

Made  
in  
Germany

# BOHRER

This is how to build crate washing systems



Cost-efficient  
crate cleaning in the  
beverage industry





*Bohrer crate washer TW in the Badische Staatsbrauerei Rothaus*



## **BOHRER**

# **Crate Washing Systems**

### **Perfect hygiene solutions for the beverage industry**

Breweries, mineral water bottling plants, the soft drinks industry and dairies are demanding ever-increasing standards in terms of the hygiene and aesthetic cleanliness of their transport containers. This is because perfect product presentation at the Point of Sale is becoming increasingly important.

At BOHRER we have already been specialising in the efficient and economical cleaning of plastic crates for over 40 years. With our practical and innovative construction designs, we have played a significant role in influencing developments in the crate washing sector from the very start and today we are **the worldwide leading specialist for hygienically cleaned containers.**

## Durable and future-proof – Made in Germany

Unlike any other crate washing machines, BOHRER crate washers are truly impressive in terms of their concise and sustainable „long-life concept“. Manufactured entirely from stainless steel, with state-of-the-art, energy-saving components and a programmable control system – our machines are an investment in the future. Modifications and upgrades are possible at any time and are already taken into account in the machine design.

## Efficient and economical – for small and large performance capacities

Three tried and tested cleaning concepts ensure maximum cleanliness and exceptionally careful crate handling.

### BOHRER TW Series Crate Washer

This type of crate washer offers high performance with maximum care of the crates. The double-end machine with immersion soaking bath consists of three cleaning levels one upon the other.

### BOHRER TR Series Crate Washer

The single-end machine with immersion soaking bath consists of two cleaning levels one upon the other. As the crates enter and exit the front side of the machine, it is ideal for areas where space is restricted.

### BOHRER R Series Crate Washer

Conventional tunnel washer for universal use.

### BOHRER Bespoke Systems

On the basis of these three crate washing concepts, we are able to design and deliver a bespoke system tailored to individual customer requirements. We are able to think beyond boundaries in all sectors.



# Our cleaning technologies – modular for use with every container type and every performance capacity

## Individually specialised, in combination the guarantee for hygiene and cleanliness

All our technologies and components are tried and tested and meet our „**Made in Germany**“ stringent quality standards. Depending on the performance and cleaning requirements, these technologies are used in our cleaning machines which handle the crate with care.

Instead of undefined high pressure, which in just a few cleaning cycles can cause colours to fade, we use a combi-

nation of cleaning modules in our crate washers which has been tried and tested.

In this way, we are able to gently yet thoroughly clean standard crates, as well as crates with high quality logos and intricate compartments, to ensure they maintain their appearance and have a lengthy service life.



### Coarse dirt removal

Coarse dirt, bottles and broken glass are already removed in special crate turning stations before the crate enters the washer.



### Pre-spraying with label removal

An external or integrated high pressure unit with special nozzles removes highly adhesive labels, bar codes, price labels, stickers, etc.



### PET discharge device

We safely remove PET non-returnable bottles that have become deformed, gummed up or wedged in the case with maximum efficiency before they enter the case washing machine.



### Turbo immersion soaking bath

The most gentle and effective method of soaking all dirt is in our heat insulated energy-saving immersion soaking bath which features a turbulent hot lye flow.



### Blowing unit for retained water

In the lower and medium capacity range, we use a retained water blowing unit which is integrated into the machine. The air knife can be individually adjusted to suit different types of crate designs.



### Patented spray nozzle system

Regardless of whether they are used for rinsing or for high pressure label removal – our patented nozzles with a bayonet mounting can be adjusted to any container and distribute the spray water evenly from all sides over the entire crate geometry.



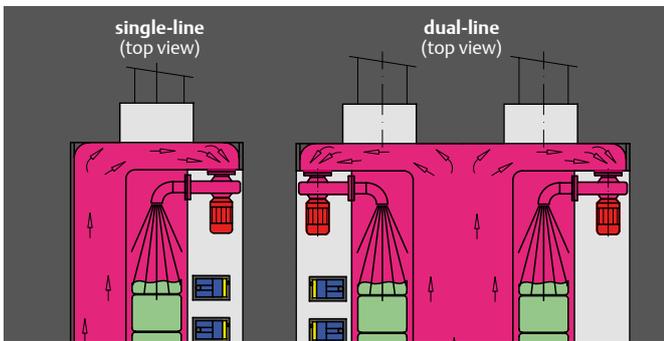
### Crate drying

In the high capacity range, we use an external drying module which has a high performance blower with efficient nozzle layout to ensure the crates are dried 100%.



