,
- 1 thermometer ASTM 10C/IP 16C

**12-1760 / 107247**
**Holding Device for Multi-Detector (PMA & ABA/TAG)**


suitable for:

- **calibration services:** to calibrate the Pt-100
- **customers:** to check the functionality of Pt-100 & thermocouple  
requires: laboratory stand (e.g. 50-5001, 50-5013, 50-5031) and multi-meter (Ohm & mV)

**50-9113 / 129189**
**Reference Liquid - Flash Point - Pensky-Martens - Type: CRMU-PMGO**


ASTM D93-A

Estimated Value: +53.4 °C

Content: 250 ml - Diesel

Note: Requires special shipment as hazardous goods.

**50-9110 / 129186**
**Reference Liquid - Flash Point - Pensky-Martens - Type: CRM-PMGO**

ASTM D93-A

Estimated Value: +57.9 °C

Content: 250 ml - Diesel

Note: Requires special shipment as hazardous goods.

**50-9112 / 129188**
**Reference Liquid - Flash Point - Pensky-Martens - Type: CRM-PMLU**

ASTM D93-B

Estimated Value: +203 °C

Content: 250 ml - Lubricant

**50-9100 /**
**Reference Liquid - Flash Point - Pensky-Martens - Type: CRMU-PMLUB**

ASTM D93-B

Estimated Value: +101.9 °C

Content: 250 ml - Lubricant

**12-5508 / 123154**
**Draft Deflector 5, transparent (recommended for gas ignition tests)**
**25-0282 / 109446**
**Impact Printer (mono)**


for single sheets & continuous paper  
to record data like test results, duration of test, etc. (instead of a PC)

Supplied with: 2 data cables (9-pin 25-0304, USB 25-0918), 1 ink ribbon (black)

Technical Data:

Line spacing: 80 characters per line (10 cpi)

Page size : 257 x 364 mm (sheet), 254 x 558.8 mm (roll)

Ports: serial (9-pin), USB (1.1)

Dimensions: 37 x 28 x 16 cm (WxDxH)

Weight: 5 kg

Power supply: 220/240 V, 50/60 Hz

**25-0283 / 109447**
**Impact Printer**

Like 25-0282 but:

Power supply: 110/130 V, 50/60 Hz

**25-0902 /**
**Laser Printer (mono), duplex**



for single sheet paper  
to record data like test results, duration of test, etc. (instead of a PC)

Supplied with: 1 data transmission cable (USB A-B), 1 toner cartridge (black)

Technical Data:

Resolution: 1200 x 1200 dpi  
Paper size: A4 single sheet, 300 sheet paper tray  
Printing speed: 30 pages/min  
Ports: USB (2.0) type B  
Dimensions: 378 x 255 x 390 mm (WxDxH)  
Weight: 11.5 kg  
Power supply: 220-240 V, 50/60 Hz, 3 - 830 W

**25-0903 / 129164**

**Laser Printer (mono), duplex**

Like 25-0902 but:

incl. voltage transformer  
Power supply: 110-115 V

**25-0930 / 129169**

**Receipt Impact Printer (POS)**

for paper rolls  
with tear-off edge, paper auto loading



Supplied with:

1 data-cable (3 m) null-modem, 25-pin male / 9-pin female (25-0927)  
1 adapter-cable USB / 9-pin male RS232 (13-1696)  
1 paper roll (25-0928)  
1 ink ribbon, black (25-0929)

Technical Data:

Line spacing: 24 / 40 columns, 144 / 180 dots  
Paper roll size: 58 mm x Ø 60 - 80 mm  
Printing speed: approx. 2.5 lines/sec  
Ports: serial (25-pin)  
Dimensions: 10.6 x 18 x 8.8 cm (WxDxH)  
Weight: 0.5 kg  
Power supply: 120/230 V, (AC converter output 7 V)

**25-0920 / 130873**

**Barcode-Scanner, USB**

**25-0911 / 129166**

**Keyboard - English layout**



86 keys (no numeric block), black housing & keys,  
incl. adapter (USB socket on PS/2 plug)  
Dimensions approx.: 282 x 132 x 26 mm, 400 g, cable length 1.75 m

## Spare Parts

**12-0778 / 107206**

**Electric Igniter**



with connector cable and plugs

**12-0779 / 107207**

**Gas Igniter with 20 cm hose**

**12-0781 / 107209**

**Gas Supply Tubing, 1 meter**

**12-0788 / 107216**

**Safety Detector**

to control gas igniter and external inflammation

**12-1507 / 107237**

**Stirrer Couplings , pack of 10**

**12-0790 / 107218**

**Tong for test cups without handle**

safe handling of hot test inserts

**12-5793 / 108323**

**Handle**



for permanent fixing at a ABEL or PENSKY-MARTENS cup

**12-0785 / 107213**      **Standard Cup - PM**  
approx. 75 ml (with filling mark), made of brass

**12-0786 / 107214**      **Standard Cover - PM**  
for standard cup with shutter assembly, made of brass

**12-0787 / 107215**      **Standard Multi-Detector - PM**  
with flash-point detector (thermocouple) and temperature probe (made of glass)



**12-5740 / 107266**      **Drip Pan, 20 ml, aluminum, pack of 10**  
to place under Pt-100, lid or skimmer after use



**25-0262 / 109445**      **PC-Data-Cable (0-modem), 2 m, serial, RS232**

### Order Guideline

Minimum equipment:	1x 12-5770
Spares (approx. 1 year):	1x 12-0787, 2x 12-0778, 1x stirrer couplings
Additional requirements:	Gas & electrical supply