



KÄRCHER

CLEAN PROCESSES, CLEAN INDUSTRY

Cleaning expertise for our
customers. [karcher.com](https://www.karcher.com)

WHEN CLEANING GUARANTEES SMOOTH PROCESSES

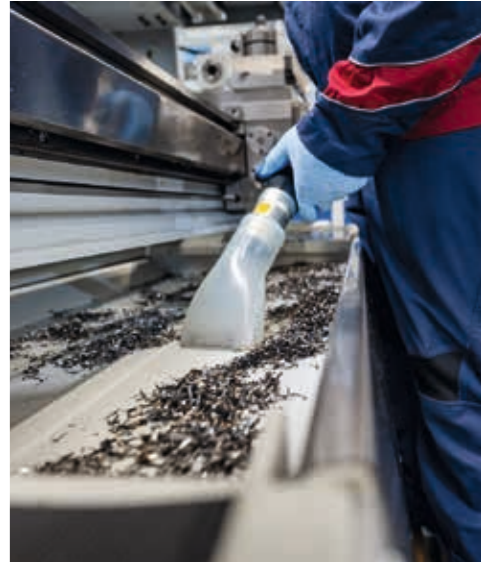
Things often come to a stop, then start again.
Until the impetus comes to change things.
And it always starts with a good idea.

From a manufacturer like Kärcher, customers expect both quality and sophisticated products. In industry, however, there are highly complex processes that require more.

These need the expertise of personal contacts, the willingness to go one step further and a good eye for problems and solutions. An optimised process can increase efficiency and reduce downtimes. An innovative product can prevent waste or make it easier for employees to do their job. Customers such as BMW, Bitburger and Nestlé have spoken to us in great detail for this brochure, and

given us an insight into their day-to-day work and their greatest challenges.

On the pages that follow, you will discover how huge volumes of dry ice can be saved in maintenance cleaning, what cleaning means to the drinks industry, why logistics also needs to be kept free of dust and much more. Reading these accounts might even help you come up with your next big idea. We are happy to help.



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INDUSTRIES WE SUPPORT

Kärcher has been developing solutions for customers across a wide range of industries for decades.



Automotive industry

- Production of commercial and motor vehicles and parts
- Production of other transport vehicles such as railways, ships, aircraft, military vehicles, etc.



Heavy industry

- Metallurgy and metal forming
- Machining of steel and metal



Coke ovens and refineries

- Processing of coal and refining of raw materials



Mechanical industry

- Machine design
- Tool manufacture



Chemical sector

- Chemical industry
- Pharmaceutical industry
- Production of rubber and plastic products
- Processing of glass and stone



Textile industry

- Production of yarn, fibres and textiles



Electronic and optoelectronic industry

- Production of microchips



Paper and wood industry

- Wood processing
- Production of paper
- Production of print media



Food industry

- Processing of meat, fish, vegetables and fruit
- Production of ready meals and pet food
- Drinks industry



Other industries

- Furniture manufacture
- Production of tobacco

THINK OUTSIDE THE BOX: MORE THAN CLEANING TECHNOLOGY

Going beyond standard cleaning tasks, cleaning technology is absolutely central to industry when it comes to optimising processes in production and logistics.



Industrial cleaning technology helps processes run smoothly.



Experience in various industries

Kärcher supports countless industrial customers across the most diverse range of sectors, with an annual turnover of more than EUR 300 million in this area. Bettina Biebl, Vice President Global Sales Management Professional, explains, “We often hear people ask ‘Oh, does Kärcher do that too?’ This is an incentive for us to make our portfolio of consultation and individual solutions better known”. Looking at a few sample projects, it is clear that investing in cleaning technology soon pays off.

Value preservation up, production downtimes down

A textile company in Asia was faced with the problem that the cutting tool it was using had to be replaced every four months. The cost: EUR 100,000. By installing a vacuum system that removes the fine textile fibres from the blade, the useful life could be extended by one month.

“We have had similar success with vacuum systems in the food industry”, explains Biebl. “Ice cream tubs that are not filled by the production system, for example, often grind production to a halt.” The reason: the jammed tubs have to be removed. A vacuum system,

on the other hand, removes them automatically, allowing production to run smoothly.

Increasing employee safety

A solution that increases workplace safety was also developed for the drinks industry. The problem here was that loose labels would often find their way into the machines and bring them to a standstill. Removing them manually involves a high risk of injury to personnel. By installing a vacuum system, separated labels are removed mechanically.

