

3. Analytical measurement and testing Analytical instruments and systems/Melting point determination

Melting point meters LLG-uniMELT 2 und 3

Ideal for determination of the melting point of powders up to 360 °C and substances that do not have a clear transparent melting point.

Both devices have a USB interface that permits printing a measuring protocol or generating a PDF file that corresponds to the demands of a contemporary QMS documentation.

Properties for both models:

- Digital temperature control on large display
- Selectable user language German or English
- Sample can be monitored through a magnifying glass with integrated light
- For capillaries with 1.4mm outer diameter
- Text display of error messages
- Keyboard covered with foil for easy cleaning
- USB port
- Height adjustable table stand
- Operating instructions in German, English, Spanish, French and Russian.
- Brief instructions right at the device
- Up to 3 measurements could be stored and printed as protocol at the same time
- The protocol contains all the relevant data of the probe, the measurement and the device

LLG-uniMELT 2: For visual, semi-automatic measurement with magnifying glass. In this model, the melting point is determined visually (max. and then saved by pushing the "Save" key. The value can be printed or stored by pushing the memory button and read on the display until the device is switched off or a new measurement is performed.

LLG-uniMELT 3: For visual measurement with magnifying glass or automatic measurement. Either fully automatic or visual measurements, 1 sample each. If you chose automatic measurement, additionally a transparency progression is printed. For visual measurement, only the melting point determined by you will be printed. The value can be stored by pushing the memory button and read on the display until the device is switched off or a new measurement is performed.

Scope of supply: Melting point meter, table stand, 100 melting point tubes, protection hood, USB-cable, Software. Refill pack melting point tubes for LLG-uniMELT please order Cat. No. 9.208 131.

Specifications

Measuring range:	25.0 °C ... 360.0 °C
Resolution:	0.1 °C
Accuracy:	±0.4 °C
Reproducibility:	±0.3 °C
Heating rate at fast heating:	to 200 °C approx. 4 min; to 350 °C approx. 8 min
Heating rate when measuring:	1 °C/min
Magnifying glass:	20 dpt/3 x
Lighting:	2 x LED
Dimensions housing (W x D x H):	230 x 65 x 260 mm
Dimension table stand (W x H):	85 x 55 mm
Dimensions capillaries:	1.45 x 80 mm
Weight:	4.0 kg
Power supply:	88 ... 264 V, 50 Hz
IP code:	IP 20
Warranty:	3 years



6.263 685



6.263 686

Type	Description	PK	Cat. No.
LLG-uniMELT 2	Visual measuring / magnifier	1	6.263 685 1
LLG-uniMELT 3	Visual or automatical measuring	1	6.263 686 2
Melting point tubes	Sealed one end, length 80 mm, OD 1.45 mm	100	9.208 131

Further products can be found in our online shop.

3 Melting point Standards

High Purity range compatible with all Melting Point Instruments. Tested on a high specification melting point apparatus. Available as Single Melting Point Standard or as a Set of 3 different Standards. Glass bottles of 1 g. Sets include 3 bottles of 1 g.

Reagecon

Warning

H phrases: H302

Type	Description	PK	Cat. No.
RMP048	Benzophenone +47 to +49 °C	1	6.260 428
RMP082	Vanillin +81 to +83 °C	1	6.286 189
RMP236	Caffeine +235 to +237 °C	1	6.261 675
RMPSET1	Sulphanilamide, Caffeine, Vanillin	3	6.259 500



1 2 Melting point apparatus, Electrothermal IA 9100/9200/9300



The updated and improved IA9000 Series Digital Melting Point Apparatus offers an easy way to measure the melting points of up to 3 samples simultaneously without sacrificing accuracy; the temperature resolution is within 0.1 °C. The starting temperature of the approximate melting range can easily be input via the membrane keypad using the simple intuitive menus. The unit quickly heats up to this temperature and gives an optical and acoustic signal once it has been reached. When the operator then presses another key, the device begins to heat up at a constant rate (IA 9100 fixed at 1 °C/min., IA 9200 and IA 9300 adjustable between 0.2 to 10 °C/min. in increments of 0.1 °C).

Electrothermal

Up to 4 melting points (IA 9300 up to 6 melting points) can be recorded and transferred to the memory as discreet temperatures for later recall on the display. Model IA 9200/9300 provides the opportunity for computer-supported data analysis. An accessory printer enables documentation of the results, date, time (real time) and sample number.

