



Operating manual

Translation of operating manual

SONOSHAKE

SA 1028 shaking device

Accessories for

SONOREX DIGITEC DT 1028 F – Ultrasonic baths



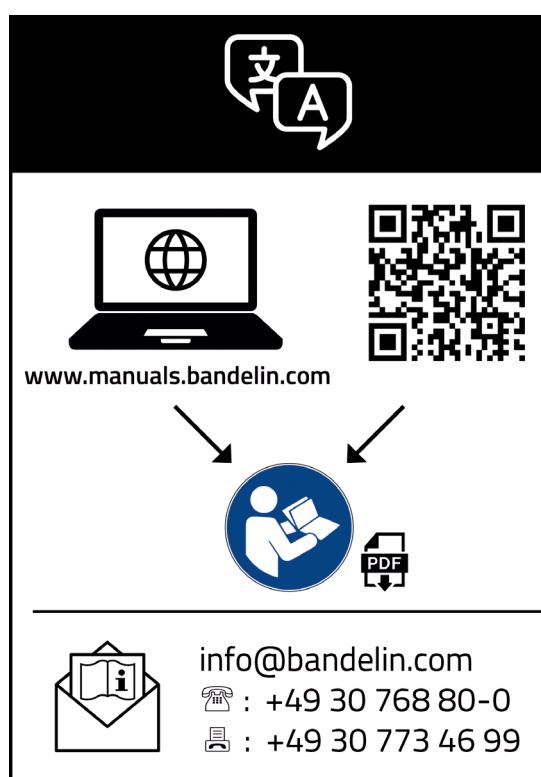


Table of contents

1	About these operating manual	5
2	Safety	6
2.1	Using the device	6
2.2	Keep out of reach of children	6
2.3	Danger of injury	6
2.4	Danger of electric shock	7
2.5	Safety stickers on the device	7
2.6	Do not overload accessories	7
3	Construction and function	8
3.1	Structure	8
3.2	Control panel	8
3.3	Undervoltage switch	9
3.4	Power setting	9
3.5	Function	10
4	Preparation for operation	11
4.1	Scope of delivery	11
4.2	Installation site requirements	12
4.3	Assembly	12
4.3.1	Mounting	13
4.3.2	Fastening/securing the device	13
4.3.3	Mounting/adjusting the roller carriage	14
4.3.4	Checking the coupling opening	14
4.4	Changing the amplitude setting	15
5	Operation	16
5.1	putting into service	16
5.2	Preparing the roller carriage for application	17
5.3	Switching the device on and off	18
5.4	Removing sonication targets	18

6	Maintenance	19
6.1	Maintenance	19
6.2	Cleaning the housing	19
6.3	Storage/safekeeping	20
6.4	Repairs	20
7	Disposal	21
8	Information about the device	22
8.1	Technical data	22
8.2	Ambient conditions	23
8.3	CE conformity	23
9	Accessories	24

1 About these operating manual

These operating manual contain information that is necessary and useful in order to use the device safely and efficiently.

- Read these operating manual before using the device.
- Pay particular attention to chapter **2 Safety**.
- If you pass on this device, provide these operating manual with it.
- Contact your specialist dealer or BANDELIN if any questions are not answered in these operating manual. Notes on service can be found in chapter **6.4 Repairs**.

The binding version of the document is the German original. Any deviations from this in the translation are not binding and have no legal effect. In the event of any discrepancies between the translation and the original version of this document, the original version shall prevail.

BANDELIN assumes no responsibility or liability for damage caused by improper handling or use.

Illustrations are exemplary and not to scale. Decorations not included in the scope of delivery.

2 Safety

2.1 Using the device

With the SA 1028 shaking device, flat ultrasound devices of the SONOREX DIGITEC DT 1028 F type can be equipped with a shaking function ("SONOSHAKE") for the purposes of sample preparations, e.g., in laboratories and in industrial and scientific research.

This allows sample vessels of different shapes and sizes to be sonicated and shaken at the same time. This can have a catalytic effect in sonochemical processes, e.g., in the production of stable emulsions or when rapidly degassing liquids with a high gas content.

For the intended use, the samples must be attached to the roller carriage in suitable containers (e.g., laboratory flasks) ("indirect operation").

Existing SONOREX DIGITEC DT 1028 F ultrasonic baths can be retrofitted with the shaking device without the need for any structural modifications.

