SONOREX Ultrasound in the Medicine
Treatment of Medical Instruments
in High-Power Ultrasonic Baths

In *SONOREX* units

simultaneous

disinfection and cleaning

in 5 minutes

With *SONOMIC*®

controlled disinfection and

cleaning of rinseable keyhole

surgery instruments

BANDELIN
55 Years of Experience in Ultrasound Technology

Frequently Asked Questions

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	Rinsable Keyhole Surgery-Instruments detachable endoscopic instruments micro clamps etc
Endoscopic Accessories biopsy forceps, valves	ECG and EEG-Electrodes	Small Parts

Advantages of Ultrasonic Cleaning

- Fast instrument circulation
- The disinfection time ist reduced to 5 minutes
- Gentle intensive cleaning
- Instruments are getting in touch with the disinfection solution for a short time only and do not run the risk of corrosion
- Economical use of resources as water, chemicals and electricity
- Cleans rapidly, even from places difficult to get to 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. Disinfectant 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. Baths with heating are the first choice for the basic cleaning because warmed up cleaning solutions reduce the cleaning time and therefore residues are removed faster.

What Kind of Accessories Should Be Used?

Baskets ease the loading of parts to be cleaned in the tank and also protect the tank bottom from scratching.

Do not staple instruments. 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.

Special accessories, like silicone knob mats guarantee gentle storage of sensitive instruments.

The use of plastic insert tubs is necessary for the basic cleaning. Tank lids protect the liquid from outside dirt.
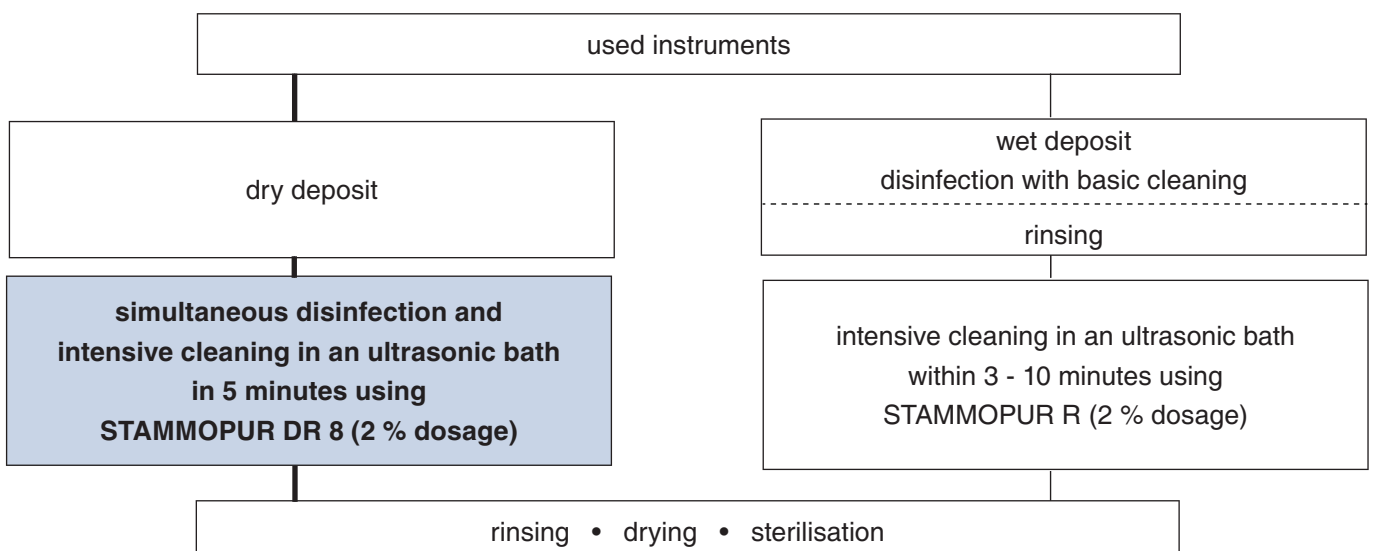
Recommended Agents

The disinfectant 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.

Ultrasonic Disinfection and Cleaning

used instruments

dry deposit

wet deposit
disinfection with basic cleaning
- -
rinsing

simultaneous disinfection and intensive cleaning in an ultrasonic bath in 5 minutes using STAMMOPUR DR 8 (2 % dosage)

intensive cleaning in an ultrasonic bath within 3 - 10 minutes using STAMMOPUR R (2 % dosage)

rinsing • drying • sterilisation

Criteria for selection ultrasonic baths
SONOREX DIGITEC and SONOREX SUPER
page 4

Ultrasonic baths
SONOREX DIGITEC and SONOREX SUPER
page 5–8

Examples for the treatment of medical instruments
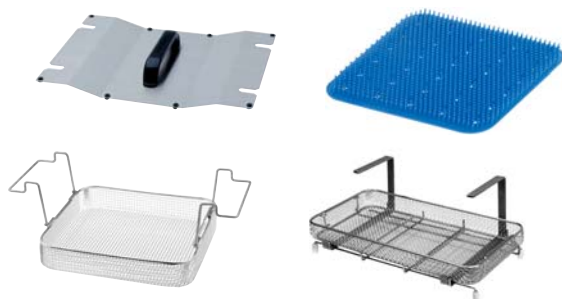page 9

SONOMIC – controlled disinfection and cleaning of
rinseable keyhole surgery instruments
page 10–13

Criteria for selection
SONOREX SUPER built-in units ZE / ZE...DT
page 14–15

SONOREX SUPER built-in units ZE / ZE ...DT
page 16–19

SONOREX standard- and special accessories
page 20–21

STAMMOPUR
disinfecting and cleaning agents
page 22–24

DT 156

DT 100

DT 106

DT 31

RK 514

RK 156

RK 106

RK 100

	SONOREX DIGITEC	SONOREX SUPER
Tank volume (litres)	0,9 – 90,0	0,9 – 58,0
Control elements	push-buttons	turning knobs
Time setting (min)	1 – 30, continuous operation ∞	1 – 15, ontinuous operation ∞
Safety shut-down	after 12 hours	no
Heater	optional, version „H"	optional, version „H"
Heater, thermostaically adjustable	20 – 80 °C	30 – 80 °C RK 31 H: 65 °C fixed
Excess temperature signal	yes	no
Protection against delay in boiling	yes, optionally switch-on	no
Setting accuracy of bath temperature	± 3,5 K	± 5 K
Thickness of s/s tank/material	0,8 mm, 1.4301	0,8 mm, 1.4301
Marking of filling level for safe dosage	yes	yes
Warranty period (years)	2	2
Onoe-piece drain	yes, from DT 255	yes, ab RK 255
Liquid protection	protected against spray	drip-proof
Protection class	IP 33	IP 32
Ultrasonic frequency (kHz)	35	35
Sweep	yes	yes
PZT-transducers	yes	yes
Degas	yes	nein
Mains supply 230 V~, 50/60 Hz or	yes	yes
Mains supply 115 V~, 50/60 Hz	yes	yes
Data memory	1 program	no
CE marked as medical device	yes	yes

