

Calibration bath

Stationary version with high stability

Models CTB9600-150, CTB9600-300

WIKA data sheet CT 46.25

Applications

- Calibration in laboratories and also measurement and control laboratories
- Calibration of long temperature probes
- Simultaneous calibration of several probes
- Demanding calibrations in production and laboratory

Special features

- Easy operation via intuitive, user-friendly menus
- Large, easy-to-read touchscreen
- USB interfaces
- High-accuracy, reliable temperature control



Calibration bath, CTB9600 series

Description

The high-precision calibration baths of the CTB9600 series have been specifically developed for the temperature calibration of thermometers, temperature switches/thermostats, resistance thermometers and thermocouples between $-40 \dots +300 \text{ }^{\circ}\text{C}$ [$-40 \dots +572 \text{ }^{\circ}\text{F}$]. A uniform vertical flow of liquid in the bath ensures compliance with the specifications.

The powerful microprocessor controller controls the instrument. It is also equipped with a communication module so that the bath can be controlled remotely. For safety, the calibration bath is fitted with an independently operating thermal fuse that, in the event of an overtemperature inside the case, switches off the current supply to the heater.

All internal and wetted parts are made entirely of AISI 304 stainless steel, which ensures a long service life and easy maintenance.

The entire outer case is made of sheet metal and has a high-quality powder coating.

Easy to use

The calibration baths feature a temperature-controlled liquid tank with a usable depth of 500 mm [19.69 in]. The maximum immersion depth of the test items of 450 mm [17.72 in] reduces heat dissipation errors, which leads to smaller measurement uncertainties.

Temperature ranges from $-40 \dots +300 \text{ }^{\circ}\text{C}$ [$-40 \dots +572 \text{ }^{\circ}\text{F}$]

The calibration baths are available in two different versions:

- Model CTB9600-150 for $-40 \dots +150 \text{ }^{\circ}\text{C}$ [$-40 \dots +302 \text{ }^{\circ}\text{F}$]
- Model CTB9600-300 for $40 \dots 300 \text{ }^{\circ}\text{C}$ [$104 \dots 572 \text{ }^{\circ}\text{F}$]

The instruments are typically used in calibration laboratories and in measurement and control workshops for calibrating thermometers.

Specifications

Basic information	CTB9600-150	Model CTB9600-300
Temperature range	-40 ... +150 °C [-40 ... +302 °F]	40 ... 300 °C [104 ... 572 °F]
Temperature stability ¹⁾	±0.008 K	±0.008 K at 40 ... 150 °C [104 ... 302 °F] ±0.015 K at 150 ... 300 °C [302 ... 572 °F]
Temperature distribution ²⁾		
Temperature homogeneity	±0.010 K	±0.010 K at 40 ... 150 °C [104 ... 302 °F] ±0.015 K at 150 ... 300 °C [302 ... 572 °F]
Tank dimensions		
Bath volume	Approx. 22 litres	
Maximum filling volume	Approx. 21 litres	
Bath opening, L x W	135 x 135 mm [5.31 x 5.31 in]	
Bath depth	500 mm [19.69 in]	
Immersion depth of the temperature probe	Min. 20 times the diameter + sensitive length of the sensor for optimum results Max. 450 mm [17.72 in]	
Temperature controller	PID	
Case		
Dimensions (W x H x D)	→ See technical drawings	
Weight (empty)	90 kg [198.5 lb]	Approx. 70 kg [154.4 lb]

1) Maximum temperature fluctuation at a stable temperature over 30 minutes, centrally positioned.

2) Maximum temperature difference within the calibration volume.

Digital display instrument	
Display	Colour TFT display including projective capacitive touchscreen with a resolution of 800 x 480 pixels
Display range	-40 ... +300 °C [-40 ... +572 °F]
Display resolution	0.001 °C
Units	Adjustable via menu ■ °C ■ °F
Menu languages	Adjustable via menu ■ English ■ German
Functions	
Adjustable via menu	■ Setting of the speed for the stirrer (recommendation 100 %) ■ Definition of the adjustable min./max. temperatures ■ Definition of the favoured temperatures for quick selection ■ Specification of desired temperature stabilities
Decimal separator	Switching of the decimal separator between full stop (.) and comma (,)
Sound	Setting the key tone and alarm
Time	Setting the real time and format
Brightness	Setting of the screen brightness