The shaking device may only be used when firmly mounted on an ultrasonic bath of type DT 1028 F.

2.2 Keep out of reach of children

Children may not detect hazards emanating from the device. Therefore, keep the device away from children.

2.3 Danger of injury

The device has a movement mechanism. Failure to follow safety rules may result in injury.

- Keep objects and fingers away from the movement mechanism.
- Fill and take samples only when the shaking device is switched off.
- Do not touch any parts of the device while it is shaking and do not reach into the devices.
- There is a danger of crushing between the tank edge and the roller carriage after switching the device on.
- Secure sample vessels in the roller carriage against displacement and/or falling before switching on the shaking mode.
- To avoid wave impact, maintain the filling level of the ultrasonic bath and adjust the power level to the number of samples.

2.4 Danger of electric shock

The device is an electrical device. Failure to follow safety rules can result in a life-threatening electric shock.

- Protect the device from moisture and wetness. Keep the surface and operating elements clean and dry.
- Only transport the device when it is empty.
- Empty the device only when it is switched off.
- Do not rinse the appliance or expose it to splash water.
- Disconnect the appliance from the mains before any cleaning or maintenance operation.
- Only connect the device to a socket with an earthed protective contact that matches the protective contact of the mains connector.



WARNING

Note for device with type E+F jack:

Combination with socket type K (especially common in Denmark) is not permitted.

- If you notice a defect in the device, unplug the mains plug immediately. Do not connect a defective device to the mains.
- Only have repairs carried out by qualified personnel or by the manufacturer. See chapter **6.4 Repairs**.
- Position the device in such a way that it is possible to easily disconnect the mains connection at any time.

2.5 Safety stickers on the device

- Observe all safety stickers on the device.
- Keep the safety stickers in a legible condition. Do not remove them. Replace them when they are no longer legible. Please contact our customer service for this. See chapter **6.4 Repairs**.

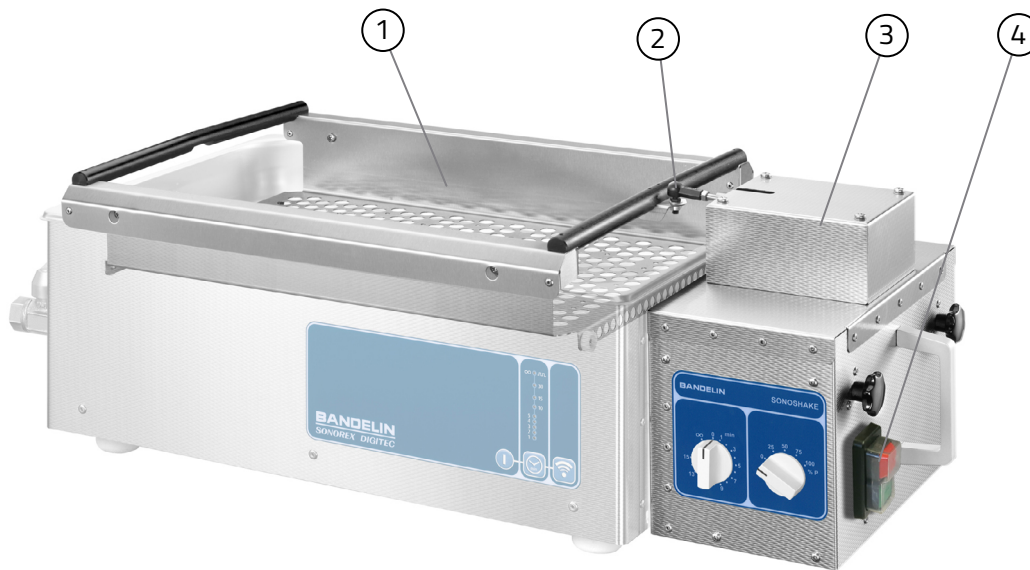
2.6 Do not overload accessories

Observe the specified carrying capacity or load-bearing capacity of the accessory used.

- Accessories can include baskets and mounts.
- The corresponding information can be found in the appendix or in the dimension sheet. If you do not have this data, contact the manufacturer.

