

IKA RW20 digital



<i>BETRIEBSANLEITUNG</i>	<i>DE</i>	<i>4</i>
<i>OPERATING INSTRUCTIONS</i>	<i>EN</i>	<i>10</i>
<i>MODE D'EMPLOI</i>	<i>FR</i>	<i>16</i>
<i>INDICACIONES DE SEGURIDAD</i>	<i>ES</i>	<i>22</i>



Contents

	Page
CE - Declaration of conformity	2
Safety instructions	10
Correct use	11
Unpacking	11
Motor protection	11
Gear speed change	12
Speed display	12
Commissioning	12
Attaching - stirrer	12
- stirrer tools	
- stirrer shaft protection device	
Switching on the device	13
Output shaft	13
Maintenance	13
Warranty	14
Accessories	14
Permitted IKA stirrer tools	14
Technical data	15

Safety instructions

- **Read the operating instructions in full before starting up and follow the safety instructions.**
- Keep the operating instructions in a place where they can be accessed by everyone.
- Ensure that only trained staff work with the appliance.
- Follow the safety instructions, guidelines, occupational health and safety and accident prevention regulations.
- The voltage stated on the nameplate must correspond to the mains voltage.

- Socket must be earthed (protective ground contact).
- Wear your personal protective equipment in accordance with the hazard category of the medium to be processed. Otherwise here is a risk of:
 - splashing liquids
 - projectile parts
 - body parts, hair, clothing and jewellery getting caught.
- Set up the appliance in a spacious area on an even, stable, clean, non-slip, dry and fireproof surface.
- The feet of the appliance must be clean and undamaged.
- Position the knob (B) at the left stop before starting up. Gradually increase the speed.
- Reduce the speed if
 - the medium splashes out of the vessel because the speed is too high
 - the appliance is not running smoothly
 - the appliance begins to move around because of dynamic forces.
- Firmly secure the accessories and vessels in place, otherwise shaking vessels could be damaged or projected out.
- Check the appliance and accessories beforehand for damage each time you use them. Do not use damaged components.
- The equipment is not suitable for manual operation.
- Beware of the risk of
 - flammable materials
 - glass breakage as a result of mechanical shaking power
- There may be dangerous electrostatic activity between the medium and the output shaft
- Only process media that will not react dangerously to the extra energy produced through processing. This also applies to any extra energy produced in other ways, e.g. through high irradiation.
- **Do not** operate the appliance in explosive atmospheres, with hazardous substances or under water.
- Safe operation is only guaranteed with the accessories described in the "Accessories" chapter.
- Always disconnect the plug before fitting accessories.
- The appliance starts up again automatically following a cut in the power supply.

EN





- Protect the appliance and accessories from bumps and impacts.
- The appliance may heat up when in use. The device may become very hot in case of malfunction.
- The appliance may only be opened by experts.
- Adjust the speed of the motor on your test rig so that that it is not possible for any contact to occur between the container and the stirring tool (to avoid breaking the glass).
- Ensure that the motion of the stirring tool is smooth and uniform (no imbalance).
- Warning: For safety reasons, the device may switch off under full load, with 10% over-voltage, and at 40 °C ambient temperature.
- In order to restart the device following a malfunction, it must be switched off for a short time and allowed to cool down before being switched on again.
- The motor speed should be reduced following a malfunction.
- Never operate the equipment with the stirrer tools rotating freely. Pay attention when setting the speed to any imbalance of the stirrer tools and possible spraying of the medium to be stirred.
- Please use stirring shaft protective equipment!
- Operating with a freely rotating shaft end is dangerous. Therefore for safety reasons the stirrer tool is permitted to project over the upper edge of the housing only when the appliance is not running.
- For correct operation, the rubber diaphragm must always be completely closed.
- Take care to ensure that the shaft never runs directly in the rubber diaphragm and any friction with rotating parts (stirrer shafts) is excluded.
- Please pay attention to the dangerous parts of the equipment marked in Figure 1.

Correct use

The **RW20 digital** laboratory stirrer can be used to stir and mix liquids of low to medium viscosity with various stirring tools. It is designed for use in laboratories. In order to use the appliance properly, it must be carefully secured to the stand using the cantilever and a cross sleeve.

Unpacking

► Unpack

- Please unpack the device carefully
- In the case of any damage a fact report must be set immediately (post, rail or forwarder)

► Delivery scope

One stirrer RW 20 digital, a chuck key and operation instructions.

Motor protection

The ball race capacitor motor, protected to IP 42, is maintenance-free. In its winding it carries a special overheating circuit breaker (self-locking temperature limiter) which shuts down the motor permanently if the permissible motor temperature is exceeded.

