

IKA

designed for scientists

IKA mini G



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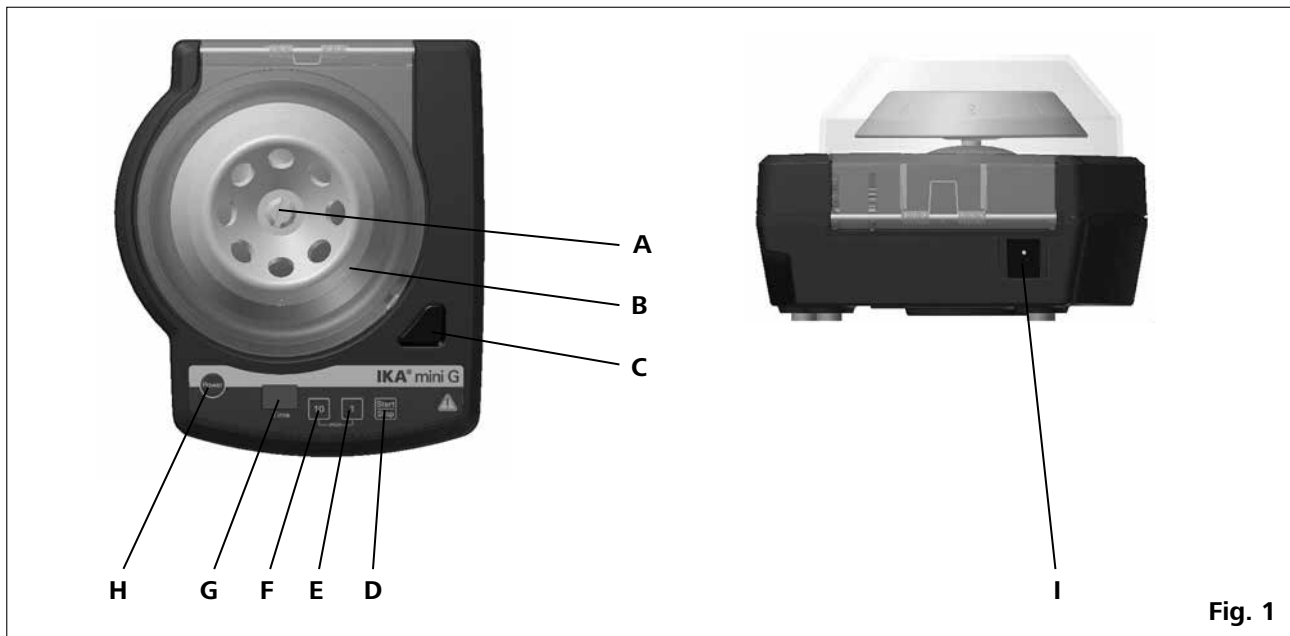


Fig. 1

Pos.	Bezeichnung	DE
A	Befestigungsmutter Rotor	
B	Rotor	
C	Deckelentriegelung	
D	Taste "Start/Stop"	
E	Einstelltaste "Timer" Stufe 1 Min.	
F	Einstelltaste "Timer" Stufe 10 Min.	
G	LED Display	
H	Taste "Power"	
I	Netzeingang Steckernetzteil	

Item	Designation	DE
A	Rotor securing nut	
B	Rotor	
C	Cover release button	
D	"Start/Stop" Button	
E	"Timer" setting button for unit of 1 minutes	
F	"Timer" setting button for unit of 10 minutes	
G	LED-Display	
H	"Power" Button	
I	AC adapter for power input	

Pos.	Désignation	FR
A	Ecrou de fixation du rotor	
B	Rotor	
C	Déverrouillage du couvercle	
D	Bouton "Start/Stop"	
E	Touche de réglage "Minuteur" 1 min.	
F	Touche de réglage "Minuteur" 10 min.	
G	Affichage DEL	
H	Bouton "Power"	
I	Entrée secteur de l'adaptateur secteur	

