

IKA

designed for scientists

IKA MS 3 basic

IKA MS 3 digital



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EU Declaration of conformity

We declare under our sole responsibility that this product corresponds to the directives 2014/35/EU, 2014/30/EU, 2006/42/EG and 2011/65/EU and conforms with the standards or normative documents: EN 61010-1, EN 6010-2-051, EN 61326-1 and EN 60529.

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

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. 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. 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.

Unpacking

Unpacking:

- Please unpack the device carefully.
- Any damage should be notified immediately to the shipping agent (post office, railway network or logistics company).

Delivery scope:

MS 3 basic

- 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

- 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.

Intended use

Use:

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








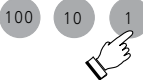







Range of use:

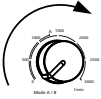

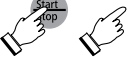


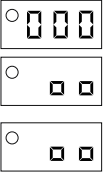
Indoor environments similar to that a laboratory of research, teaching, trade or industry.

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.

Commissioning

Setting	Action	Display (for MS 3 digital only)
	 <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 Switching on Change to continuous operation	 <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>	  
2 Setting timer / Change timer setting Not available on MS 3 basic Change to minutes mode	 <p>Seconds mode: The value previously set will be displayed (Factory setting = 000).</p>  <p>Countdown running: An audible signal will be given when the countdown is complete.</p> <p>Switch off the device</p>  <p>Switching on the device: Press and hold button "1" and also press the "Power" button.</p>  <p>Minutes mode:</p>  <p>Countdown running: An audible signal will be given when the countdown is complete.</p>	  












Setting	Action	Display (for MS 3 digital only)
3 Speed adjustment		
4 Change mode: A → B B → A	<p>Switch off the device.</p>    <p>Switching on the device: Press and hold button "Start/Stop" and also press the "Power" button.</p> <p>Mode B: Operation modes "Touch" and "Continuous operation". Speed upto 3000 rpm.</p> <p>Switch off the device and switch on again, see 1.</p> 	

Operating modes:

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

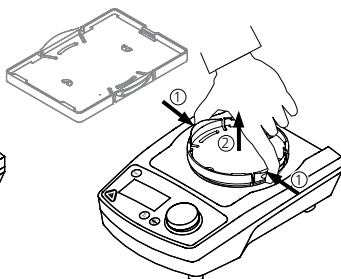
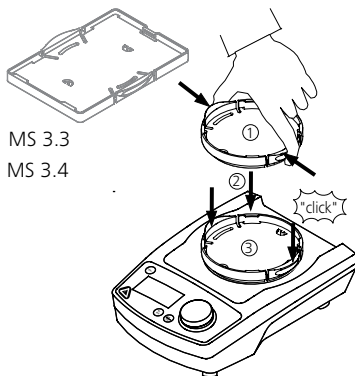
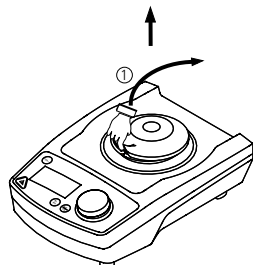
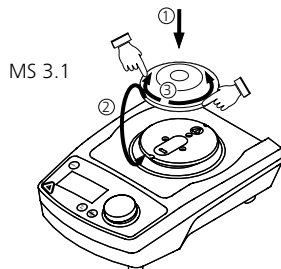
Accessories

Possible uses and permitted speed ranges of attachments:

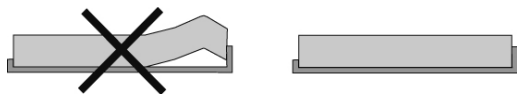
	Designation	Description	Item No.	Touch mode	Continuous mode	Speed range (rpm)	Mode
	MS 3.1 Standard attachment	- For test tubes and small vessels upto Ø 50 mm	3426300	• - -	- • •	0 / 200 ... 3000 0 / 200 ... 1300 0 / 200 ... 3000	A and B A B
	MS 3.3 Universal attachment	- For different rubber foam inserts.	3426600	-	• •	0 / 200 ... 1300 0 / 200 ... 3000	A B
	MS 3.4 Microtiter attachment	- For one microtiter plate.	3426400	-	• •	0 / 200 ... 1300 0 / 200 ... 3000	A B
	MS 3.5 PCR-Plate attachment	- For one 96-well PCR-plate.	3428000	-	• •	0 / 200 ... 1300 0 / 200 ... 3000	A B
	MS 3.51 PCR-Plate insert	- For inserting into the PCR-Plate attachment.	3428700	-	• •	0 / 200 ... 1300 0 / 200 ... 3000	A B
	MS 1.21 One-hand insert	- For inserting into the universal attachment.	L001540	-	• •	0 / 200 ... 1300 0 / 200 ... 3000	A B
	MS 1.30 Test tube insert	- For inserting into the universal attachment. - For 24 tubes Ø 6 mm.	25005776	-	• •	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	-	• •	0 / 200 ... 1300 0 / 200 ... 3000	A B
	MS 1.32 Test tube insert	- For inserting into the universal attachment. - For 6 test tubes Ø 12 mm.	L001850	-	• •	0 / 200 ... 1300 0 / 200 ... 3000	A B
	MS 1.33 Test tube insert	- For inserting into the universal attachment. - For 4 test tubes Ø 16 mm.	L001860	-	• •	0 / 200 ... 1300 0 / 200 ... 3000	A B
	MS 1.34 Test tube insert	- For inserting into the universal attachment. - You can make holes as you like.	L001830	-	• •	0 / 200 ... 1300 0 / 200 ... 3000	A B

See more accessories on www.ika.com.

Changing attachments:



Using inserts:



Maintenance and cleaning

The device is maintenance-free. It is only subject to the natural wear and tear of components and their statistical failure rate.

Cleaning:

For cleaning, disconnect the main plug!

Use only cleaning agents which have been approved by IKA to clean the devices: water (containing surfactant) and isopropyl alcohol.

- Wear protective gloves while cleaning the devices.
- Electrical devices may not be placed in the cleansing agent for the purpose of cleaning.
- Do not allow moisture to get into the device when cleaning.
- If a different cleaning or decontamination method than the method defined by IKA is planned, the user must ascertain with IKA that this method does not damage the device.

Spare parts order:

When ordering spare parts, please give:

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


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 Clearance 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.

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			
		MS 3 basic	MS 3 digital
Operating voltage	Vdc	24	
	mA	800	
Power consumption, normal operation	W	20	
Power consumption, standby operation	W	2	
Motor rating output	W	8	
Drive		EC - Motor	
Speed range	rpm	0 / 200 ... 3000 (infinitely adjustable)	
Speed adjustment		rotating knob in front of the device	
Speed display		Scale (0 ... 3000)	
Agitation stroke	mm	4.5	

Shaking motion		horizontal, circular	
Permitted duration of operation	%	100	
Timer		no	yes
Timer: seconds mode minutes mode		-	1 ... 999 sec 1 ... 999 min
		-	digital
Timer display		-	digital
Permitted ambient temperature		+5 ... +40	
Permitted 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 (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 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.