01 / 2005

WASSERFIBEL

WERTVOLLES WASSER

www.wasserfibel.com

Everything springs from water!
Everything is sustained by water!
Johann Wolfgang von Goethe

Karl KlüTsch
Email: klueTsch@wasserfibel.de

ABOUT COMPANIES AND SUPPLIERS ...

If you want to serve the growing market in China one day, you need visions today whose creative implementation will remove all obstacles.

The world is changing ever more rapidly and radically.

The acceleration of all processes and the resulting time savings, as well as ever shorter product, life, and economic cycles, are increasing. Speed is becoming a strategic success factor.
This is resulting in changes in all areas.

It is visionaries who change the world, but change can never be achieved alone; you need partners.

The partners, entrepreneurs, and suppliers who develop and realize a shared vision are the ones who are successful.

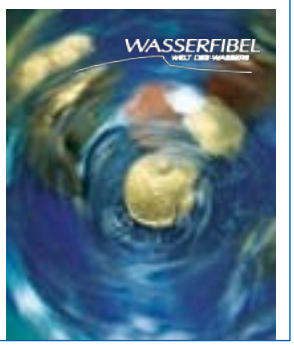
Numerous activities and approaches have been undertaken in this regard, but they have not yet been implemented on a sustainable basis.
Optimized information and communication are needed to ensure the transparency of processes and cooperation.

Companies and suppliers have a complementary range of services and thus become cooperation partners. They seize their opportunity and work together on improvement processes.

A clear strategic orientation/positioning and a shared vision for the future bring success... and not just in China.

K. KlüTsch

WASSERFIBEL
WELT DES WASSERS



TITLE 01/2005
Photo: Thomas KlüTsch

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WATER COMPETENCE DAY

In the last (first) edition of the Water Primer, I asked the key question *"Why a water primer?" The aim was to stimulate awareness of networked thinking and action.* There was talk of islands, all of which have their purpose, their competence, and their justification. But there was also talk of the fact that the interfaces between the islands are – unfortunately – still virtually non-existent. As a reminder, we were talking about "rinsing islands," "cooking islands,"
"ice islands," "coffee islands," etc. .....All have one thing in common: they require *WATER* to *function* and come from different suppliers.

"Let's break new ground" – that was my last sentence in this issue. In this issue of Wasserfibel, I would like to discuss why this is possible and also sensible from the perspective of those at the end of the chain who have to bear the costs for each of these islands, and also substantiate this with practical experience and standards. Of course, it's a bit like the stock market: *there are winners and losers, but with our "Water Competence Day," all the players are sure to be on the winning side in the long term.* Those who focus on short-term profits and excessive gains, while neglecting to provide their customers with competent, networked, and honest advice, will end up on the losing side. Quality – not only from Products – will prevail in the long term; short-term measures do not help in the investment sector in the long run, because at some point customers/consumers will either disappear from the market due to the high maintenance costs of their islands or will no longer be able to free up funds for follow-up business. So I stand by my thesis: *if the customer is doing well, the supplier is also doing well. The customer can only do well if they have the right suppliers.* And so, in terms of the overall result, networked action is becoming increasingly important for everyone in order to survive in and on the market. A good example of networked action here – as in many other cases – is certainly the automotive industry with all its suppliers (specialists). In the end, everything in the end product (the vehicle as a whole) must work together perfectly and function properly, otherwise the customer will complain and is usually lost forever.

So, back to the main topic: practical application!

Let's take a medium-sized hotel with just over 200 rooms and a restaurant for breakfast/buffet à la carte with approx. 100 seats. Not a 5-star hotel, but simple, functional, and tightly organized, facing tough competition. *Here, proof was provided that the "new approaches" are possible and, in many respects, also make sense.*

The initial situation can be described as a "classic case."

Over the years, many islands were purchased because there was always only one component that was defective: sometimes the dishwasher, sometimes the glasswasher, sometimes the coffee machine, sometimes ... sometimes Everyone comes
and offers his island as an island, walks through the kitchen with blinders on and asks no questions or ignores connections. In our case, the result is an incorrectly dosed dishwasher that delivers catastrophic results. It was even recommended that the second dishwasher be operated with clear water only, to be used as a "rinse" for the dishes from the first machine, thus at least sparing guests the detergent/rinse aid residue on the crusty dishes. Great problem solving by the partners involved (suppliers) – let's ignore the fact that compliance with *hygiene regulations – to which all members of the VGG (Association for Commercial Dishwashing) are committed through their membership* – is certainly also an issue here.

- leaves much to be desired, just as unreasonably high energy, water, and operating resource consumption must be recorded as zero results. The disproportionately high personnel costs for polishing the dishes, breakages, and guest complaints have not even been taken into account. The other appliances, such as the glasswasher, combi-steamer, ice cube maker, and coffee machine, are no better. Every supplier certainly has a good

and, to be on the safe side, without conducting any basic research, simply sold a full desalination, partial desalination, or softening cartridge – which also increased short-term profits, even though the kitchen was actually already supplied with a central softening system, which of course did not function satisfactorily either.

The actual cost analysis for the existing situation revealed annual operating costs for chemicals and water treatment (cartridge replacement) *of around €10,800 per annum,* excluding repair, maintenance, personnel, water, and energy costs. After determining the actual situation*, a holistic concept* was *developed,* taking into account all existing components and equipment as well as operational requirements. This began with determining and defining the optimal water quality for each individual device, *developing the holistic target situation, and* the investments required to achieve it. *A total of around €11,700 was invested in a central water treatment plant, including reverse osmosis and blending equipment, to achieve the specified "Accor standard."* After conversion and appropriate everyday operation, a new cost calculation was carried out for chemicals and maintenance costs for the *"new" system* using the same method as for *determining the actual status. Annual operating costs of approximately EUR 4,850 were calculated. The annual Savings therefore amount to approximately 10,800 – 4,850 euros = 5,950 euros.*

EUR. Compared to the investment of 11,700 EUR, this results in a *payback period of 2 years!* After that, *costs of around €6,000* will *be saved each year* compared to if everything had remained the same. It should be noted that *in this real-world model*, *only the actual costs that can be easily calculated and compiled* have been compared using figures. In addition, at least the following *positive* aspects must also be taken into account:

- *Achievement of operating conditions that comply with hygiene regulations* and the corresponding rinsing results.
- *Elimination of personnel costs for polishing and breakage caused by this.*
- *Low maintenance and repair costs* for the devices, as they are constantly operated with water qualities that meet the manufacturer's specifications and thus achieve longer service lives and periods of use.
- Reduction in energy consumption, as there is no unnecessary rinsing, etc.
- *High guest satisfaction, as staff* can be deployed *to serve guests rather than polishing*, and *dishes, glasses, and cutlery arrive at the table sparkling clean, without encrustations or stains, etc.*

Under the parameters listed above, I would also like to add that claim that, based on a complete full-cost analysis that takes all relevant items into account, *such comprehensive concepts can be achieved in real terms with a payback period of significantly less than 24 months, and in the case of rental models, even less than 12 months.* For the operator, this means that they can gain a *competitive advantage* and thus secure their position in the market. And this, in turn, benefits their suppliers, who offer them such networked solutions, through *remaining purchasing and investment power*. So in the long run, there are *only winners!* That's why, when it comes down to it, there is really no other choice but *to break new ground*, especially in difficult times*!*

The information platform and knowledge forum for this will be the water guide and the working meetings and discussions under the brand name *"Water Competence Day."*

