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RET basic Magnetic Stirrer

/// Data Sheet

RET basic

The new benchmark for digitalization, laboratory safety and efficiency

The new IKA RET basic magnetic stirrer sets a new industry standard. As the currently smallest magnetic stirrer with 800 W heating power and a maximum temperature of 340□°C, it combines uncompromising safety, outstanding robustness and maximum efficiency with intuitive and effortless operation.

Designed for seamless integration into networked laboratory infrastructures, the RET basic is equipped as standard with integrated WLAN and LAN interfaces. This makes it the ideal solution for digitalization and documentation projects in which devices need to be centrally networked, monitored, controlled or integrated into software systems.

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Solid and compact design – manufactured for process reliability
The high IP54 protection class and the solid die-cast aluminum housing reliably protect the device from liquids, aggressive vapors, and mechanical influences – for trouble-free continuous operation even under harsh laboratory conditions. The compact design (only 160 x 200 x 100 mm) saves valuable space in the fume hood, fits on almost any laboratory lifting platform, and enables flexible, parallel test setups. This means users benefit from greater safety, greater efficiency, and more freedom in their everyday laboratory work.

Made in Germany
RET basic is manufactured in Germany in a fully automated production facility using state-of-the-art robot systems. This guarantees the highest quality and absolute reliability for maximum safety and a long service life.

New heating plate, more functionality
The RET basic is optionally available with a coated (anodized) heating plate. The high-quality anodized coating provides reliable protection against scratches and a wide range of chemicals. This means that the heating plate remains in perfect condition, both visually and functionally, even after prolonged use. The aluminum substrate ensures homogeneous temperature distribution and rapid energy transfer to the sample vessel.
For the first time, the RET basic comes with integrated menu functionality, which significantly expands the range of functions—☐for example with timer functionality. This also enables the integration of wireless temperature sensors (accessories required).
The freely programmable timer starts either immediately or after the target temperature has been reached and signals the end of the process with an acoustic signal. You decide whether the heating and/or stirring should be switched off.

Performance and Efficiency
The brushless EC motor and high-quality magnets ensure excellent magnetic coupling at up to 1700 rpm. The insulated and thus energy-optimized heating plate has an output of 800 W and enables heating rates of up to 9 K/min. The heating rate can be adjusted in four stages – for slow, gentle, or fast heating depending on the application.

The user determines what is safe
For decades, IKA has followed the approach that the safety temperature specified by the user must be set consciously and independently of setpoints using a tool. A new feature is the monitoring of the medium temperature.
IKA is thus one of the few manufacturers that not only fully complies with the EN IEC 61010-2-010 laboratory equipment standard for heated devices, but even exceeds it in many respects. Safety is not only certified by a CE declaration, but also independently tested and certified by TÜV Süd according to the internationally recognized NRTL standard – the same safety standard followed by UL and CSA.
The customizable 14-segment glass display gives the user complete freedom: you decide which parameters are relevant for your application and can display them permanently – whether speed, temperature, pH value, or timer. In combination with the PT.Wireless and ETS-D7 wireless sensors, the RCT/RET even becomes a fully-fledged pH meter. This saves space, reduces investment, and simplifies the test setup.

Safety through networking and digitization

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IKA takes safety to a new level – beyond pure device safety. In addition to the option of monitoring and controlling the RET basic via software (e.g.☐IKA Labworldsoft®) via the integrated RS232, USB, LAN or WLAN interface (communication via ASCII-based commands (Namur standard)), direct communication with IKA devices, e.g.☐ the overhead stirrers (EUROSTAR), is now possible.
This can be a decisive safety advantage when tempering and mixing viscous samples using the RET basic as a pure heating plate, enabling unmonitored 24/7 operation. In this case, the device automatically detects when the stirring speed of the stirrer falls below a critical value and switches off the heating in this case. This actively protects not only the individual device, but the entire test setup.

Intelligent safety for the laboratory of the future
The new IKA RET basic offers a sophisticated, multi-level safety concept, innovative operation, and maximum flexibility—all with minimal space requirements and maximum "Made in Germany" quality. IKA takes safety one step further: intelligent networking and digitalization make not only individual devices but entire laboratory processes safer, more efficient, and more future-proof.

Safety features at a glance

1. Independent safety circuit according to EN IEC 61010-2-010
Two separate temperature sensors under the heating plate: one regulates the set temperature, the second monitors an individually adjustable safety limit (e.g. flash point). The setting is made mechanically directly on the device – independently of the process setpoint.☐This ensures maximum safety even with flammable liquids and in the worst-case scenario (e.g. broken glass).