SONOREX Ultrasonic Baths

Small Handy Unit for ECG-/EEG-Electrodes and Small Parts

SONOREX DIGITEC DT 31
Code No.: 3200

SONOREX SUPER RK 31
Code No.: 329

	Electrodes	Small Parts

Technical Data

Inner tank dimensions:	190 × 85 × 60 mm (l × w × d)
Material:	stainless steel 1.4301
Capacity:	0,9 litres
Filling volume:	0,6 litres
Transducer:	1 PZT-broad beam transducer
Ultrasonic peak output:	240 W
HF-output:	30 W_{eff}
Current consumption:	0,2 A
External dimensions:	DT 31: 205 × 100 × 170 mm (l × w × h)
	RK 31: 205 × 100 × 155 mm (l × w × h)
Weight:	1,8 kg

Standard Units for Small Instruments

SONOREX DIGITEC DT 100 (ill.)
Code No.: 3210

SONOREX DIGITEC DT 100 H with Heater
Code No.: 3230

SONOREX SUPER RK 100 (ill.)
Code No.: 301

SONOREX SUPER RK 100 H with Heater
Code No.: 312

General Instruments	Micro-instruments	
	Electrodes	Small Parts

Technical Data

Inner tank dimensions:	240 × 140 × 100 mm (l × w × d)
Material:	stainless steel 1.4301
Capacity:	3,0 litres
Filling volume:	2,0 litres
Transducer:	1 PZT-large area transducer
Ultrasonic peak output:	320 W
HF-output:	80 W_{eff}
Heater:	DT/RK 100 H 140 W
Current consumption:	DT/RK 100 0,4 A
	DT/RK 100 H 1,0 A
External dimensions:	260 × 160 × 250 mm (l × w × h)
Weight:	DT/RK 100 3,4 kg
	DT/RK 100 H 3,6 kg

Compact Unit for Instruments up to 25 cm Length

SONOREX DIGITEC DT 255
Code No.: 3215

SONOREX DIGITEC DT 255 H
with Heater (ill.)
Code No.: 3240

SONOREX SUPER RK 255
Code No.: 3066

SONOREX SUPER RK 255 H
with Heater (ill.)
Code No.: 316

General instruments	Micro-instruments	
	Electrodes	Small Parts

Technical Data

Inner tank dimensions:	300 × 150 × 150 mm (l × w × d)	
Material:	stainless steel 1.4301	
Capacity:	5,5 litres	
Filling volume:	3,8 litres	
Transducers:	2 PZT-large area transducers	
Ultrasonic peak output:	640 W	
HF-output:	160 W_{eff}	
Heater:	DT/RK 255 H	280 W
Current consumption:	DT/RK 255	0,7 A
	DT/RK 255 H	2,0 A
External dimensions:	RK - 325 × 175 × 305 mm (l × w × h)	
	DT - 325 × 175 × 295 mm (l × w × h)	
Weight:	DT/RK 255	5,2 kg
	DT/RK 255 H	5,3 kg
Features:	handles	
	outlet with ball valve G ¼	

Round Unit for Flexible Endoscope Accessories

SONOREX DIGITEC DT 106
Code No.: 3270

SONOREX SUPER RK 106
Code No.: 306

General Instruments		
Endoscopic Parts		

Technical Data

Inner tank dimensions:	Ø 240 mm, 130 mm deep
Material:	stainless steel 1.4301
Capacity:	5,6 litres
Filling volume:	4,0 litres
Transducers:	4 PZT-broad beam transducers
Ultrasonic peak output:	480 W
HF-output:	120 W_{eff}
Current consumption:	0,6 A
External dimensions::	Ø 265 mm,
	270 mm high
Weight:	5,5 kg
Features:	outlet with ball valve G ¼

SONOREX Ultrasonic Baths

Long Unit for Instruments up to 45 cm Length
SONOREX DIGITEC DT 156
Code No.: 3275

SONOREX SUPER RK 156
Code No.: 305

General instruments	Micro-instruments	
Endoscopic Parts	Electrodes	Small Parts

Technical Data

Inner tank dimensions: 500 × 140 × 100 mm (l × w × d)
Material: stainless steel 1.4301
Capacity: 6,0 litres
Filling volume: 4,0 litres
Transducers: 4 PZT-broad beam transducers
Ultrasonic peak output: 640 W
HF-output: 160 W_{eff}
Current consumption: 0,7 A
External dimensions: 530 × 165 × 245 mm (l × w × h)
Weight: 6,1 kg
Features: outlet with ball valve G ¼

Long Unit for Instruments up to 65 cm Length
SONOREX SUPER RK 158 S
Code No.: 320

General Instruments	Micro-Instruments	
Endoscopic Parts	Electrodes	Small Parts

Technical Data

Inner tank dimensions: 700 × 150 × 180 mm (l × w × d)
Material: stainless steel, 1.4571 (V4A), 2 mm
Capacity: 18,0 litres
Filling volume: 13,0 litres
Transducers: 8 PZT-broad beam transducers
Ultrasonic peak output: 1200 W
HF-output: 300 W_{eff}
Current consumption: 1,4 A
External dimensions: 750 × 200 × 385 mm (l × w × h)
Weight: 17,9 kg
Features: outlet with ball valve G ½

Compact Unit for Instruments up to 32 cm Length also Suitable for 1/2 DIN Trays

SONOREX DIGITEC DT 514 (ill.)
Code No.: 3250

SONOREX DIGITEC DT 514 H with Heater
Code No.: 3211

SONOREX SUPER RK 514 (ill.)
Code No.: 277

SONOREX SUPER RK 514 H with Heater
Code No.: 207

General Instruments	Micro-Instruments	
Endoscopic Parts		

Technical Data

Inner tank dimensions:	325 × 300 × 150 mm (l × w × d)
Material:	stainless steel 1.4301
Capacity:	13,5 litres
Filling volume:	9,0 litres
Transducers:	4 PZT-large area transducers
Ultrasonic peak output:	860 W
HF-output:	215 W_{eff}
Heater:	DT/RK 514 H 600 W
Current consumption:	DT/RK 514 1,0 A
	DT/RK 514H 3,6 A
External dimensions:	355 × 325 × 305 mm (l × w × h)
Weight:	DT/RK 514 8,2 kg
	DT/RK 514 H 8,8 kg
Features:	outlet with ball valve G ½ handles

Universal Unit for Instruments up to 48 cm Length, also Suitable for 1/1 DIN Trays

SONOREX DIGITEC DT 1028 (ill.)
Code No.: 3255

SONOREX DIGITEC DT 1028 H with Heater
Code No.: 3231

SONOREX SUPER RK 1028 (ill.)
Code No.: 322

SONOREX SUPER RK 1028 H with Heater
Code No.: 324

General Instruments	Micro-Instruments	Keyhole Surgery Instruments
Endoscopic Parts		