Clean faster, produce more

“Regardless of the industry, the result is always the same: whenever processes and technologies are analysed, there is always a need for improvement. And the return on investment soon materialises”, asserts Biebl. Whether it’s an industrial bakery that is able to shorten the time spent on cleaning and produce goods for longer thanks to a belt cleaning solution, or a chemical company that has reduced the time involved in tank interior cleaning from up to four days to four hours, it pays to think outside the box – always. ■



More information on industrial applications can be found at:
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IN CONVERSATION- TION WITH CUSTOMERS

Every area of responsibility within a company has to deal with different challenges. Alfred Weber (Foremann, Central Workshop, BMW Group), Thomas Lauer (Manager of the Bitburger Group), Stefan Huber (Purchasing in the Hoffmann Group) and Dietmar Favorat (Global Advanced Technology Daimler Truck AG) report on how we solved these challenges together.

“I WAS SURPRISED TO HEAR THAT KÄRCHER SUPPLIES DRY ICE BLASTERS.”



A conversation with Alfred Weber (Foreman, Central Workshop, BMW Group plant, Munich) about the need to eliminate waste and always be ready.

Together with Kärcher, you have optimised the cleaning of spot welding guns. What was the problem with your previous way of working and how has the new solution changed things for the better?

As we need to use dry ice to clean spot welding guns and other tools, we invested in a blasting cubicle and a dry ice blaster some time ago. To make sure we were always ready, however, dry ice had to be delivered every week. Sometimes we had no tools to clean, which meant that the dry ice evaporated. Or we had so many tools to clean that we didn't have enough.

This was unsatisfactory in terms of cost and logistics, but this is always the case with dry ice blasting. The dry ice blaster from Kärcher has eliminated this problem, as it produces dry ice at the precise moment it is needed. This means we are always ready to work.

Do you use other Kärcher products and if so, why?

Yes, we do actually. During a subsequent meeting, we touched on the subject of industrial vacuums. Our milling machines are cleaned once a week, which involves vacu-

uming up chips. The technician showed me the vacuum cleaner, which I knew by the name of Ringler – and it was exactly what we needed.

Which aspects of Kärcher as a company impress you the most?

I have been familiar with Kärcher since childhood thanks to its famous high-pressure cleaners. It is an established company with a very good reputation. I was truly surprised to discover that Kärcher also manufactures dry ice blasters and covers a far broader range of industries than I realised.

If you could ask for anything, which innovation(s) would you like to see next from Kärcher?

Honestly, an L2P dry ice blaster with more power (L2P = Liquid to Pellet). With more power, we would be able to use it for all cleaning tasks, including the cleaning of adhesive equipment, for example. If you ask me, that would be the key to selling L2P to industrial customers on a grand scale. ■

700

items, depending on the tool category, are in use at the BMW Munich plant. 90% of the maintenance work on these cannot be planned.

You are a foreman at the central workshop of the BMW plant in Munich. What falls under your area of responsibility and what are the greatest challenges you face in your work?

We clean spot welding guns and grippers as well as adhesive equipment on robots. We also carry out machining with turning and milling machines, as well as 3D printing. Before we can repair a tool, it needs to be cleaned. We can use mechanical aids for light soiling, but in many cases we use dry ice blasting. The greatest challenge for us is that we never know which tools are coming in for repair when or what condition they will be in. This means that 90% of our work cannot be planned – around 700 articles from each tool category are currently in circulation.

What is important to you when working with your suppliers?

How a business partner communicates with me is important. Are my needs being met, are there any suggestions for improvements, is there an honest answer to critical questions? We all know that there is no single solution to every problem and that every solution has its pros and cons. I want to be able to speak openly about this with my suppliers. Keeping appointments is also important to me – you can always cancel a meeting or call to say you're stuck in traffic. But to leave someone waiting without letting them know is unacceptable.

“I WANT TO BE ABLE TO SPEAK OPENLY WITH MY SUPPLIERS ABOUT THE PROS AND CONS.”

ALFRED WEBER, FOREMAN, CENTRAL WORKSHOP, BMW GROUP MUNICH PLANT



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“AS A BREWERY, WE PLACE GREAT IMPORTANCE ON CLEANLINESS AND HYGIENE.”

A conversation with Thomas Lauer, Head of Technology/Production/Environment in the Bitburger Group, about cleaning technology and family-owned companies

Bitburger is a family-owned company, just like Kärcher. What do you think characterises family-owned companies?

Family-owned companies think in terms of generations and not in terms of quarterly reports, which means they have a different corporate culture. Sustainability is not a modern buzzword, for example, and the focus isn't only on climate and environmental protection. The company is currently under the management of the seventh generation of the family. This means they have an entirely different connection to the company than shareholders in a public limited company.

What role does cleaning technology play in the drinks industry? Where are the greatest challenges?