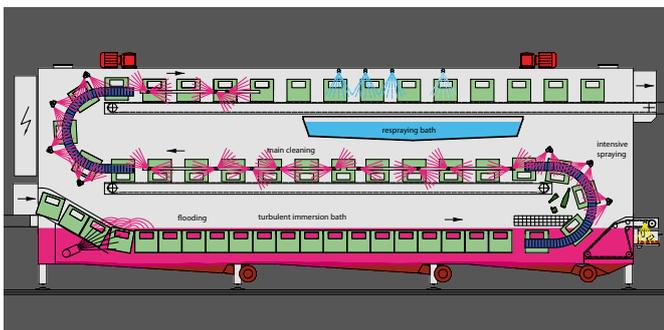
### Intensive spraying

In combination with our turbulent immersion bath, the individual crates are thoroughly cleaned from all sides. For crates which are extremely dirty, we can additionally use special high pressure systems.



### Modular – single or dual-line

Our TW, TR and R Series can be designed as a single or dual-line system depending on the performance capacity required. This means that we are able to provide a suitable machine in every performance range. At the same time, the advantages such as a clear layout, accessibility and ease of operation in routine cleaning still apply.



### One, two or three cleaning levels

If you have a standard crate which is only slightly soiled then a tunnel machine such as the BOHRER R Series is the ideal system to meet your requirements. For crates with high quality logos and construction designs with areas that are difficult to clean and require a lengthier treatment time, we recommend our machines with two (Series TR) or three (Series TW) cleaning levels.



### Careful crate transportation

Our crate washers handle the crates with the utmost of care, and this includes transporting the crates through the machines. For crate transportation, we use high quality stainless steel hinged slat chains and in the turning units we use our patented plastic clamping system. Guide rails which can be adjusted without tools, enable different types and designs of containers to be cleaned.



### Continuous dirt removal

Labels which have been removed and are floating around in the turbulent immersion bath, are captured by a continuously operating, plastic filter belt and transported out of the machine, where they can then be disposed of in a transport container/dirt removal truck.

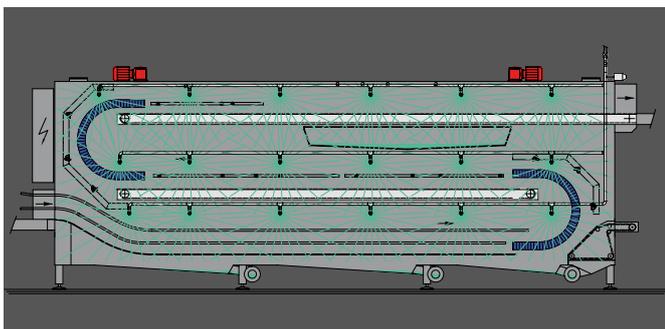
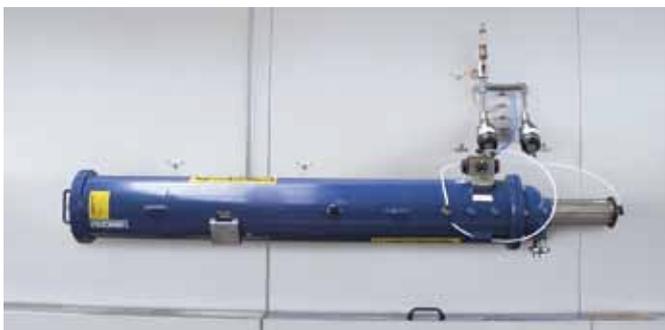
The cleaning medium (lye) has to pass through the dirt removal unit, where the coarse dirt is removed, before the medium is passed back into the washer.

# Our technology: innovative and functional

– Made in Germany

## We are experts in stainless steel, durability and functionality

As a German manufacturer with a wide breadth of production, in our housings we only use stainless steel which is unrivalled in terms of resilience, durability and easy maintenance. Manufacturing is carried out by our skilled metalworkers exclusively in our own production facilities.