Technical Data

Inner tank dimensions:	500 × 300 × 200 mm (l × w × d)
Material:	stainless steel 1.4301
Capacity:	28,0 litres
Filling volume:	19,0 litres
Transducers:	8 PZT-broad beam transducers
Ultrasonic peak output:	1200 W
HF-output:	300 W_{eff}
Heater:	DT/RK 1028 H 1300 W
Current consumption:	DT/RK 1028 1,4 A
	DT/RK 1028 H 7,0 A
External dimensions:	535 × 325 × 400 mm (l × w × h)
Weight:	DT/RK 1028 4,3 kg
	DT/RK 1028 H 14,7 kg
Features:	outlet with ball valve G ½ handles

SONOREX DIGITEC DT 514 with K 14

**Treatment of Medical Instruments
in Ultrasonic Baths**

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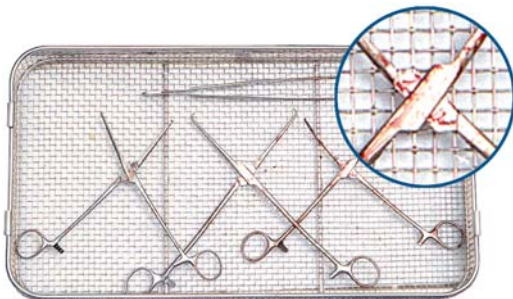by „brushing"

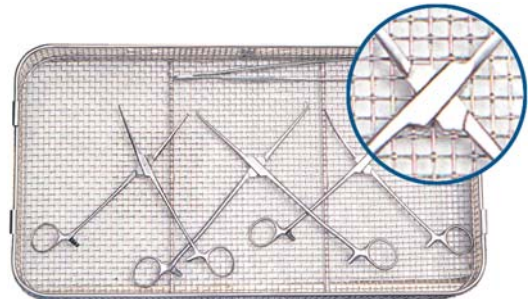
Endoscopic accessories in
fixing-clamps FE 12

Keyhole surgery instruments in
support MH 28
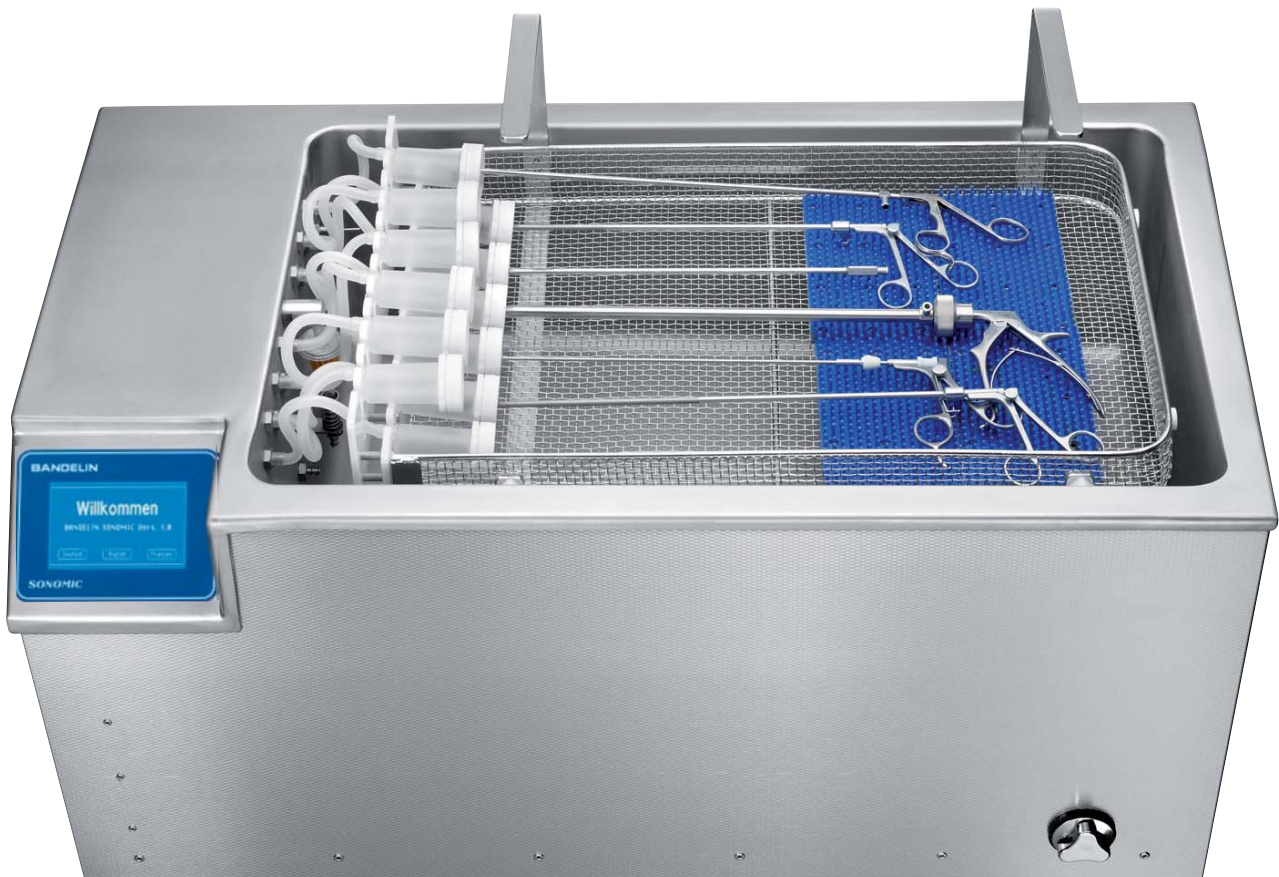

Micro-surgical instruments on
silicone knob mat SM 14

Prior to ultrasonic cleaning

After ultrasonic cleaning

Controlled Disinfection and Cleaning of Rinseable Keyhole Surgery Instruments

SONOMIC®

Ready for use set consisting of: **Code No.: 2300**

Technical Data

Inner tank dimensions:	650 × 400 × 210/230* mm (l × w × d)
	(*tank with oblique bottom)
Material:	stainless steel AISI 304, 2 mm thick
Filling volume:	35,0 litres
Outlet:	with turning handle
Transducers:	12 PZT-broad beam transducers
Ultrasonic frequency:	40 kHz
Ultrasonic peak output:	2400 W
HF-power:	600 W_{eff}
Preservation heating, program-controlled:	400 W
Current consumption:	2,9 A
External dimensions:	860 × 490 × 415 mm (l × w × h)
Weight with basket and lid:	40,0 kg

Thoroughness through repeated suction rinsing

When using a keyhole surgery instrument, contaminations enter the lumen of the instrument from the distal end. Not the entire lumen will be contaminated. Through repeated suction rinsing, supported by ultrasound at the distal end of the instrument, the contamination will be removed against the direction of penetration. At the same time, fresh disinfection and cleaning solution flows in. Contamination cannot accumulate on the constrictions in the area of the handle.

