SONOREX

High-power ultrasonic baths in the medical field

Disinfection and cleaning of instruments in 5 minutes

SONOMIC

Disinfection and cleaning of rinseable MIS instruments

BANDELIN

60 years of experience in ultrasound

Which instruments can be treated with ultrasound?

General Purpose Instruments operating scissors, needle holders, tweezers, forceps, trocars, scalpels	Micro-Surgical Instruments in neurosurgery and ophthalmology	MIS Instruments detachable instruments, micro clamps etc
Endoscopic Accessories biopsy forceps, nooses, valves	ECG and EEG-Electrodes	Small Parts

Advantages of ultrasonic cleaning

- Fast instrument circulation
- Disinfection time is reduced to 5 minutes
- Gentle intensive cleaning
- Instruments are getting in touch with the disinfection solution only for a short time - no risk of corrosion
- Economical use of resources as water, chemicals and electricity
- Rapid cleaning of places difficult to reach such as cavities, holes etc. without provoking mechanical damage

How to select the proper ultrasonic bath

- Size and number of objects to be cleaned determine the size of the ultrasonic bath.
- When selecting the unit the dimensions of the accessories, e.g. baskets have to be considered.
- To avoid overcharging, it is recommended to choose the next larger unit.
- This also allows supplementary applicatons at a later stage.

When is a heater recommended

Ultrasonic baths without heater:
- For disinfection and simultaneous cleaning after dry deposit.
- Disinfecting solutions may not be warmed up as the protein starts to coagulate at a temperature of 40 °C (104 °F).
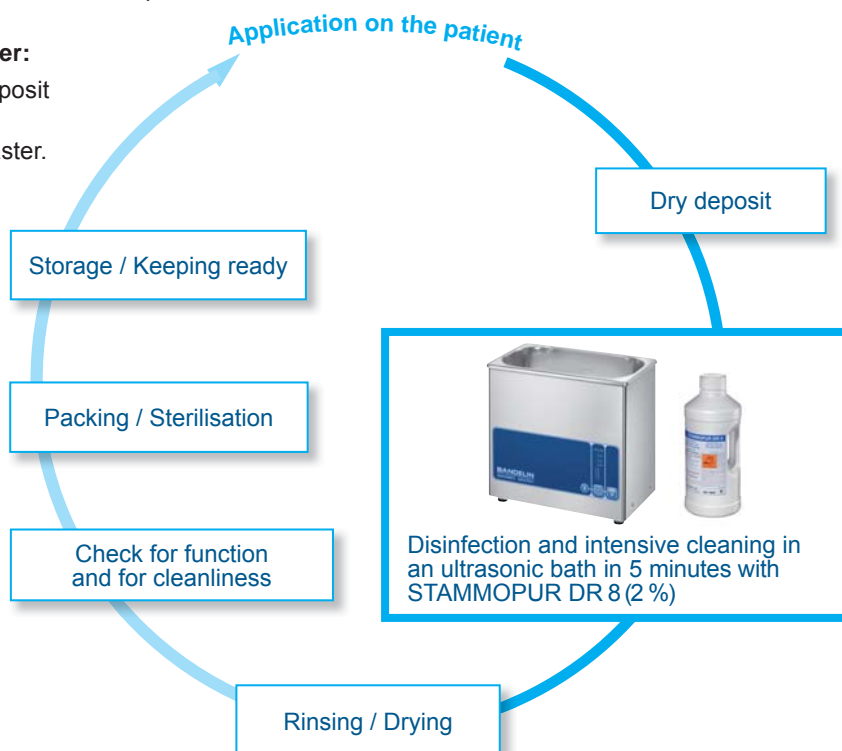
Ultrasonic baths with heater:
- For cleaning after wet deposit or for basic cleaning.
- Residues are removed faster.

What kind of accessories should be used

- Parts to be cleaned must not be placed on the tank bottom.
- Instruments are not to be stapled and baskets are not to be overloaded.
- Instruments like forceps and scissors must be opened completely or detached, if necessary.
- Instruments must be covered completely with cleaning liquid.
- Air has to escape from hollows and hoses.

Recommended agents

- The disinfecting and cleaning agents STAMMOPUR have been especially developed for the application in ultrasonic baths.
- Microbiological expertises are available for the time reduction of the disinfection process.
- Flammable liquids like alcohol or aggressive cleaning liquids like acids and saline solutions may not be used.
- Water without any appropriate additives does neither disinfect nor clean.

Application on the patient

Dry deposit

Storage / Keeping ready

Packing / Sterilisation

Check for function and for cleanliness

Disinfection and intensive cleaning in an ultrasonic bath in 5 minutes with STAMMOPUR DR 8 (2 %)

Rinsing / Drying

Treatment of medical instruments in an ultrasonic bath

Fast instrument circulation and gentle intensive cleaning through simultaneous disinfection and cleaning in 5 minutes.
No damage of the instruments by manual brush cleaning.

Disinfection and cleaning of medical instruments in SONOREX DIGITEC DT 514

Disinfection and cleaning of micro-surgical instruments fixed on silicone knob mat SM 14 in the insert basket K 14

Disinfection and cleaning of endoscopic accessories in the insert basket K 14 with fixing clamps FE 12

Fast results with ultrasound

The contamination is detached from the instruments after a few seconds.

0 seconds   3 seconds   6 seconds   9 seconds

Illustrations:
Hemostat with blood residues Sonication in an Ultrasonic bath SONOREX SUPER RK 1028 with STAMMOPUR DR 8.

Contents

For many years BANDELIN electronic has been present at the major national and international medical exhibitions.
The MEDICA and Arab Health are mentioned here as the most famous events.

We would be glad to see you on our booth and give you all required information about ultrasonic cleaners and applications.

