

MS 450 Swirler



Betriebsanleitung	DE	3
Operating instructions	EN	9
Mode d'emploi	FR	15
Indicaciones de seguridad	ES	21
Veiligheidsinstructies	NL	22
Norme di sicurezza	IT	23
Säkerhetsanvisningar	SV	24
Sikkerhedshenvisninger	DA	25
Sikkerhedshenvisninger	NO	26
Turvallisuusohjeet	FI	27
Instruções de segurança	PT	28
Wskazówki bezpieczeństwa	PL	29
Bezpečnostní upozornění	CS	30
Biztonsági utasítások	HU	31
Varnostna navodila	SL	32
Bezpečnostné pokyny	SK	33
Ohutusjuhised	ET	34
Drošības norādes	LV	35
Saugos reikalavimai	LT	36

	Page
CE-Declaration of conformity	2
Safety instructions	9
Unpack	10
Correct use	10
Commissioning	11
Accessories	12
Maintenance and cleaning	13
Technical data	13
Warranty	14
Spare parts list	14
Spare parts diagram	37

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.
- The device must only be operated with the original plug-in power supply unit.
- The power supply unit must be operated with the appropriate country adapter.
- Wear your personal protective equipment in accordance with the hazard category of the medium to be processed. Otherwise there 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.
- 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.
- Position one single shaking vessel in the centre and several shaking vessels so that they are evenly spread out.
- Sharp edged vessels cause wear debris on the attachments.
- Beware of the risk of
 - flammable materials,
 - glass breakage as a result of mechanical shaking power.
- 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.
- **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 does not start up again automatically following a cut in the power supply.
- The appliance may heat up when in use.

For the protection of the equipment

- The voltage stated on the nameplate must correspond to the mains voltage.
- Protect the appliance and accessories from bumps and impacts.
- The appliance may only be opened by experts.

Unpack

• 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

- Shaker **MS 450 Swirler**
- Power supply
- Universal attachment MS 3.3
- Rubber foam insert
- Operating instructions

Correct use

• Use

- ▶ For mixing liquids in continuous mode for single or several vessels






• Range of use

- Laboratories
- Pharmacies
- Schools
- Universities



This device is suitable for use in all areas, except industrial areas.

The safety of the user cannot be guaranteed if the appliance is operated with accessories that are not supplied or recommended by the manufacturer or if the appliance is operated improperly contrary to the manufacturer's specifications.

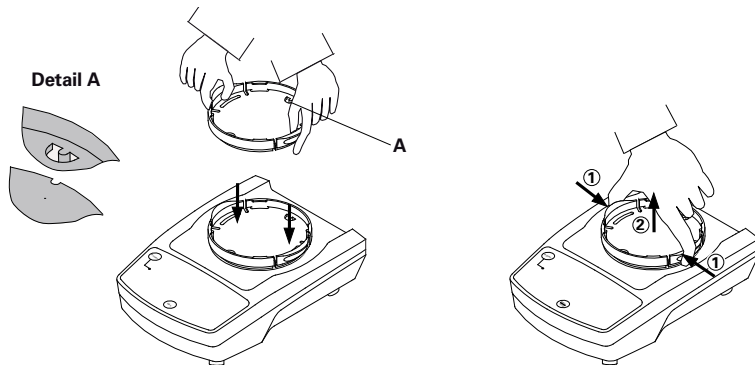
Commissioning

	Setting	Action
	 A line drawing of a rectangular device with a circular top. A power cord is plugged into a wall outlet. An arrow points from the plug to a square symbol containing a circle with a dot, and another circle with a horizontal line through it, representing a power source.	The unit is ready for service when the power plug has been plugged in.
1	Switching on the device  A hand is shown pressing a circular button labeled "Power".	LED on
2	Start shaking operation  A hand is shown pressing a circular button labeled "Mix".	Press the button "Mix". The unit will start the shaking operation.
3	Stop shaking operation  A hand is shown pressing a circular button labeled "Mix".	Once again press the button "Mix". The unit will stop the shaking operation.
4	Switching off the device  A hand is shown pressing a circular button labeled "Power".	LED off

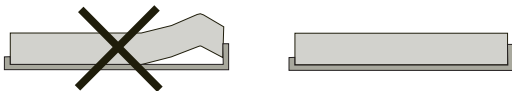
Accessories

Designation	Description	Id-No.
 <p>MS 3.3 Universal attachment</p>	- For different rubber foam inserts	3426600
 <p>Rubber foam insert</p>	- For inserting into the universal attachment	L005338

Changing universal attachment MS 3.3



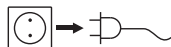
Using inserts



Maintenance and cleaning

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 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.

Technical data

Power supply

Input	V	100 - 240
	A	0,8
	Hz	50/60
Output	Vdc	24
		24W.LPS
		(Limited power source)
Protection class		2 (double insulated)

Shaker

Operating voltage	Vdc	24
	mA	800
Power consumption, normal operation	W	20
Power consumption, standby operation	W	2
Motor-output power	W	8
Drive		EC - motor
Speed	rpm	450, definitely set
Speed adjustment		none
Speed display		none
Agitation stroke	mm	4,5
Shaking motion		horizontal, circular
Perm. duration of operation	%	100
Perm. ambient temperature	°C	+5 bis +40
Perm. relative humidity	%	80
Protection type acc. to DIN EN 60529		IP 21
Contamination level		2
Overvoltage category		II
Operation at a terrestrial altitude	m	max. 2000
Dimensions total W x D x H	mm	148 x 205 x 63
(without attachment)		
Weight without supported load	kg	2,9
Max. supported load incl. attachment	kg	0,5

Subject to technical changes!

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 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.

Spare parts list

Item	Designation
1	Torx Tastite lens head screw
2	Torx Plastite lens head screw
3	Torx Plastite lens head screw
5	Torx Taptite fillister head screw
7	Housing lower part
8	Housing upper part
8	Motor bracket
11	EC-Motor
13	Ball bearing
14	Rubber foot
15	Front panel
16	Label
17	Inserted window
18	Foil
19	PCB
21	Retaining ring
22	Power supply with adapter
23	Shaking frame
24	Shaking table
25	Universal attachment MS 3.3
30	Lacing cord