Christoph Wohllaib

RULES OF THE GAME FOR WINNERS

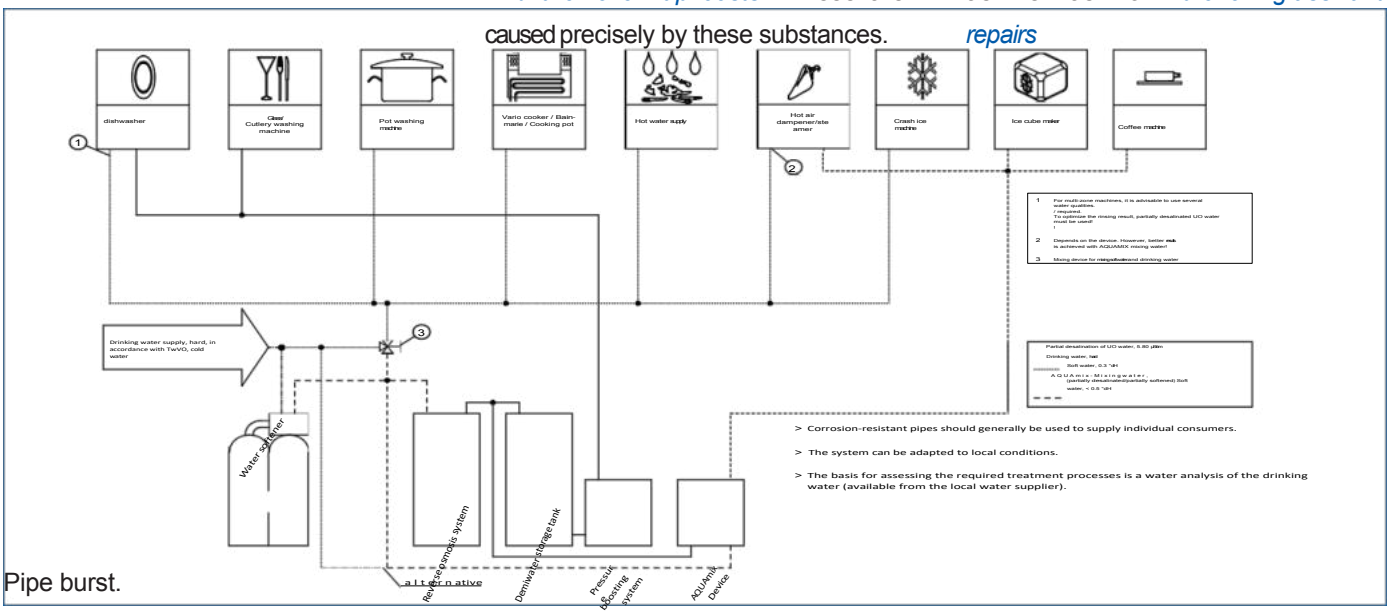
The customer delegates expertise to his partner.
In return, they demand service and a service-oriented mindset.
Since technical details no longer amaze them, they are increasingly looking for QUALITY.

Quote: Prof. Dr. G. Höhler

WATER TREATMENT TECHNOLOGY – OR "ONE FOR ALL"

Clean drinking water – for most people, it's something they take for granted. It's only when something like a burst pipe causes the tap to be turned off that you realize how *essential* clean drinking water *is*, especially *in the hotel and restaurant industry*.

Water costs – well, you pay for fresh water and sewage, and maybe a flat rate for the water meter. *And additional costs caused by water?* – At most, this is associated with water damage as a result of a



Pipe burst.

On closer inspection, however, the situation looks somewhat different:

Water can cause considerable additional costs. Although drinking water, as its name suggests, is a foodstuff, this does not mean that the high quality *of this water* is *also sufficient for use in technical devices.*

appliances. And not all drinking water is the same: the degree of hardness alone, which is a measure of the *"lime"* dissolved in the water, *can range* from a few degrees German hardness *(hardness range I) to more than 40 degrees German hardness in Germany,* and the amount of salts and minerals dissolved in the water can be as little as a few milligrams per liter or as much as one gram per liter. *Consider this: at 20° dH, one cubic meter of water contains approx. 356 g of "lime."*

And the follow-up costs? These are caused precisely by these substances.

This usually occurs when the water is brought out of equilibrium, e.g., when heated: *the hardness becomes visible in the form of limescale deposits,* which form unsightly salts dissolved in the water.

"Water stains" or baked on with grease to form unappetizing deposits. Consequently, limescale deposits in dishwashers, steam cookers, coffee machines, etc. must be removed.

Flushing out tomatoes and other items is time-consuming and often requires the use of harsh chemicals. Just as more washing powder is needed when doing laundry, commercial dishwashers use more detergent and rinse aid to achieve satisfactory cleaning results. *Descaling aerators, boilers, and heat exchangers also contributes to the follow-up costs.* Last but not least, there are the indirect follow-up costs for *personnel and materials,* which *arise*, for example, from *polishing cutlery and glassware,* as well as from *broken glass and repairs* which are necessary due to increased wear and tear.

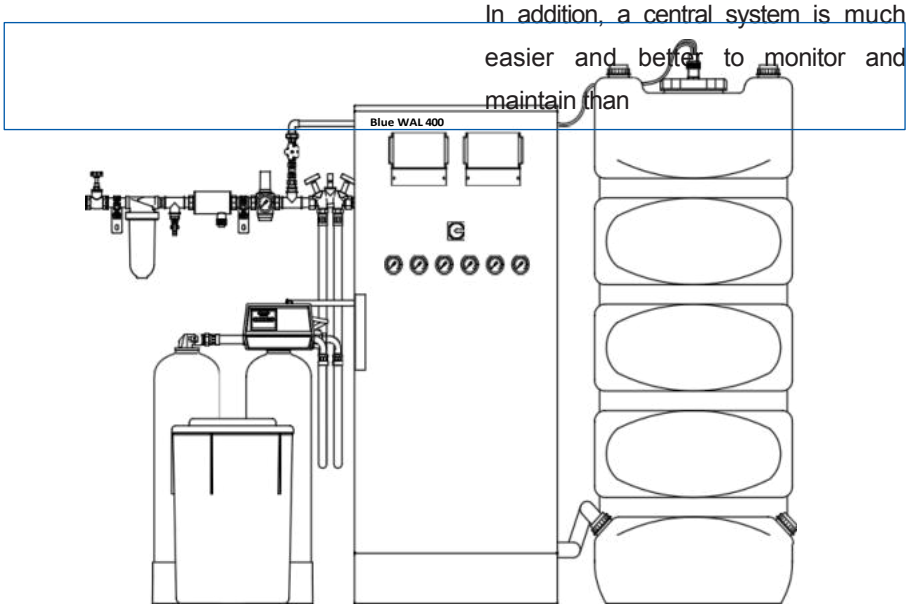
But where to start and where to stop, what water quality is needed when and for which appliance? In order to make this question answerable even for non-water experts, we *worked closely with partners* from all

Areas *defined* by *the ACCOR water quality standard.* The following three water qualities are sufficient to optimally supply the kitchen area.

- Soft water, cold, hardness 0 to max. 3° dH
- (Reverse) osmosis water, cold, blended to a resistivity of 15-80 µS/cm
- *AQUAmix blended water,*

blended to max. 250 µS/cm or to a carbonate hardness of 3-4° KH. The Assignment options to the individual consumers are shown in the diagram above.

To achieve different water qualities



To obtain these, different treatment processes are required. Now, each consumer can be provided with their own treatment plant, or *investments* can *be made in a central supply system that feeds these three qualities into separate pipelines and* supplies *the respective consumers via these pipelines*. Although the

The use of small treatment systems (such as exchange cartridges for desalination and partial desalination) is the more attractive option due to the lower investment costs, *but* when *operating costs are taken into account,* the picture is completely different. The production costs of desalinated and partially desalinated water, for example, *when using a reverse osmosis system with an AQUAmix blending system and a water hardness of 20° dH,* are *only 1/4 to 1/5 of the production costs when using cartridges.*

In addition, a central system is much easier and better to monitor and maintain than

A multitude of decentralized solutions that are hidden away somewhere and, if anything, are difficult to control.

