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RCT basic Synthesis Solution 500

/// Data Sheet

Safe round-bottom flask synthesis with wireless temperature and pH measurement

The RCT basic Synthesis Solution 500 is a complete system solution for safe and controlled synthesis in round-bottom flasks with a volume of up to 500 ml. It combines the trusted IKA synthesis blocks with modern wireless temperature and pH measurement, as well as enhanced process safety.

The use of solid aluminium synthesis blocks significantly reduces potential hazards compared to oil or sand baths and simplifies handling and cleaning. At the same time, costs can be reduced and workflows made more efficient.



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Wireless temperature and pH measurement in the reaction medium

The core component of the system solution is the PT Wireless Sensor, which transmits measured values wirelessly to the RCT basic.

In addition to temperature, a pH electrode can also be connected via the BNC port of the PT Wireless as an option. In this configuration, the RCT basic becomes a pH meter – the pH value is displayed directly on the screen, without the need for an additional external instrument.

The elimination of sensor cables not only increases flexibility in setup but also reduces typical risks in the laboratory: Damaged or burnt sensor cables are a thing of the past.

Increased safety through dual temperature monitoring

In addition to the PT Wireless, the wired temperature probe PT 1000.60 is included in the scope of delivery. This allows two temperatures to be monitored simultaneously:

- PT 1000.60 (wired): Temperature monitoring and limitation of the synthesis block or heat carrier
- PT Wireless: Temperature control directly in the reaction medium

This separate temperature measurement significantly increases the safety of the experiment, particularly in the event of glass breakage.

The RCT basic automatically displays both temperature values in parallel on the screen.

Alternatively, the Wireless Dongle USB WD also allows connection to the IKA 'Lab Assistant' app for visualising measurement data

A well-designed system solution for the synthesis setup

All components required for safe synthesis operation are included and optimally matched to one another:

- Flask holder for 500 ml round-bottom flasks
- Synthesis block made of solid anodised aluminium, temperature-resistant up to 300°C
- Stand rod and support rod for positioning sensors and accessories
- Two cross-sockets
- Universal clamp for secure attachment of the round-bottom flask
- Elliptical magnetic stir bars, optimally adapted to the shape of the round-bottom flask

Optionally, an additional stand rod can be mounted via the second stand mount on the RCT basic for the secure attachment of a reflux condenser.

Scope of delivery

- RCT basic
- PT wireless Wireless Sensor
- H 16 V Support rod
- PT 1000.60 Temperature sensor, stainless steel
- H 44 Boss head clamp (2 pcs.)



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- H 38 Holding rod
- R 350 Universal clamp
- IKAFLON 25 ellipse (5 pcs.)
- IKAFLON® 30 Magnetic stirring bar
- IKAFLON® 40 Magnetic stirring bar
- H 135.30 Flask carrier 500 ml without handle
- USB WD USB Dongle RCT
- H 80 Temperature sensor holder
- Screwdriver



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Technical Data

Number of stirring positions	1
Stirring quantity max. per stirring position (H ₂ O) [l]	20
Maximum load [kg]	25
Motor rating output [W]	9
Motor principle	Brushless DC
Direction of rotation	right
Speed display set-value	LED
Speed display actual-value	LED
Speed adjustment	Control knob (Rotating / Pressing)
Speed range [rpm]	50 - 1500
Setting accuracy speed [rpm]	10
Stirring bar length [mm]	20 - 80
Self-heating of the set-up plate by max. stirring (RT:22°C/duration:1h) [K]	+12
Heat output [W]	800
Temperature display set-value	LED
Temperature display actual-value	LED
Temperature unit	°C
Heating temperature range [°C]	Room temp. + device self heating - 310
Heat control	Control knob (Rotating / Pressing)
Display resolution [K]	0.1
Temperature setting range [°C]	0 - 310
Temperature setting resolution of heating plate [K]	1
Connection for ext. temperature sensor	PT1000, ETS-D5, ETS-D7, PT wireless
Temperature setting resolution of medium [K]	1
Operating temperature min. (with external cooling) [°C]	-20
Adjustable safety circuit [°C]	50 - 360
Set-up plate material	Aluminium alloy
Set-up plate dimensions [mm]	Ø 135
Timer	yes
Timer display	LED
Time setting min. [s]	1
Time setting max. [min]	5999
pH measurement	optional (with ETS-D7, PT wireless)
Sensor in medium detection	yes
Temperature measure range PT1000 [°C]	-20 - 310
PT 1000 deviation;DIN EN 60751 Kl. A [K]	≤ ± (0.15 +0.002x T)
Speed deviation (no load,nominal voltage, at 1500rpm + 25 °C) [%]	±2
Heating rate (1l H ₂ O in H1500) [K/min]	9
Heat control accuracy of heating plate centre without vessel (at 100°C) [K]	±5
Heat control accuracy with ext. PT1000 (500ml H ₂ O in 600ml beaker,40mm stirring bar,600rpm,50°C) [K]	±0.5
Heat control accuracy with ETS-D5 (500ml H ₂ O in 600ml beaker,40mm stirring bar,600rpm,50°C) [K]	±0.5
Heat control accuracy with ETS-D7 (500ml H ₂ O in 600ml beaker, 40mm stirring bar, 600rpm, 50°C) [K]	±0.2
Heat control accuracy with PT wireless (500ml H ₂ O in 600ml beaker, 40mm stirring bar, 600rpm, 50°C) [K]	±0.2
Dimensions (W x H x D) [mm]	160 x 100 x 200
Weight [kg]	2.3
Permissible ambient temperature [°C]	5 - 40
Permissible relative humidity [%]	80
Protection class according to DIN EN 60529	IP 54



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RS 232 interface	yes
USB interface	USB-C
WPAN interface	optional (USB WD)
Voltage [V]	220 - 230
Frequency [Hz]	50/60
Power input [W]	820
Power input standby [W]	0.45