Consumers are often unaware of how much time and work we as a brewery put into cleanliness and hygiene. At the weekend, for example, we clean the bottling plant in two shifts; the cleaning schedule is part

of our production planning. This makes cleaning technology hugely important to us, as it ultimately determines whether or not our product reaches the consumer.

What is particularly important to you when selecting cleaning technology solutions?

First and foremost, we need reliable, effective and environmentally friendly solutions. The cost-benefit effect plays a role too, of course, as we have to work economically. Let's take the example of the bottle cleaning machine for returnable bottles. We work with our cleaning technology suppliers to define treatment times, temperatures and other factors to ensure the cleaning process runs as effectively as possible and achieves the desired result. As far as the chemicals used are concerned, we work with manufacturers who develop products that are tailored to our specific requirements - we need, for example, lye with additives with a good cleaning power but minimal foam formation.

As well as these special applications, we also have to think about the day-to-day cleaning of the production environment. We look for solutions that make our employees' work as convenient as possible.

“KÄRCHER PRODUCTS ARE INSTALLED THROUGHOUT OUR ENTIRE PRODUCTION FACILITY.”

THOMAS LAUER, HEAD OF TECHNOLOGY/ PRODUCTION/ENVIRONMENT IN THE BITBURGER GROUP

2

entire shifts are dedicated to cleaning every week at Bitburger.



Thomas Lauer, Head of Technology/Production/Environment in the Bitburger Group

units, hose stations and further accessories. We use electrically heated high-pressure cleaners, for example, to remove logistics labels that supermarkets apply to our beer crates. These are affixed so firmly that they have to be removed manually. The automatic process is simply not sufficient. We use industrial vacuums to remove the labels following the rinsing process.

If you could ask for anything, which innovation(s) would you like to see next from Kärcher?

An automatic Kärcher for my home that does all the cleaning for me. Joking aside, automatic systems are of particular interest for the brewery. I believe Kärcher is perfectly placed to develop these types of solutions. Automatic solutions would also be helpful for cleaning beneath and between the machines, in places that are difficult to reach. We would embrace anything that saves our employees time cleaning. ■

You also use cleaning technology from Kärcher. Why did you choose those particular solutions?

We have been customers of Kärcher for a long time, as we appreciate the quality and having a service partner on site. The products are installed throughout our entire production facility, something I only really became aware of when I gave Kärcher employees a guided tour of the brewery. This meeting came about in quite a special way: at an event for family-owned companies, the two families were introduced and decided to bring together key employees from each company. I must confess that this initially felt like something of an imposition. But the meeting was fantastic and it was clear from the start that we were on the same wavelength. Since then, we have strengthened our cooperation even further.

Where exactly do you use solutions from Kärcher?

We have stations with Kärcher equipment on every bottling line, which we use for day-to-day cleaning. This includes high-pressure



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Hoffmann Group

Stefan Huber,
Purchasing in the
Hoffmann Group

expect a reliable supply. The portfolio of the Hoffmann Group is also based on our GARANT and HOLEX product brands as well as a targeted selection of manufacturers – so quality is extremely important.

What is particularly important to you when selecting cleaning technology products and solutions?

We round off our portfolio for industrial customers in the field of metal processing with cleaning technology. This is what our customers expect, as it means we cater to all of their needs. When selecting cleaning technology products and solutions, we opt for established brands like Kärcher to introduce our customers to user-orientated innovations. 'Me too' products are not our thing – we value unique features that give our customers added value. Another important aspect is the international availability of products and services from a supplier, as we have an international presence.

How important is it for you as a company that suppliers focus not only on their products but also on efficient logistics and marketing?

We promise to deliver 99% of orders within 24 hours in Germany and Europe. In our Logistics City, which covers 100,000 square metres, we have 500,000 container storage locations and are able to send 40,000 packages per day within in Europe. Our partners need to be able to keep pace with this, which means that the accuracy and speed of supply

40,000

packages per day can be sent throughout Europe by the Hoffmann Group from its Logistics City with a surface area of 100,000 m². The accuracy and speed of supply by business partners are therefore essential here.

are essential. Further aspects include having an electronic connection to our suppliers and a data interface to the PIM (Product Information Management) system so that the content, images and videos relating to products can be accessed directly.

You also have OEM products in your portfolio. What do you look for when selecting a manufacturer?

We generate more than 50% of our turnover with products from our GARANT and HOLEX brands. When it comes to OEM products, we choose premium manufacturers who can prove a high degree of vertical manufacturing and the production capacity for large volumes. We are also interested in development partnerships, as our own brands are synonymous with innovation and uniqueness.

You have been working with Kärcher for some time. Which aspects of the company impress you the most?