The BlauWAL concept takes all these requirements into account: it was developed in close cooperation with users as a modular system. *The BlauWAL is suitable for a wide range of requirements and performance levels and consists of the following assemblies:*

a wide range of requirements and performance levels and consists of the following assemblies:

- Connection system for decoupling the connection of all hydraulic lines.
- *Double water softening system* for producing soft water
- BlauWAL with *integrated reverse osmosis system,* pressure boosting stations, and the *AQUAmix system,* which provides a *constant, defined blend water quality for supplying coffee machines, steam cookers, etc.,* regardless of pressure fluctuations and raw water quality.

Among other things, it provides an

- expandable tank system for storing desalinated water for flushing technology.

Maintenance is limited to regularly replenishing operating materials and checking operating data – a time investment of less than *5 minutes per working day.* Here, high-quality technology enables the reliable production of the required water qualities regardless of the raw water quality and pressure fluctuations, with reduced maintenance requirements. *An example of cooperation that benefits all parties involved – BlauWAL water treatment technology,* true to the motto *"one for all."*

Matthias Leipprand
(Dipl.-Ing.), W.A.L.

WIN(S)
WITH WINNEN
Catering technology for communal catering Do you have a problem with your technical equipment and washing results due to your water? High costs for personnel, spare parts, and service?

Then we can help you! Many years of professional experience in commercial kitchen and industrial dishwashing technology guarantee individual advice and the optimal solution for your business.

We do not provide expensive isolated solutions, but comprehensive concepts that "pay off."

With a wide range of products specifically for communal catering, we deliver the "best" for your establishment.

Qualified advice on sales and technology "from a single source" is not just a slogan for us, but a prerequisite for your satisfaction!

We are happy to take responsibility – try us out with no obligation. We are here for you!

Winnen Wassertechnik, Holger Winnen
Ober der Hofwiese 25 Phone (0 27 75) 57 87 40
Fax (0 27 75) 57 87 41
36759 Driedorf

INSECTS, MOSQUITOES, AND WASPS

Since mild winter temperatures can lead to insect infestations as early as spring, it is important for outdoor restaurants and terrace businesses to

and terrace businesses need to take timely precautions. Ludwig Zeder GbR from Munich has now developed a trap reflector for controlling flying insects that works without toxins

. The "FR4004 Omega" uses UV-A light to attract flies, mosquitoes, and wasps , which are then killed by a poison-free Free-floating flies are safely and invisibly trapped. This process does not produce any unpleasant odors or noises. Weighing around four kilograms, the device is also suitable for mobile use. In addition, the insect trap meets all European safety requirements and has an impressive lamp life of around 5,000 hours.

Info Ludwig Zeder GbR · Phone (089) 680 702 26 · Fax 680 13 10 · www.zeder.de

COCO Filmproduktion · Phone (089) 714 5722 · Fax 714 5722 · cocofilm@t-online.de

WATER QUALITY ACCOR STANDARD

Subject: Water quality at ACCOR hotels

Consumer	Required water quality
Rack transport dishwashers	Filling with (mixed) soft water, cold, 0-3° dH (via water softening system) Rinsing with (blended) osmosis water, cold, 0° dH, mixed to a conductivity of 15-80 µS/cm
Universal/pot dishwasher	As pot dishwasher (blended) soft water, cold, 0-3° dH (via water softening system) As cutlery dishwasher (blended) osmosis water, cold, 0°dH, blended to a conductivity value of 15-80 µS/cm
Glass dishwashers	(blended) osmosis water, cold, 0° dH, blended to conductivity of 15-80 µS/cm
Hot air steamers, ice cube makers	Aquamix mixed water, see coffee machine, with a conductivity of up to 250 µS/cm salt content or 3-4° carbonate hardness alternative -> (mixed) soft water, cold, 0-3° dH (via water softening system)
Variococher, bain-marie, cooking kettle	(blended) soft water, cold, 0-3° dH (via decalcification system)
Coffee machines	Aquamix blended water -> osmosis water, blended with soft water (blended to 250 µS/cm salt content or carbonate hardness of 3-4°) ***AQUAMIX CAN ONLY BE USED IN CONJUNCTION WITH CENTRAL REVERSE OSMOSIS!***

As of July 2004

Soft water, cold, blended to 0-3° dH if necessary:

Is softened to a hardness of less than 0.5° dH using a softening system and then blended to a residual hardness of 0 to 3° dH, depending on requirements

(Reverse) osmosis water, cold, blended to a residual conductivity of 15-80 µS/cm:

Desalinated using a reverse osmosis system and blended with soft water to a conductivity value of 15-80 µS/cm

Aquamix blended water:

Desalinated using a reverse osmosis system and then blended in the Aquamix system, usually with soft water (alternatively with hard water) to a conductivity of up to 250 µS/cm or a carbonate hardness of 3-4° KH.

A PARTNER FOR THE PROFESSIONAL KITCHEN

PALUX FULL SERVICE FOR THE PROFESSIONAL KITCHEN THE "ALL-ROUND CARE-FREE PACKAGE"

For over 50 years, PALUX has been one of the leading manufacturers of high-quality kitchen equipment for all areas of the catering, hotel, and communal catering industries. As an experienced complete supplier, we know:
A professional kitchen is an investment that must be well thought out in order to guarantee long-term success.

PALUX therefore accompanies every project from A to Z. We offer:

Individual consultation, needs analysis, and design: Different catering concepts require an individual analysis of the operational structure, food offerings, guest numbers, etc. During the consultation, we clarify where the needs and benefits of the new kitchen lie.
During the design phase, the kitchen organization, logistical processes, and technical equipment, including the immediate surroundings such as storage rooms, sanitary areas for employees, and service and bar areas.
On this basis, we develop economical overall concepts that are not only tailored to operational requirements but also primarily pursue entrepreneurial goals.

Customized professional CAD kitchen planning:
Whether for conceptual studies, detailed facility planning, or the creation of detailed working plans, PALUX uses state-of-the-art CAD technology in all phases of planning.

Comprehensive project support starting from the construction phase and collaboration with the architects, specialist planners, and skilled tradespeople involved on site:
Many factors must be taken into account when creating the working plans: local regulations, structural conditions, the possibilities for supply and disposal connections, refrigeration requirements, hygiene conditions, lighting, ventilation, and heating conditions, etc. All data is transferred to the various work plans and discussed on site with the contractors.

High-quality manufacturing and on-time delivery:
In consultation with the customer and the elaborated project plan, ensures that the new kitchen is delivered on time. State-of-the-art manufacturing methods enable the efficient and cost-effective production of "tailor-made" kitchens.

Professional installation and turnkey handover of the new kitchen:
The installation of a complete kitchen or even individual sections must be carried out with the utmost care and precision, as this investment is usually subject to the highest demands every day for many years.
After professional assembly and completion of the installation, all appliances are subjected to a functional test with regard to the on-site connections. Only then is the turnkey handover to the customer carried out.

Training of employees and instruction on the new kitchen on site: As a rule, a new installation also involves organizational and logistical changes and a new kitchen.

Technology connected. In order to exploit the potential of the new technology right from the start and adapt to the new workflows, experienced PALUX chefs train the kitchen crew.

They familiarize them with how the equipment works, give tips and reveal tricks for using and cleaning the appliances, because everything has to be just right from the start.

Qualified full service for maximum operational reliability:

In a professional kitchen, all appliances are subjected to high loads. In order to offer maximum operational reliability, a dense service network is of great importance. Trained and competent PALUX service partners are available 360 days a year for this purpose.

With its high-quality products, recognized range of services, and experienced practitioners familiar with kitchen processes, PALUX always considers the kitchen as a holistic solution. The economic efficiency of the overall kitchen concept is at the heart of all conceptual solutions at PALUX.

One aspect of the investment is the follow-up costs. Keeping these under control or reducing them is our greatest concern, alongside ergonomic considerations.

Taking all influencing factors into account, PALUX is your partner when it comes to professional and economical overall kitchen concepts.

Frank Rossmeisl
Key Account Manager, PALUX

ALSTERWASSER

The opening of the new Do-rint-Novotel Hamburg Alster marked not only the launch of a new hotel in the Elbe metropolis, but also the introduction of a standardized concept for water supply.