Digital
high-power ultrasonic baths
with fast degassing

Analogous
high-power ultrasonic baths
easy to operate

DT 156

RK 156

SONOREX DIGITEC DT-range		SONOREX SUPER RK-range
0.9 – 90.0	**Tank volume (litres)**	0.9 – 58.0
pushbuttons	**Operating elements**	turning knobs
1 – 30, continuous operation ∞	**Time setting (min)**	1 – 15, continuous operation ∞
after 12 hours	**Safety shut-down**	no
optional, version „H"	**Heating**	optional, version „H"
20 – 80 °C	**Heating, thermostatically adjustable**	30 – 80 °C RK 31 H: 65 °C fixed
yes	**Excess temperature signal**	no
yes, optionally activatable	**Protection against delay in boiling**	no
±3,5 K	**Setting accuracy of bath temperature**	±5 K
1.4301	**tank, made of stainless steel**	1.4301
yes	**Filling mark for safe dosage**	yes
yes, ab DT 106	**One-piece outlet**	yes, ab RK 106
protected against spray	**Liquid protection**	drip-proof
IP 33	**Degree of protection**	IP 32
35	**Ultrasonic frequency (kHz)**	35
yes	**SWEEP**	yes
yes	**PZT-transducers**	yes
yes	**Degas**	no
yes	**Mains supply 230 V~, 50/60 Hz or**	yes
yes	**Mains supply 115 V~, 50/60 Hz**	yes
1 program	**Data memory**	no
yes	**CE marked according to MDD**	yes
2	**Warranty period (years)**	2

Ultrasonic baths SONOREX DIGITEC

Temperature Display
Excess temperature signal

Hygienic
The flat front allows optimal disinfection and cleaning of the surface – no space for hidden germ accumulation

Filling mark
For safe dosage

ON / OFF function

Fixed programming
Save last regulation of time

DT 514 H

Button temperature

ON / OFF ultrasound DEGAS
Arbitrary time regulation for the degas function

Button time setting

Easy device selection:

Small units for ECG-/EEG-electrodes and small parts
SONOREX DIGITEC DT 31/H
SONOREX SUPER RK 31/H

		Electrodes	Small Parts

Round units for flexible endoscope accessories
SONOREX DIGITEC DT 106
SONOREX SUPER RK 106

General Instruments			
Endoscopic Parts			

Standard units for small instruments
SONOREX DIGITEC DT 100/H
SONOREX SUPER RK 100/H

Compact units for instruments up to 25 cm long
SONOREX DIGITEC DT 255/H
SONOREX SUPER RK 255/H

General Instruments	Micro-instruments		
		Electrodes	Small Parts

Long units for instruments up to 45 cm long
SONOREX DIGITEC DT 156
SONOREX SUPER RK 156

General Instruments	Micro-instruments		
Endoscopic Parts	Electrodes	Small Parts	

Compact units for instruments up to 32 cm long suitable for 1/2 DIN trays
SONOREX DIGITEC DT 514/H
SONOREX SUPER RK 514/H

Universal units for instruments up to 48 cm long suitable for 1/1 DIN trays
SONOREX DIGITEC DT 1028/H
SONOREX SUPER RK 1028/H

General Instruments	Micro-instruments	
Endoscopic Parts		

SONOREX Ultrasonic baths

SONOREX DIGITEC

DT 156

DT 31 H

DT 106

DT 1028 H

DT 100 H

DT 255 H

DT 514 H

SONOREX SUPER

RK 156

RK 31 H

RK 106

RK 1028 H

RK 100 H

RK 255 H

RK 514 H

Technical information

Internal tank dimensions (l × w × d) mm	Capacity litres	Type SONOREX DIGITEC	Code No.	Type SONOREX SUPER	Code No.	External dimensions (l × w × h) mm	Drain: ball valve	Ultrasonic peak output * W	HF output W_{eff}	Heating power W
190 × 85 × 60	0.9	DT 31 DT 31 H	3200 3220	RK 31 RK 31 H	329 044	205 × 100 × 170	-	240 240	30 30	- 70
240 × 140 × 100	3.0	DT 100 DT 100 H	3210 3230	RK 100 RK 100 H	301 312	260 × 160 × 250	- -	320 320	80 80	- 140
Ø 240 × 130	5.6	DT 106	3270	RK 106	306	Ø 265 × 270	G ¼	480	120	-
500 × 140 × 100	6.0	DT 156	3275	RK 156	305	530 × 165 × 245	G ¼	640	160	-
300 × 150 × 150	5.5	DT 255 DT 255 H	3215 3240	RK 255 RK 255 H	3066 316	325 × 175 × 295	G ¼ G ¼	640 640	160 160	- 280
325 × 300 × 150	13.5	DT 514 DT 514 H	3250 3211	RK 514 RK 514 H	277 207	355 × 325 × 305	G ½ G ½	860 860	215 215	- 600
500 × 300 × 200	28.0	DT 1028 DT 1028 H	3255 3231	RK 1028 RK 1028 H	322 324	535 × 325 × 400	G ½ G ½	1200 1200	300 300	- 1300

*4 times higher than HF output caused by modulation of ultrasound – SweepTec®

Advantages

- Suitable for DIN-/ISO trays

- Inclined tank bottom for complete emptying from ZE 1031 upwards

- Filling mark for safe dosage

- Hygienic maintenance through rounded tank and installation from below
- Operating elements at front side

- The generator can be hung up both, right and left-sided (see picture)

