Micro calibration bath
Models CTB9100-165, CTB9100-225

for further approvals
see page 3

Applications

- Calibration in the pharmaceutical industry and in the food industry
- On-site calibration of short temperature probes
- Simultaneous calibration of several probes

Special features

- Two ranges: -35 ... +165 °C (-31 ... +329 °F) and 40 ... 225 °C (104 ... 437 °F), optionally 255 °C (491 °F)
- Large tank of Ø 60 x 150 mm (2.36 x 5.91 in)
- Short response time of the bath temperature
- Continuously adjustable stirrer

Micro calibration bath model CTB9100-165

Description

Range of applications
The new WIKA micro calibration baths are the perfect complement to the series CTD9100 and CTD9300 temperature dry-well calibrators.
In dry-well temperature calibrators, as a result of their low insertion depth and the resulting heat conduction errors, short probes lead to a significant increase in measurement uncertainty. Even when comparing the test items with an external reference thermometer, they can not be too short. Once the stem length drops below 70 mm (2.76 in), a micro calibration bath is definitely preferable to a temperature dry-well calibrator.

If several probes are to be calibrated at the same time, the micro bath has additional advantages: Thermometers with differing stem diameters can be calibrated together, without the need to provide exactly the correct inserts.
This approach is particularly useful for on-site calibration, when there is a wide variety of test items and their stem diameters are either varied or unknown.

For temperature ranges from -35 ... +255 °C (-31 ... +491 °F)
The CTB9100 micro calibration baths are available in two versions:
- CTB9100-165 for -35 ... +165 °C (-31 ... +329 °F)
- CTB9100-225 for 40 ... 225 °C (104 ...437 °F); optionally 255 °C (491 °F)

The instruments are typically used in the pharmaceutical industry and in the food industry, particularly for on-site calibration.

Easy to use
The series CTB9100 micro calibration baths operate with temperature-controlled liquid tanks with a useable working range of Ø 60 x 150 mm (2.36 x 5.91 in) depth. The maximum insertion depth of the test items reduces the heat conduction errors and thus leads to smaller measurement uncertainties. The calibration temperature, adjusted simply using two keys on the controller, can be very quickly controlled. The actual and set temperature can be displayed simultaneously on a large 4-digit, high-contrast LC display. Thus reading errors are virtually eliminated.

Data sheets showing similar products:
Temperature multi-function calibrator; model CTM9100-150; see data sheet CT 41.40
Calibration bath; models CTB9400 and CTB9500; see data sheet CT 46.20

Specifications
CTB9100 series

	Model CTB9100-165	Model CTB9100-225
Display		
Temperature range	-35 ... +165 °C (-31 ... +329 °F)	40 ... 225 °C (104 ... 437 °F); optionally 40 ... 255 °C (104 ... 491 °F)
Accuracy [1]	±0.2 K	±0.3 K
Stability [2]	±0.05 K	
Resolution	0.1 °C	
Temperature distribution		
Axial homogeneity [3]	0.03 K at -35 °C (-31 °F)	0.03 K at 50 °C (122 °F)
Radial homogeneity [4]	dependent on temperature, temperature probes and their quantity	
Temperature control		
Heating time	approx. 45 min from 20 °C to 160 °C (from 68 °F to 320 °F)	approx. 10 min from 20 °C to 225 °C (from 68 °F to 437 °F)
Cooling time	approx. 30 min from +20 °C to -20 °C (from +68 °F to -4 °F)	approx. 30 min from 225 °C to 50 °C (from 437 °F to 122 °F)
Stabilisation time [5]	dependent on temperature and temperature probe	
Tank		
Insertion depth	150 mm (5.91 in)	
Volume	approx. 0.6 litres	
Tank dimensions	Ø 60 x 165 mm (Ø 2.36 x 5.91 in)	
Voltage supply		
Power supply	AC 100 ... 240 V, 50/60 Hz	AC 230 V, 50/60 Hz (AC 115 V, 50/60 Hz) [6]
Power consumption	375 VA	1,000 VA
Fuse	6.3 A slow blow fuse	10 A slow blow fuse (at AC 110 V) 6.3 A slow blow fuse (at AC 230 V)
Power cord	for Europe, AC 230 V	
Communication		
Interface	RS-485	
Case		
Dimensions (W x D x H)	215 x 305 x 425 mm (8.46 x 12.00 x 16.73 in)	150 x 270 x 400 mm (5.91 x 10.63 x 15.75 in)
Weight	12 kg (26.5 lbs)	7.9 kg (17.5 lbs)

1) Is defined as the measuring deviation between the measured value and the reference value.
2) Maximum temperature difference at a stable temperature over 30 minutes.
3) Maximum temperature difference at 40 mm above the bottom.
4) Maximum temperature difference between the bores (all thermometers inserted to the same depth).
5) Time before reaching a stable value.
6) AC 115 V power supply must be specified on the order, otherwise an AC 230 V one will be delivered.

The measurement uncertainty is defined as the total measurement uncertainty (k = 2), which contains the following shares: accuracy, measurement uncertainty of reference, stability and homogeneity.