Connection of instruments without exchange of seals

12 rinseable keyhole surgery 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. 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 the disinfectant. 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.

Individual examination of instruments instead of overall check

If several instruments are being connected simultaneously to a sucking or pressure pump, the rinsing result cannot be controlled. By means of the channel selector in SONOMIC, always only one instrument out of maximal 12 connected instruments will be linked to the sucking pump at a time. A flow rate sensor determines the flow rate for the selected instrument. The minimum value for continuous instruments is a flow rate of 2 ml/sec. Instruments which are not continuous are thus safely identified and indicated on the touch-screen. Their withdrawal for separate decontamination has to be confirmed individually.

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 22/23)

Safety through strict program sequence

Coordinated steps of operation and defined times of impact are necessary for degassing the liquid, for exhaust and repeated internal rinsing of the instruments as well as for complete external disinfection. The user is being provided with clear instructions leading him through the single steps of the operational program where he cannot interfere: among these for example the adapter check per charge which is mandatory for a safe identification of non-continuous instruments allowing to sort out such instruments. Finally, an external disinfection and cleaning even in the sealing areas of the instruments is being effected. The operational program also contains self checks and gives leads which are shown on the touch-screen. This way, a high availability of SONOMIC is assured. Detached contamination from the instruments is retained in an easily accessible filter which has to be replaced upon request.

With SONOMIC, a controlled disinfection and cleaning of instruments which can be reproduced at any time is feasible. EU patent pending.

Versatility through multiple use

SONOMIC has been especially developed for simultaneous disinfection and cleaning of rinseable keyhole surgery 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.

– further information www.sonomic.eu –

Simultaneous Disinfection and Cleaning of maximal 12 Rinseable Instruments

Touch-Screen

User-guiding menu, clear instructions and information about the current status.

Adapter

Leak-proof connection for suction rinsing of instruments with diameters from 1 mm up to 10 mm, without exchange of sealings for disinfection and cleaning of instrument lumens. EU patent pending.

Gentle Ultrasound

Foil-tests according IEC/TR 60886 (1987-03) from the inner adapter section and from the inside of a rinseable keyhole surgery instrument show the gentle impact of the ultrasound.

Channel Selector

Selection of only one instrument for suction rinsing and check of liquid flow. EU patent pending.
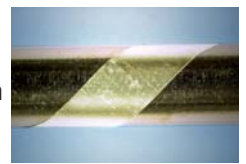
Round Tank Corners

at the bottom and the sides facilitate cleaning of the tank. Caking of residues is avoided.

Suction Pump

Generation of required vacuum for suction rinsing and check of liquid flow of the selected instrument.

Filter

Filtering of detached soiling from the rinsing liquid. Easy manual exchange of the filter, no tools required.

Flow Rate Sensor

Measurement of flow rate of the selected instrument to determine successful disinfection and cleaning.

Accessories

Lid D 1000 MC
– contained in the set –
plastic, transparent
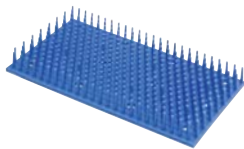protection against contamination
Code No: 3312

Baslet K 1000 MC with Handles
– contained in the set –
stainless steel,
with holders for dripping over the oscillating tank:
sieve tray 520 × 340 × 50 mm (l × w × d)
Code No: 3311

Silicone Knob Mat SM 1000 MC
for gentle storage of instruments
in the basket K 1000 MC
Contents of 2 pieces ever 245 × 172 mm.
Code No: 3313

Consumables

Filter Fl 1000
– 30 pieces contained in the set –
Packet 30 pcs
Code No: 3356
Packet 100 pcs
Code No: 3357

Adapter Seals AD 1000
– 12 pieces contained in the set –
Packet 12 pcs
Code No: 3353
Packet 24 pcs
Code No: 3354
Packet 36 pcs
Code No: 3355

Adapter with Seal and Hose ADS 1000
– 12 pieces contained in the set –
Packet 1 pcs
Code No: 3350
Packet 12 pcs
Code No: 3351

Advantages

- Space-saving and simple mounting into the worktop thus free work area

- Filling mark for correct dosage

- Inclined tankt bottom from ZE 1031

- Operating elements at front side

- Hygienic maintenance through rounded tank and installation from below

- Simple assembly by means of screwing on

- Appropriate for DIN- / ISO trays

SONOREX SUPER ZE 1031 DT buil-in

	SONOREX SUPER ZE ... DT	SONOREX SUPER ZE
Tank volume (litres)	13,5 – 46,0	3,0 – 46,0
Inclined tank bottom	ZE 514 DT – no, ZE 1031/1032/1058/1059 DT – yes	ZE 100/514 – no, ZE 1031/1032/1058/1059 – yes
Ultrasonic transducers at the bottom	ZE 514 DT/1031 DT/1058 DT	ZE 100/514/1031/1058
Ultrasonic transducers at the bottom and at side	ZE 1032 DT/1059 DT	ZE 1032 /1059
Control elements	push-buttons	turning knobs
Time setting (min)	ST 30 DT: 1–30, continuous operation∞	ST 15: 1–15, continuous operation∞
Safety shut-down	after 12 hours	no
Excess temperature signal	yes	no
Protection against delay in boiling	yes	no
Thickness of s/s tank/material	ZE 514 DT – 0,8 mm, 1.4301 ZE 1031/1032/1058/1059 – 2 mm, 1.4571	ZE 100/514 – 0,8 mm, 1.4301 ZE 1031/1032/1058/1059 – 2 mm, 1.4571
Marking of filling level for safe dosage	yes	yes
Warranty period (years)	2	2
Liquid protection	ZE 514 DT – rinsing set G 1½ ZE 1031/1032/1058/1059 – bead 1½”, rinsing set G 1½ optional	ZE 100/ 514 – rinsing set G 1½ ZE 1031/1032/1058/1059 – bead 1½”, rinsing set G 1½ optional
Rinsing tubs - optional	yes	yes
Ultrasonic frequency (kHz)	35	35
Sweep	yes	yes
PZT-transducers	yes	yes
Degas	yes	no
Mains supply 230 V~, 50/60 Hz or	yes	yes
Mains supply 115 V~, 50/60 Hz	yes	yes
Data memory	1 program	no
CE marked as medical device	yes	yes

SONOREX SUPER Built-In Units

Instrument Disinfection and Cleaning for Group Practices, Decentralised and Centralised Treatment