SONOREX ZE 1031 DT built-in

ST 30 DT

ST 15

SONOREX ZE ... DT		SONOREX ZE ...
13.5 – 46.0	**Tank volume (litres)**	13.5 – 46.0
ZE 514 DT – no ZE 1031/1032/1058/1059 DT – yes	**Inclined tank bottom**	ZE 514 – no ZE 1031/1032/1058/1059 – yes
ZE 514 DT/1031 DT/1058 DT	**Ultrasonic transducers at the bottom**	ZE 514/1031/1058
ZE 1032 DT/1059 DT	**Ultrasonic transducers at the bottom and at the side**	ZE 1032/1059
pushbuttons	**Operating elements**	turning knobs
ST 30 DT: 1– 30, continuous operation∞	**Time setting (min)**	ST 15: 1–15, continuous operation∞
after 12 hours	**Safety shut-down**	no
yes	**Temperature display**	no
yes	**Excess temperature signal**	no
ZE 514 DT – 0.8 mm / AISI 304 ZE 1031/1032/1058/1059 – 2 mm / AISI 316 Ti	**Thickness of the tank / stainless steel**	ZE 514 – 0.8 mm / AISI 304 ZE 1031/1032/1058/1059 – 2 mm / AISI 316 Ti
yes	**Filling mark for safe dosage**	yes
ZE 514 DT – with drain set G 1½ ZE 1031/1032/1058/1059 – Sicke1½" (drain set G 1½ optional)	**Outlet**	ZE 514 – with drain set G 1½ ZE 1031/1032/1058/1059 – bead 1½" (drain set G 1½ optional)
yes	**Optional rinsing tank**	yes
yes	**SWEEP**	yes
yes	**PZT-transducers**	yes
yes	**Degas**	no
yes	**Mains supply 230 V~, 50/60 Hz**	yes
yes	**Mains supply 115 V~, 50/60 Hz**	yes
1 Programm	**Data memory**	no
ja	**CE marked according to MDD**	ja
2	**Warranty period (years)**	2

Disinfection and cleaning of instruments for group practices, decentralised and centralised treatment

Built-in units in digital version with temperature display SONOREX ZE ... DT

Built-in units in analog version SONOREX ZE ...

ZE 1031 DT

ZE 1031

SONOREX ultrasonic built-in units with ultrasound from the bottom

Internal tank dimensions (l × w × d) mm	Capacity litres	Type	Code No.	External dimensions (l × w × h) mm	Outlet	Ultrasonic peak output * W	HF output W_{eff}	Current consump- tion** A	Weight net kg
325 × 300 × 150	13.5	ZE 514 ZE 514 DT	2097 3202	350 × 324 × 215[2]	drain set G 1 ½	860	215	1.0	7.8
510 × 300 × 200/220[1]	29.0	ZE 1031 ZE 1031 DT	3060 3217	570 x 360 × 270/290[1][2]	bead 1 ½"	1200	300	1.4	16.7
600 × 400 × 200/220[1]	46.0	ZE 1058 ZE 1058 DT	3050 3234	660 x 460 × 270/290[1][2]	bead 1 ½"	2400	600	2.7	22.8

ZE 514, ZE 514 DT: Installation from below or from above, ZE 1031 to ZE 1058 DT: Installation from below
[1]tank with oblique bottom
[2]dimensions without generator, Exterior dimensions of the HF-generators 360 × 310 × 142 mm (l × w × h)
*Ultrasonic peak output is 4 times higher than HF output caused by modulation of ultrasound – SweepTec®
**in case of 230 V~ 50/60 Hz

Optiones

Rinsing tanks made of stainless steel without ultrasound, to be mounted into workplates

| For type	Type	Code No.	innder dim. mm (l × w × d)
ZE 514	SW 14 Z	088	325 × 300 × 150, drain set G 1 ½
ZE 1031/1032 / … DT	SW 31 Z	3048	510 × 300 × 200/220, inclined bottom, with bead 1 ½", without drain set
ZE 1058/1059 / … DT	SW 58 Z	3049	600 × 400 × 200/220, inclined bottom, with bead 1 ½", without drain set
ZE 1031/1032 / … DT ZE 1058/1059 / … DT	drain set G 1 ½ with bowden cable	601	

Ultrasonic built-in units with simultaneous irradiation from the bottom and from the side

- Optimal distribution of sonic waves and reduction of ultrasound shadow through additional lateral irradiation

- Electronically induced movements of sound field by means of TwinSonic® technology reduce local peaks of impact resulting in an even cleaning performance in the ultrasonic bath

- No additional lifting gear required for the instrument basket, no additional space required within the work area

- Intense and still gentle cleaning effect particularly for damageable micro instruments

- Generators state-of-the-art with SweepTec® frequency automatic adapt the ultrasound effect continuously to conditions in the bath

- Unvaried construction of tank border allows easy replacement of older built-in tanks
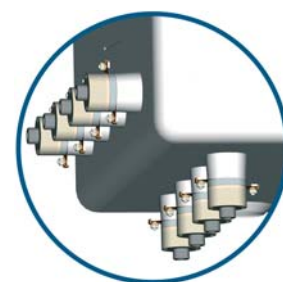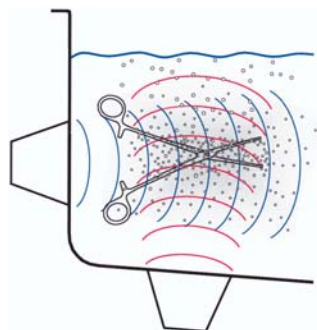
Details

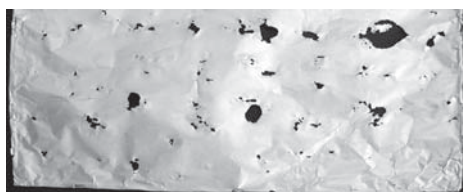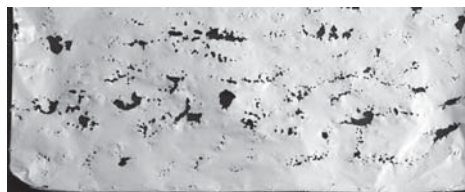## Ultrasonic effect
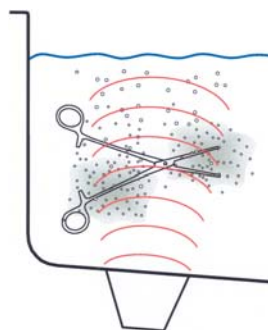
Standard with bottom irradiation

bottom and lateral irradiation
pattern DE 20 2004 006 380.8

intensive
ultrasound field

Effect of Cavitation
Illustration through foil test according to IEC/TR 60886 (1987-03) ...

