

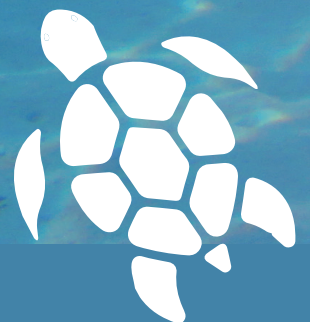


MOVEO MED

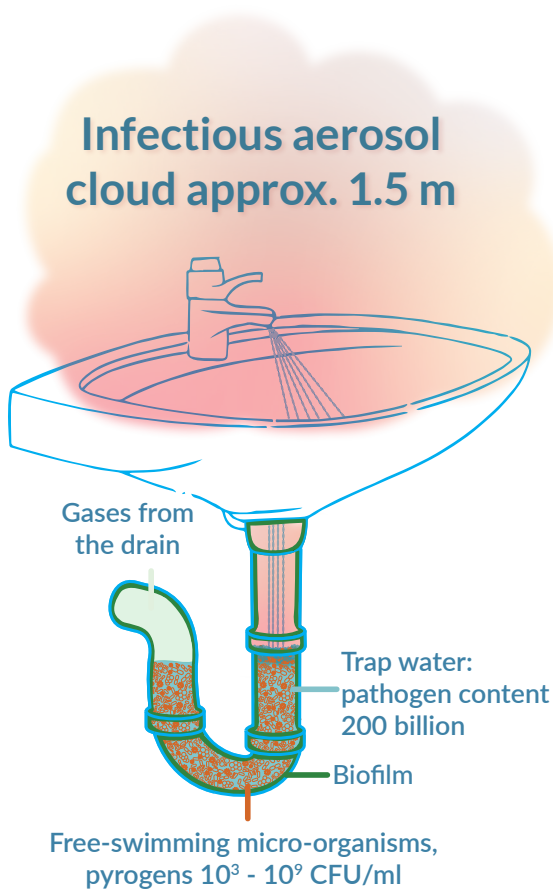


MOVEO Siphon ST24

Because your patients have no protective shell



The problem zone



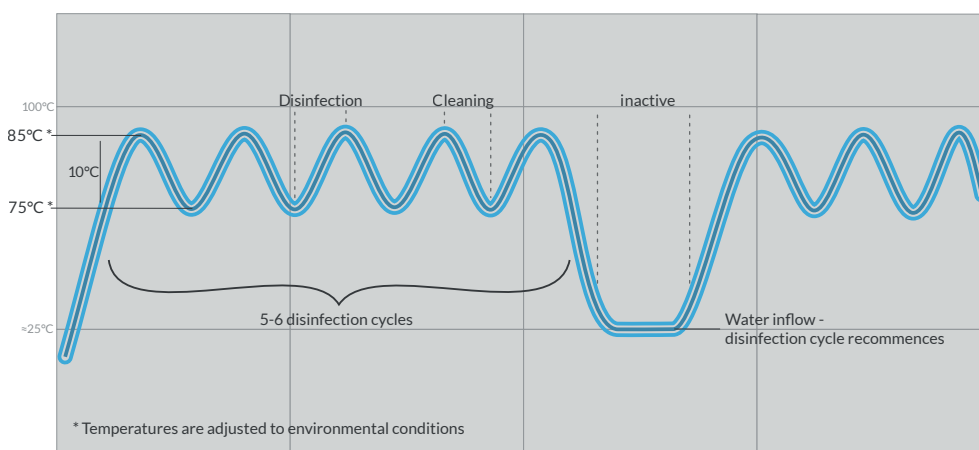
Sink drains under wash basins in clinics and hospitals are **open pathogen reservoirs** and sources for emitting bacteria.^{1,2,3} They contain on average 10^5 - 10^{10} CFU/ml of bacteria, including 10^3 - 10^6 CFU/ml of gram-negative rods.⁴

Water flowing into the sink drain produces **aerosols on the surface of the seal water** which can emit the bacteria up to a distance of 1.5 metres around the siphon.⁵

In case of bacterial contamination of the seal water of $>10^5$ CFU/ml so **many micro-organisms are carried into the air in the room** that a measurable transmission of bacteria from the seal water to the hands of patients or staff takes place.^{2,6}

Numerous **clinical investigations prove: conventional sink drains do not fulfil the high hygiene standards** needed in invasive intensive care.

The MoveoSiphon operating function



The thermo disinfection carried out by the MoveoSiphon **fulfils at least the standards of the technical process of pasteurization** by means of heating (10 to 15 seconds at 85°C). In the process the unit heats up to the set temperature (85°C) and slowly cools down while the subsequent vibration cleaning takes place.

Once the minimum set temperature has been reached (75°C), the heating process and thus the disinfection cleaning cycle recommences once again. If no interruption is caused by additional water inflow, then the entire process is completed after 5-6 cycles in a period of approximately one hour and the MoveoSiphon switches into standby mode until water flows in again.

