

MS 3 basic



MS 3 digital



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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.
- The device must only be operated with the original plug-in power supply unit.
- 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.
- Position the knob (C) at the left stop before starting up. Gradually

increase the speed.

- Keep hand/arm vibration to a minimum (Directive 2002/44/EC) when operated manually:
 - Keep the sample container as vertical as possible.
 - Only exert the minimum pressure necessary for the mixing process.
 - Use attachments for multiple samples when there is a large number of samples.
- If the shaking movement of the appliance increases (resonance), reduce the speed or pass through the critical phase as quickly as possible.
- 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.
- 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.
- Protect the appliance and accessories from bumps and impacts.
- The appliance may heat up when in use.
- 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

MS 3 basic

- Shaker **MS 3 basic**
- Power supply
- Standard attachment MS 3.1
- Universal attachment MS 3.3
- One-hand insert MS 1.21
- Operating instructions

MS 3 digital

- Shaker **MS 3 digital**
- Power supply
- Standard attachment MS 3.1
- Universal attachment MS 3.3
- One-hand insert MS 1.21
- Microtiter attachment MS 3.4
- Test tube insert MS 1.32
- Operating instructions

Correct use

• Use

- ▶ For mixing liquids
- Touch mode for single test tubes
- Continuous mode for single or several vessels

• Range of use

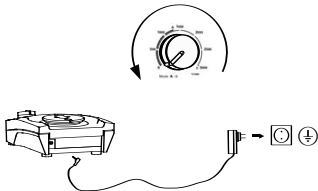





- Laboratories - Schools
- Pharmacies

This device is suitable for use in all areas except:

- Residential areas
- Areas that are connected directly to a low-voltage supply network that also supplies residential areas.

The protection for the user is not ensured no more, if the equipment with accessories is operated, which are supplied or are not recommended not by the manufacturer or if the equipment in not correct use is operated against the manufacturer default.

Commissioning









Setting	Action	Display	
	 <p>Position the rotating knob at the left stop before starting up</p> <p>If these conditions are met, the unit is ready for service when the mains plug has been plugged in</p>		
1	<p>Switching on</p>  <p>Change to continuous operation</p> 	<p>Mode A Operating mode "Touch operation" Speed upto 3000 rpm (= Factory setting)</p> <p>Mode A Operating mode "Continuous operation" Speed upto 1300 rpm</p>	  

Operating modes

	Modus A (with speed limiter)	Modus B (without speed limiter)
Touch mode (with standard-attachment MS 3.1)	max. 3000 rpm	max. 3000 rpm
Continuous mode (with all attachments)	max. 1300 rpm	max. 3000 rpm

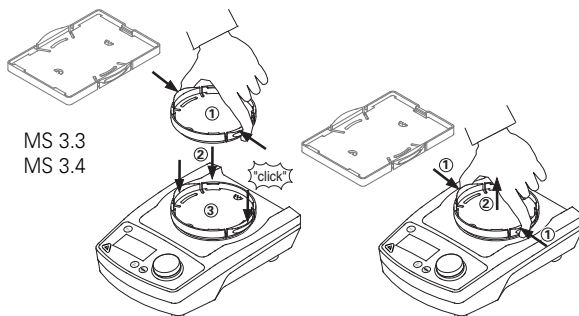
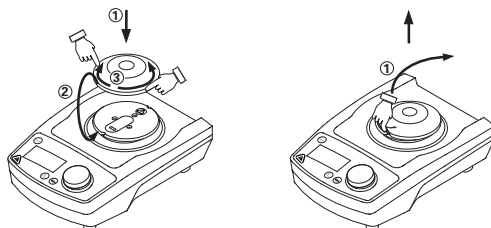
Accessories

Possible uses and permitted speed ranges of attachments:

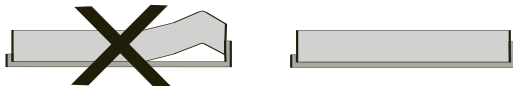
Designation	Description	Id.- No.	Touch mode	Continuous mode	Speed range rpm	Mode
 MS 3.1 Standard attachment	For test tubes and small vessels upto ø 50 mm	3426300	X - -	- X X	0/200-3000 0/200-1300 0/200-3000	A and B A B
 MS 3.3 Universal attachment	For different rubber foam inserts	3426600	-	X	0/200-1300	A
 MS 3.4 Microtiter attachment	For one microtiter plate	3426400	-	X	0/200-1300	A
 MS 1.21 One-hand attachment	For inserting into the universal attachment	L001540	-	X X	0/200-1300 0/200-3000	A B
 MS 1.31 Test tube insert	- For inserting into the universal attachment - For 14 test tubes ø 10 mm	L001840	-	X	0/200-1300	A
 MS 1.32 Test tube insert	- For inserting into the universal attachment - For 6 test tubes ø 12 mm	L001850	-	X	0/200-1300	A
 MS 1.33 Test tube insert	-For inserting into the universal attachment - For 4 test tubes ø 16 mm	L001860	-	X	0/200-1300	A
 MS 1.34 Test tube insert	- For inserting into the universal attachment - You can make holes as you like	L001830	-	X	0/200-1300	A

Changing attachments

MS 3.1



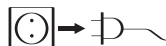
Using inserts



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.

Technical data

Power supply

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

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 range	rpm	0/200 – 3000
		infinitely adjustable
Speed adjustment		rotating knob in front of the appliance
Speed display		scale 0 – 3000
Agitation stroke	mm	4,5
Shaking motion		horizontal, circular
Perm duration of operation	%	100
Timer mode seconds		1 - 999 sec
	mode minutes	1 - 999 min
Timer display		digital
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 without attachment	mm	148 x 205 x 63
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.