3 Construction and function

3.1 Structure

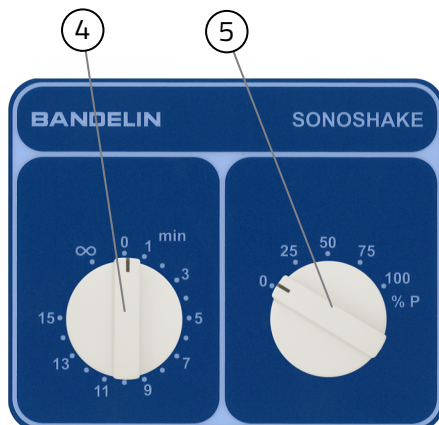


(SONOREX DIGITEC DT 1028 F)

SONOSHAKE SA 1028

- 1 Stainless steel roller carriage with separable coupling (2)
- 2 Coupling, detachable, including bearing
- 3 Drive device
- 4 Undervoltage switch

3.2 Control panel



- 4 ON/OFF turning knob for time setting, with time preselection
- 5 Turning knob for power setting

3.3 Undervoltage switch

When used for the first time and after a power failure, the device does not start automatically. It must be released manually.

To enable it, press the green button on the undervoltage switch.



3.4 Power setting

The turning knob for the power setting is used to set the shaking frequency (strokes/min).

Adjustable power levels	Shaking frequency [strokes/min]
0%	0
25%	30
50%	90
75%	150
100%	220

You can adjust the shaking frequency during operation.

NOTICE

Danger of splashing

In the event of larger sample quantities and a high power level, samples can spill over.

Information

- As the speed of the shaking device is dependent on many factors as load, water level and friction in the unit, the acceptance criteria concerning the shaking frequency is $\pm 20\%$.
- Therefore, the shaking frequency cannot be set directly, but rather the power consumption in percent.

3.5 Function

The shaking device consists of a roller carriage, which is placed on the edge of the ultrasoundbath, and a drive device with front control. The drive device is firmly connected to the ultrasonic bath to always ensure the correct fit of the attachment on the ultrasonic bath and to prevent loosening or displacement during the shaking operation.

The shaking device allows a max. shaking frequency of 220 strokes/min with an amplitude of max. 20 mm using four adjustable power levels.

4 Preparation for operation

After unpacking, check the device and accessories for any transport damage and ensure the delivery is complete. If you notice any damage or defect, report it immediately in writing to the shipping carrier and the supplier.

Allow the device to adapt to the climatic conditions at the installation site for at least two hours.

4.1 Scope of delivery

Consisting of:

- 1× roller carriage
- 1× drive device
- 1× clip bearing
- 1× fastening set
- 1× operating manual

Other accessories depending on the order – see delivery note.



4.2 Installation site requirements

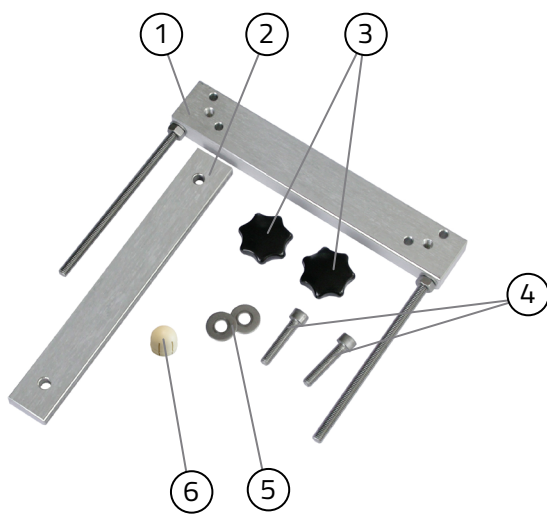
The installation location of the device must meet the following conditions:

- The SA 1028 shaking device can only be mounted on the right side of the ultrasonic bath.

4.3 Assembly

A SW 5 hexagon socket wrench is required for installation; this is not included in the scope of delivery.