- Ergonomic design ideal for multiple users.
- Height-adjustable extension arm and a viewing head that may be rotated to suit each user.
- The viewing head holds a viewing magnifier that offers 8X magnification.
- The extension arm is completely collapsible and can be neatly folded away into the unit, so that the unit can be stored flat to save space.
- Each IA9000 series model comes supplied with a pack of 50 capillary tubes.

2



Dimensions (W x D x H):	200 x 350 x 85 mm
Weight:	2.5 kg
Input:	220 -240 V
Output:	15 V
Power:	45 W
Oven chamber illumination:	3 x white Super Flux LED's
Illuminous Intensity (per LED):	3500 Lux
Oven temperature range:	5 to 400°C
Digital thermometer sensor:	Platinum resistance thermometer (PT100)
Measuring range:	Amb. to 400 °C
Resolution:	0.1 °C
Accuracy:	±0.5°C at 20°C linearly to ±1.0°C at 350°C
Display:	12 x 2 backlit matrix LCD

Type	PK	Cat. No.
IA 9100	1	9.830 441
IA 9200	1	9.830 442
IA 9300	1	9.830 443
Capillary tubes, 1.5 mm Ø	100	9.830 463
Cold finger	1	9.830 445
Capillary tubes, 2.0 mm Ø	100	9.830 447
Printer with connection cable	1	9.830 448

3 Melting point apparatus, model SMP10/SMP20



Supplied with 100 melting point tubes, open one end.
With BioCote, silver-based, antimicrobial protection.

Stuart

Specification	SMP10/SMP20
Number of samples:	2
Temperature range:	Ambient to 300°C
Temperature accuracy:	±1.0°C at 20°C, ±2.5°C at 300°C
Display:	Three digit LED/Four digit LED
Display resolution:	1°C/0.1°C
Display hold facility:	No/ Yes
Ramp rates:	20°C per minute to plateau, 2°C per minute to melt/20°C per minute to plateau, variable between 1 and 10°C per minute to melt
Dimensions (w x d x h):	160 x 220 x 170mm
Net weight:	1.8kg
Electrical supply:	230V, 50Hz, 75W

Type	PK	Cat. No.
SMP10	1	9.950 177
SMP20	1	9.830 430

1 Melting Point Meter M5000

For powdery substances with a melting point up to 400 °C. A fan cooling allows fast measurements in every range of temperature. The display provides a clearly-arranged readout of all important measuring data.

- Fully automatic measurement by means of transmission optics
- 1 capillary intake
- LCD display
- Alarm signal when reaching the melting point
- Fast cooling through integrated fan
- Digital display of all important data
- Display in German or English
- With RS-232 interface for printer CBM910
- Easy-to-clean membrane keypad

Scope of supply: Melting Point Meter, protective cover, 100 capillaries

Specifications

Temperature range:	25 ... 400 °C
Resolution:	0.1 °C
Accuracy:	±0.3 °C (25 ... 200 °C) ±0.5 °C (200 ... 400 °C)
Preheating rate:	up to 300 °C approx. 4.0 min up to 400 °C approx. 7.5 min
Heating rate:	1 °C min ⁻¹
Capillary-Ø:	1.4 mm
Capillary intake:	1
Dimensions (W x D x H):	220 x 340 x 150 mm
Weight:	4.1 kg
Power supply:	90 ... 264 V
IP code:	IP20

Type	PK	Cat. No.
M5000	1	6.264 452

A.KRÜSS Optronic



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2 Melting Point Meter M3000

The M3000 provides fast and easy examination of powdery substances with a melting point up to 360 °C. Due to the triple capillary intake, it is possible to analyse three samples within one measurement run. Thanks to the preheating rate and the integrated fan cooling, fast measurements are possible in any temperature range.