Ultrasonic Built-in Unit for Small Instruments
SONOREX SUPER ZE 100

Code No.: 2060

General Instruments	Micro-Instruments	
	Electrodes	Small Parts

Technical Data

ZE 100 consisting of oscillating tank, HF-generator with timer

Internal tank dimensions:	240 × 140 × 100 mm (l × w × d)
Material:	stainless steel AISI 304
Capacity:	3.0 litres
Filling volume:	2.0 litres
Transducer (bottom):	1 PZT-large area transducer
Overall dimensions:	257 × 155 × 165 mm (l × w × h)
Outlet:	rinsing set 1½"
Insertion in the workplate:	installation from above
HF-generator:	80 × 180 × 195 mm (l × w × h)
Ultrasonic peak output:	320 W
HF-output:	80 W_{eff}
Current consumption:	0.4 A
Total weight:	2.9 kg

Option: Built-in rinsing tank SW 10 Z
without ultrasonic transducers
with drain set 1½"   Code No. 3001

Ultrasonic Built-In Unit for Instruments up to 32 cm Length, also Suitable for 1/2-DIN Trays
SONOREX SUPER ZE 514

Code No.: 2097

General Instruments	Micro-Instruments	
Endoscopic Parts		

SONOREX SUPER ZE 514 DT

Code No.: 3202

Technical Data

ZE 514 consisting of oscillating tank, HF-generator
and control unit ST 15

ZE 514 DT consisting of oscillating tank, HF-generator
and control unit ST 30 DT

Internal tank dimensions:	325 × 300 × 150 mm (l × w × d)
Material:	stainless steel AISI 304
Capacity:	13.5 litres
Filling volume:	9.0 litres
Transducers (bottom):	4 PZT-large area transducers
Overall dimensions:	350 × 324 × 215 mm (l × w × h)
Outlet:	rinsing set 1½"
Insertion in the workplate:	installation from above or from below
HF-generator:	305 × 310 × 142 mm (l × w × h)
Ultrasonic peak output:	860 W
HF-output:	215 W_{eff}
Current consumption:	1.0 A
Total weight:	7.8 kg

Option: Built-in rinsing tank SW 14 Z
without ultrasonic transducers
with drain set 1½"   Code No. 088

SONOREX SUPER Built-In Units

Ultrasonic Built-In Unit for Instruments up to 48 cm Length, also Suitable for 1/1-DIN Trays
SONOREX SUPER ZE 1031

Code No.: 3060

General Instruments	Micro-Instruments	Keyhole Surgery Instruments
Endoscopic Parts		

SONOREX SUPER ZE 1031 DT

Code No.: 3217

Technical Data

ZE 1031 consisting of oscillating tank with oblique bottom* for easy emptying, HF-generator and control unit ST 15

ZE 1031 DT consisting of oscillating tank with oblique bottom* for easy emptying, HF-generator and control unit ST 30 DT

Internal tank dimensions:	510 × 300 × 200/220* mm (l × w × d)
Material:	stainless steel AISI 316 Ti, 2 mm
Capacity:	29.0 litres
Filling volume:	20.0 litres
Overall dimensions:	570 × 360 × 270 mm (l × w × h)
Outlet:	bead 1½"
Transducers (bottom):	8 PZT-broad beam transducers
Insertion in the workplate:	Installation from below
HF-generator:	305 × 310 × 142 mm (l × w × h)
Ultrasonic peak output:	1200 W
HF-output:	300 W_{eff}
Current consumption:	1.4 A
Total weight:	16.7 kg

Option: Built-in rinsing tank SW 31 Z
without ultrasonic transducer Code No. 3048
Drain set 1 1/2" Code No. 601

Ultrasonic Built-In Unit for Instruments up to 53 cm Length, also Suitable for ISO ou 1/1-DIN Trays
SONOREX SUPER ZE 1058

Code No.: 3050

General Instruments	Micro-Instruments	Keyhole Surgery Instruments
Endoscopic Parts		

SONOREX SUPER ZE 1058 DT

Code No.: 3234

Technical Data

ZE 1058 consisting of oscillating tank with oblique bottom* for easy emptying, HF-generator and control unit ST 15

ZE 1058 DT consisting of oscillating tank with oblique bottom* for easy emptying, HF-generator and control unit ST 30 DT
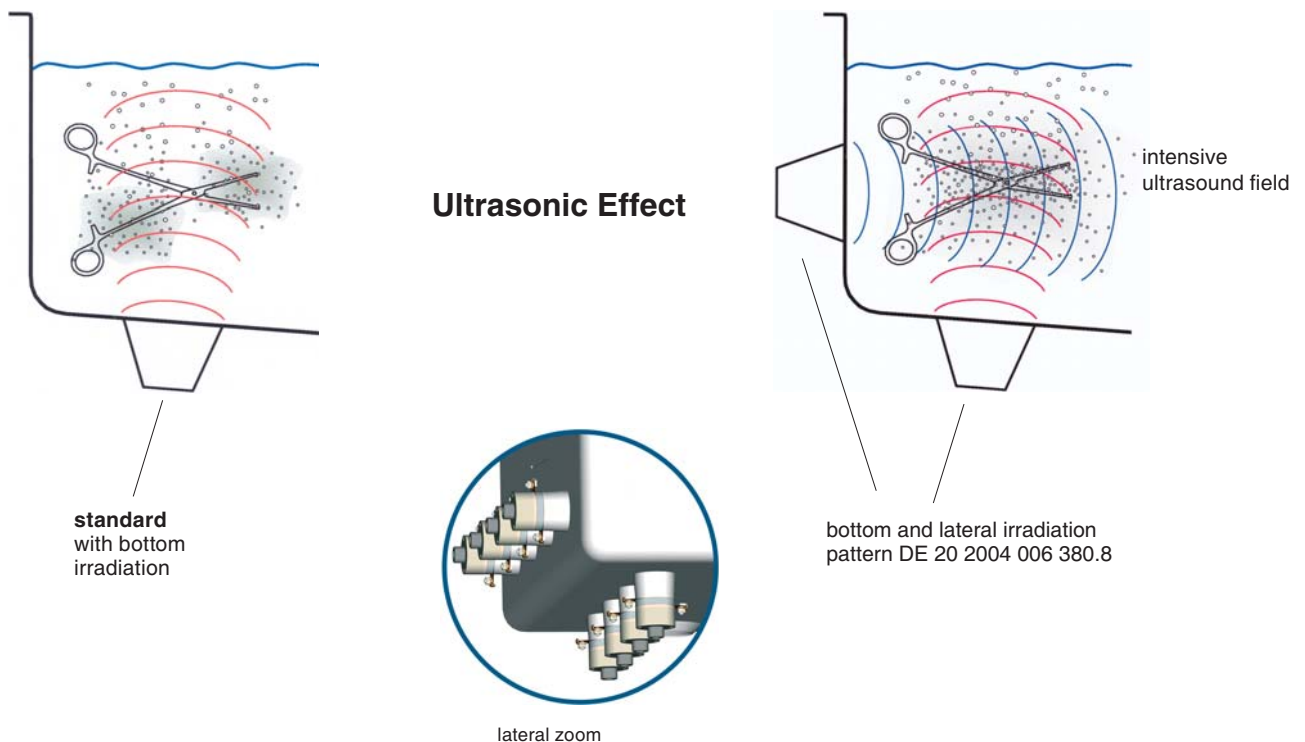
Internal tank dimensions:	600 × 400 × 200/220* mm (l × w × d)
Material:	stainless steel AISI 316 Ti, 2 mm
Capacity:	46.0 litres
Filling volume:	32.0 litres
Transducers (bottom):	16 PZT-broad beam transducers
Overall dimensions:	660 × 460 × 270 mm (l × w × h)
Outlet:	bead 1½"
Insertion in the workplate:	Installation from below
HF-generator:	305 × 310 × 142 mm (l × w × h)
Ultrasonic peak output:	2400 W
HF-output:	600 W_{eff}
Current consumption:	2.7 A
Total weight:	22.8 kg