Позиция	Обозначение	RU
A	Крепежная гайка ротора	
B	Ротор	
C	Деблокиратор крышки	
D	Кнопка "Start/Stop"	
E	Кнопка настройки "Таймер" Ступень 1 мин.	
F	Кнопка настройки "Таймер" Ступень 10 мин.	
G	Светодиодный дисплей	
H	Кнопка питания "Power"	
I	Вход сети Штекер блока питания	

序号	名称	ZH
A	转子紧固螺帽	
B	转子	
C	开盖按钮	
D	启动/停止(Start/Stop)按键	
E	定时按键, 单位: 1 分钟(min)	
F	定时按键, 单位: 10 分钟(min)	
G	LED 显示屏	
H	电源开关	
I	电源输入插口	

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EU Declaration of conformity

We declare under our sole responsibility that this product corresponds to the directives 2014/35/EU, 2006/42/EC, 2014/30/EU and 2011/65/EU and conforms with the following standards or normative documents: EN 61010-1, EN 61010-2-020, EN 60529, EN 61326-1 and EN ISO 12100.

A copy of the complete EU Declaration of conformity can be requested at sales@ika.com.

Explication of warning symbols



General hazard



This symbol identifies information **that is of vital importance for safeguarding your health and safety.**

Disregarding this information can lead to health impairment and injuries.



Note!

This symbol identifies information **that is of importance for the technically correct functioning of the system.**

Disregarding this information can result in damage to the appliance or to system components.



Safety instructions

For your protection:

- **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.
- Wear your personal protective equipment in accordance with the hazard category of the medium to be processed. Otherwise there is a risk of:
 - splashing and evaporation of liquids
 - body parts, hair, clothing and jewellery getting caught.
- Set up the stand 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.
- Check the appliance and accessories beforehand for damage each time you use them. Do not use damaged components.
- Before using the centrifuge, always check the cover for cracks. If damage is evident, send the device back to have the cover replaced..
- Before using the centrifuge, check the rotor for secure attachment. Ensure the rotor is well secured, see "Inserting and removing the rotor".
- The rotor is subjected to extreme forces. Serious internal material damage can occur as a result of even slight scratches and cracks. Do not use the device if the rotor is damaged.
- Do not operate the centrifuge if there is evidence of damage to the centrifuge chamber.
- The device must be supervised when it is running.
- The appliance is not suitable for manual operation.
- Always load the rotors symmetrically.
- Load the rotor only as described in the section "Loading the rotor" in the chapter "Setting up and commissioning".
- Always load the rotor so that no impermissible imbalances arise during centrifuging.
- The density of the substance or mixture of substances must not exceed 1.2 kg/dm³ when the centrifuge is running at maximum speed.
- If unusual noises occur when the centrifuge is started, the rotor is not secured correctly. In this case, immediately press "STOP" to stop the centrifuge.
- While the centrifuge is running, the safety clearance of 300 mm all around must be kept clear of persons, objects and hazardous materials.
- In the event of a fault, never reach into the rotor chamber when the rotor is rotating.
- Pressing the "Cover release" button while the centrifuge is running opens the cover and triggers a quick stop of the motor. This can lead to poor centrifuging results.
- While the centrifuge is running, do not move it or strike it.



When centrifuging hazardous substances or mixtures of substances which are toxic or are

contaminated with pathogenic micro-organisms, the user should take appropriate precautions. In such cases, centrifuging vessels with special screw seals for hazardous substances must always be used. For materials in risk groups 3 and 4, in addition to sealed centrifuging vessels a biosafety system must be used (see the "Laboratory Biosafety Manual" issued by the World Health Organisation). No biosafety systems are available for this centrifuge.

- If you are using aggressive chemicals, protect the device from being damaged by these chemicals.
- Broken glass centrifuging vessels and glass splinters pose a risk of injury.
- In the event of unbalance or unusual noises, switch off the appliance immediately. In addition, if imbalances or unusual noises occur, send the device to the dealer or the manufacturer for repair, accompanied by a description of the fault.
- Refer to the operating instructions for the accessories!
- 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 light irradiation.
- Process pathogenic materials only in closed vessels under a suitable extractor hood. Please contact IKA if you have any questions.
- Do not operate the appliance in explosive atmospheres, with hazardous substances or under water.
- Do not process materials that are radioactive, flammable or explosive, or materials that react chemically with each other releasing large amounts of energy.
- Safe operation is only guaranteed with the accessories described in the "Accessories" chapter.
- Always disconnect the plug before fitting accessories.
- The appliance can only be disconnected from the mains supply by pulling out the mains plug or the connector plug.
- The socket for the mains cord must be easily accessible.
- The appliance does not start up again automatically following a cut in the power supply.