Temperature control	CTB9600-150		Model CTB9600-300	
Heating time	Approx. 15 min	From -40 °C to 0 °C [from -40 °F to 32 °F]	Approx. 30 min	From 50 °C to 100 °C [from 122 °F to 212 °F]
	Approx. 10 min	From 0 °C to 20 °C [from 32 °F to 68 °F]	Approx. 20 min	From 100 °C to 150 °C [from 212 °F to 302 °F]
	Approx. 30 min	From 30 °C to 140 °C [from 86 °F to 284 °F]	Approx. 20 min	From 150 °C to 200 °C [from 302 °F to 392 °F]
Cooling time	Approx. 120 min	From +20 °C to -40 °C [from +68 °F to -40 °F]	Approx. 9 h	From 300 °C to 150 °C [from 572 °F to 302 °F]
	Approx. 200 min	From 100 °C to -40 °C [from 212 °F to -40 °F]	-	-
Stabilisation time ¹⁾	Dependent on the calibration liquid, temperature and temperature probe			

1) Time before reaching a stable value.

All characteristics are determined under the following conditions:

- With the calibration liquids KDC 200.05 and KDC 200.10 for CTB9600 (-40 ... +150 °C [-40 ... +302 °F])
- With the calibration liquid KDC 200.50 for CTB9600 (40 ... 300 °C [104 ... 572 °F])
- With a controlled ambient temperature ($T_{amb} = 23 \text{ °C} \pm 2 \text{ °C}$ [73 °F ± 2 K])

Accessories can affect the characteristics.

Electrical connection	CTB9600-150	CTB9600-300
Operating voltage	■ AC 230 V, 50/60 Hz ($\pm 10 \%$) ■ AC 115 V, 50/60 Hz ($\pm 10 \%$)	
Power consumption	Max. 3,200 W	Max. 2,100 W
Fuse	16 A slow-blow fuse 250 V	10 A slow-blow fuse (at AC 230 V)
Power cord	AC 230 V The conductor cross-section must be a minimum of 1.5 mm ² .	

Operating conditions	
Place of use	For indoor use only
Altitude	Up to 2,000 m [6,562 ft] above sea level
Medium temperature range	-95 ... +278 °C [-139 ... +532 °F]; dependent on the calibration liquid
Ambient temperature range	23 °C ± 2 °C [73 °F ± 2 K]
Storage and transport temperature range	-10 ... +60 °C [14 ... 140 °F]
Relative humidity, condensation	
Ambient	15 ... 75 % r. h. (non-condensing)
Storage	30 ... 70 % r.h. (non-condensing)
Mounting position	Upright / vertical standing

Communication	
Interface	USB
Connectivity	Serial communication
	Details and further possibilities on request
Baud rate	Adjustable via menu
	■ 2400 ■ 9600 ■ 38400 ■ 115200
	■ 4800 ■ 19200 ■ 57600 ■ 230400
Response time	< 10 ms
Measuring rate	For display and interface Update rate = 1 measured value per second

Calibration liquid	Calibration range		Flash point ¹⁾
Distilled water (quality 15 µS or better)	5 ... 90 °C	[51 ... 194 °F]	-
Silicone oil			
DC 200.05 CS	-40 ... +123 °C	[-40 ... +253 °F]	133 °C [271 °F]
DC 200.10 CS	-35 ... +160 °C	[-31 ... +320 °F]	163 °C [325 °F]
DC 200.20 CS	7 ... 230 °C	[45 ... 446 °F]	232 °C [450 °F]
DC 200.50 CS	30 ... 278 °C	[86 ... 532 °F]	280 °C [536 °F]
Ethanol 98 %	-95 ... +10 °C	[-139 ... +50 °F]	16 °C [61 °F]

1) FP = flash point open cup

Other liquids could be used as agreed, provided that the temperature range and viscosity are suitable for the application.

When using other liquids, the flash point must always be considered.

Approvals

Logo	Description	Region
	EU declaration of conformity	European Union
	EMC directive ¹⁾ EN 61326 emission (group 1, class A) and immunity (industrial environments)	
	Low Voltage Directive	
	RoHS directive	