... in an ultrasonic unit with bottom irradiation

... in an ultrasonic unit with bottom and lateral irradiation

SONOREX ultrasonic built-in units with ultrasound from the bottom and side

Internal tank dimensions (l × w × d) mm	Capacity litres	Type	Code No.	External dimensions (l × w × h) mm	Outlet	Ultrasonic peak output * W	HF output W_{eff}	Current consump- tion** A	Weight net kg
510 × 300 × 200/220[1]	29.0	ZE 1032 ZE 1032 DT	3075 3223	570 x 410 × 270/290[1][2]	bead 1 ½"	1760	440	2.0	18.7
600 × 400 × 200/220[1]	46.0	ZE 1059 ZE 1059 DT	3085 3248	660 x 510 × 270/290[1][2]	bead 1 ½"	2400	600	2.7	23.3

ZE 1032 to ZE 1059 DT: Installation from below
[1] tank with oblique bottom
[2] dimensions without generator, Exterior dimensions of the HF-generators 360 × 310 × 142 mm (l × w × h)
*Ultrasonic peak output is 4 times higher than HF output caused by modulation of ultrasound – SweepTec®
**in case of 230 V~ 50/60 Hz

When using appropriate accessories the ultrasound application becomes easier. The oscillating tank and parts to be cleaned will be protected.

Parts to be cleaned or vessels must not be placed on the tank bottom.

Insert basket

pattern DE 20 2009 017 747.1
made of stainless steel
- protects valuable instruments
- avoids damages at the tank bottom
- optimum transfer of ultrasonic effect

K 6 - to be set in

Mesh sizes: 5 × 5 mm
K 08:   4 × 4 mm
K 3 C: 3.5 x 3.5 mm

Inner dimensions mm (l × w × d)

K 08	170 × 65 × 50
K 3 C	200 × 110 × 40
K 6	dia. 215 mm, 50 mm high
K 5 C	260 × 110 × 40
K 6 L	460 × 100 × 50
K 14	275 × 245 × 50
K 28	455 × 245 × 50

K 14
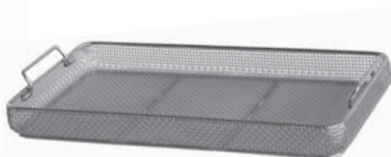
Inset basket

made of stainless steel
Basket holder necessary! Mesh size 4 × 4 mm

Inner dimensions mm (l × w × d)

K 14 EM	230 × 240 × 45
K 29 EM	470 × 240 × 45

K 14 EM   K 29 EM

Basket holder

made of stainless steel
For inset baskets or 1/2- and 1/1-DIN or ISO sieve trays.

KT 14	for K 14 EM or 1/2-DIN sieve trays
KT 30	for K 29 EM or 1/1-DIN sieve trays
KT 30 Z	like KT 30, with handles
KT 57	for K 29 EM, 1/1-DIN- or ISO sieve trays
KT 57 Z	like KT 57, with handles

KT 14   KT 30 Z with K 29 EM

Accessories / Units	RK 31 / H DT 31 / H	RK 100 / H DT 100 / H	RK 106 DT 106	RK 156 DT 156	RK 255 / H DT 255 / H	RK 514 / H DT 514 / H
Insert basket Code No.	**K 08** 209	**K 3 C** 3025	**K 6** 356	**K 6 L** 202	**K 5 C** 3027	**K 14** 354
Inset basket Code No.	-	-	-	-	-	**K 14 EM** 226
Basket holder Code No.	-	-	-	-	-	**KT 14** 131
Lid ❶ Code No.	**D 08** 218	**D 100** 3003	**D 6** 346	**D 156** 3004	**D 255** 3007	**D 514** 3010
Lid ❷ Code No.	-	-	-	-	-	-
Lid ❸ Code No.	-	**D 3 T** 114	-	-	**D 5 T** 3054	**D 14 T** 3062
Hinged lid ❹ Code No.	-	-	-	-	-	-

Lids for covering of the tank protect from outside dirt and for bad smells
Lid to exemplify:
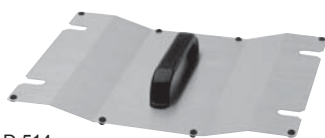
❶ Lid
made of stainless steel

D 514

❷ Lid
made of stainless steel
For use with K 14 EM and KT 14.
For ZE 514 - installation from below.

D 14

❸ Lid
made of stainless steel
Especially for inset baskets without short handles. For ZE 514 - installation from above.

D 14 T

❹ Hinged lid
made of stainless steel
To be mounted to the ultrasonic unit. Hinged lid for built-in units ZE 1031/1032/DT and ZE 1058/1059/DT with gas spring and EPDM-gasket.

D 1031 G

Units / Accessories	RK 1028 / H DT 1028 / H	ZE 514 ZE 514 DT	ZE 1031 ZE 1031 DT ZE 1032 ZE 1032 DT	ZE 1058 ZE 1058 DT ZE 1059 ZE 1059 DT
Insert basket Code No.	K 28 358	-	-	-
Inset basket Code No.	K 29 EM 688	K 14 EM 226	K 29 EM 688	K 29 EM 688
Basket holder Code No.	KT 30 056	KT 14 131	KT 30 056 · KT 30 Z 077	KT 57 061 · KT 57 Z 3078
Lid ❶ Code No.	D 1028 3011	-	-	-
Lid ❷ Code No.	-	D 14 344	D 30 049	D 57 052
Lid ❸ Code No.	D 28 T 3063	-	-	-
Hinged lid ❹ Code No.	-	-	D 1031 G 3229	D 1058 G 3232

11

When using appropriate accessories the ultrasound application becomes easier. The oscillating tank and parts to be cleaned will be protected.