1) von Saene et al. (1989), Epidem. Inf., 102: 231-238

2) Döring et al. (1991), Zbl. Hyg. 191: 494-505

3) Sissoko et al. (2004), Hygiene & Medizin, 29 (12): 451-455

4) Sissoko et al. (2005), Hygiene & Medizin, 30 (4): 72-76

5) Kramer et al. (2011), Krankenhaus- und Praxishygiene,

2. Auflage, Verlag Urban & Fischer, München

6) Döring et al., Epidemiol. Infect. (1993), 110: 427-436

MoveoSiphon ST24

Prevention of nosocomial infections

The MoveoSiphon ST24 is a **CE-certified disinfection system for sink drains** in clinical sanitary areas. Its **continuous and fully automatic disinfection** process prevents the production of infectious bio-aerosols and thus the transfer of pathogens from the wash basin to the patient.^{1,2,3} In the process the following functional processes interact:



Continuous physical-thermal disinfection



Electromechanical vibration cleaning of the inside walls of the sink drain



The colonization of patients with water germs is provably reduced!

The study of de Jonge et al. from Leiden University Medical Centre/NL, demonstrated the **effectiveness of the MoveoSiphon** once more. In a two-arm study over a total of 5 years to intervene in a prolonged outbreak of **multidrug-resistant Pseudomonas aeruginosa**, installation of MoveoSiphons **prevented colonization of sink drains and thereby also significantly reduced patient colonization**. As a control group was included in the study, it is **very unlikely** that the success of the intervention **was due to other measures**.⁶

	Standard Sink Drain	MOVEO Siphon
Bacterial content Sink drain	10 ⁵ -10 ¹⁰ CFU/ml bacteria, of which 10 ³ -10 ⁶ CFU/ml gram-negative rods ¹	0 – 500 (max. 10 ³) CFU/ml ^{1,2}
Biofilm formation	Starts after a few days ¹	Is prevented completely and permanently
Emission into environment following water inflow	Up to 439 CFU/1000 l air ¹	No detectable emissions ¹
Patient colonisation rates	20 – 40 % ²	5 – 10 % ²

1) Sissoko et al. (2004), Hygiene & Medizin, 29 (12): 451-455

2) Sissoko et al. (2004), Hygiene & Medizin, 29 (1/2): 12-16

3) Sissoko und Sütterlin (2004), Vortrag 7. Internationaler Kongress der Deutschen Gesellschaft für Krankenhaushygiene DGKH, Berlin

4) Sissoko et al. (2005), Hygiene & Medizin, 30 (4): 72-76

5) Döring et al., Epidemiol. Infect. (1993), 110: 427-436

6) de Jonge E. et al., Journal of Hospital Infection, <https://doi.org/10.1016/j.jhin.2019.01.003> Effects of a

disinfection device on colonization of sink-drains and patients during a prolonged outbreak with multiresistant Pseudomonas aeruginosa in an ICU

Bacterial contamination and proliferation in seal water of wash basin processes

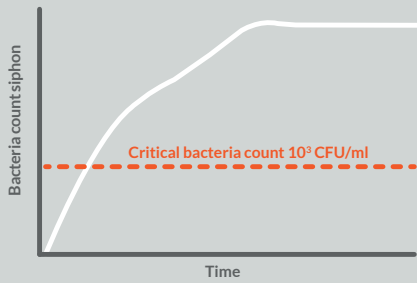
Without disinfection	Chemical disinfection / biocide treatment	MOVED Siphon
<p>Effect</p> <p>Continuous increase in the live bacteria content (CFU/ml) in the sealing liquid of the odour trap</p> <ul style="list-style-type: none"> • Introduction of bacteria, e.g. during washing and rinsing processes, • retrograde germination of the sealing liquid from the drain line, • Odour trap offers the ideal requirements for fast germination of the micro-organisms, • Very fast biofilm generation with extremely high bacteria concentrations. 	<p>Effect</p> <p>Discontinuous bacteria reduction in the sealing liquid of the odour trap (usually 5 log-steps)</p> <ul style="list-style-type: none"> • Recontamination of the sealing liquid as a result of the biofilm not having been removed or fully removed, • Long-term biofilm formation is typically not prevented, • The development of tolerance and resistance against disinfectant is possible in long-term applications. 	<p>Effect</p> <p>Continuous, maximum bacteria reduction in the entire odour trap at temperatures of ~85°C (7 log-steps in 30 minutes).²</p> <ul style="list-style-type: none"> • Immediate and full effect after the first disinfection cycle, • Long-term biofilm generation is fully prevented (assisted by the vibration cleaning), • The development of resistance against sonothermal disinfection is not possible.
<p>If a contaminated odour trap is replaced with a factory-new standard siphon, what one can observe after only a few days is again a biofilm generation and a live bacteria count in the sealing liquid that is equivalent to that of the replaced siphon.¹</p>	<p>After each biocide treatment, recontamination occurs after just a few hours as a result of:</p> <ul style="list-style-type: none"> • Proper introduction of bacteria into the odour trap due to washing and rinsing • Release of pathogens from the biofilm, in part with an increased tolerance against disinfectant • „Revival“ of bacteria from the VBNC state* <p>The chemical disinfectant only reduces the bacteria count in the siphon temporarily and must therefore be repeated on a regular basis.</p>	<p>No new or re-germination</p> <ul style="list-style-type: none"> ✓ All vegetative bacteria that accumulate in the odour trap are killed by heat within 30 minutes. ✓ No tolerance development. ✓ No additional personnel and time effort.