2. Monitoring the temperature in the medium with the Delta-T safety function
A definable temperature difference to the medium setpoint ensures that if this is exceeded (due to an unexpected reaction or external heat source), the heating is switched off until restart (stirring remains active). This allows safe approach to critical temperatures without risking shutdown due to slight overshoots.

3. Detection of sudden temperature drops
The RET basic detects sudden drops in medium temperature (e.g.☐due to glass breakage or evaporation of the medium) and can—depending on the setting—switch off the heating permanently.

4. Detection of failure to increase temperature
If no temperature increase is detected despite the energy supply (☐e.g. incorrectly positioned sensor), the device automatically deactivates the heating.

5. Dual sensors for medium and carrier medium
☐Up to two temperature sensors (wired and wireless) can be connected – for redundant or spatially differentiated monitoring, e.g. of a carrier medium.

6. Temperature limits for medium and carrier

Hard temperature limits for medium and carrier medium can be set in the software to prevent operating errors and dangerous conditions.

7. Warning of hot surface (> 50 °C)
A visual warning signals when the heating plate is hot—even when the device is switched off. This provides reliable protection against burns.

8.Combination with IKA contact thermometer (ETS-D5)
Combining with the ETS-D5 contact thermometer creates an additional, independent safety circuit. This also results in even better measurement accuracy and a clear display at the measuring point.

9.Combination with IKA wireless temperature sensors PT.Wireless and ETS-D7
The elimination of cables significantly reduces the risk of cable breakage and makes the entire test setup clearer and tidier.

10.Networked safety through communication with other IKA devices
The RET basic can communicate directly with IKA overhead stirrers (via interface or wirelessly). If the speed falls below a freely definable critical stirring speed, the device automatically switches off the heating. This ensures the safety of the entire test setup – not just that of the individual device.

11.Safe monitoring in the laboratory with the IKA Lab Assistant (app) – coming soon
The IKA Lab Assistant enables wireless monitoring within the laboratory – for maximum flexibility and control (accessories required).

12."Always Stir" – stirring remains active in the event of a fault
In the event of errors or safety shutdowns, the stirring function remains active to prevent boiling delays and hot spots.

13.Robust, closed design (IP54) & die-cast aluminum housing
The almost completely enclosed housing is resistant to aggressive vapors and liquids. The aluminum ensures durability and mechanical safety.

14.Mechanical safety & construction
Two mounting points for tripod rods enable flexible, stable sensor and structure fixation without additional clamps.

15.Operating modes with access protection
The behavior after power-up and access to set-points can be specifically restricted to prevent unintentional status changes—for maximum process reliability and ease of use.

Scope of delivery
•RET basic Magnetic Stirrer
•PT 1000.60 Temperature sensor, stainless steel

•H 80
•IKAFLON® 30 Magnetic stirring bar
•IKAFLON® 40 Magnetic stirring bar
•Screw driver

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Technical Data

Number of stirring positions	1
Stirring quantity max. per stirring position (H2O) [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 - 1700
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]	+15
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 - 340
Heat control	Control knob (Rotating / Pressing)
Display resolution [K]	0.1
Temperature setting range [°C]	0 - 340
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]	0.1
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
Automatic reverse rotation	optional (with IKA HUB)
Intermittent mode	optional (with IKA HUB)
Viscosity trend measurement	optional (with IKA HUB)
Break detection stirring bar	optional (with IKA HUB)
Timer	yes
Timer display	LED
Time setting min. [s]	1
Time setting max. [min]	5999
pH measurement	optional (with ETS-D7, PT wireless)
Programs	optional (with IKA HUB)
Sensor in medium detection	yes
Temperature measure range PT1000 [°C]	-20 - 340
PT 1000 deviation;DIN EN 60751 Kl. A [K]	≤ ± (0.15 +0.002xITI)
Speed deviation (no load,nominal voltage, at 1500rpm + 25 °C) [%]	±2
Heating rate (1l H2O 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 H2O in 600ml beaker,40mm stirring bar,600rpm,50°C) [K]	±0.5
Heat control accuracy with ETS-D5 (500ml H2O in 600ml beaker,40mm stirring bar,600rpm,50°C) [K]	±0.5
Heat control accuracy with ETS-D7 (500ml H2O in 600ml beaker, 40mm stirring bar, 600rpm, 50°C) [K]	±0.2
Heat control accuracy with PT wireless (500ml H2O in 600ml beaker, 40mm stirring bar, 600rpm, 50°C) [K]	±0.2

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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
RS 232 interface	yes
USB interface	USB-C
WPAN interface	yes
WiFi Interface	yes
Ethernet interface	yes
Voltage [V]	220 - 230
Frequency [Hz]	50/60
Power input [W]	820
Power input standby [W]	0.45