General Instruments	Micro-instruments	
Endoscopic Accessories	Electrodes	Small Parts

Micro-Instruments
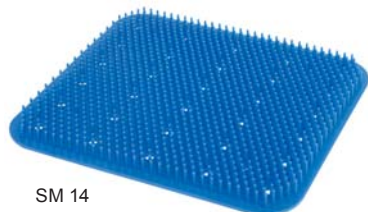
SM 14

Silicone knob mat

Contact-free storage of very sensitive micro-instruments. Avoids damages of the instruments. To be fixed into the basket.
Good ultrasound permeability.

SM 3	170 × 97 mm, for K 3 C
SM 5	213 × 97 mm, for K 5 C
SM 6	426 × 97 mm, for K 6 L
SM 14	235 × 245 mm, for K 14, K 14 EM
SM 29	470 × 245 mm, for K 28, K 29 EM

Endoscopic Accessories

FE 12 im Einsatzkorb

Fixing clamp set

Facilitates the disinfection and cleaning of biopsy forceps and instruments and avoids damages. Set composed of 2 large and 5 small plastic clamps to fix securely flexible endoscopic accessories.

Micro-instruments

PK 2 C

Insert basket made of plastic

Avoids damages at the instruments. Suitable up to 137 °C.
Hole size K 14 P, K 28 P: 10.5 × 7 mm
Hole size PK 2 C, K 5 P: dia. 2 mm

		Bottom dimensions (l × w × d)
PK 2 C	PE	187 × 90 × 56 mm
K 5 P	PE	254 × 96 × 130 mm

KW 14

Insert tub made of plastic with lid

For basic instrument cleaning with STAMMOPUR GR.

		Bottom dimensions (l × w × d)
KW 3	PE-natural	195 × 115 × 88 mm
KW 5	PE-natural	254 × 96 × 130 mm
KW 14	PP-whit	280 × 215 × 145 mm
KW 28-0	PP-natural	437 × 230 × 155 mm

Units / Accessories	RK 100 / H DT 100 / H	RK 156 DT 156	RK 255 / H DT 255 / H	RK 514 / H DT 514 / H	RK 1028 / H DT 1028 / H	ZE 514 ZE 514 DT	ZE 1031 ZE 1031 DT ZE 1032 ZE 1032 DT	ZE 1058 ZE 1058 DT ZE 1059 ZE 1059 DT
Silicon knob mat Code No.	SM 3 093	SM 6 110	SM 5 101	SM 14 118	SM 29 178	SM 14 118	SM 29 178	SM 29 178
Fixing clamp set Code No.	FE 12 117	FE 12 117	FE 12 117	FE 12 117	FE 12 117	FE 12 117	FE 12 117	FE 12 117
Inset plastic, plastic Code No.	PK 2 C 3082	-	K 5 P 113	-	-	-	-	-
Insert tub, plastic Code No.	KW 3 715	-	KW 5 240	KW 14 613	KW 28-0 717	KW 14 613	KW 28-0 717	-

Disinfection and cleaning of rinseable MIS instruments

Advantages

Individual examination of instruments

Clear identification of non-permeable or clogged instruments on the display.
Message on touchscreen: "Instrument at channel 5 is clogged"
More information on page 14.

Suction rinsing principale

The contamination will not be transported through the complete lumen. Dirt particles and undesired deposits are to be able to fix at the joints, narrow points and near the handles.
More information on page 14.

Universal adapter

The universal adapter allows a connection of max. 12 cannulated MIS Instruments with an outside diameter 1-10 mm. A change of the seal is not necessary.
More information on page 15.

Flexible application

Three selectable modes allow the reprocessment of different instrument types e.g. cannulated/rinsable and dismountable instruments as well as ordinary instruments like scissors and forceps etc.

Possible application:

Modus 1 = Disinfection and cleaning of rinseable MIS instruments
Modus 2 = cleaning of rinseable MIS instruments
Modus 3 = Disinfection and cleaning of simple instruments

SONOMIC® MC 1001 E – built-in

SONOMIC® MC 1001

SONOMIC® – Good to know

Individual examination of instruments instead of overall check

The simultaneous rinsing of all instruments via one pressure pump connection makes it impossible to identify non-permeable instruments. It is therefore not possible to control the safe rinsing of each individual instrument. In the SONOMIC, this problem is solved with an innovated and patented – EP 1920797 – channel selector that always only releases one instrument for rinsing. Thus only one of the maximum of 12 instruments is connected with the suction pump and checked for fluid permeability during the rinsing process.

The determination, allocation and clear display of the successful rinsing capability of each individual instrument provides the user with more security for each reprocessing.

channel selector

The flow rate sensor determines the flow rate for the selected instrument. The minimum value for instruments which are permeable to the fluid is a flow rat of 2 ml/sec. with 0.8 bar underpressure. Instruments which are not permeable to the fluid are thus safely identified and indicated on the touchscreen. Their withdrawal for separate reprocessment has to be confirmed individually.

flow rate sensor

Temperature and filling level monitoring

The temperature and the filling level of the bath liquid play an important role in instrument reprocessing with ultrasound. This is why the SONOMIC® contains sensors for monitoring these parameters.

The correct bath filling level is monitored in the SONOMIC® with the integrated filling level sensor. In case of too low filling level in the tank it is impossible to start the process and an error will be shown on the touchscreen additionally.

The temperature sensor checks before each load cycle whether the bath temperature is within the permitted range. In case of too low temperature (< 18°C) the heater switch on automatically and heat up the liquid til the minimum temperature of 18°C. To prevent the coagulation of proteins on the instruments the bath temperature is controlled. If 40°C is exceeded, this is displayed as a warning message on the touchscreen.