This special type of circuit breaker is used when the automatic reactivation of the protected unit after overheating is undesirable or impermissible. The principle of the temperature limiter is that of a switch that heats up and isolates the motor from the power supply when the maximum permissible temperature is reached.

When the self-locking temperature sensor is tripped, the LED (D) Err5 on the front plate of the unit lights up to indicate the motor overload and the stoppage of the motor.

In this case the unit can only be switched back on after it has been switched off for approx. 4-5 minutes by pressing the rocker switch **(A)** on the front plate or by disconnecting the mains plug.

After this short cooling period, the contacts in the current circuit are closed again and the unit is operational once more.

Gear Speed Change

Should it be necessary to change the gear speed in the course of setting up an experiment or process with glass apparatus, then attention must be paid to the movement of the stirrer attachment by the eccentric bearing bush and to the movement in the axial direction. If this is unacceptable, the stirrer attachment must be loosened in the chuck.

Turning (counter-clockwise) the bearing bush at the black knurled surface over the chuck disengages the gears. The center axis of the stirrer attachment shifts 2.2mm in the radial direction. The bearing bush is then moved 5.5mm up or down in the axial direction according to the range to be set. Turning back (clockwise) the bearing bush re-engages the gears and swings the center axis of the stirrer attachment back to its original position.



Speed Display

The rotation speed is adjusted with the rotary knob **(B)** on the front plate.

The rotational speed is displayed directly in revolutions per minute (rpm) on the LED display **(D)**.

Commissioning

For correct use, the stirrer machine must be fixed with a cross sleeve to a stable stand (Fig. 4). The stirrer container should always be fixed with a tensioner for safety reasons.

Attaching

Attaching the stirrer to the stand

Please refer to assembly diagram (Fig. 4)

Attach the cross sleeve (K) to the upright of the stand (I). Attach the extension arm (L) to the side of the cross sleeve not in use, with the opening facing upwards.

Tighten both clamping bolts (M) firmly once the desired position for the stirring procedure has been adjusted correctly.

Check that the stirrer is held in position firmly prior to each use and also at regular intervals. The position of the stirrer must only be adjusted when the equipment is stationary and the power supply is disconnected.



Attaching a stirring tool using the chuck

Please refer to assembly diagram (Fig. 5)

Slide the stirring tool (G) into the chuck (F). Tighten the chuck firmly using the chuck key (H).



The stirring tool must only be changed when the equipment is stationary and the power supply is disconnected.

Attaching the stirring shaft protector

Please refer to assembly diagram (Fig. 3)

Use a stirring shaft protector (O), e.g. R301, to provide protection against injury when working with the equipment.

Use the bolts (P) to attach the plastic half-shell pieces to the stirrer (N), as shown in Figure 3. The screw (Q) can be used to adjust the length of the stirring shaft protector.



Check that the stirring shaft protector is held in position securely prior to each use and also at regular intervals. The position of the stirring shaft protector must only be adjusted when the equipment is stationary and the power supply is disconnected.

Switching on the device

Check whether the voltage given on the type plate corresponds to the available mains voltage. The socket used must be earthed (fitted with earth contact). If these conditions have been met, the machine is ready to operate when the mains plug is plugged in. If these conditions are not met, safe operation is not guaranteed and the machine could be damaged.

During commissioning of the machine the output shaft starts to run at the last speed set. Therefore check the setting of the control knob. Also ensure that the speed set is suitable for the test texture selected. In case of doubt, set the speed knob (B) to the lowest speed (left-hand position). In case of doubt, turn the speed knob (B) to the lowest speed (all the way left) and set the gear train to the lowest reduction stage. The unit starts to operate when the rocker switch is pressed.

Note: **The rocker switch (A) is not a mains power switch !**

Output shaft

If the unit has not been used for some time, a knocking noise will be heard when switching on, which is due to the preload on the friction lining of the friction wheel drive. This has no detrimental effect on the function of the unit, and the knocking noise will disappear after a short running-in period.

The chuck and off-drive shaft allow stirrer attachments with shank diameters of up to 10mm to be clamped and inserted. The opening at the top of the housing allows stirrer attachments to be pushed up above the top edge of the housing, e.g. in order to change the stirring bowl with the unit switched off.

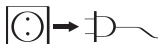
If the stirring shaft cover is removed while the stirrer is stationary, then the rubber membrane must be pushed back into the opening of the housing so that this is properly closed. This is the only way to ensure that working with the unit is safe and that media cannot enter the equipment.

Please see section "Safety instructions"!