Option: Built-in rinsing tank SW 58 Z
without ultrasonic transducers Code No. 3049
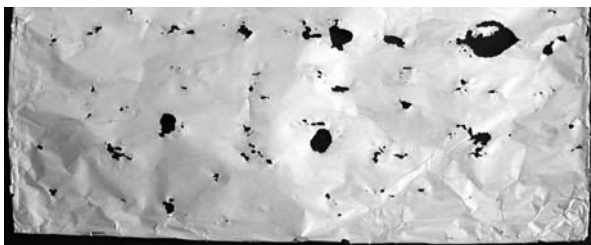Drain set 1½" Code No. 601

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 for micro instruments particularly damageable
- 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

Ultrasonic Effect

intensive
ultrasound field

standard
with bottom
irradiation

bottom and lateral irradiation
pattern DE 20 2004 006 380.8
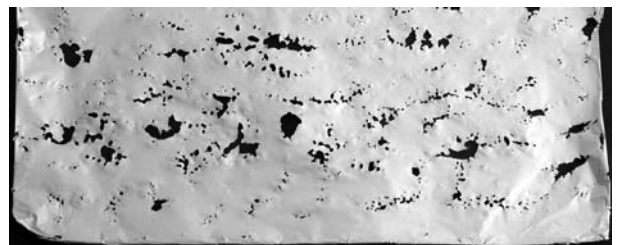
lateral zoom

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

... in ultrasonic cleaning unit with irradiation
from the bottom

... in ultrasonic cleaning unit with irradiation
from the bottom and from the side

SONOREX SUPER Built-In Units

Ultrasonic Built-In Unit for Instruments up to 48 cm Length, also Suitable for 1/1-DIN Trays
SONOREX SUPER ZE 1032

Code No.: 3075

General Instruments	Micro-Instruments	Keyhole Surgery Instruments
Endoscopic Parts		

SONOREX SUPER ZE 1032 DT

Code No.: 3223

Technical Data

ZE 1059 consisting of oscillating tank with oblique bottom* for easy emptying, HF-generator and control unit ST 15

ZE 1059 DT consisting of oscillating tank with oblique bottom* for easy emptying, HF-generator and control unit ST 30 DT

Inner tank dimensions:	510 × 300 × 200/220* mm (l × w × d)
Material:	stainless steel, 1.4571 (V4A), 2 mm
Capacity:	29,0 litres
Filling volume:	20,0 litres
Overall dimensions:	570 × 410 × 270/290* mm (l × w × h)
Outlet:	bead G 1½"
Transducers - bottom:	8 PZT-broad beam transducers
- side:	4 PZT-broad beam transducers
Insertion in the workplate:	installation from below
HF-generator:	350 × 310 × 142 mm (l × w × h)
Ultrasonic peak output:	1760 W
HF-output:	440 W_{eff}
Current consumption:	2,0 A
Total weight:	18,7kg

Option: Built-in rinsing tank SW 31 Z
without ultrasonic transducers   Best.-Nr. 3048
Drain set 1 1/2"   Best.-Nr. 601

Ultrasonic Built-In Unit for Instruments up to 53 cm Length, also Suitable for ISO ou 1/1-DIN Trays
SONOREX SUPER ZE 1059

Code No.: 3085

General Instruments	Micro-Instruments	Keyhole Surgery Instruments
Endoscopic Parts		

SONOREX SUPER ZE 1059 DT

Code No.: 3248

Technical Data

ZE 1059 consisting of oscillating tank with oblique bottom* for easy emptying, HF-generator and control unit ST 15

ZE 1059 DT consisting of oscillating tank with oblique bottom* for easy emptying, HF-generator and control unit ST 30 DT

Inner tank dimensions:	600 × 400 × 200/220* mm (l × w × d)
Material:	stainless steel, 1.4571 (V4A), 2 mm
Capacity:	46,0 litres
Filling volume:	32,0 litres
Transducers - bottom:	11 PZT-broad beam transducers
- side:	5 PZT-broad beam transducers
Overall dimensions:	660 × 510 × 270/290* mm (l × w × h)
Outlet:	bead G 1½"
Insertion in the workplate:	installation from below
HF-generator:	350 × 310 × 142 mm (l × w × h)
Ultrasonic peak output:	2400 W
HF-output:	600 W_{eff}
Current consumption:	2,7 A
Gesamtgewicht:	23,3 kg

Option: Built-in rinsing tank SW 58 Z
without ultrasonic transducers   Best.-Nr. 3049
Drain set 1½"   Best.-Nr. 601

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 bottom of the ultrasonic bath.

General Instruments	Micro-instruments	Keyhole Surgery Instruments
Endoscopic Accessories	Electrodes	Small Parts

K 14

K 14 EM

KT 14

Insert Basket 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 / Z, K 5 C:	3,5 x 3,5 mm

Inset Basket stainless steel –
basket holder is necessary!
Mesh size 4 × 4 mm

Basket Holder 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

Inner dimensions mm (l × w × d)

K 08	170 × 65 × 50
K 3 C	200 × 110 × 40
K 3 Z	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 18 S	660 × 115 × 50
K 28	455 × 245 × 50
K 14 EM	230 × 240 × 45
K 29 EM	470 × 240 × 45

KT 30 Z with K 29 EM

D 514 ❶

Lid stainless steel
to protect the liquid from
outside dirt
ZE 514: D 14 installation from
below

D 14 ❷

Lid stainless steel
- covers the tank completely
- especially for inset baskets
  with short handles
ZE 514: D 14 T installation from
above

D 14 T ❷

Lid stainless steel
especially for inset baskets
without short handles
ZE 514 - installation from above