For protection of the equipment:

- The appliance may only be opened by experts.
- The voltage stated on the type plate must correspond to the mains voltage.
- Removable parts must be refitted to the appliance to prevent the infiltration of foreign objects, liquids etc..
- Protect the device and accessories from bumping and impacting.
- The device must only be operated with the original plug-in power supply unit.

Unpacking

Unpacking:

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

Delivery scope:

- Centrifuge **IKA mini G**
- Power supply with exchangeable adapter see Fig. 2
- Rotor for 8 x 1.5/2 ml vessels see Fig. 3
- Rotor for 4 x 8 x 0.2 ml PCR strips see Fig. 4
- 8 adapters for 0.5 ml vessels see Fig. 5
- Adapter set for 0.2 ml vessels (8 pieces) see Fig. 6
- Adapter set for 0.4 ml vessels (8 pieces) see Fig. 7
- Operating instruction.

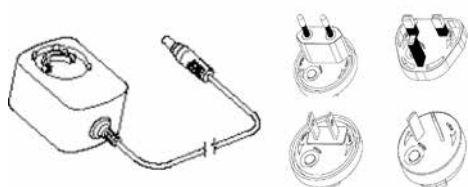


Fig. 2



Fig. 3



Fig. 4



Fig. 5



Fig. 6



Fig. 7

Correct use

Application:

The **IKA mini G** centrifuge is suitable for separation of substances and mixtures of substances of various densities (max. 1.2 kg/dm³) and especially for preparation and processing of samples of substances and mixtures of substances.

To be used for:

- Micro-filtration
- Cell separation
- Quick centrifugal separation

Centrifuging time:

1 - 99 minutes

Range of use:

Indoor environments similar to that a laboratory of research, teaching, trade or industry.

The safety of the user cannot be guaranteed:

- if the device is operated with accessories that are not supplied or recommended by the manufacturer.
- if the device is operated improperly or contrary to the manufacture's specifications.
- if the device or the printed circuit board are modified by third parties.

Useful information

The **IKA mini G** centrifuge is supplied with two rotors. One rotor is for 1.5 or 2 ml micro-tubes and one rotor is for 0.2 ml PCR strip tubes.

The rotor for 1.5 or 2 ml micro-tubes allows up to eight different 1.5 or 2 ml tubes to be centrifuged. The adapter supplied for 0.5 ml vessels also allows up to eight different 0.5 ml tubes to be centrifuged.

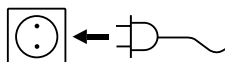
The rotor for 0.2 ml PCR strip tubes allows up to 32 x 0.2 ml PCR strips to be centrifuged.

Both rotors are suitable for applications which demand relatively low centrifugal acceleration, such as micro-filtration, cell separation and quick centrifugal separation.

Commissioning

Setting up:

- Stand the device at a suitable location and level it. When setting up the centrifuge, maintain a safety clearance of 300 mm all around it. While the centrifuge is running, the safety clearance of 300 mm all around must be kept clear of persons, objects and hazardous materials.
- Check that the power supply matches the data on the rating plate.
- Plug the AC adapter into a standard mains socket in order to supply the device with power. See the section "Technical data" for the connection values.
- Also pay attention to the ambient conditions listed in the "Technical data".



If these conditions are met the unit is ready for service when the mains plug has been plugged in.

Opening the cover:

To open the cover, press the "Release cover" button (item C). The cover opens with a damped movement.

Closing the cover:

Press the cover down manually until it clicks into place. The cover should close easily.