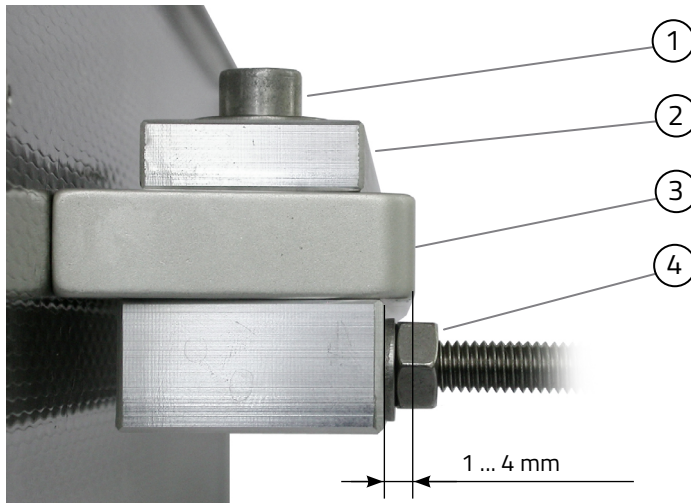
Mounting kit



- 1 Mount (with threaded rods)
- 2 Clamping rail
- 3 Star knobs, 2 pieces
- 4 Screws with hexagon socket, 2 pieces
- 5 Washers, 2 pieces
- 6 Clip bearing (if applicable, pre-assembled)

4.3.1 Mounting

1. Position the mount centrally under the right handle of the ultrasonic bath.
2. Place the clamping rail on the handle.
3. Clamp the mount and the clamping rail to the handle with the washers and screws.



- 1 Washers and screws
- 2 Clamping rail
- 3 Right handle on DT 1028 F
- 4 Mount

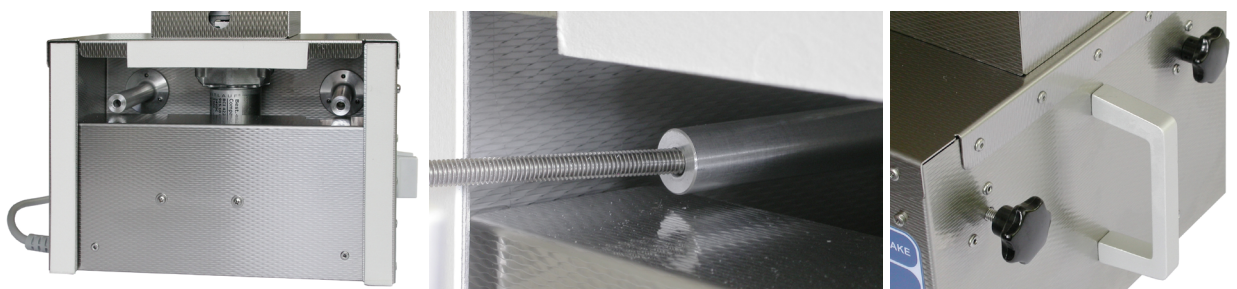


Information

- The mount must be attached to the centre of the handle so that the push rod does not drag. See the picture under Checking the coupling opening.

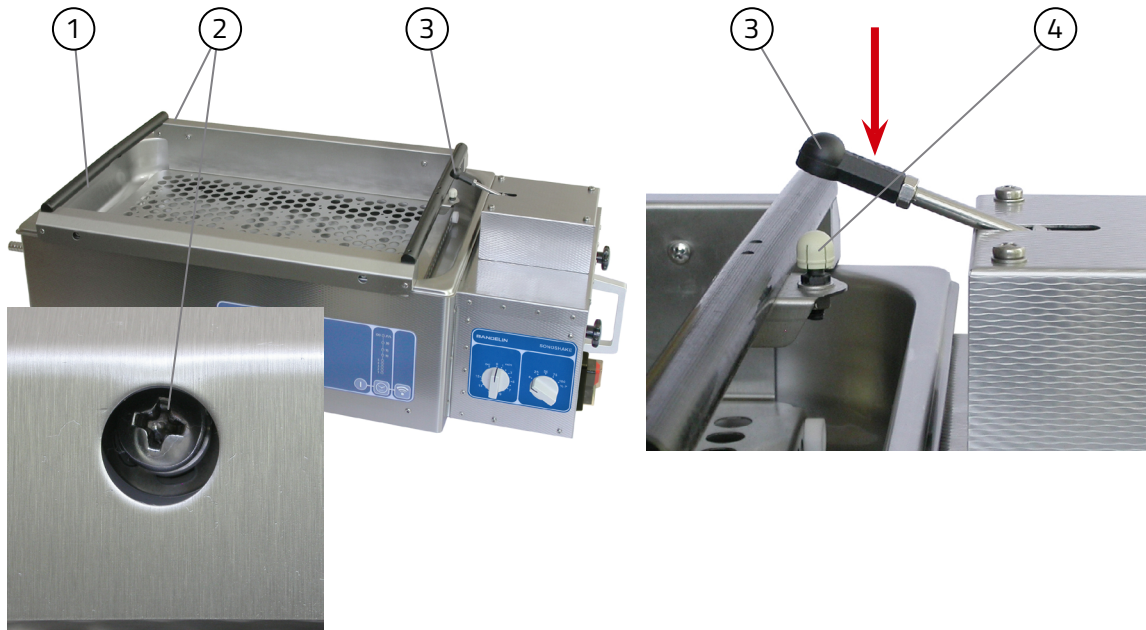
4.3.2 Fastening/securing the device

4. Slide the drive device over the threaded rods – through the tubes – until it reaches the stop.
5. Then screw the star knobs onto the threaded rods and tighten them.