The 4-star hotel with its 210 rooms and large seminar and conference area can not

only offer rooms with a modern design, but also a kitchen area equipped with the latest features. This applies in particular to the supply of water to the large number of water consumers in the kitchen. Whereas previously each equipment supplier had its own philosophy and installed its own water treatment system, *at the Dorint Novotel Hamburg Alster, for the first time, the supply of all water consumers in the kitchen was carried out according to a defined Accor standard.*

In close cooperation between W.A.L. Wasseraufbereitung, Accor, and the most important system suppliers

In recent years, *a holistic concept for the provision and supply of water to a wide variety of consumers* has *been developed.* The aim of this concept is *to ensure that* all water-using systems receive the *optimum water quality for their respective type of system and to precisely define the interfaces between the individual partners.* For the user, this means:

- Reduction in wear and repair costs *(no calcification)*
- Optimal use of cleaning chemicals
- Reduced personnel costs *(no polishing of glass and cutlery)*
- *Compliance with hygiene standards*

One of the most important water consumers is the scullery. Here, almost everything revolves around water. Water quality ensures that dishes are cleaned to the desired, stain-free result. To achieve this, in addition to the *right water quality*, *the individual dishwasher detergents* must also *be used correctly in the entire process organization.*

To ensure that the processes from the return of the dishes to the re-provision of clean dishes run smoothly, kitchen specialist Palux has worked with dishwasher manufacturer MEIKO to implement a dishwashing organization in which the individual types of dishes are strictly separated. This means that for the areas of tableware,

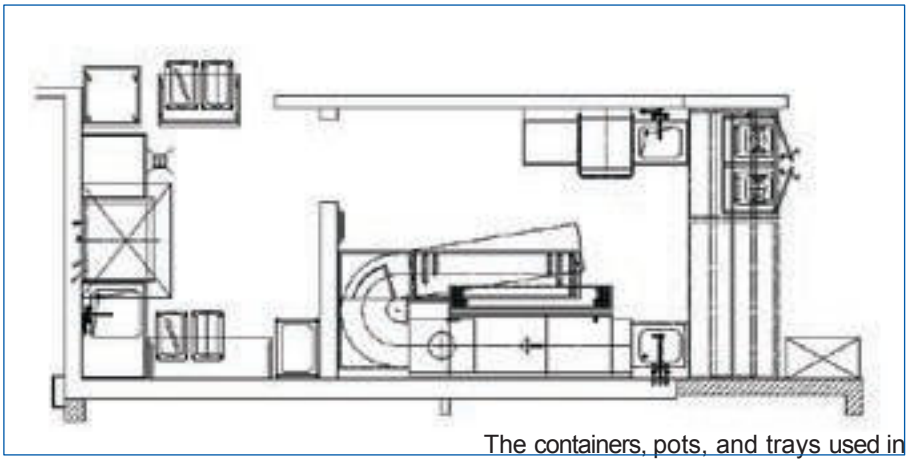
Glassware and containers are washed in separate dishwashers. This means that each machine can be optimally configured to meet the specific and sometimes highly varied requirements of the respective items being washed. *This starts with the selection of the required water quality and ends with the use of the optimal detergent and rinse aid for each case.*

The separation of the individual fractions begins as soon as the waiter returns the dishes. The return system extends across the entire width of the room, so that even during peak times, several service staff can quickly and safely return their dishes and glasses at the same time. To make optimal use of the space, the return system is divided into three levels. Glasses are sorted at the top, dishes in the middle, and individual waste fractions and beverage bottles are disposed of at the bottom.

The glasses can be sorted directly into the glass baskets provided by the service staff. The glass racks are positioned at an angle on a basket shelf above the sorting table. The full baskets can then be removed by the washing-up staff and placed in a special glass washing machine. There is a "tailor-made" basket for every glass size. This ensures optimal washing results without breaking any dishes and the

Baskets can also be used for transport and storage.

The middle work level is used for storing and pre-sorting the large number of different items of crockery. At the same time, large quantities of crockery can be stacked or buffered on the large table surface. This allows for optimal utilization of the dishwasher, taking into account the resources used.



Plan sketch of the dishwashing area

During off-peak or low-load times, the dishwashing area does not need to be permanently staffed.

But first, food waste and other waste returning with the dishes must be separated and disposed of. A waste bin is integrated under the table for this purpose. Drop chutes are provided in the table for the disposal of food waste. For hygienic reasons, the waste containers are stored in a cabinet element. Empty containers are also disposed of under the table, where the various empty containers are stored.

Due to the large number of different types of dishes and to reduce the space required, a rack conveyor dishwasher from MEIKO was chosen. The use of a 180° curve with a built-in drying zone allowed the dishwashing area to be designed very compactly.

The containers, pots, and trays used in production are washed in a room adjacent to the scullery. A powerful MEIKO universal washing machine is used to wash and rinse the most heavily soiled and encrusted containers to a hygienically impeccable standard.

In accordance with the Accor standard for water quality, both the glasswasher and the dishwasher are supplied with osmosis water in the rinse zone. The use *of osmosis water* for glasswashers *is already standard practice* in many establishments *today. However* this *is* still not always the case *with dishwashers*. *Yet the use of this "desalinated" water is at least as important as it is for glasswashers. The reasons are obvious: for one thing, cutlery is usually washed in the dishwasher as well.* According to the recommendations of the *"Working Group for Commercial Dishwashing," even stricter limits apply to cutlery* (80 µS/cm) than to glass (100 µS/cm). On the other hand, hotels in this category usually also use a large number *of glass plates, bowls*, etc., which, however, are washed in the dishwasher due to their use and soiling. *This means that the same requirements apply here as for a glasswasher.*

And finally, the use of *osmosis water* has *further advantages,* such as a reduction in the consumption of cleaning agents and rinse aids and the *elimination of repolishing.* The *head chef* of the new 4-star hotel, *Andreas Pfeiffer,* confirms that this is indeed the case. He is completely satisfied with "his" dishwashing kitchen and the results.

Marc Schumacher
Key Account Manager, MEIKO

HOW TO ACHIEVE SPARKLY DISHWASHING RESULTS

Four factors must be right if you want your glasses, cutlery, and dishes to shine flawlessly:

1. the time
2. the temperature
3. the chemistry
4. ***the water***

The first three factors are solved by the innovative technology of HOBART dishwashers.