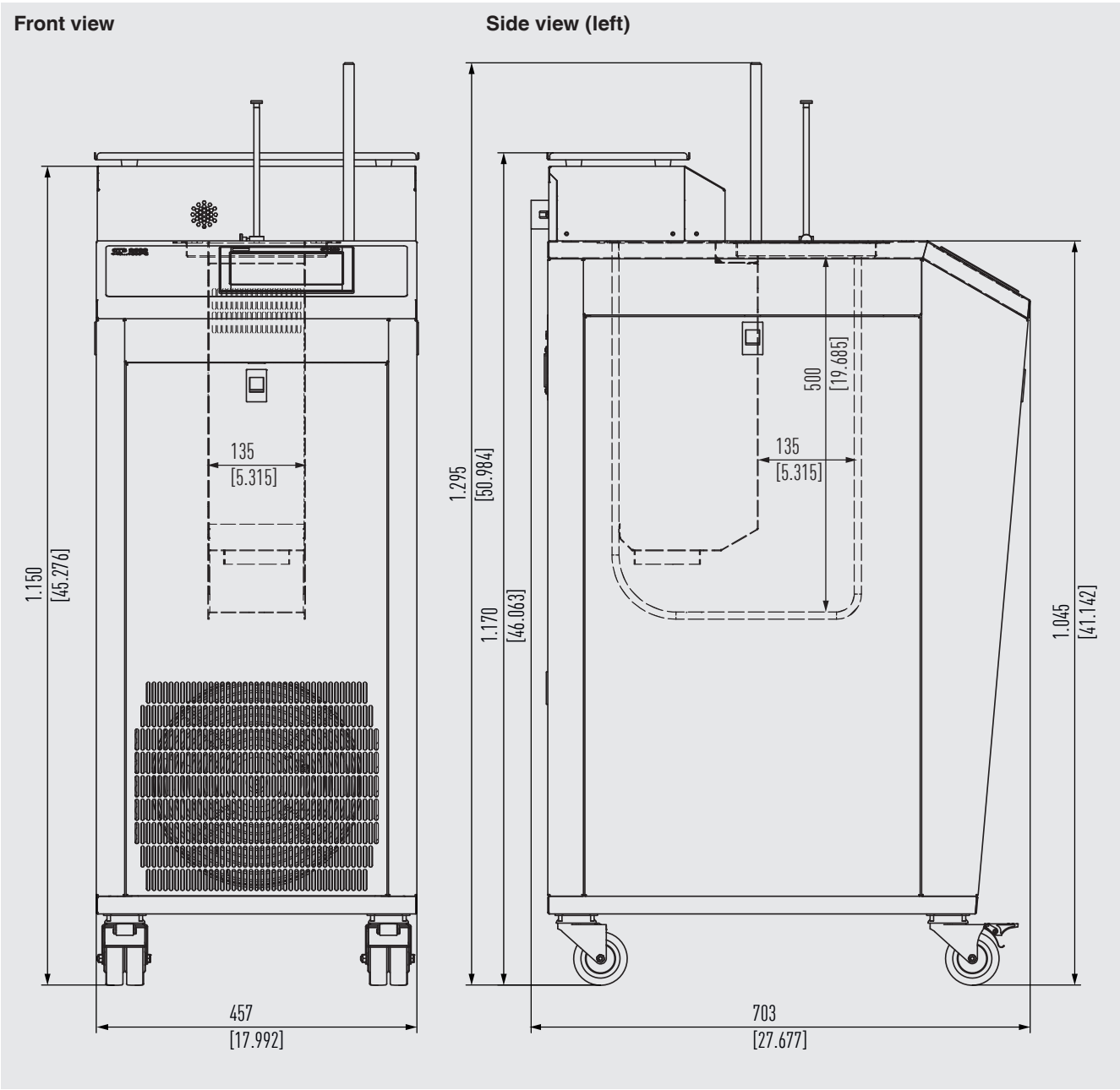
1) Warning! This is class A equipment for emitted interference and is intended for use in industrial environments. In other environments, e.g. residential or commercial installations, it can interfere with other equipment under certain conditions. In such circumstances the operator is expected to take the appropriate measures.