Approvals

Logo	Description	Country
CE	**EU declaration of conformity** ■ EMC directive EN 61326, emission (group 1, class B) and interference immunity (industrial application) ■ Low voltage directive EN 61010, safety requirements for electrical equipment for measurement, control and laboratory use ■ RoHS conformity 2011/65/EU	European Community
EAC	**EAC** ■ Electromagnetic compatibility ■ Low voltage directive	Eurasian Economic Community
	KazInMetr Metrology, measurement technology	Kazakhstan
-	**MTSCHS** Permission for commissioning	Kazakhstan
	BelGIM Metrology, measurement technology	Belarus
	Uzstandard Metrology, measurement technology	Uzbekistan

Certificates

Certificate	
Calibration	Standard: 3.1 calibration certificate per DIN EN 10204 Option: DKD/DAkkS calibration certificate
Recommended recalibration interval	1 year (dependent on conditions of use)

Approvals and certificates, see website

Bath liquids

Accessories	Model CTB9100-165	Model CTB9100-225
Silicone oil DC 200.05: -40 ... +130 °C (-40 ... +266 °F) FP* = 133 °C (271.4 °F)	from -35 ... +130 °C (-31 ... +266 °F) very well usable	not recommended
Silicone oil DC 200.10: -35 ... +160 °C (-31 ... +320 °F) FP* = 163 °C (325.4 °F)	from -35 ... +160 °C (-31 ... +320 °F) very well usable	not recommended
Silicone oil DC 200.20: 10 ... 220 °C (50 ... 428 °F) FP* = 230 °C (446 °F)	not recommended	from 40 ... 225 °C (104 ... 437 °F) very well usable
Silicone oil DC 200.50: 25 ... 250 °C (77 ... 482 °F) FP* = 280 °C (536 °F)	not recommended	from 80 ... 255 °C (176 ... 491 °F) very well usable

* FP = flash point open cup

Micro calibration baths, CTB9100 series

Two instruments for the temperature range from -35 ... +255 °C (-31 ... +491 °F)

Micro calibration bath model CTB9100-165 with screw-on lid

Model CTB9100-165
Temperature range from -35 ... +165 °C (-31 ... +329 °F)
This micro calibration bath is an efficient tool for the calibration of thermometers. It works with Peltier elements and can thus reach test temperatures below ambient temperature.
New multistage Peltier elements ensure a good long-term stability and high reliability within the entire working range. Due to its capacity for active cooling, it is often used in biotechnology, pharmaceutical and food industries.

Micro calibration bath model CTB9100-225

Model CTB9100-225
Temperature range from 40 ... 255 °C (104 ... 491 °F)
The CTB9100-225 is used in the medium temperature range up to 255 °C (491 °F). It generates its temperature with electrical resistance heating. For cooling down, the fan runs at its highest setting. Thus it is possible to achieve cooling from 255 °C to 50 °C (491 °F to 122 °F) within just 30 minutes.
In addition to short heating and cooling times, this bath is set apart by its light weight and compact design. It can be used in a wide range of industries.

Controls

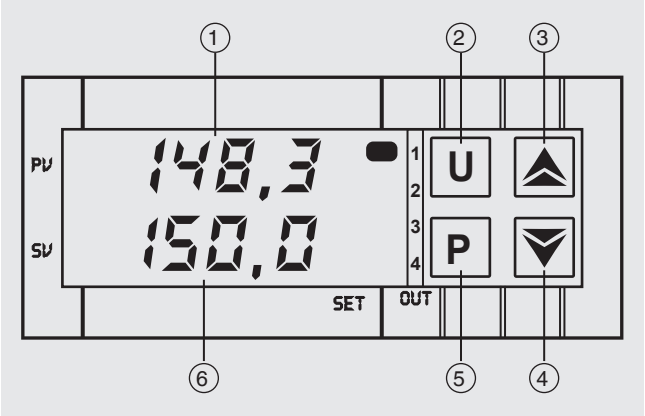
The temperature controller of the micro calibration bath is located on the front panel:

- The actual and set points can be read from the display simultaneously with a resolution of 0.01 or 0.1 K.
- Frequently used set points can be entered independently into four memory locations and quickly recalled.
- Individual temperatures can be easily entered via the two arrow keys.
- Potentiometer for a continuous stirrer setting

In the tank there is a removable wire basket, which protects the magnetic stirrer against contact with the test items. Mains connector socket, power switch and fuse holder are located centrally at the front of the underside of the instrument.

Display and control panel

- Set and actual temperature are displayed simultaneously on a 2-line LC display.
- Frequently used set points can be stored in four memory locations.
- The U key is used to recall stored set temperatures.
- The arrow keys are used to change the set temperatures.
- The P key is used to confirm the changes.



① Actual temperature
② Recall key
③ Increase key
④ Decrease key
⑤ Programming key
⑥ Set temperature

Scope of delivery

- Micro calibration bath model CTB9100-165 or CTB9100-225
- Power cord 1.5 m (5 ft) with safety plug
- Screw-on lid, stainless steel
- Operating instructions
- 3.1 calibration certificate per DIN EN 10204

Options

- Instrument variants for AC 115 V
- Display in Fahrenheit °F
- DKD/DAkkS calibration certificate

Accessories

- Silicone oil in 1 litre plastic bottle
- Magnetic stirrer
- Screw-on lid, plastic or stainless steel
- Screw-on lid, plastic with one bore G 1/2"
- Screw-on lid, plastic with six bores G 1/4"
- Software package to operate the calibrator
- Interface cable with integrated RS-485 to USB 2.0 converter
- Transport case
- Power cord for Switzerland
- Power cord for USA/Canada
- Power cord for UK
- Insert for liquids consisting of: insert with leak-proof cover, probe basket, magnetic stirrer and lifter, replacement tool (for re-ordering a readjustment is necessary)

Temperature micro calibration baths
Fig. left: model CTB9100-165
Fig. right: model CTB9100-225

Insert for liquids with accessories

Ordering information

Calibrator CTB9100-165
Model / Unit / Software / Insert for liquids / Calibration / Transport case / Serial interface converter / Power cord / Additional ordering information

Calibrator CTB9100-225
Model / Temperature range / Power supply / Unit / Software / Insert for liquids / Calibration / Transport case / Serial interface converter / Power cord / Additional ordering information

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