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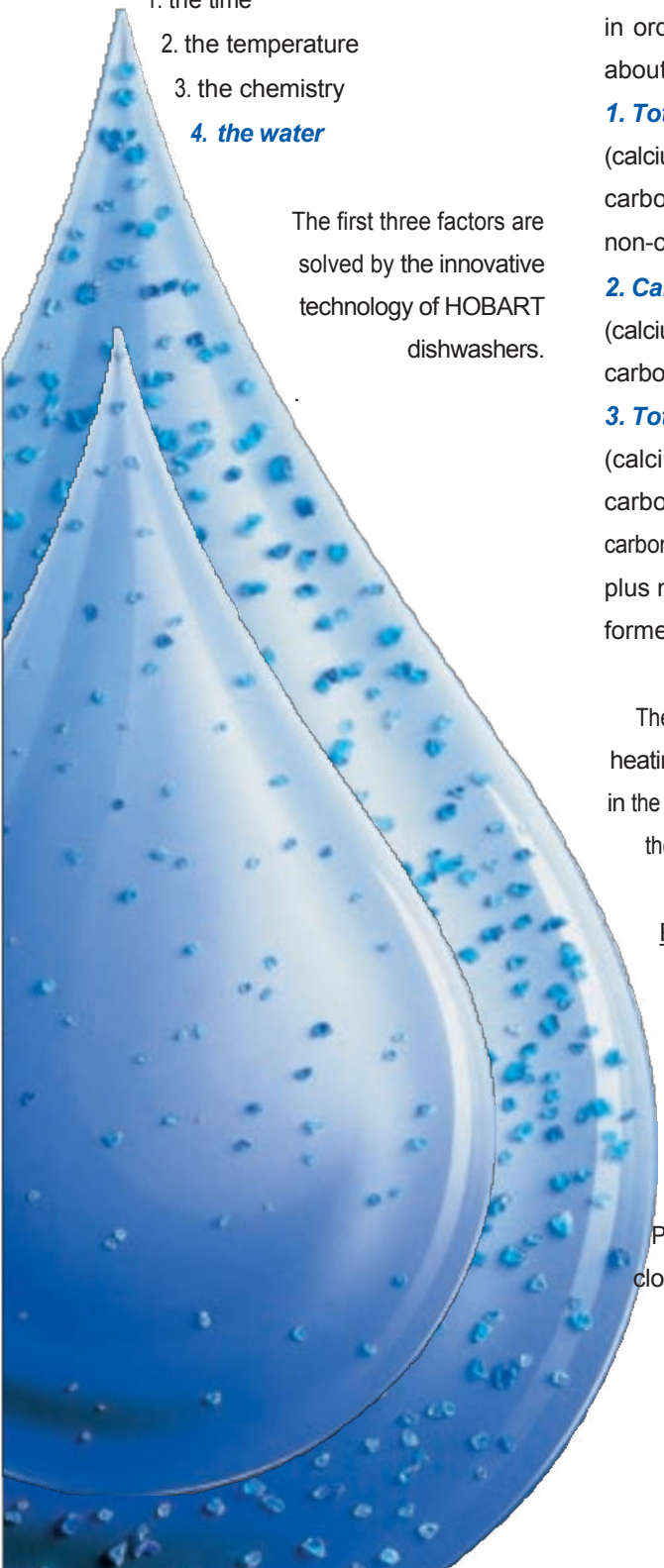


But even the best dishwasher has its limits when the water contains high levels of minerals. It is not only the water hardness (lime content) that is decisive, but also the total salt content!

WATER CAN CLOUD GOOD WASHING RESULTS

The following values must be analyzed in order to make accurate statements about the quality of the water:

1. Total hardness
(calcium, magnesium carbonate content plus non-carbonate hardness components)

2. Carbonate hardness
(calcium, magnesium carbonate content)

3. Total salt content
(calcium, magnesium carbonate content plus non-carbonate hardness formers plus non-hardness formers)

The hardness crusts over as scale on heating elements/nozzles and flakes off in the heater. It is therefore responsible for the calcification of the machine.

Possible consequences:

- The functional reliability of the dishwasher is impaired.
- The service life is reduced.
- Cleaning agent and energy costs increase

Poor cleaning results due to clogged nozzles

In addition to hardness, the total salt content contains other minerals that impair the washing results.

Possible consequences:

- Stains remain on cutlery and glasses
- Costly manual polishing
- Risk of broken dishes

If the hardness/total salt content of the water is known, appropriate measures can be taken to protect the machine and give the dishwasher results the desired shine.

FIRST WE "CLEAN" THE WATER, THEN THE DISHES.

Depending on the required cleaning results, there are various options for water treatment:

- Softening or
- partial/full desalination

SOFTENING

Machine protection: Normal descaling helps against water hardness. This protects your dishwasher against limescale build-up and all the associated costs. However, perfectly clean dishwashing results are not guaranteed. Minerals remain still present in the water after descaling.

Hardness range	Hardness according to DIN in mmol/l CaO	For practical use Hardness (°d)	Classification
1	up to 1.3	up to 7	Soft
2	1.3 - 2.5	7 - 14	medium
3	2.5 to 3.8	14 - 21	hard
4	above 3.8	Over 21	very hard

The best way to determine the water hardness is to use a measuring device. However, you can also ask your water supplier. The ideal hardness for machine washing is 0-3°d (total hardness).

The descaling unit can be placed as a separate unit on the machine. However, an integrated solution in front-loading and top-loading machines is also possible.

PARTIAL/FULL DESALINATION

Shiny washing results: Those who have higher demands on washing results will see a real improvement with desalination.

The total salt content, including the minerals that cause stains, is reduced or set to zero. Desalination is carried out using cartridges based on the ion exchange principle or with a Reverse osmosis systems. In ion exchange, H+ and OH- ions are added to the water in exchange for minerals in two steps, combining to form pure water (H2O).

Reverse osmosis can be thought of as a filter system: the raw water is forced through a filter membrane at high pressure, which retains all water constituents (including the total salt content). This produces approx. 70% pure water (permeate). 30% water is needed to flush the filtered substances away from the membrane (concentrate) – this flows into the wastewater.

The right solution for every requirement and every application!

Jürgen Neumann
Key Account Manager,
HOBART

A SUCCESSFUL CONSTELLATION

ACCOR DORINT — ECOLAB

In April-May 2005, two new Accor hotels opened in Berlin and Munich. Based on the existing supply agreement and the good and successful cooperation, these hotels are supplied by Ecolab. Initial contact with the managers of the individual hotels was established during the pre-opening phase. *The aim of this contact was to ensure that all cleaning processes ran smoothly by selecting the right cleaning products and dosing systems.*

Hygiene is not only a basic requirement for ensuring that customers and guests enjoy a pleasant stay at a hotel or restaurant, but also a delicate plant that must be constantly nurtured and cared for. *You can only earn money with satisfied and returning customers and guests.*

As a cleaning supplier, we are able to meet most of these requirements, *but we are dependent on certain technical conditions that can only be created through optimal planning.* In the area of dishwashing and surface cleaning, a well-thought-out *concept for overall kitchen planning* is *essential.*

The right choice of dishwasher, tailored to the size and guest turnover in the existing catering departments , *the optimal supply of high-quality water*, and much more.

In short, the planning, cooking and baking technology, refrigeration technology, water technology, and dishwashing technology must form a symbiosis.

The new Accor Hotel Dorint Novotel Am Tierpark in Berlin has 274 rooms, a restaurant, and a bar, and is located on Straße des 17. Juni, right in the center of the city. To ensure optimal conditions for the opening in June, our consultant *Mr. Michael Schwerin worked with Mr. Golombek from the Palux planning office to finalize the plans for the appliance installation.* Specifically, our Solid dishwashing detergent was used in the dishwasher. With this innovative, proven product system, the product concentrate is filled into a closed, application-safe plastic cartridge without fillers or water. The active ingredients are only activated immediately on site by the ECOPLUS dosing device with fully automatic monitoring of the active ingredient concentration. The plastic cartridge made of pure polyethylene is completely emptied and fed into the recycling system. In addition to user safety, this results in significant economic and ecological advantages in terms of product storage, product performance, and packaging disposal. For optimal

The Oasis Pro System was installed for the efficient and cost-effective use of surface products.

In the housekeeping area, the Oasis Pro product and system line was also made available in collaboration with the housekeeper.

The new Ibis Hotel in Munich, located on Lyonel Feininger Strasse, opened at almost the same time. The hotel has 149 rooms and the

VXR I dosing device

self-catering facility Boutique Gourmande designed for 100 guests. The hotel bar is also located in the immediate vicinity of the restaurant. Here, too, our consultant Mr. Soller worked with the hotel management to make the initial arrangements in advance and implement them in a similar procedure.

After the dosing devices were installed in both hotels, a *system check was carried out to verify the interaction of the individual components—flushing technology, water technology, and chemicals—* and

and, if necessary, to carry out fine tuning.

Furthermore, the staff was familiarized with the products and systems to be used.

In order to ensure high hygiene standards in the future, regular service visits and staff training courses on cleaning products, occupational safety, on-the-job training, and all hygiene-related topics are carried out in the hotels.