## Intelligent design – for maximum hygiene and easy servicing

Unlike any other crate washer, our machines feature a clear and concise design, both in the interior and exterior. Smooth surfaces, minimal piping, spacious and easily accessible service compartments for pumps, high pressure blowers and filters, along with generously dimensioned hinged windows or motorised windows are the hallmarks of the BOHRER crate washers.

## Quick-emptying device for sludge removal – for continuous three-shift operation

To ensure that machine cleaning is kept as simple as possible, and to effectively extend the service life of the lye, the patented BOHRER quick-emptying device for sludge removal is installed in each immersion bath.

## Hi-tech continuous filtration – for lengthy service life of lye

For the automatic filtration of solids and suspended matter in the washing lye, we use special filters which continuously filter the lye, even during backwashing. They are integrated into the piping system, which means that they are easy to service and provide considerable water savings as the lye does not need to be changed as often.

## CIP cleaning – for labour-saving, multi-shift operation

In order to make the weekly, time-consuming process of cleaning the machine as efficient as possible, we offer a sophisticated CIP cleaning system as an accessory for our crate washers. This is integrated into the machine and guarantees the maintenance of hygiene without the use of additional labour.

## Future-oriented electronics – for reliable functioning and simple operation

We only use high quality systems from top international manufacturers in our drives and control modules. The machine programming is carried out by our own electronics specialists. They not only ensure that the crate washer operates smoothly but will also link it in with existing plant. And, on request, we will of course install remote maintenance.



# Our Services

## – all from one company

For over 40 years we have embraced the philosophy of „The Customer is King“ and we achieved this with our renowned BOHRER quality.

More than 1,500 BOHRER crate washers sold worldwide stand for innovation, quality and satisfied customers.

### **Consulting – tailor-made to your requirements**

We will offer you an individual and professional consultation on-site and support you in the implementation of a cost-efficient and future-oriented container cleaning concept. Consultations are generally carried out with our managers, who will work with our in-house team to ensure that your bespoke system is delivered on time in the most efficient manner possible, and that everything is correct, right down to the very last detail.

**Even if your plans to install a new plant or to modernise your existing facilities are for the medium or long term, don't hesitate to contact us! We will help and advise you every step of the way.**

### **Planning – benefit from our extensive expertise**

Whether you want us to construct a new system or modernise your existing system – we will always be delighted to offer you our extensive expertise which dates back over decades. Design, bespoke planning, the presentation of sophisticated solutions and a transparent cost overview - these are all areas in which we excel.

### **Construction – practical, concise and future-oriented.**

When it comes to functionality, durability and cleanliness, we are your perfect partners. Our crate washers, featuring a modular system, are bespoke solutions manufactured from stainless steel and are individually designed by our construction team to meet your requirements.

Today, as a medium-sized, second-generation family business, we are a modern, efficient company dedicated to delivering a high level of customer service and, ever since it was established by Ludwig Bohrer, the company has pursued a future-oriented approach.

### **Production – Made in Germany**

During the production of our crate washers, along with related components such as transporters and rotation devices, we focus on precision, robustness and ease of servicing. Across a production area of more than 1,500 m<sup>2</sup>, our skilled metalworkers produce quality Made in Germany.

### **Our service – prompt and reliable**

Our assembly and service team guarantees the expert commissioning of your crate washer, incl. the instruction of your personnel. As each machine undergoes a test run before it is delivered, our assembly times on-site are as short as possible. Extensive documentation relating to operation, electrics and electronics makes routine servicing much easier for your specialist personnel.

In addition to our spare parts service and customer service, on request we can also provide your specialist personnel with individual training, which will help them to further develop their expertise in our machines. As we have a well stocked spare parts warehouse and our own production facilities, we are able to supply and install all spare parts for our machines, even years after the system has been installed.

We are of course available at all times to answer any queries that our customers may have.



# BOHRER Crate Washer Series TW

Double-end machine with immersion soaking bath and two cleaning levels located above this. The basic principle of having multiple cleaning levels with immersion soaking, main cleaning as well as intensive lye spraying, circulation re-spraying and a fresh water final rinse is the most effective way of cleaning crates and containers in a careful and cost-effective manner.

## Advantages in comparison to conventional crate cleaning

- **45% savings on chemicals** due to the length of time the chemicals are allowed to act on the crates
- **Up to 40% savings on water** due to the length of time the crates are allowed to stand in the machine
- **Up to 33% savings on energy** due to optimum insulation
- **3-level cleaning system (BOTTOM-UP-SYSTEM)** ensures high performance and minimal space requirements (8-metre TW 80 is equivalent to a 24-metre conventional tunnel machine).