*VBNC = viable but not culturable, state of reduced metabolic activity as response to stress (e.g. malnutrition, disinfection, low temperature), under more favourable environmental conditions, bacteria may return to full viability and infectivity.³

1) Sissoko et al. (2004), Hygiene & Medizin, 29 (1/2): 12-16
 2) Prüfbericht A 13228, 17.12.2013, Hygiene Nord GmbH
 3) Wingender, 10. Hygiene Forum Bonn, 12.09.2013

Bacteria in the sink drain and formation of infectious bioaerosols

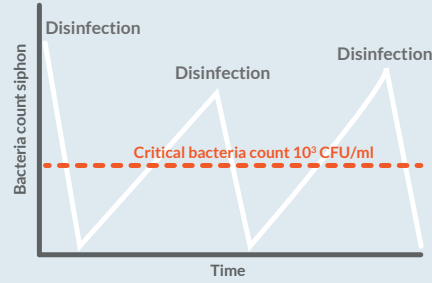
The bacteria count development in the standard sink drain without disinfection is equivalent to a growth curve.



After a few days (no more than 2-3 weeks), the bacteria count in the sealing liquid of the new, untreated odour trap has exceeded the critical volume (10^3 CFU/ml). Despite proper use of the washing station, infectious bioaerosols develop.

→ The washing station is potentially infectious and despite disinfecting the surface daily, it is hygienically unsafe.

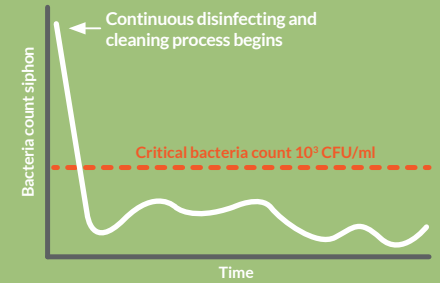
The bacteria count development in the standard sink drain with chemical disinfection/biocid treatment is equivalent to a sawtooth wave.



The critical bacteria count for the bioaerosol generation (10^3 CFU/ml) is again exceeded after a short period of time and the bacteria count may even be higher than the original bacteria count of the previous disinfection if disinfectant-tolerant bacteria are selected.

→ There is only a temporary safety with regard to preventing infectious bioaerosols immediately after chemically disinfecting the washing station when it is used properly.

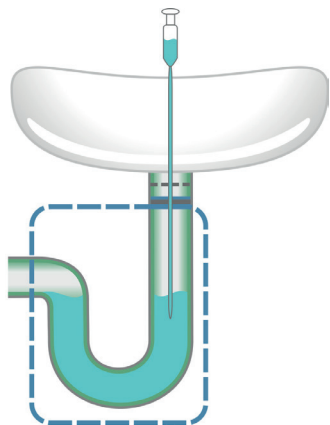
The bacteria count development in the MoveoSiphon with sonothermal disinfection is equivalent to a steep reduction curve with persistent curve progression from 0 to max. 10^3 CFU/ml.



As a result of the continuous disinfecting and cleaning process, the critical bacteria count for the bioaerosol generation permanently drops below 10^3 CFU/ml. Thus, the aerosols formed at the washing station are not infectious.

→ If surface disinfection is correctly performed daily, the washing station is hygienically safe.

Only correct sink drain testing leads to conclusive results



Take samples from the sealing fluid, because:

- Bacteria that temporarily adhere to the interior walls of the drain valve are irrelevant for the emission from the odour trap and the epidemiological success of the disinfecting measures.
- There is no direct dependency between the number of emitted microorganisms and the live bacteria count of the sealing liquid.¹

Take samples using a sterile disposable pipette that is dipped into the sealing liquid directly without touching the washbasin and drain.

Take controlled samples - do not test immediately after washing hands or eliminating waste to allow the disinfection to work.

1) Sissoko et al. (2004), Hygiene & Medizin, 29 (12): 451-455

Good reasons for using the MoveoSiphon ST24



The MoveoSiphon disinfects the seal water in sink drains continuously and automatically by means of thermal disinfection.



The **electromechanical cleaning** of the inside walls of the sink drain prevents the development of biofilms.



MoveoSiphon achieves a **7-log stage reduction in bacteria**. The bacteria in the trap water are reduced by 99.99999%.¹



The continuous disinfection of the sink drain is carried out **without using chemicals**. You are doing something not only for the benefit of your patients, but also for the environment.



Thanks to the unique operating principle, the bacteria are already effectively **reduced after the first disinfection cycle**.¹



Patient colonisation and **the incidence of nosocomial infections** by waterborne bacteria are reduced by 50-70%.²



By utilizing the MoveoSiphon you can **reduce the need for antibiotics** by approximately 30%, and the days of isolation for patients by approximately 35%.^{2,3}



The recommendations of the Commission for Hospital Hygiene and Infection Prevention (KRINKO) **list the use of thermally disinfecting sink drain units**.⁴

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