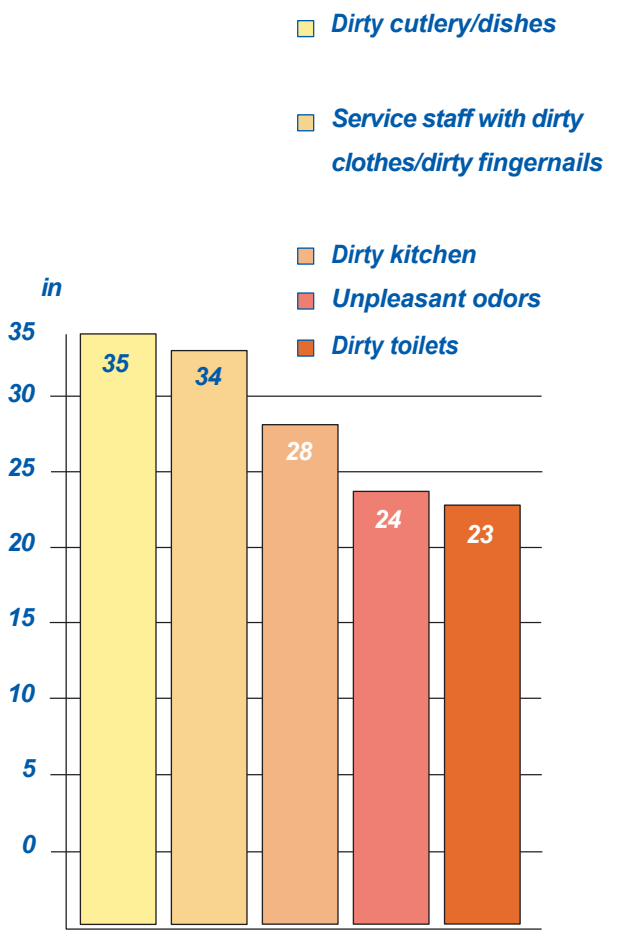
As we all know from experience, no matter how carefully you prepare for the eagerly anticipated opening day, things can still go wrong.

For this reason, our expert advisors are on site on the opening day and the following days.

Detlef Halm

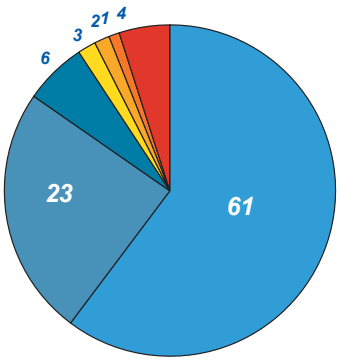
Head of Corporate Accounts, ECOLAB

***QUESTION:* Which of the following hygiene-related issues would most deter you from dining at a restaurant?**



Basis: 5,469 adults in six European countries. Source: Mori

Eight out of ten Europeans would not return to a restaurant that they consider unhygienic.



Key (in %):

- *Strongly agree*
- *Agree Neither agree nor disagree*
- *Disagree*
- *Strongly disagree*
- *Don't know Not applicable*

Basis: 5,469 adults in six European countries. Source: Mori

WATER IS FOR WASHING

The connection is clear and obvious to anyone responsible for cleaning: without water, any kind of hygiene becomes difficult or even impossible—especially in the kitchen.

In professional (commercial) kitchens, water must meet the requirements of the stringent German Drinking Water Ordinance – this is to ensure that

Less money down the drain

Is it that we have "good water" in every kitchen? This is true in terms of palatability—i.e., for drinking and cooking—but also for "hygienic rinsing," as well as for washing, rinsing, and cleaning.

Meeting these requirements is one of JohnsonDiversey's main areas of focus:
Cleaning and hygiene with the help of water – it is not possible without water, it is not only possible with water, but it is only ideal with the "right" water.

How do I recognize what the
What is the "right" or even the "ideal" water, and how can I obtain it for my business?

You will find answers to these questions in this water guide, which generally refers to the parameters required for individual tasks and the technical possibilities for achieving your goals.

In addition, you can find neutral information on these topics from the VGG (Association for Commercial Dishwashing, to which all well-known machine and chemical manufacturers belong) regarding the operation of your dishwashers.

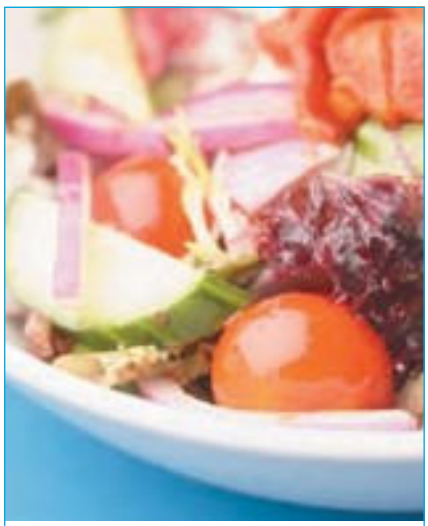
But what is ideal for your business?
- What pays off best – what is easiest to implement – and how can the "ideal state" once achieved be maintained? Because, to paraphrase Konrad Lorenz:

"Once implemented is not yet maintained," so once established does not mean permanently operated correctly!

Who supports you in the implementation and who provides "neutral" information?

Use the network presented here, ask the partner who is closest to you (your company) and who pursues the same interests as you – fra-
from JohnsonDiversey Germany.

True to or company philosophy: ***"Clean is just the beginning."*** We start working with you on the tasks closest to us, such as selecting practical cleaning and disinfection products and the associated dosing systems, but we don't stop there:
We determine what
and create a customized system solution for your operating system that also includes the best methods proven in practice.
We document this in an individual hygiene manual with hygiene concepts, method cards, and hygiene plans for all areas of your facility.
With the JohnsonDiversey brands ***Suma*** (kitchen), ***Clax*** (laundry), ***Soft Care*** (hand and body hygiene), ***GoodSense*** (indoor air hygiene), and ***TASKI*** (products, equipment, and machines for building cleaning)



Less salad in the range

We cover these areas completely.
This is done in close cooperation with the other partners in your organization, with whom we form a network in your interest.

Quality in Action

Please also consider the aspect of "Maintenance." Action is required to maintain and potentially improve quality. To ensure that this can be done in a controlled manner, a systematic service is required, such as that provided by JohnsonDiversey Systemservice: No "omniscient specialists," but rather "system maintainers" who implement a predefined system on site and then maintain it—but who also forward your specific questions to competent hands and the network presented here:

"Live" cooperation – ask us

What are the benefits of operating my glasswasher with demineralized water, what do we save, what does it cost, should I switch the entire washing area to demineralized water, is that possible with the existing pipes? (We will provide you with the relevant calculations)

Or: Why can't my cleaning company get the kitchen floor clean? (Possibly because hard water is used for cleaning and only alkaline cleaners have been used – this causes limescale deposits to form on the floor, which can only be removed with interim cleaning with an acidic cleaner).

Make a relaxed decision now in favor of the efficient products and systems from JohnsonDiversey.

Time to relax – a vacation for your budget

Or, or, or... Safety makes you "relaxed"

From the tap to the sewer—taking into account all influencing factors (including human ones). Your needs integrated into an active system that gives you the security of knowing you are "in the right place" at all times – that is our goal, which we want to achieve through active partnership with you and the network presented here.

No sooner said than done, but a promise is a promise!

Please contact us.