- Semi-automatic measurement by means of 10x magnification optics
- 3 capillary intakes
- LCD display
- Monitoring of the illuminated sample via lens
- Fast cooling through integrated fan
- Digital display of all important data
- Display in German or English
- With RS-232 interface for printer CBM910
- Easy-to-clean membrane keypad

Scope of supply: Melting Point Meter, protective cover, 100 capillaries

Specifications

Temperature range:	30 ... 360 °C
Resolution:	0.1 °C
Accuracy:	±0.3 °C (30 ... 200 °C) ±0.5 °C (200 ... 360 °C)
Preheating rate:	up to 300 °C approx. 4.0 min up to 360 °C approx. 7.5 min
Heating rate:	1 °C min ⁻¹
Capillary-Ø:	1.4 mm
Capillary intake:	3
Dimensions (W x D x H):	210 x 230 x 360 mm
Weight:	4.3 kg
Power supply:	90 ... 264 V
IP code:	IP20

Type	PK	Cat. No.
M3000	1	4.661 671

A.KRÜSS Optronic



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NEW

3. Analytical measurement and testing

Analytical instruments and systems/Melting point determination



1 Automatic Melting Point Apparatus, SMP50

Accurately and reliably determining the melting point of up to three samples simultaneously. *Stuart*
 The SMP50 has a custom designed user interface based on an established Android platform for intuitive setup and navigation. All operation is via the 7" colour touchscreen. Once programmed, users can leave the SMP50 to complete the melt analysis independently, alternatively the melt can also be observed on the screen live or post melt. During post melt review additional measurement tags can be added if required, such as meniscus point or the automatically obtained result can be overwritten.

A generous 8 GB on board storage is included, which should comfortably hold approximately 300 melts files including videos. Results can also be transferred via USB stick on to PC or can be printed directly from the unit via the accessory printer.

The SMP50 features a useful storage drawer to house all standard capillary tubes.

All units are factory supplied with a calibration certificate showing individual serial number for traceability. The SMP50 also conforms to Pharmacopeia and GLP.

Specifications

No of samples:	3 simultaneously
Temperature range:	Ambient to 400 °C
Temperature resolution:	0.1 °C
Display:	7" HD Colour
Ramp rates:	0.1 to 20 °C in 0.1 °C increments
Temperature sensor:	PT1000 Platinum resistance
Memory:	8 GB (approx. 300 results with video)
Cool down time:	350 to 50 °C (approx. 12 min)
Heat up time:	50 to 350 °C (approx. 6 min)
Data transfer:	USB Flash drive
Sample level:	2 to 3 mm in 50 mm or 100 mm length capillaries
Weight:	4.6 kg
Power supply:	120-230 V, 50/60 Hz



Type	PK	Cat. No.
SMP50	1	6.270 572
Melting point tubes, closed at one end	100	6.803 067
Glass melting point tubes, closed at both ends	100	9.950 400
Printer SMP50	1	6.283 461

2 Melting point tubes

Capillary tubes for melting point analysis. Clear glass, different diameters and lengths. Special remarks are available. Other sizes on request.

Type	Ext. diam. mm	Int. diam. mm	Length mm	Material	PK	Cat. No.
Sealed one end	1.00	0.80	80	Duran®	100	9.208 081
Open both ends	1.00	0.80	80	Duran®	100	9.208 080
Sealed one end	1.00	0.80	100	Duran®	100	9.208 101
Open both ends	1.00	0.80	100	Duran®	100	9.208 100
Sealed one end	1.45	1.00	80	Soda glass	100	9.208 131
Closed both ends	1.50	0.90	100	Soda glass	100	9.830 463
Sealed one end	1.55	1.15	75	Soda glass	100	9.208 076
Closed both ends	2.00	1.50	100	Soda glass	100	9.830 447
Sealed one end	1.55	1.15	80	Soda glass	100	6.055 754
Sealed one end	1.35	0.95	80	Soda glass	100	6.059 475
Open both ends	1.35	0.95	60	Soda glass	100	6.074 178
Sealed one end	1.35	0.95	100	Soda glass	100	6.078 107
Open both ends	1.35	0.95	80	Soda glass	100	6.207 066
Open both ends	1.35	0.95	75	Soda glass	100	6.207 196
Open both ends	1.00	0.80	120	Soda glass	250	6.264 147
Open both ends	1.55	1.15	100	Soda glass	100	7.602 577
Melting point tubes	1.78	1.15	80	Soda glass	100	9.830 053
Melting point tubes	1.78	1.15	80	Soda glass	1000	9.830 054



3 Hot bench, Kofler system

Very easy to use. Various characteristics can be observed simultaneously. Linear temperature scale adjustment. Enables quick identification of organic substances. Supplied with test and standard material sets. CE marked. *Wagner & Munz*

Dimensions (W x D x H):	430 x 100 x 140mm
Supply requirements:	230 V/50 Hz, 100 W
Temperature range:	+50 to +260 °C

Type	PK	Cat. No.
Hot bench	1	9.830 160