Inserting and removing the rotor:

Slacken or remove the rotor securing nut (item A), then place the rotor on the motor shaft. It must slide on until it reaches a clearly felt stop. Now secure the rotor by tightening the rotor nut (finger-tight clockwise). Restrain the rotor by hand while the nut is being tightened.

Before starting the centrifuge, always check that the rotor is securely fastened.

To undo the rotor, restrain the rotor by hand and then unscrew the rotor nut anticlockwise. If the rotor nut is too tight, a tool (such as a screwdriver) can be used to undo it.

Loading the rotor:

- The rotor must always be loaded symmetrically, see Fig. 8.
- Fill the centrifuging vessels before placing them in the device.
- Do not overfill the centrifuging vessels beyond the maximum amounts stated by the manufacturer.
- Take care to fill centrifuging vessels equally so as to keep the difference in weight between centrifuging vessels as small as possible. Tare the centrifuging vessels using scales.

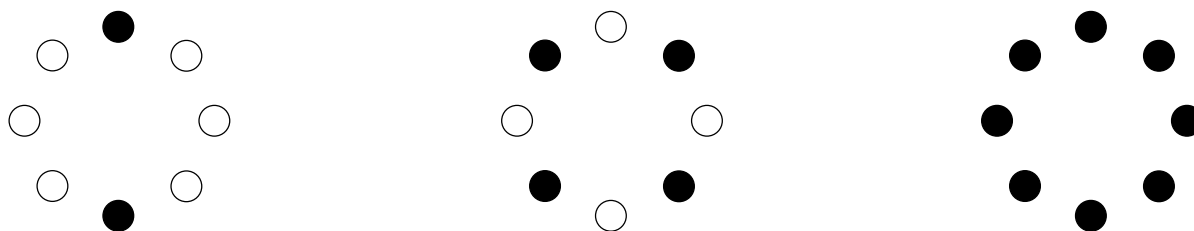


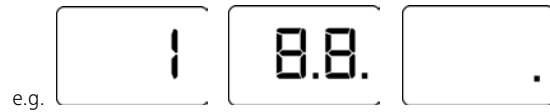
Fig. 8

Working with the unit

The AC adapter is suitable for 100 V to 240 V. The plug adapter for the relevant country must be attached before the AC adapter is plugged into the mains socket.



The software version appears briefly on the display, followed by the display test, then an acoustic signal sounds. Finally a red dot appears at the bottom right of the display (stand-by display).



Switching on the device:

Press the "Power" button (item H) to switch the device on.



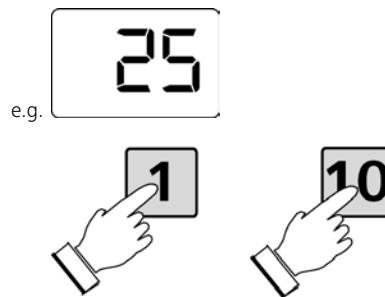
If the "Power" button (item H) had been used to switch the device into stand-by mode, the previous timer value setting is displayed.



Setting the timer:

Before the centrifuge can be started by pressing the "Start/ Stop" switch (item D), the timer must be preset to a value of at least 1 minute. The maximum setting is 99 minutes. The timer setting can be adjusted by pressing the respective timer buttons.

Press the button "1" (item E) to select units of minutes, press the button "10" (item F) to select tens of minutes.



Before starting the centrifuge, close the cover:

Press the cover down manually until it clicks into place. The cover should close easily.



Starting the centrifuge:

Start the centrifuge by pressing the "Start/ Stop" button (item D).



Stopping the centrifuge:

After the timer period has expired the centrifuge switches itself off automatically and sounds an acoustic signal. If the cover is not opened, the acoustic signal sounds three times in quick succession. The original timer value is displayed again.

Pressing the "Start/Stop" button (item D) during operation allows the centrifuging process to be stopped before expiry of the timer period.

Never press the cover release to stop the centrifuging process. Doing so opens the cover and applies heavy braking to the rotor (quick stop). This can lead to poor centrifuging results and can adversely affect the working life of the device.



Please note that the device can be started only once the cover is closed and the timer value is set to at least 1 minute.

Note!

Maintenance and cleaning

The appliance is maintenance-free.