Hans Masshoff
(National Key Account Manager)
DieTer Grommisch
(Key Account Manager Lodging),
JohnsonDiversey

WATER QUALITY STANDARDS FOR UNIVERSAL/POT WASHERS

I. Filling and rinsing: Soft water, cold, 0°-3° dH

If this water quality is not observed (water hardness greater than 3° dH), there is a risk of

- lime deposits forming inside the dishwasher
- Risk of machine failure (calcified heating elements burning out)
- Higher detergent consumption

Only when used as a cutlery dishwasher:

II. Filling and rinsing: Osmosis water, cold, 0° dH, conductivity 15-80 µS/cm

Failure to observe this water quality may result in:

- Visible water spots (limescale deposits) on the cutlery
- Limescale deposits inside the cutlery washer
- Risk of machine failure (calcified heating elements burning out)
- Deterioration of the rinse performance (clogging of the rinse nozzles)
- Higher detergent consumption

WATER QUALITY STANDARD FOR BASKET TRANSPORT DISHWASHERS

I. Tank filling: Soft water, cold, 0°-3° dH

If this water quality is not observed (water hardness greater than 3° dH), there is a risk of:

- Limescale deposits inside the dishwasher
- Machine failure (calcified heating elements burning out)
- Higher detergent consumption

II. Rinsing: Osmosis water, cold, 0° dH, conductivity 15-80 µS/cm

If this water quality is not observed, there is a risk of:

- Visible water spots (lime deposits) on the dishes
- Limescale deposits inside the dishwasher
- Risk of machine failure (calcified heating elements burning out)
- Deterioration of the rinse performance (clogging of the rinse nozzles)
- Higher detergent consumption

WATER QUALITY STANDARD FOR GLASSWASHERS

I. Filling and rinsing: Osmosis water, cold, 0° dH, conductivity 15-80 µS/cm

Failure to observe this water quality standard may result in:

- Visible water spots (lime deposits) on the glass
- Limescale deposits inside the glasswasher
- Risk of machine failure (calcified heating elements burning out)
- Deterioration of the rinse performance (clogging of the rinse nozzles)
- Higher detergent consumption

WATER QUALITY IN FOOD PREPARATION

Whether you need water for cooking or cleaning, *poor water quality can affect the desired result, either completely or partially. Water quality is therefore an extremely important aspect, especially when preparing food.*

Poor water quality has consequences for taste and appearance, e.g., cooking water takes on the color of the food being cooked, water tends to foam, parts of the food dissolve in the water, or the firmness of the food decreases.

This means that vitamins, minerals, nutrients, firmness, and thus quality and taste are lost. Vegetables lose color and up to 35% of their minerals. The weight loss in cooked meat is reduced.

Suitable water treatment systems prevent these unpleasant side effects.

For modern cooking appliances such as hot air steamers, fresh steam generation in the cooking chamber is state of the art. *Suitable water treatment is therefore essential for perfect, high-quality food.* The ideal form of treated water is *achieved* by using *Aquamix blended water with a conductivity of up to 250 µS/cm salt content or 3-4° carbonate hardness.*

This significantly improves the quality of the food. Vegetables retain their color and become evenly cooked, vitamins are preserved, the taste becomes more intense, there is less weight loss in cooked meat, and fish retains its firm consistency.

A significant side effect of the correct water treatment is the *reduction in operating costs. Daily cleaning and maintenance costs are reduced in terms of personnel, water, and chemicals.* Less limescale means lower energy consumption and fewer repairs to high-quality equipment. *Less wear and tear and downtime ensure reliable, long-lasting, and cost-effective operation.*

FLAVORED WATER OR AQUAMIX WATER STANDARD ...

... for ice cubes and crushed ice makers

... for coffee and tea machines

... for steamers and steamers

Aquamix water is supplied to customers in a specified quality (regardless of the raw water quality) with a permanent carbonate hardness of 3-4° and a mineral content of 250 µS/cm. Combined osmosis/Aquamix WAL. This provides protection against calcification and deposits.

Clean, clear ice cubes, no more cartridges (service), and aroma and germ protection through UV.

WATER CHECK

FOR HOTELS & RESTAURANTS

Part 1 Problem assessment (by the customer themselves)

Part 2 Inspection and report by WAL/KINTEC (upon request/appointment)

Is a drinking and service water analysis available?

- Entire building or per consumer as required and in accordance with DIN standards

Are there any problems with, for example, limescale deposits (in/on)?

- Glassware, cutlery, crockery, and dishwashers
- Steamers and steam cookers
- Ice cube/crushed ice machines
- Coffee and tea machines
- Boilers & water heaters
- Bathrooms & wet rooms
- Perlators & shower heads

What is the hygiene and cleanliness (DIN) of glasses, cutlery, and crockery like?

- Limescale - Water stains on glasses
- Water stains - Residue on cutlery
- Gray deposits - deposits on dishes

Do cutlery, glasses, and other items need to be polished?

- Costs for polishing EURO/h =
- Costs for broken glass EURO/item =

Are partial and full desalination cartridges used?

- Costs for purchase + service + results per month EURO =

Coffee machines with cartridges (among other things) and service?

- Costs - Expenses - Service etc. monthly EURO =

Problems with building services involving water/costs, etc.?

Pipes, mixing valves, fittings, pitting, rust - brown water Legionella - germs, climate, humidifiers/washers

Problems with installed water treatment systems?

Centralized/decentralized systems (magnets, softeners, chemicals, dosing)

Are you planning any changes in these areas?

New construction, conversion, investments, repairs, and/or optimization

DID YOU KNOW

THE MOST IMPORTANT WATER PARAMETERS FOR TECHNICAL APPLICATIONS ARE CONDUCTIVITY AND HARDNESS.

Conductivity

Chemically pure water is an excellent insulator and does not conduct electricity. It is the salts dissolved in the water that make it an electrolyte and thus conductive to electricity. *The unit of measurement for conductivity is "µS/cm" (pronounced: micro Siemens per cm).*

The more dissolved salts there are in the water, the higher its conductivity. *Conductivity therefore indicates the salt content of the water. Water with a conductivity of more than 50 µS/cm can already form visible residues on glasses and cutlery.*

Conductivity is easily determined using conductivity meters, which measure the flow of electricity in the water being tested. The conductivity of *drinking water in Germany* varies from a few µS/cm *to 1000 µS/cm. Water with a conductivity of 1000 µS/cm has a salt content of approx. 1000 mg/l.* If one liter of this water evaporates, 1 gram of dry salt residue remains!

Total hardness

The total hardness of water is composed of *carbonate hardness and non-carbonate hardness.*

The total hardness is determined with sufficient accuracy using titration measuring devices, which determine the total amount of *calcium and magnesium ions,* the so-called hardness formers. Although it is no longer officially valid, the common *unit of measurement* is *°dH (pronounced: degrees of German hardness).* There are also °fH (degrees of French hardness) and °eH (degrees of English hardness).

1° dH corresponds to a quantity of 17.8 mg of lime (calcium carbonate or CaCO3). In Germany, *water hardness levels of more than 40° dH* are sometimes found. The total hardness remains dissolved in the water only as long as the water is in lime-carbonic acid equilibrium (LCE).

For example, if the KKG is disrupted by heating the water, the hardness precipitates. *At temperatures above 60°C, no lime remains dissolved in the water.* If 1000 liters of water with a hardness of 20° dH is heated to more than 60°C, 356 grams of lime can *precipitate and deposit!*

Hardness is not always the same

Carbonate hardness is the part of hardness that causes annoying limescale deposits. Carbonate hardness is also determined using titration measurement equipment. Unlike total hardness, however, it is not the total amount of the hardness-forming substances calcium and magnesium that is determined here, but only the amount of *hydrogen carbonate ions* to which these hardness-forming substances are bound. *In water softening by ion exchange, the calcium and magnesium ions are removed from the hydrogen carbonate ion and replaced by sodium ions. Sodium hydrogen carbonate does not form hardness deposits.*

Consequently, the *same "carbonate hardness"* is measured before and after a water softening system. So if carbonate hardness is important for a process, it is necessary to take a very close look at *which water treatment processes may already be in use!*

HYGIENE AND CLEANLINESS ...

... for glasses, cutlery, and tableware.

Thanks to a new DIN standard, there is now clarity (VGG

- Info for glass, cutlery & tableware).

DIN regulation:

Glasses must be dry after 2

minutes.

No need for time-consuming repolishing.

Contamination from the cloths is avoided.

HYGIENE IS THE BEST ADVERTISEMENT

In addition to high-quality food, the most important thing in the restaurant industry is clean dishes and cutlery, as well as staff with an impeccable appearance.

THE WAY TO THE LIGHTHOUSE

A HOLIDAY WITH A BUSINESS DEAL

It should be a beautiful autumn at the Ost-

you can see, as close to the water as possible: well cared for, cozy, friendly, and healthy;

The hotel at the lighthouse in Warnemünde – Baltic Sea, right at the top in the north, then only water – the next country is Denmark.