D 14 K ❸

Hinged Lid stainless steel,
space-saving mounting on
the ultrasonic bath

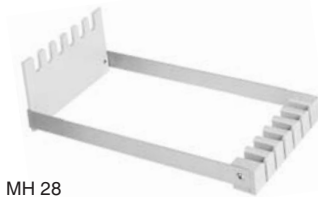| Units	Accessories	Insert Basket Typ	Code No.	Inset Basket Typ	Code No.	Basket Holder Typ	Code No.	Lid ❶ Typ	Code No.	Lid ❷ Typ	Code No.	Hinged Lid ❸ Typ	Code No.
RK 31	**DT 31**	K 08	209	-		-		D 08	218	-		-	
RK 100 **RK 100 H**	**DT 100** **DT 100 H**	K 3 C	3025	-		-		D 100	3003	D 3	114	-	
RK 106	**DT 106**	K 6	356	-		-		D 6	346	-		-	
RK 156	**DT 156**	K 6 L	202	-		-		D 156	3004	-		D 6 LK	286
RK 158 S		K 18 S	396	-		-		D 158	3005	-		D 18 SK	282
RK 255 **RK 255 H**	**DT 255** **DT 255 H**	K 5 C	3027	-		-		D 255	3007	D 5	3054	-	
RK 514 **RK 514 H**	**DT 514** **DT 514 H**	K 14	354	K 14 EM	226	KT 14	131	D 514	3010	D 14 T	3062	D 14 K	287
RK 1028 **RK 1028 H**	**DT 1028** **DT 1028 H**	K 28	358	K 29 EM	688	KT 30	056	D 1028	3011	D 28 T	3063	D 28 K	293
ZE 100		K 3 Z	080	-		-		D 100	3003	D 3	114	-	
ZE 514	**ZE 514 DT**	-		K 14 EM	226	KT 14	131	-		D 14 T D 14	3062 344	-	
ZE 1031 **ZE 1031 DT**	**ZE 1032** **ZE 1032 DT**	-		K 29 EM	688	KT 30 KT 30 Z	056 077	-		D 30	049	-	
ZE 1058 **ZE 1058 DT**	**ZE 1059** **ZE 1059 DT**	-		K 29 EM	688	KT 57 KT 57 Z	061 3078	-		D 57	052	-	

SM 14

FE 12 in basket

MH 28

KW 14
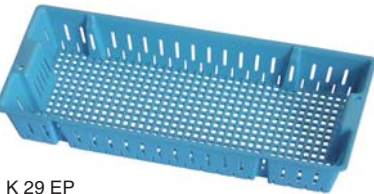
K 29 EP

Silicone Knob Mat

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

Micro-Instruments

Pushbottons SMK 10 (10 sets)   Code No. 3029

SM 3	170 × 97 mm, for K 3 C	**SM 14**	235 × 245 mm, for K 14, K 14 EM
SM 5	213 × 97 mm, for K 5 C	**SM 18 S**	639 × 97 mm, for K 18 S
SM 6	426 × 97 mm, for K 6 L	**SM 29**	470 × 245 mm, for K 28, K 29 EM

Fixing-Clamp Set

Set comprising 2 large and 5 small plastic clamps to fix securely flexible
endoscopic accessories. Avoids damages at biopsy forceps and instruments.
To be fixed in the basket. Facilitates the disinfection and cleaning.

Endoscopic Parts

Keyhole Surgery Instrument Support

For 6 tubes of detachable keyhole Surgery instruments with diameters from
5 to 10 mm. The predetermined diagonal position supports the air outlet of the
tubes to fill in disinfection solution. To be fixed in the basket.

Keyhole Surgery Instruments

Insert Tub with Lid

for basic instrument cleaning with STAMMOPUR GR.

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

Plastic Inset Basket

Basket holder necessary!
Avoids damages of the instruments. Suitable from 4 to 137 °C.
Hole size 10,4 × 6,8 mm.

Micro-Instruments

		Bottom dimensions × depth (l × w × d)
K 14 EP	PP-blue	230 × 250 × 45 mm, for KT 14
K 29 EP	PP-blue	420 × 200 × 45 mm, for KT 30/Z, KT 57/Z

Plastic Insert Basket

Avoids damages of the instruments. Suitable from 4 to 137 °C.
Hole size 10,4 × 6,8 mm.

		Bottom dimensions × depth (l × w × d)
K 14 P	PP-blue	230 × 250 × 45 mm
K 28 P	PP-blue	420 × 200 × 45 mm

| Accessories / Units	Silicone Knob Mat Typ	Code No.	Fixing-Clamp Set Typ	Code No.	Support Typ	Code No.	Insert Tub Typ	Code No.	Plastic Insert Basket Typ	Code No.
RK 100 DT 100 RK 100 H DT 100 H	SM 3	093	-		-		KW 3	715	PK 2 C	3082
RK 156 DT 156	SM 6	110	FE 12	117	-		-		-	
RK 158 S	SM 18 S	133	FE 12	117	-		-		-	
RK 255 DT 255 RK 255 H DT 255 H	SM 5	101	-		-		KW 5	240	K 5 P	113
RK 514 DT 514 RK 514 H DT 514 H	SM 14	118	FE 12	117	-		KW 14	613	K 14 EP K 14 P	3096 3093
RK 1028 DT 1028 RK 1028 H DT 1028 H	SM 29	178	FE 12	117	MH 28	246	KW 28-0	717	K 28 P	3089
ZE 100	SM 3	093	-		-		KW 3	715	-	
ZE 514 ZE 514 DT	SM 14	118	FE 12	117	-		KW 14	613	K 14 EP	3096
ZE 1031 ZE 1032 ZE 1031 DT ZE 1032 DT	SM 29	178	FE 12	117	MH 28	246	KW 28-0	717	K 29 EP	3083
ZE 1058 ZE 1059 ZE 1058 DT ZE 1059 DT	SM 29	178	FE 12	117	MH 28	246	-		K 29 EP	3083

Disinfectant and Cleaning Concentrates

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 cleaning and disinfection agents 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.
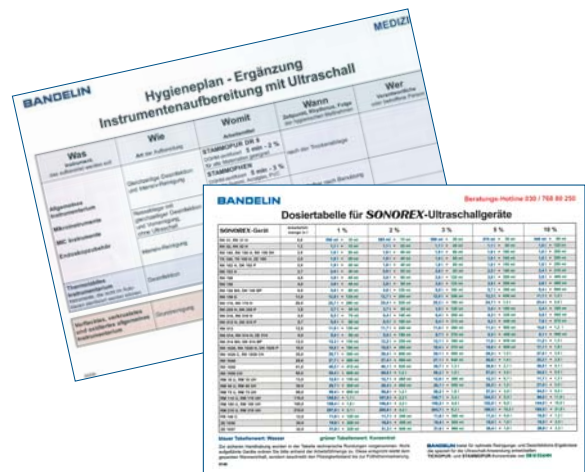
Please ask for free dosing table!

Instrument Disinfection and Intensive Cleaning
STAMMOPUR DR 8 - VAH-Certified, limited virucidal

Simultaneous 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 and MIS-instruments and endoscopic accessories. Recommended by a known manufacturer of endoscopes. Solution applicable under strain for 3 days. Very high material compatibility, suitable for all materials. Non-odiferous.