## Thoroughness by patented suction rinsing principal

The SONOMIC is the only patented ultrasonic device with a suction rinsing function for the cleaning and disinfection of rinseable MIS instruments. As a rule, the greatest amount of contamination is usually found at the distal end of the MIS instrument.
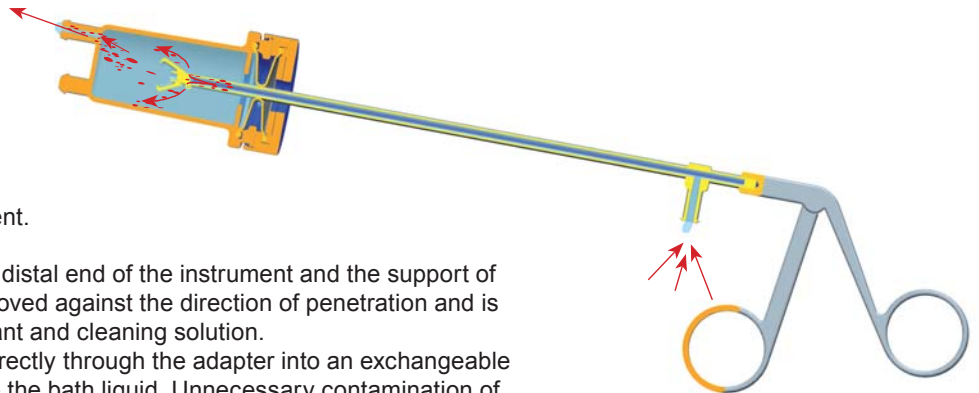
With repeated suction rinsing at the distal end of the instrument and the support of ultrasound, all contamination is removed against the direction of penetration and is followed by a flow of fresh disinfectant and cleaning solution.

The detached contaminants pass directly through the adapter into an exchangeable filter, and thus do not pass back into the bath liquid. Unnecessary contamination of the rear part of the lumen is avoided.

Pressure rinsing principle used by competitors

In the principle of pressure rinsing, all contaminants are moved from the distal end through the entire lumen of the instrument. This represents an increased risk of undesired deposits or even blockages, especially at the joints, narrow points and near the handles of the instruments. Direct discharging of the contaminated liquid into tank must been mentioned as an additional negative effect.


14
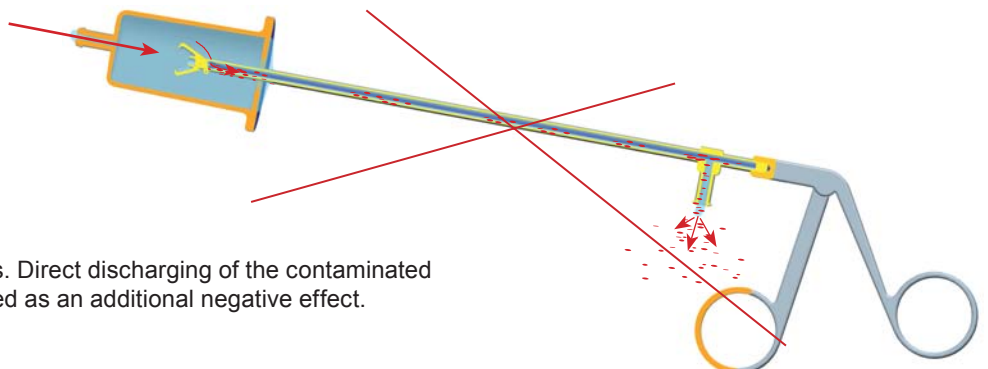
Connection of instruments without exchange of seals

12 rinseable MIS instruments with diameters from 1 mm to 10 mm can each be connected to one of the identical adapters without having to exchange the adapter seal for this.

The innovative rotating principle of the seal guarantees a complete sealing at the external shaft of the instrument.

Adapter position

opened   closed
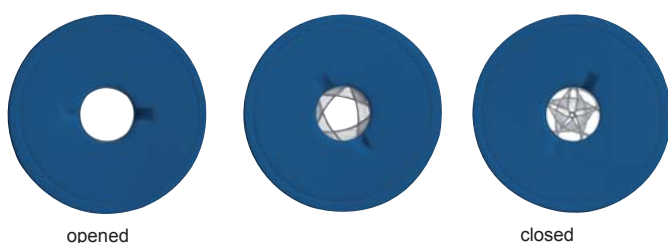
This is essential for a perfect suction rinsing with the disinfection and cleaning solution through the instrument. The highly elastic sealing material has been tested in ultrasound and is resistant against disinfectant and cleaning solutions STAMMOPUR DR 8 and STAMMOPUR R. An exchange of seal is only necessary after approx. 500 load cycles. It can be carried out very easily without tools thanks to the structure of the adapter.

Safety through strict program sequence

Coordinated steps of operation and defined times of impact are necessary for degassing the liquid, for exhausting and repeated internal rinsing of the instruments as well as for complete external disinfection .
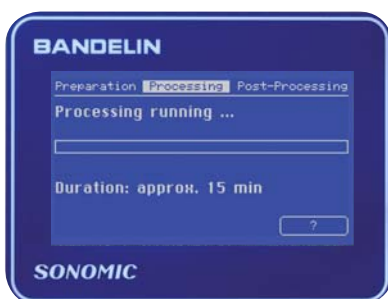
The user receives clear instructions on the touchscreen, leading him/her through the individual work steps in the operating program. This includes an adapter check prior to each load cycle, which is mandatory for a safe identification of non-permeable instruments.

Informative help texts can also be called up in the program using the touchscreen.

Increased disinfecting and cleaning efficiency through ultrasound

Efficiency of disinfection and cleaning is strongly increased during suction rinsing and during external disinfection through switching on the ultrasound. Existing contamination at the distal end and in the lumens of the instruments are thoroughly removed by means of gentle ultrasonic cavitation without damaging the instruments. Application in the SONOMIC unit: Simultaneous disinfection and intensive cleaning with STAMMOPUR DR 8 at 2 %. Cleaning with STAMMOPUR R at 2 %.
(see page 18/19)

Round tank corners

and the inclined tank bottom facilitate a complete emptying and a hygienic cleaning of the tank. Caking of residues is avoided.