A little dream for seven days.

- Great breakfast until late

morning - Great restaurant "OLIVE" with flair and a place to sit and relax.

Harbor walk at the "Alten Strom" around the corner, Teepottopik - ferries to all corners of the world, cruise ships (AIDA, etc.), fishing boats, and sailors free of charge! NEP-TUN sends its regards;

Friendly contacts with Mecklenburg-Western Pomerania charm, with the people,

hotel staff; even Director Friedrich always has enough time for guests and employees.

But why do the employees polish glasses and cutlery in the morning, at noon, and in the evening?

Now my ambition was piqued, vacation or not;

Why not help: this can be optimized—improved!

Additional work - hygiene - host

Why not try talking to the dedicated and competent director Friedrich?

Mr. Friedrich was certainly willing to conduct an on-site inspection, and the in-house technician also came along because of his overview and knowledge of the renovations that had taken place at the time, an assessment of the actual water quality of the pipes

Dishwashing situation, which machine systems from which manufacturer/designer (Palux, of course), actually satisfaction – but why polish when

Not necessary – that had to be proven!

Before Christmas, an AquarenT compacT (osmosis) + 300l tank and pressure booster were installed in the basement as a central supply for a three-month test period, with supply pipes leading from there to the consumer systems

systems (basket pass-through machine, glass sink, and steamer) were available.

Cost-intensive Demipatron devices and a defective small softener were disposed of.

An information offer regarding the purchase or rental of the Aquarent

Investment/budget or operating cost processing.

During the test period, after adjusting all rinsing systems to osmosis water, Director Friedrich drew up a cost-benefit analysis. It was necessary to check the chemical dosage, the temperature of the pre- and post-rinsing, as well as limescale removal and hygiene. After a very short time, plates, cups, and white tableware were flawless.
OK!

Glasses and cutlery still needed a higher drying temperature of approx. 50/55°C to 60-68°C to prevent water droplets from remaining on glasses and cutlery due to excessively long drying times.
Three months later, , another
to the beautiful Baltic Sea at the Hotel Am Leuchtturm.

After a good discussion, during which both sides once again discussed the conditions/performance and costs, a rental agreement was concluded with Director Friedrich, directly from the manufacturer, WAL, Aqua Rent Compact Zentrale, which was enjoyable and successful for both sides. Economy, utility, and success are shared values in the interests of both partners!
We would like to express our sincere thanks o

We would like to thank Director Friedrich and his staff for their interest and cooperation and wish them all the best for their business and success, but we also ask them to keep a room free from time to time when our longing for the Baltic Sea and the Hotel Am Leuchtturm becomes too great.

Thank you to everyone Karl Klüsch, KinTec

GOOD WATER
FOR THE DISHWASHER
Experts recommend quality controls VGG
Hagen, December 2003
Water quality plays a particularly important role in machine washing. Not only does it have a decisive influence on the washing results, but the constituents of the water should also be taken into account when it comes to cost-effective washing. This is pointed out by the Association for Commercial Dishwashing (VGG) in Hagen.

Whether calcium, magnesium, other dissolved salts, heavy metals, or even the smallest particles of sand: all of these potential water constituents can have a negative impact on the washing results above certain limits.

In this context, the VGG expressly points out the following: Effective water treatment in dishwashers can only be achieved with ion exchange or reverse osmosis processes. Processes that use magnetic fields or electronic radiation have not been proven to be effective.

REVERSE OSMOSIS DEVICES AQUARENT® COMPACT 90 L/H & 180 L/H SERIES

The ***AQUARENT® compact*** reverse osmosis devices represent the newest addition to the AQUARENT® series. Based on the previous model and the latest technologies from our OEM development, a *modern, reliable, and user-friendly device for drinking water desalination* has been *developed.*

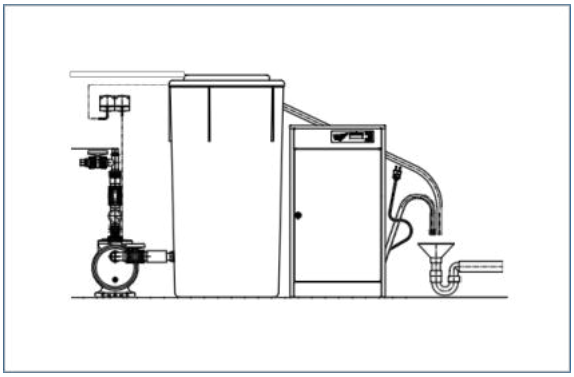
The devices have a built-in pretreatment system for conditioning the raw water and feature integrated sensors that monitor all relevant parameters. The sensor data is interpreted by the microcontroller and displayed as plain text operating messages on the MMI (white on a blue background).

The built-in pressurized buffer tank stores up to 10 liters of clean water and ensures that *the devices* are *ideally* suited *as upstream units for supplying individual consumers with a continuous water consumption* of no more than 180 liters per hour. With the optionally available permeate management systems, even consumers with high peak demand can be optimally supplied.

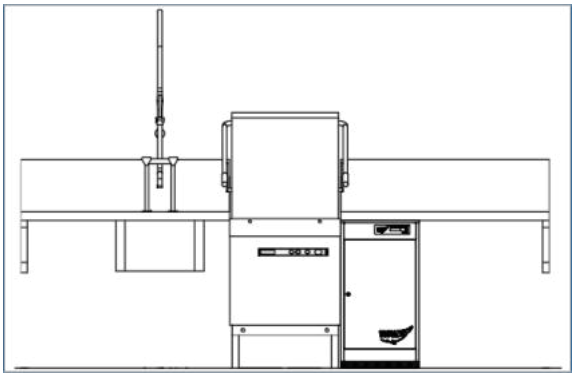
The FlowControl technology developed for these devices eliminates the need for the user to check operating parameters and keeps service work manageable. The prefilter insert and the scaling inhibitor only need to be replaced every six months.

need to be replaced every six months. ***AQUARENT®compact 90 devices*** can be upgraded to ***AQUARENT® compact 180*** devices by our customer service at any time.

INSTALLATION EXAMPLES FOR THE AQUARENT® REVERSE OSMOSIS DEVICE SERIES



AQUARENT® COMPACT CENTRAL



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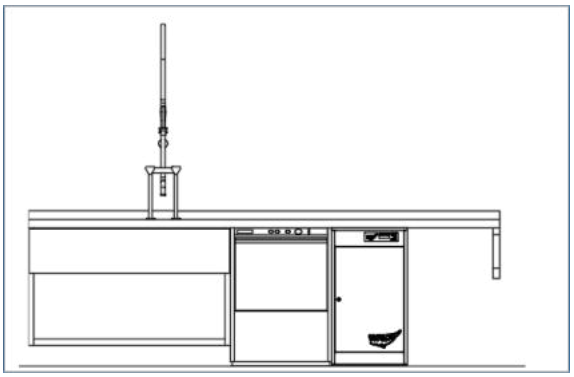
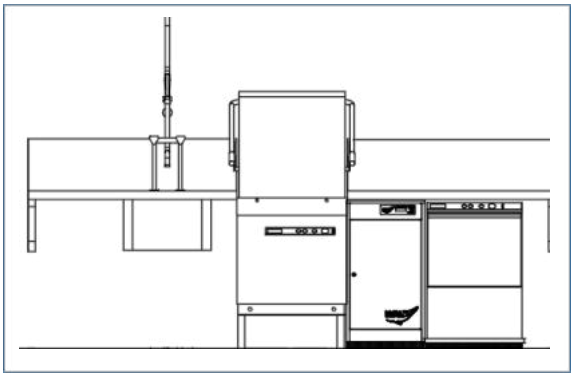


AQUARENT® COMPACT UNDERCOUNTER + GLASS WASHER



AQUARENT® COMPACT UNDERCOUNTER + HOOD MACHINE & GLASS WASH

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