Anticorrosive. Without aldehydes, chlorine, phenols. Bactericidal (incl. Tb.-B., helicobacter pylori), fungicidal, limited virucidal (Vaccinia, BVDV, Papova, HBV, HCV, HIV, H5N1), mildly alkaline pH 9.4 at 1 %.

Active agents in 100 g: 9.9 g bis(3-aminopropyl)dodecylamin, 8.4 g didecylmethylpoly(oxyethyl)ammoniumpropionate; 5-10 % non-ionic tensides, 30-50 % solvents, complexing agents, pH-regulators, adjusting agents.
Expertises: Bacteria, fungi according DGHM: Dr. F.-A.Pitten, Gießen 11/05; Prof. Dr. Schubert, Frankfurt 6/99; Prof. Dr. Werner, Schwerin, 12/98; **HBV/HIV:** Prof. Dr. Frösner, München 8/99; **Vaccinia, Papova, BVDV, H5N1:** Prof. Dr. L. Döhner, Dr. D. Becher, Greifswald 8/06 and 9/06; **Helicobacter pylori:** Prof. Dr. Werner, Schwerin 8/00; **Time durability:** Prof. Dr. Werner, Schwerin 10/99, **Time reduction by ultrasound:** Dr. W. U. Färber, Gießen 8/02
Hazard identification: C, corrosive.

Application with Ultrasound	Application without Ultrasound	Volumes	Code No.
5 min – 2 %	60 min – 1 %	2-litres-bottle	972
10 min – 1,5 %	30 min – 2 %	5-litres-jerrycan	974
15 min – 1 %	15 min – 3 %	25-litres-jerrycan	936
Papova with high protein burden			
10 min – 2 %			

Wet Deposit and Final Disinfection
STAMMOPUR DR - Tested According DGHM-Guidelines (12.07.1991)

Simultaneous disinfection and cleaning. Suitable for wet deposit with pre-cleaning. Due to the comprehensive efficacy also suitable for final disinfection of very sensitive and thermo sensitive instruments.

Anticorrosive, high material compatibility, applicable for all materials. Without formaldehyd, chlorine and phenols. Bactericidal (incl. Tb.-B.), fungicidal, virucidal (incl. HBV, HIV, polio). Neutral pH 7 (1 %).

Active agents in 100 g: 6.0 g glutaraldehyde, 8.0 g didecyldimethylammoniumchlorid, <5 % non-ionic tensides, 2-Propanol, corrosion inhibitors.
Expertises: Bacteria, fungi according DGHM (12.07.1991): Prof. Dr. Hartmann, Berlin 9/93; Dr. Bernhard, Berlin 1/94 and 6/94;
Viruses (HBV/HIV): Dr. Steinmann, Bremen 4/98; **Viruses (polio, adeno, papova, vaccinia):** Prof. Dr. Hartmann, Berlin 9/92,
Time reduction by ultrasound: Prof. Dr. Hartmann, Berlin 2/95.
Hazard identification: C, corrosive

Application with Ultrasound	Application without Ultrasound	Volumes	Code No.
15 min – 2 % (ohne Tb.-B.)	60 min – 3 %	2-litres-bottle	944
15 min – 5 % (mit Tb.-B.)	30 min – 4 %	5-litres-jerrycan	981
		25-litres-jerrycan	982

Always read the label and product information before using the disinfectants.

STAMMOPUR Cleaning Concentrates

Intensive Instrument Cleaning
STAMMOPUR R

Intensive cleaner for medical instruments after wet deposit. 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 %.
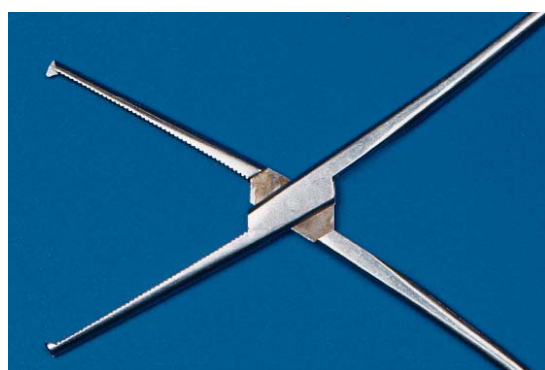
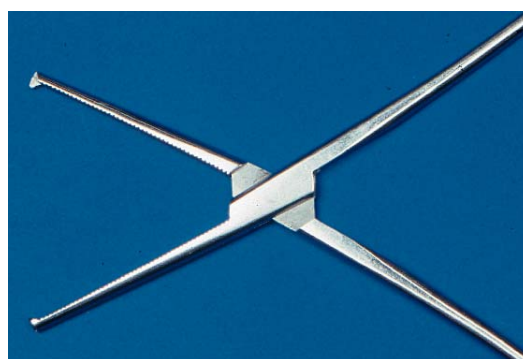| Application with Ultrasound	Volumes	Code No.
3–10 min – 2 %	2-litres-bottle	934
	5-litres-jerrycan	989
	25-litres-jerrycan	976

Basic Instrument Cleaning

Prior to basic cleaning

After basic cleaning

STAMMOPUR GR

Basic instrument cleaner for the maintenance of spotted, encrusted and ugly looking instruments. 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 plastic insert tubs, special accessories see page 13:

Application with Ultrasound	Volumes	Code No.
2–10 min – 5 %	2-litres-bottle	938
50–60 °C	5-litres-jerrycan	969
	25-litres-jerrycan	970

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

Disinfection and Cleaning

	Disinfection and Cleaning of Instruments		Instrument Cleaning	Basic Cleaning
	STAMMOPUR DR 8	STAMMOPUR DR	STAMMOPUR R	STAMMOPUR GR
Disinfection				
bactericidal (incl. Tb.-B.)	●	●		
Helicobacter pylori	●			
fungicidal	●	●		
limited virucidal (Vaccinia, BVDV, HBV, HCV, HIV, H5N1)	●			
Papova	●	●		
virucidal (Polio, Adeno, Vaccinia, Papova)		●		
Cleaning				
Intensive cleaning	●		●	
pre-cleaning		●		
basic cleaning				●
Characteristics				
without aldehydes	●		●	●
without phenols	●	●	●	●
without chlorine	●	●	●	●
Material Compatibility				
steel, stainless steel, precious metal, plastic	●	●	●	●
light metal	●	●	●	
acrylic glass, rubber	●	●	●	●

BANDELIN *electronic*

being specialised in manufacturing

ultrasonic units for disinfection

and cleaning.

Certified according to

EN ISO 9001:2000 and

EN ISO 13485:2003

for medical devices.

All units are RFI proof and CE marked according to MDD (Medical Device Directive).
Subject to technical alterations without notice.

BANDELIN

www.bandelin.com
info@bandelin.com

**55 Years
of Experience in
Ultrasound Technology**