Versatility through multiple use

SONOMIC had been especially developed for simultaneous disinfection and cleaning of rinseable MIS instruments. But even rinseable parts of other instruments can be connected to the adapters, provided that the external diameter is between 1 mm and 10 mm. Disinfection and cleaning of lumens of rinseable instruments or of rinseable parts of other instruments assure their functional capability. Contamination is reliably removed, rough-running or jam of instruments is prevented. Even those instruments which had been sorted out before may be used after disinfection and cleaning in SONOMIC because older contaminations are removed. Additionally, other medical instruments such as scissors and forceps can also be placed loosely into the basket and can be disinfected and cleaned as well.

On request we send you our SONOMIC product movie.

For more information visit www.sonomic.eu

	General Instruments	Micro-Instruments	MIS Instruments
Endoscopic Parts			

Ultrasonic compact unit
SONOMIC® MC 1001

Ready-to-operate basic equipment with:
- Basket K 1001 MC
- 12 adapter with seal and hose ADS 1000
- 12 adapter seals AD 1000
- 30 filter cartridges EF 1001

Code No. 3315

swivelling control unit ST 1001 E

Ultrasonic built-in unit
SONOMIC® MC 1001 E

Ready-to-operate basic equipment with:
- Oscillating tank
- HF generator with rinsing module
- Control unit
- Basket K 1001 MC
- 12 adapter with seal and hose ADS 1000
- 12 adapter seals AD 1000
- 30 filter cartridges EF 1001

Code No. 3345

	SONOMIC® compact unit	SONOMIC® built-in unit
Inner tank dimensions (*tank with inclined bottom)	650 × 400 × 160/170* mm (l×w×d)	650 × 410 × 160/170* mm (l×w×d)
Material	stainless steel AISI 316 Ti, 2 mm	stainless steel AISI 316 Ti, 2 mm
Capacity	42.5 litres	43.5 litres
Filling volume	27.0 litres	27.5 litres
Safety arrangements	temperature and filling level monitoring	temperature and filling level monitoring
PZT-broad beam transducers (bottom)	12	12
Ultrasonic peak output**	2400 W	2400 W
Ultrasonic frequency	40 kHz	40 kHz
HF-power	600 W	600 W
Preservation heating, program-controlled	400 W	400 W
Current consumption	2.7 A	2.7 A
External dimensions, housing	860 × 490 × 325 mm (l × w × h)	-
External dimensions, tank	-	860 × 475 × 250 mm (l × w × h)
Outlet	ball valve G ¾ thread feed pipe G ¾, at the rear side	G 1½ drain set with turning knob and stainless steel stopper
External dimensions, HF generator with rinsing module	-	455 × 155 × 360 mm (l × w × h)
Interface	-	parallel and serial for the connection at a receipt printer or a PC
Operating: Touchscreen 96 × 61 mm	integrated	control unit
Mounting into the working plate	-	from below
Weight	45 kg, with basket and lid	40 kg, total
CE according to MDD	yes	yes

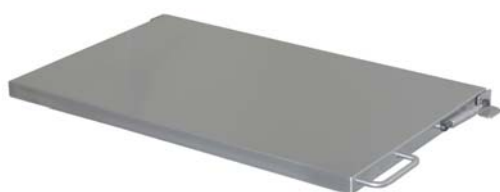*tank with oblique bottom   **Ultrasonic peak output is 4 times higher than HF output caused by modulation of ultrasound – SweepTec®

Accessories

Lid D 1000 MC

made of transparent plastic,
protection against contamination from outside

Code No. 3312

Hinged lid

made of stainless steel, with gas spring and EPDM gasket,

D 1001 G for MC 1001
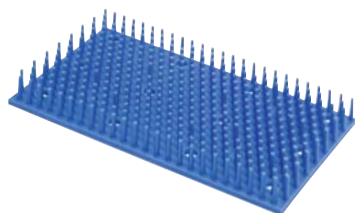
Code No. 3310

D 1001 GE for MC 1001 E

Code No. 3326

Basket K 1001 MC

– contained in the set –
made of stainless steel,
with holders for dripping over the oscillating tank: sieve tray
520 × 340 × 50 mm (l × w × d)

Code No. 3324

Silicone knob mat
SM 1000 MC

for gentle storage of instruments in the basket. Contents of
2 pieces, each 245 × 172 mm.

Code No. 3313

Consumables

Filter cartridges EF 1001

– 30 pieces contained in the set –

Package 30 pcs
Code No. 3365

Package 100 pcs
Code No. 3366

Adapter seals AD 1000

– 12 pieces contained in the set –

Package 12 pcs
Code No: 3353

Package 24 pcs
Code No: 3354

Package 36 pcs
Code No: 3355

Adapter with seal and hose
ADS 1000

– 12 pieces contained in the set –

Package 1 pcs
Code No: 3350

Package 12 pcs
Code No: 3351

**Advice and technical
information
☎   +49 30 76880-212**

STAMMOPUR Disinfection and cleaning

To achieve the optimum ultrasonic efficiency, it is necessary to use special disinfection and cleaning solutions. They must have cavitation-improving and material-protecting features for the ultrasonic application. The protection of the objects and the oscillating tank must be guaranteed, even during intensive usage.

Many customary disinfection and cleaning agents may contain substances that can attack the oscillating stainless steel tank.

STAMMOPUR concentrates have been especially developed for ultrasonic application and are marked CE according to the Medical Devices Directive (MDD).

All solutions are environmental friendly, biodegradable and easy to dispose.

Please ask for free dosing table:
info@bandelin.com

Instrument disinfektion and intensive cleaning
STAMMOPUR DR 8 – VAH-certified

Disinfection and intensive cleaning of instruments after dry deposit. High blood dissolution, for instruments heavily contaminated with incrustations of blood and secretions. Due to short irradiation time especially recommended for the disinfection and cleaning of very sensitive and valuable micro-surgical, MIS instruments and endoscopic accessories. Recommended by known manufacturers of endoscopes.

Solution applicable under strain for 3 sequent days. Very high material compatibility. Non-odiferous.