Certificates

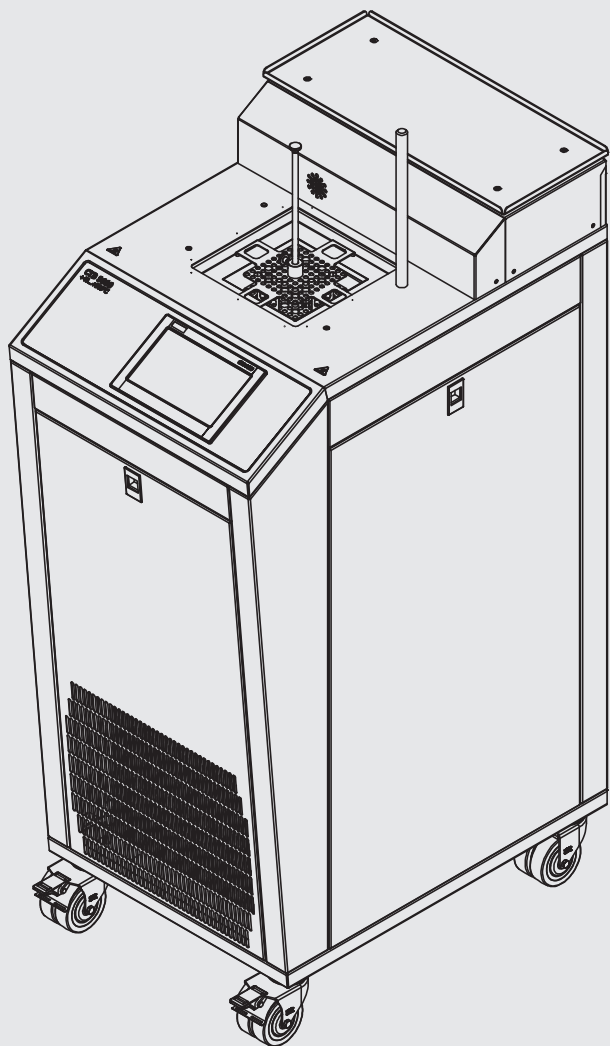
Certificates	
Certificates	■ Without ■ Stability report

→ For approvals and certificates, see website

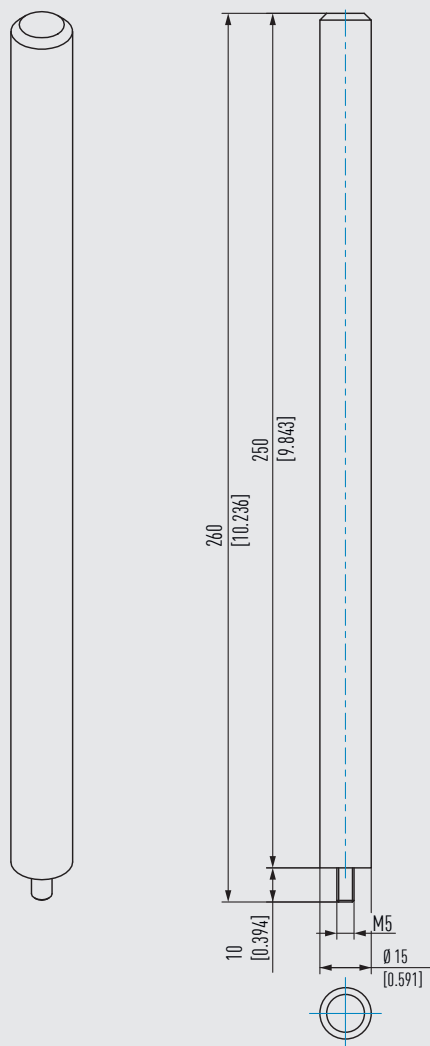
Dimensions in mm [in]