4.3.3 Mounting/adjusting the roller carriage

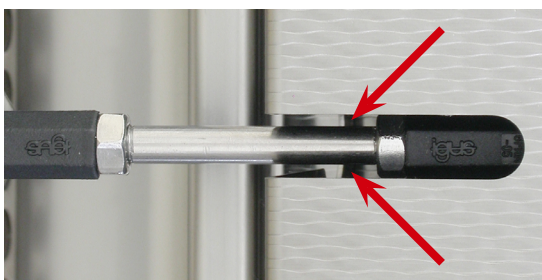
6. Press the clip bearing onto the ball stud (click into place).
7. Place the roller carriage on the edge of the ultrasonic bath.
8. Check that it rolls smoothly on the tank edge. If the roller carriage tilts or grinds on the tank edge, it can be adjusted by means of the screw (at the rear on the left and outside).
9. After adjustment, check whether the clip bearing is on the ball stud and then press the bearing socket onto the ball stud (click into place).



- 1 Roller carriage
- 2 Screw for adjustment
- 3 Bearing cup
- 4 Clip bearing on ball studs

4.3.4 Checking the coupling opening

After locking the ball stud, the push rod must be in the middle of the coupling opening. If this is not the case, assembly must be repeated.



4.4 Changing the amplitude setting

The maximum deflection (amplitude) of the roller carriage during the shaking movement is set to 20 mm when the device is delivered.

Alternatively, an amplitude of 12 mm can be set.

Procedure

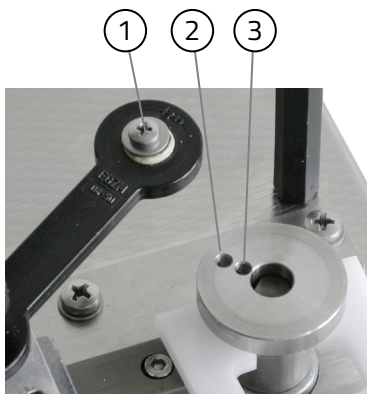
1. Disconnect the device from the mains.
2. Loosen the four screws of the cover. Carefully raise the cover to correct the amplitude setting.



WARNING

Danger of electric shock during operation

- The protective conductor cable between the cover and the drive device must remain connected.



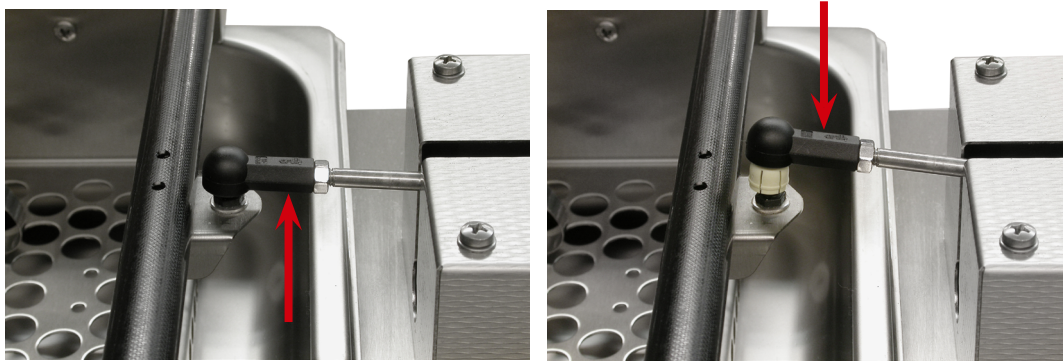
- 1 Screw
- 2 Amplitude: 20 mm (standard on delivery)
- 3 Amplitude: 12 mm

3. The amplitude can be changed by changing the position of the screw.
4. Finally, attach the cover.
5. Reconnect the device to the mains.