## Cleaning Level I

Thorough soaking in the turbulent immersion soaking bath with full submersion for removing dirt from the entire crate, even from problem areas.

## Cleaning Level II / III

Main cleaning via a long contact route. Intensive removal of the pre-soaked dirt by powerful water jets on all sides. In the upward turning unit, in particular, the front faces, interior compartments and base of the crates undergo intensive cleaning.

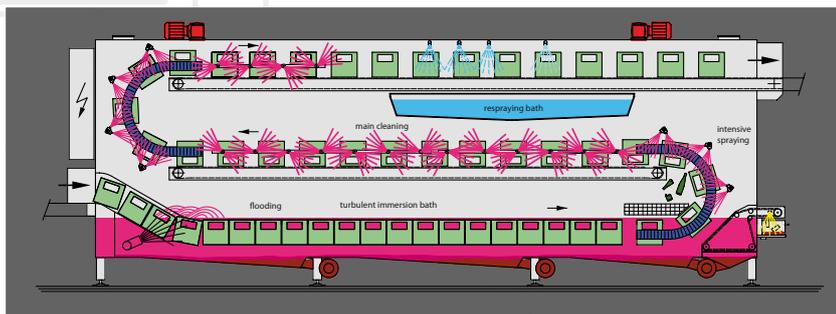
## Cleaning Level III

At the end of the main cleaning section, following a short drainage zone, the crates are resprayed with clear circulating water and then rinsed with fresh water.

The remaining required drainage occurs whilst the crates are still in the machine.

## Capacity:

From 2,000 to 10,000 crates/h (Other capacities on request)



Dual-line crate washer Series TW

**TW – our flagship  
for maximum hygiene and cleanliness  
in every performance capacity**





### The interior – optimised for servicing and cleaning

Due to its clear design layout, which is well-lit and completely accessible, service and cleaning work can be carried out quickly and easily.



### Intensive spraying

In combination with our turbulent immersion bath, the individual crates are thoroughly cleaned from all sides. For crates which are extremely dirty, we can additionally use special high pressure systems.



### The motor compartments – easily accessible and soundproof

All units are installed in the motor compartments of the machine in a manner which ensures easy servicing. Large, pneumatic pivot doors make access easy.



### Continuous dirt discharge – for lengthy service life of the lye

Labels and coarse dirt that have been removed are discharged from the bath via a continuously operating filter belt. The entire discharge unit can be completely removed for inspection.

# BOHRER Crate Washer Series TR

Single-end machine with immersion soaking bath and a cleaning level located above this. The basic principle of having multiple cleaning levels with immersion soaking, main cleaning as well as intensive lye spraying, circulation re-spraying and a fresh water final rinse is the most effective way of cleaning crates and containers in a careful and cost-effective manner.

## Advantages in comparison to conventional crate cleaning

- **45% savings on chemicals** due to the length of time the chemicals are allowed to act on the crates
- **Up to 40% savings on water** due to the length of time the crates are allowed to stand in the machine
- **Up to 33% savings on energy** due to optimum insulation
- **2-level cleaning system (BOTTOM-UP-SYSTEM)** ensures high performance and minimal space requirements (10-metre TR 100 is equivalent to a 20-metre conventional tunnel machine).

## Cleaning Level I

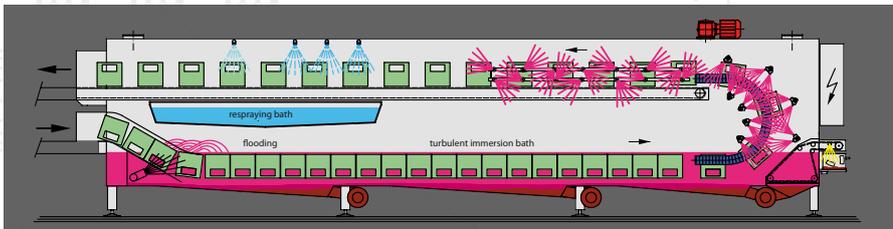
Thorough soaking in the turbulent immersion soaking bath with full submersion for removing dirt from the entire crate, even from problem areas.

## Cleaning Level II

The lengthy contact route ensures that the main cleaning process is carried out thoroughly. Intensive water jets loosen the soaked dirt. The front faces, interior compartments and base of the crates are cleaned in the upward crate turning unit and then rinsed with fresh water.