Maintenance

The appliance is maintenance-free.

Cleaning



Only use cleansing agents which have been recommended by **IKA**

Use to remove:

Dyes	isopropyl alcohol
Construction materials	water containing tenside/ isopropyl alcohol
Cosmetics	water containing tenside/ isopropyl alcohol
Foodstuffs	water containing tenside
Fuels	water containing tenside

- Do not allow moisture to get into the appliance when cleaning
- Wear protective gloves during cleaning the devices.

- Before using another than the recommended method for cleaning or decontamination, the user must ascertain with **IKA** that this method does not destroy the instrument.

Spare parts order

When ordering spare parts, please give:

- Machine type
- Manufacturing number, see type plate
- Item and designation of the spare part, see **www.ika.de**, spare parts diagram and spare parts list

Repair

In case of repair the device has to be cleaned and free from any materials which may constitute a health hazard.

If you require servicing, return the appliance in its original packaging. Storage packaging is not sufficient. Please also use suitable transport packaging.

Warranty

In accordance with **IKA** guarantee conditions, the guarantee period is 24 months. For claims under the guarantee please contact your local dealer. You may also send the machine direct to our works, enclosing the delivery invoice and giving reasons for the claim. You will be liable for freight costs.

The warranty does not cover wearing parts, nor does it apply to faults resulting from improper use or insufficient care and maintenance contrary to the instructions in this operating manual.

Accessories

- | | |
|---------------------------|-------------------------------|
| R 1823 Plate stand | RH 1 Tensioner |
| R 181 Cross sleeve | FK 1 Flexible coupling |
| R 182 Cross sleeve | |

Permitted IKA stirrer tools

	<i>Max. speed 1/min</i>
R 1313 Turbine stirrer	800
R 1375 Surface stirrer	800
R 1330 Anchor stirrer	1 000
R 1342 Propeller stirrer 4fl	2 000
R 1381 Propeller stirrer 3fl	2 000
R 1382 Propeller stirrer 3fl	2 000
R 1389 Propeller stirrer 3fl PTFE	800
R 1311 Turbine stirrer	2 000
R 1312 Turbine stirrer	2 000
R 1300 Dissolver stirrer	2 000
R 1303 Dissolver stirrer	2 000
R 1352 Centrifugal stirrer	2 000
R 1373 Surface stirrer	2 000
R 1332 Anchor stirrer PTFE	800
R 1335 Kneading stirrer	2 000

Technical data

Speed range			
	(50Hz stage I)	min⁻¹	60 - 500
	(50Hz stage II)	min⁻¹	240 - 2000
	(60Hz stage I)	min⁻¹	72 - 600
	(60Hz stage II)	min⁻¹	288 - 2400
Max. torque stirrer shaft (100min ⁻¹ stage I)		Ncm	150
		%	100
Permitted on-time:			Knebelknopf
Speed adjustment:			LED - Display
Speed display:			max. ±0,5% ±30 Digit
Measurement fault:			
Nominal voltage:		VAC	230 ±10%
	or	VAC	115 ±10%
Frequency:		Hz	50 <i>EURO</i>
		Hz	60 <i>USA</i>
Input power:		W	72 <i>EURO</i>
		W	87 <i>USA</i>
Power output: (short term)		W	35
(constant operation)		W	20 +35%
Overall efficiency:		%	40
Operating position:			on stand, clamping chuck, pointing down
Drive:			Rib-cooled capacitor motor with friction wheel drive and subsequent 2-stage toothed gear train
Maximum stirring: quantity - water:		ltr	20

for viscosity:

MV

Viskosität	mPa · s	
VLV very low viscosity	0 100	Water up to thin-bodied oil
LV low viscosity	100..... 1000	Thin-bodied oil up to thick-bodied oil
MV medium viscosity	1000.. 10000	Thick-bodied oil up to honey at approx. 20 °C
HV high viscosity	10000 100000	Honey at approx. 20 °C up to inks/dye

Protection type to DIN 40050:		IP 20
Excess voltage category:		II
Contamination level:		2
Protection at overloaded:		Temperature sensor in motor winding
Fuse (on mains plate):	A	4 T (IKA ident.no. 28 205 00)
Ambient temperature:	°C	+5 to +40
Ambient humidity: (rel.)	%	80
Clamping chuck	mm	0,5 -10
clamping range:		
Hollow shaft	mm	10,5
internal diameter:		
Extension arm:	mm	ø13x160long
Housing:		Al diecasting, thermo plastic
Dimensions without extension arm: (WxDxH)	mm	88 x 212 x 294
Wight with extension arm and clamping chuck:	kg	3,1