Anticorrosive. Without aldehydes, chlorine, phenols. Bactericidal, tuberculocidal, yeasticidal, virucidal against Vaccinia, BVDV, Papova, Adeno, HBV, HCV, HIV, H5N1, mildly alkaline pH 9.4 at 1 %.

100 g contain: 9.9 g bis(3-aminopropyl)dodecylamine, 8.4 g didecylmethylpolyoxyethylammoniumpropionate, 5 - 10 % non-ionic tensides, 30 - 50 % solvents, complexing agents, pH-regulators, adjusting agents, corrosion protection.
Expertises: Bacteria, fungi: Dr. F.-A. Pitten, Gießen 11/05, Prof. Dr. Werner, Schwerin 10/08; **HBV/HIV:** Prof. Dr. Frösner, München 08/99; **Time durability:** Prof. Dr. Werner, Schwerin 10/99; **Ultrasound time reduction:** Dr. Färber, Gießen 08/02; **Vaccinia, BVDV, H5N1:** Prof. Dr. L. Döhner, Dr. D. Becher, Greifswald 08/06; **Papova:** Prof. Dr. L. Döhner, Dr. D. Becher, Greifswald 01/07.
Adeno: Dr. M. Büttner, Dr. D. Becher, Greifswald 11/08.

Hazard identification: C, Corrosive; N, Dangerous for the environment

Application with ultrasound	Application without ultrasound
2 % – 5 min 1,5 % – 10 min 1 % – 15 min Papova with high protein burden 2 % – 10 min Adeno with high protein burden 3 % – 15 min	1 % – 60 min 2 % – 30 min 3 % – 15 min

Form of delivery	2-litres-bottle	5-litres-jerrycan	25-litres-jerrycan
Code No.	972	974	936

Intensive instrument cleaning
STAMMOPUR R

Intensive cleaner for routine cleaning of medical instruments in the ultrasonic bath. High cleaning efficiency, even for instruments heavily contaminated with incrustations of blood and secretions.

Anticorrosive, very high material compatibility, applicable for all materials. In dosage of 2 % also applicable as contact liquid in the ultrasonic bath - e.g. for recommended basic cleaning of spotted and ugly looking instruments with STAMMOPUR GR.

Without phosphates, aldehydes and chlorine. Main active agents: tensides, mildly alkaline pH 9.6 at 1 %.

Application with ultrasound
2 %   3 – 10 min

Form of delivery	2-litres-bottle	5-litres-jerrycan	25-litres-jerrycan
Code No.	934	989	976

Basic instrument cleaning

Prior to basic cleaning

After basic cleaning

STAMMOPUR GR

Basic cleaning of spotted, encrusted and ugly looking instruments in the ultrasonic bath. Removes tarnish, metal oxides, rust, spotting, burned-in residues after sterilisation and mineral residues e.g. lime. Caution with damaged chroming and nickel-plated parts.

Not for light metals, tin and zinc. Not to be used for routine cleaning.
Main active agents: phosphoric acid, tensides, pH 1.9 at 1 %.

Only to be used for basic cleaning.

Hazard identification: C, corrosive

Application only in insert plastic tubs, see special accessories page 12.

Application with ultrasound
5 %   2 – 10 min
50 – 60 °C

Form of delivery	2-litres-bottle	5-litres-jerrycan	25-litres-jerrycan
Code No.	938	969	970

Overview

	Disinfection and cleaning of Instruments STAMMOPUR DR 8	Instrument cleaning STAMMOPUR R	Basic cleaning STAMMOPUR GR
Disinfection			
bactericidal	●		
tuberculocidal	●		
yeasticidal	●		
Papova, Adeno, Vaccinia, BVDV, HBV, HCV, HIV, H5N1	●		
Cleaning			
intensive cleaning	●	●	
basic cleaning			●
Characteristics			
without aldehydes	●	●	●
without phenols	●	●	●
without chlorine	●	●	●
Material compatibility			
steel, stainless steel, precious metal, plastic	●	●	●
light metal	●	●	
acrylic glass, rubber	●	●	●

Download of current product-information and EC-Safety Data sheets under www.bandelin.com

BANDELIN *electronic*

BANDELIN electronic, a family-owned mid-sized company, is located in the capital of Germany – Berlin.
The company has 60 years of experience in ultrasound technology. Development and manufacture of ultrasonic devices and disinfectant and cleaning agents are carried out in Berlin.
A high vertical range of manufacture, modern production lines and a high-motivated staff guarantee a high quality of the products. The customers can buy everything from one-hand. Ultrasonic devices are in use in nearly all branches like industry, maintenance, service, medical, pharmaceutical and dental fields as well as laboratories. Development and manufacture of ultrasonic cleaning units began already in 1949. The product range was enlarged in the middle of the eighties caused by increased sales.
Adjustable and power-constant HF-generators were launched in 1992. The brand names SONOREX, SONOPULS and SONOMIC are equated with ultrasound from experts.

The most important product groups are:

• SONOREX – Ultrasonic cleaning devices

• SONOPULS – Ultrasonic homogenisers

• SONOREX – Ultrasonic reactors

• SONOMIC – Ultrasonic cleaning device for rinseable keyhole surgery instruments

• ultraPuls – Ultrasonic therapy devices

• STAMMOPUR and TICKOPUR – Disinfection and cleaning agents

In the latest 20 years about 20 patterns / utility patents and 28 brand names were applied for.
The company supports several committees in compiling of norms and guidelines.

BANDELIN *electronic* is the leader in development of new ultrasonic devices and opening up new application areas. Certification EN ISO 9001:2008 and EN ISO 13485:2003 + AC:2007.
All products are CE marked, also as medical devices according to Medical Device Directive (MDD), and classified to UMDNS™, too.

Advice and technical information
☎ **+49 30 76880-212**

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All units CE marked according to MDD (Medical Device Directive). Illustrations exemplarily, not to scale.

Subject to technical alterations without notice. Decoration products are not included in delivery.

The general delivery terms apply.

BANDELIN

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60 years
of experience in ultrasound

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