## Capacity:

From 1,600 to 9,000 crates/h (Other capacities on request)



Dual-line crate washer Series TR



Crate washer TR 30

## BOHRER Crate Washer TR 30

Our compact special design is ideal for medium-sized companies in the beverage industry and, in terms of its cleaning concept, cleaning performance and high quality design, is on a par with the TR high performance machines.

The difference lies in the crate throughput speed, which in this case is lower and therefore requires a shorter handling route. We can achieve capacities of 1,000 to 2,500 crates/h with this machine concept. As the crates are discharged at the top of the machine, this design is suitable for a barrier-free arena installation.



### The interior – optimised for servicing and cleaning

Due to its clear design layout, which is well-lit and completely accessible, service and cleaning work can be carried out quickly and easily.



### Intensive spraying

In combination with our turbulent immersion bath, the individual crates are thoroughly cleaned from all sides. For crates which are extremely dirty, we can additionally use special high pressure systems.



### The motor compartments – easily accessible and soundproof

All units are installed in the motor compartments of the machine in a manner which ensures easy servicing. Large, pneumatic pivot doors make access easy.



### Continuous dirt discharge – for lengthy service life of the lye

Labels and coarse dirt that have been removed are discharged from the bath via a continuously operating filter belt. The entire discharge unit can be completely removed for inspection.

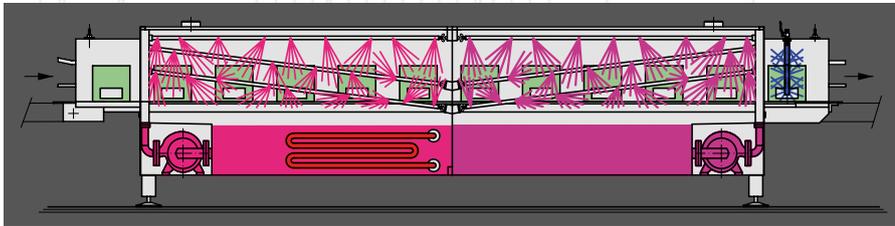
# BOHRER Crate Washer Series R

With this conventional, high performance tunnel crate washing concept, we are able to efficiently clean lightly soiled crates which are integrated in a rapidly changing multi-cycle system.

The crates are cleaned in two separate cleaning zones for coarse and fine dirt, and at the end of the cleaning zone are rinsed with fresh water.

## Capacity

From 300 to 8,000 crates/h (Other capacities on request)



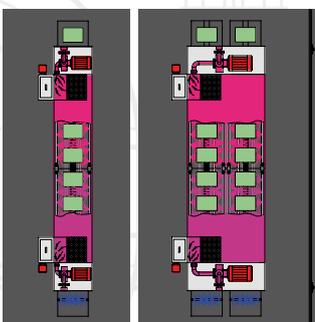
Single-line crate washer series R with crate turning unit



## BOHRER Crate Washer R 25 – modular and bespoke for the small to medium capacity range.

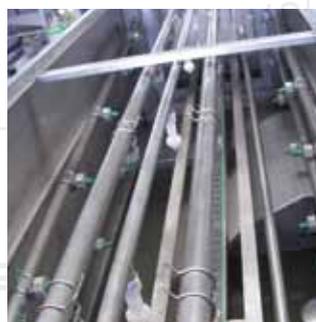
This tunnel washer has been specially designed for the capacities of medium-sized companies in the beverage industry. Different sizes and types of drinks crates with a normal level of soiling are perfectly cleaned in one cycle.

Dirt removal is carried out automatically or via the insertion of a sieve.



### Modular – single or dual-line

To save on space, we can also design this range of crate washers as a dual-line system. In this way, our crate washers can be designed for all capacities.



### The piping – a clear layout and suitable for flexible use

The clearly laid out piping, which allows our patented spray nozzles or special spray nozzles for CIP cleaning to be positioned wherever necessary, is a key design feature of the BOHRER crate washer.



### Patented spray nozzle system

Regardless of whether they are used for rinsing or for high pressure label removal - our patented nozzles with a bayonet mounting can be adjusted to any container and distribute the spray water evenly from all sides over the entire crate geometry.