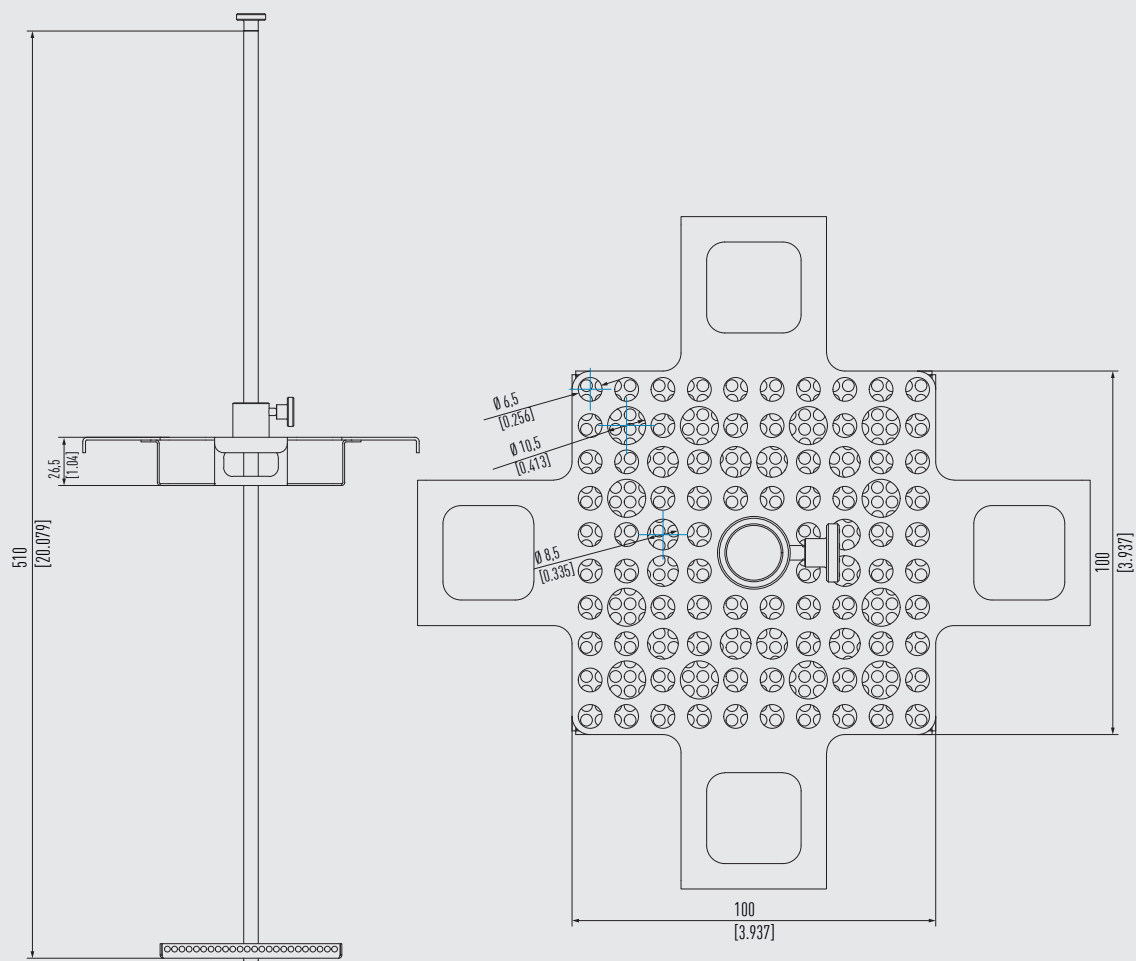
Isometric view CTB9600



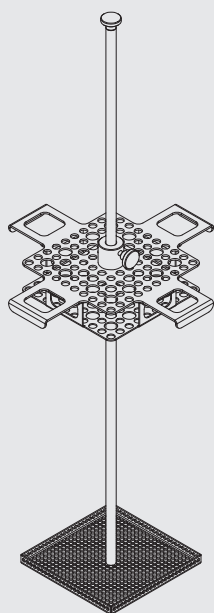
Vertical fixture



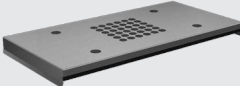
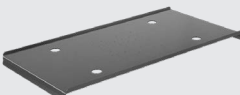
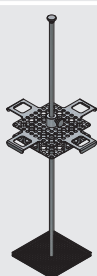
Probe basket



Isometric view



Accessories and spare parts

Description ¹⁾		Order code
		CTX-A-B5
	Silicone oil DC 200.05 In 10-litre plastic container For temperature range -40 ... +130 °C [-40 ... +266 °F]; FP = 133 °C [271.4 °F]	-1-
	Silicone oil DC 200.10 In 10-litre plastic container For temperature range -35 ... -160 °C [-31 ... +320 °F]; FP = 163 °C [325 °F]	-2-
	Silicone oil DC 200.20 In 10-litre plastic container For temperature range 10 ... 220 °C [50 ... 428 °F]; FP = 230 °C [446 °F]	-3-
	Silicone oil DC 200.50 In 10-litre plastic container For temperature range 25 ... 250 °C [77 ... 482 °F]; FP = 280 °C [536 °F]	-4-
	Bath cover Stainless steel With insulation	-I-
	Bath cover Stainless steel Without insulation	-N-
	Tray for read-out instruments	-A-
	Vertical fixture set Consisting of: 1 x rod with M5 threads 1 x universal sleeve 1 x three-fingered clamp	-V-
	Probe basket Plate consist of several holes for the different thermometers with diameters of 6.5 mm [0.256 in], 8.5 mm [0.335 in] and 10.5 mm [0.413 in] High: 510 mm [20.079 in] → For details, see technical drawings	-S-
	Power cord Length: 1.5 m [5 ft] with safety plug For the EU	-E-
Ordering information for your enquiry:		
1. Order code: CTX-A-B5 2. Option:		↓ []

1) The figures are an example and may change depending on the state of the art in design, material composition and representation

Packaging and shipping method

- Delivered on a wooden pallet
- Dimensions (L x B x H)
152 x 82 x 75 cm [59.84 x 32.28 x 29.53 in]



Packaging and shipping method

Ordering information

Model / Temperature range / Auxiliary power / Additional cover / Calibration / Further approvals / Additional ordering information

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