Cleaning:



For cleaning disconnect the main plug.

Use only cleaning agents which have been approved by **IKA** to clean the device: Water containing surfactant / isopropyl alcohol.

- Wear protective gloves when cleaning the devices.
- Do not place electrical appliances into the cleaning agents for cleaning purposes.
- Do not allow moisture to get into the appliance when cleaning.
- Please consult **IKA** before using any cleaning or decontamination methods, other than those recommended here.
- The centrifuge must not be washed in a dishwasher.
- The rotor and accessories may be washed in a dishwasher.
- The cover is of polycarbonate and can be treated using commercially-available disinfectants. Avoid products that contain aldehydes, phenols, acetone or alcohol (except isopropanol).
- It should be cleaned only by hand using a liquid disinfectant.
- The only cleaners or disinfectants that may be used are those that:
 - lie in the pH range 5 - 8,
 - contain no corrosive alkalis, peroxides, chlorine compounds, acids or brine.
- If the device becomes contaminated with toxic or pathogenic liquids in the rotor or rotor chamber, clean it thoroughly.

- If the device becomes contaminated with aggressive chemicals in the rotor or rotor chamber, clean it thoroughly with a neutral detergent.
- If condensate builds up in the centrifuge chamber, wipe it dry with an absorbent cloth.

Disinfection of surfaces:

- If infectious material escapes into the centrifuge chamber, disinfect it without delay.
- Use commercially-available disinfectants. Avoid products that contain aldehydes, phenols, acetone or alcohol (except isopropanol).
- After using a disinfectant, wipe up any residues using a damp cloth. Surfaces must be dried immediately after being disinfected.

Rotor and accessories:

- If the rotor or the accessory parts are contaminated with material containing pathogens, appropriate cleaning must be performed.

Autoclaving:

The rotor and the accessories may be autoclaved at 121 °C/ 2 bar.

Centrifuging vessels:

- If a centrifuging vessel leaks or breaks, the fragments of the vessel, splinters of glass and the centrifuged medium that has escaped must be fully removed.
- If the medium is an infectious material, the centrifuge must be disinfected immediately.

Liquid in the device:

Drainage openings are provided in the base of the centrifuge so that liquids that have entered inappropriately or condensation can flow out, preventing damage to the device. If liquid is flowing from the base of the centrifuge disconnect it immediately from the mains and allow the device to dry off for a while.

Spare parts order:

When ordering spare parts, please give:

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

Repair:

Please send in device for repair only after it has been cleaned and is free from any materials which may constitute a health hazard.

For repair, please request the “**Decontamination Certificate**” from IKA, or download printout of it from the IKA website www.ika.com.

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

Warranty

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

The warranty does not cover worn out parts, nor does it apply to faults resulting from improper use, insufficient care or maintenance not carried out in accordance with the instructions in this operating manual.

Technical data

Power supply

Input	V A Hz	100 ... 240 0.8 50 ... 60
Output	Vdc	24 24W.LPS (Limited power source)
Protection class		2 (double insulated) <input type="checkbox"/>

Centrifuge

Operating voltage	Vdc	24
Speed	rpm	6000 (with loaded rotor)
Speed variation	%	5
Power consumption motor	W	12
Motor-output power	W	8
Device power consumption	W	12
DC	V=	24
Current consumption	mA	500
Capacity		8 x 2.0 ml
Permissible density	kg/dm³	1.2
Max. relative centrifugal acceleration (RCF*)	g	2000
Kinetic energy, max.	Nm	20
Duration of operation	min.	99
Time switch		Yes
Time switch display		7-segment LED
Quick stop		Yes
Cover opening		semi-automatic
Permissible duration of operation	%	100
Permissible ambient temperature	°C	+ 5 ... + 40
Permissible relative humidity	%	80
Protection type acc. to EN 60529		IP 30
Overvoltage category		II
Protection class		II
Contamination level		2
Dimensions total (W x D x H)	mm	155 x 105 x 175
Weight	kg	1.4
Operation at a terrestrial altitude		max. 2000

Subject to technical changes!

*RCF = Relative Centrifugal Force