5 Operation

5.1 putting into service

1. Loosen the coupling from the roller carriage.
2. The roller carriage can now be removed from the oscillating tank.
2. Load the roller carriage with spring clamps or replace already mounted clamps.
3. Position the roller carriage on the tank edge again and check that it moves easily.
4. Press the bearing cup on the lever onto the ball stud (click into place).
5. Connect the device to the mains.
6. Perform the functional test by briefly switching on the device. The shaking device must move evenly and must not tilt or grind on the oscillating tank. Then switch it off again.



5.2 Preparing the roller carriage for application

To prevent floating or tilting of sample vessels on the shaking device during operation, BANDELIN recommends the use of special "EK" spring clamps.

The roller carriage is always loaded when the device is switched off. The ultrasonic bath should also be switched off during the procedure.

1. Loosen the coupling from the roller carriage.
2. The roller carriage can now be removed from the oscillating tank.
2. Insert the sample vessels into the spring clamps.
3. Position the roller carriage on the tank edge again and check that it moves easily.
4. Press the bearing cup on the lever onto the ball stud (click into place).

Result

» You can now switch on the device.



Information

- It is possible to sonicate several sample vessels with different liquids at the same time.
- Sample vessels must be immersed in the contact liquid to a depth of at least 2 cm. Make sure that the oscillating tank is 2/3 full.
- Completely remove any air bubbles under the vessels.
- The filling level of the oscillating tank must always be at or just above the filling level mark after loading. Too low a filling level leads to damage to the ultrasonic bath.

5.3 Switching the device on and off

Requirements

- The mains plug is plugged into a protective contact socket that matches the protective contact of the plug.

Procedure

1. Load the roller carriage with sample vessels.
2. First turn the turning knob for the power setting to "25".
3. Turn the turning knob for the time setting to the desired duration or to the ∞ icon for continuous operation.
 - » The shaking device is switched on. The roller carriage moves.
 - » If the turning knob is not set to ∞ , it will move slowly anti-clockwise, indicating the remaining time. As soon as it reaches "0", the shaking device will switch off.
4. The power setting can be adjusted as desired during operation.
5. To switch off the movement prematurely, turn the turning knob to "0".



Information

- If the roller carriage does not move after switching on, the undervoltage switch must be released.
- After a power failure, the power supply is automatically interrupted. To switch it on, press the green button on the undervoltage switch.

5.4 Removing sonication targets



WARNING

Danger of burns

The contact liquid and the sample vessels can be very hot.

- Allow sonication targets to cool down before touching them.

Switch off the ultrasound before removing any sonication targets.

Do not remove sonication targets by hand. Carefully remove the inset basket with the sonication targets, for example, and place it on a flat surface.

Rinse the sonication targets with clear water.

Do not leave sonication targets in the sonication fluid for too long, as this can damage the objects.

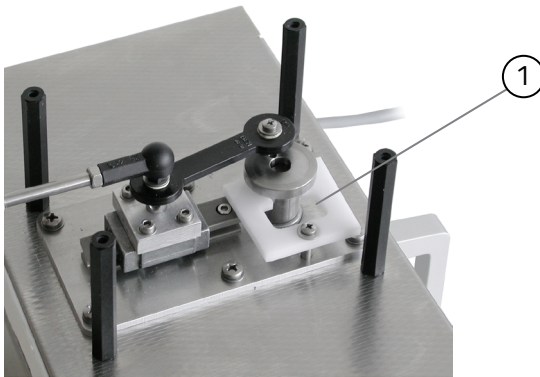
6 Maintenance

6.1 Maintenance

The device is maintenance-free.

6.2 Cleaning the housing

- Wipe the housing with a damp cloth. Wipe it dry with a soft cloth.
- Do not use abrasive cleaning agents, only cleaning products without abrasive additives.
- If necessary, disinfect the housing using a suitable surface disinfectant.
- If, after prolonged use, noise (slight squeaking) occurs due to abrasion on the brake clamp, this can be eliminated by cleaning (blowing out abrasion).
To open, see chapter **4.4 Changing the amplitude setting**.



1 Brake chamber

6.3 Storage/safekeeping

If the device is not used for a prolonged period, the laboratory cooler must be disconnected from the mains and stored in a cool, dry place. The roller carriage should be removed from the drive device.

6.4 Repairs

Contact your specialist dealer or the manufacturer during the warranty period.
Have repairs carried out only by qualified personnel or by the manufacturer.
The manufacturer assumes no liability for unauthorised interventions on the device.