### Continuous dirt discharge – for lengthy service life of the lye

Labels and coarse dirt that have been removed are discharged from the bath via a continuously operating filter belt. The entire discharge unit can be completely removed for inspection.



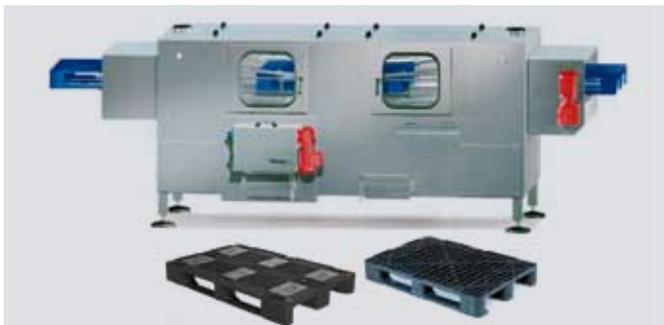
## BOHRER crate washers are exceptional

Hygiene and cleanliness is guaranteed across the entire 40-m cleaning line –from pre-washing right through to crate drying. In this special system for the Grolsch Brewery, we succeeded in meeting all the requirements demanded by modern crate cleaning. Maximum cleanliness, energy optimisation, high performance, minimisation of noise levels, as well as the complete removal of advertising stickers and supermarket stickers.



### BOHRER crate washers – the mini version

With this Series S compact machine, we are meeting the request from small bottle filling plants for a compact, mobile washer, which cleans 50 to 300 crates/h across a short handling route using a semi-automatic process.



### BOHRER pallet washers for storage and transport pallets

The technology used in this special pallet washer which handles up to 100 pallets/h, is equivalent to that used in the BOHRER crate washers for the beverage and food industries. Intensive spraying from all sides, reliable and smooth pallet transportation, fully automatic dirt removal, excellent accessibility for servicing and cleaning, as well as the possibility of combining pallet cleaning with crate cleaning.



### BOHRER cleaning system for different transport containers

A tunnel washer with pre-spraying and respraying, which is variable to suit different sizes and types of containers.

Thanks to the combination possibilities of our modular system, we are able to efficiently clean all usual types of containers in all performance capacities.

# BOHRER Specialist Solutions – large or small, we think beyond boundaries, in all performance capacities and in all sectors



## BOHRER transport components

As a systems supplier we manufacture all components and transporters relating to our crate washers, such as upward and downward crate turning units. Individually adapted to suit the respective space requirements, these components serve not only as a means of emptying coarse dirt, but also as an S-bend or a means of bridging different levels in the transportation track.





*Bohrer crate washer RG, distributor of bakery products, Munich.*



## **BOHRER**

# **Crate Washing Systems**

**The perfect hygiene solution for the food industry and logistics**

**We think beyond boundaries – in all sectors and throughout the world**

Our success is based on our tried and tested cleaning concepts, high quality stainless steel machine design, modular cleaning units and future-oriented, energy-saving technologies, which fulfil the increasingly stringent hygiene standards demanded by the food industry.

What's more, our crate cleaning systems are ideally suited to meet the aesthetic and hygiene requirements of logistics containers, as well as all sizes of presentation and transport pallets.

**Bakeries**

**Butchers**

**Meat processing plants**

**Confectioners**

**The fruit and vegetable trade**

**Frozen food**

**Dairies**



**The pharmaceutical industry**

**The fish industry**

**Logistics companies**

# BOHRER Crate Washers – unique throughout the world in their combination of cost-effectiveness, durability and the ability to provide bespoke, innovative solutions

Today, any company wishing to be at the forefront of container cleaning, must be able to offer specialised cleaning solutions for all sectors. As a specialist with decades of experience in ensuring the hygiene and cleanliness of containers in the beverage industry, we manufacture cleaning machines which are able to offer specialised solutions in every sector. Solutions which will be able to meet both current and future demands.

If you have a special cleaning requirement – we can provide an efficient and economical solution!



Large-scale  
bakeries



# BOHRER

This is how to build crate washing systems



## A worldwide presence

From breweries, mineral water and soft drinks companies, right through to the food industry and logistics – BOHRER crate cleaning machines are used throughout the world.

Each client is of paramount importance to us because at BOHRER the Client is King.

More than 1,500 cleaning machines around the globe, in small, medium and large-scale companies, are testimony of our quality, continuity and exceptional customer service.

# BOHRER

This is how to build crate washing systems



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