WARNING

Health hazard due to contaminated device

- Decontaminate the device before shipment if it has come into contact with hazardous substances.
-

If the device needs to be repaired, send it to the manufacturer.

Clean and decontaminate the device and accessories before shipping them.

The "Certificate of decontamination" serves the occupational safety and health of our employees in accordance with the German "Infection Protection Act" (Infektionsschutzgesetz) and the Accident Insurance Regulations (UVV) of the employers' liability insurance associations.

Before returning them for inspection/repair, the equipment and accessories must be cleaned in accordance with applicable laws and regulations and, if necessary, disinfected surface disinfectant that is listed by the VAH (Association for Applied Hygiene).

Please understand that we can only start work once this certificate is fully completed.

Download the "Certificate of decontamination" form here:

<https://www.bandelin.com/downloads>

Fill out the form and attach it so as to be clearly visible on the outside of the packing. Acceptance will be refused without a completed form.



Send the device to the following address:

BANDELIN electronic GmbH & Co. KG
Heinrichstr. 3–4
12207 Berlin
Germany

+49 30 76880-13
service@bandelin.com

7 Disposal



WARNING

Health hazard due to contaminated device

- Decontaminate the device before disposal if it has come into contact with hazardous substances.
- Also decontaminate accessories before disposal.

Dispose of the device properly as electrical waste if it can no longer be used. Do not dispose of the device in the household waste. Observe local regulations for the disposal of electrical waste.

The oscillating elements contain sintered ceramics made of lead zirconate titanate.

- EC No. 235-727-4
- CAS No. 12626-81-2



This use is permitted in accordance with RoHS Directive 2011/65/EU, Annex III, Exception 7c. I.

Dispose of accessories as metal scrap or as plastic waste according to the material used.

8 Information about the device

8.1 Technical data

Type (of unit):	SA 1028	
Code no.:	3249	
Housing and roller carriage:	stainless steel	
Serial number:	see type plate on the back of the device	
Operating voltage:	100 – 230 V~ (± 10%) 50/60 Hz;	
Power cable length 2 m		
Max. current consumption:	0.8 A/230 V	1.3 A/115 V
Protection class:	I	
Emission sound pressure level (A-weighted):	<70 dB(A)	
Drive device:		
External dimensions:	225 × 320 × 235 mm	
Weight:	4 kg (incl. fastening material)	
Roller carriage:		
External dimensions:	465 × 340 × 105 mm	
Internal dimensions:	410 × 280 × 70 mm	
Weight:	1.75 kg (net)	
Max. mass:	≤ 5 kg (roller carriage incl. load)	
Shaking frequency:	nominal 220 strokes/min (at 100% power)	
Amplitude:	20 mm/12 mm	
Degree of protection:	IP 20 according to DIN EN 60529	

8.2 Ambient conditions

Overvoltage category:	II
Degree of soiling/contamination:	2
Permissible ambient temperature:	5 to 40 °C
Permissible relative humidity to 31 °C:	80% (non-condensing)
Permissible relative humidity to 40 °C:	50% (non-condensing)
Altitude	< 2000 m above sea level
Only for indoor operation	


8.3 CE conformity

The device meets the CE certification criteria of the European Union:


- 2014/30/EU – EMC Guideline
- 2006/42/EC – Machinery Directive
- 2011/65/EU – RoHS Directive

The declaration of conformity can be requested from the manufacturer, stating the serial number.

9 Accessories



EK 10



EK 100

EK spring clamps ...
EK mounting brackets are necessary to attach sample vessels.
They prevent floating or tilting of the flasks and can be attached to the roller carriage quickly and easily.
Spring clamps are not included in the scope of delivery.

EK 10	7521	10 ml	35 pcs./roller carriage
EK 25	7519	25 ml	35 pcs./roller carriage
EK 50	7518	50 ml	18 pcs./roller carriage
EK 100	7516	100 ml	12 pcs./roller carriage
EK 250	3259	250 ml	10 pcs./roller carriage

Spare part



MP-8138 brake chamber

BANDELIN *electronic* GmbH & Co. KG

Heinrichstrasse 3 – 4

12207 Berlin

Germany

Phone: +49 (0) 30/76880-0

Fax: +49 (0) 30/7734699

info@bandelin.com

www.bandelin.com