We have enjoyed a very good partnership with Kärcher for a long time. I think there are

many reasons why we are such a good fit: Kärcher is known throughout the world as a brand with a high performance promise, the quality and design of the product are just right, the company has a clear focus on industrial customers and the products create added value. It also has solid corporate values. Its roots as a family-owned company are clearly apparent, proving it is a company you can rely on. When it comes to sustainability, something that is close to Kärcher's heart, exchanging information with such a strong partner enables us to develop our own end-to-end concept.

If you could ask for anything, which innovation(s) would you like to see next from Kärcher?

Actually, I would ask for two things. A wet/dry industrial robotic vacuum cleaner, and perhaps Kärcher could consider working with a larger battery platform. That could be useful in future when processing larger volumes. ■

“‘ME TOO’ PRODUCTS ARE NOT OUR THING.”

A conversation with Stefan Huber, Purchasing in the Hoffmann Group, about the challenges in the field of industrial tooling & equipment

You are responsible within the Hoffmann Group for selecting products for the catalogue for industrial customers. What are the greatest challenges you face in your job?

I am responsible for the portfolio of power tools and workshop supplies. In terms of cleaning, we use vacuum cleaners and wet and dry vacuum cleaners from Kärcher. One of the greatest challenges is currently ensuring availability, as our customers

“INTERNATIONAL AVAILABILITY OF PRODUCTS AND SERVICES IS KEY.”

STEFAN HUBER, PURCHASING
IN THE HOFFMANN GROUP

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“IT IS RARE FOR ME TO ENCOUNTER SUCH ENTHUSIASM FOR EXPERIMENTATION.”

A conversation with Dietmar Favorat, Global Advanced Technology Daimler Truck AG, about surface protection and cleaning chemicals

You are an expert in surface technology and work for Daimler Trucks in the field of Global Advanced Technology. What are the greatest challenges you face in your specialist field?

My work involves developing effective solutions relating to surface technology with suitable technical partners. Let us take vehicles used to keep the roads snow- and ice-free in winter as an example. To prevent corrosion caused by high levels of contamination, we tested various preservation materials for underbody coating and corrosion protection. During this process, we established that relatively few customers had a vehicle cleaning concept in place.

The background: when working with detergents that damage the preservation, we are not able to achieve the desired effect. As a next step, we tested various coatings and detergents. Kärcher and other manufacturers supported us in this task, which enabled us to develop a cleaning concept that is now recommended by our customer service.

“WE PASS ON THE RESULTS OF TESTS SO THAT OUR SERVICE PARTNERS CAN ALSO BENEFIT.”

DIETMAR FAVORAT, GLOBAL ADVANCED TECHNOLOGY
DAIMLER TRUCK AG

We deliberately assume no liability for this, as we have no influence over factors such as dosage, equipment or user errors.

Where are your contact points when it comes to industrial cleaning and which solutions do you predominantly use for cleaning tasks?

Initially, I had no contact points at all, but that changed when I became involved in the shipment of our trucks. From our plant in Wörth am Rhein trucks are delivered all over the world, including by sea. In this context we are also interested in materials like protective wax used for transport purposes. After carrying out application tests at the Kärcher technical centre, we tested hot water high-pressure cleaners with steam jet and power nozzles at our plant and discovered that we could achieve the desired result much quicker with these and suitable detergents. We pass on the results of these tests so that our service partners can also benefit.

Which aspects of Kärcher as a company impress you the most?

The company has an attractive range of products, in terms of both cleaning concentrates and equipment. What I find particularly im-

2019

saw the start of the development of a cleaning concept for electric vehicles.

pressive is the expertise in new developments and the expert application knowledge of the colleagues I work with. It is rare for me to encounter such enthusiasm for experimentation.

If you could ask for anything, which innovation(s) would you like to see next from Kärcher?

Over the coming years, e-mobility is set to experience above average growth. For e-trucks, this will also involve new requirements for cleaning processes on components such as the battery, e-axis and e-motor. Various alloys and components made of a variety of materials are used for electrical contacts, batteries and various electrical units. This is why cleaning agents should have the correct pH value so they do not damage the many different substrates.

We have been working with Kärcher since 2019 to develop a cleaning concept that contributes towards value preservation and enables damage-free cleaning of electric vehicles. This involves finding the maximum surface pressure that can be achieved but also the right detergent concentrate. As this is a topic for the future, I hope that Kärcher will soon be offering solutions. ■



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Dietmar Favorat,
Global Advanced Technology
Daimler Truck AG

DUST-FREE LOGISTICS

After making large investments in logistics at the site in Biessenhofen, Head of Logistics Christian Bäckerbauer was adamant that the cleaning technology must keep pace. The key was in the details.

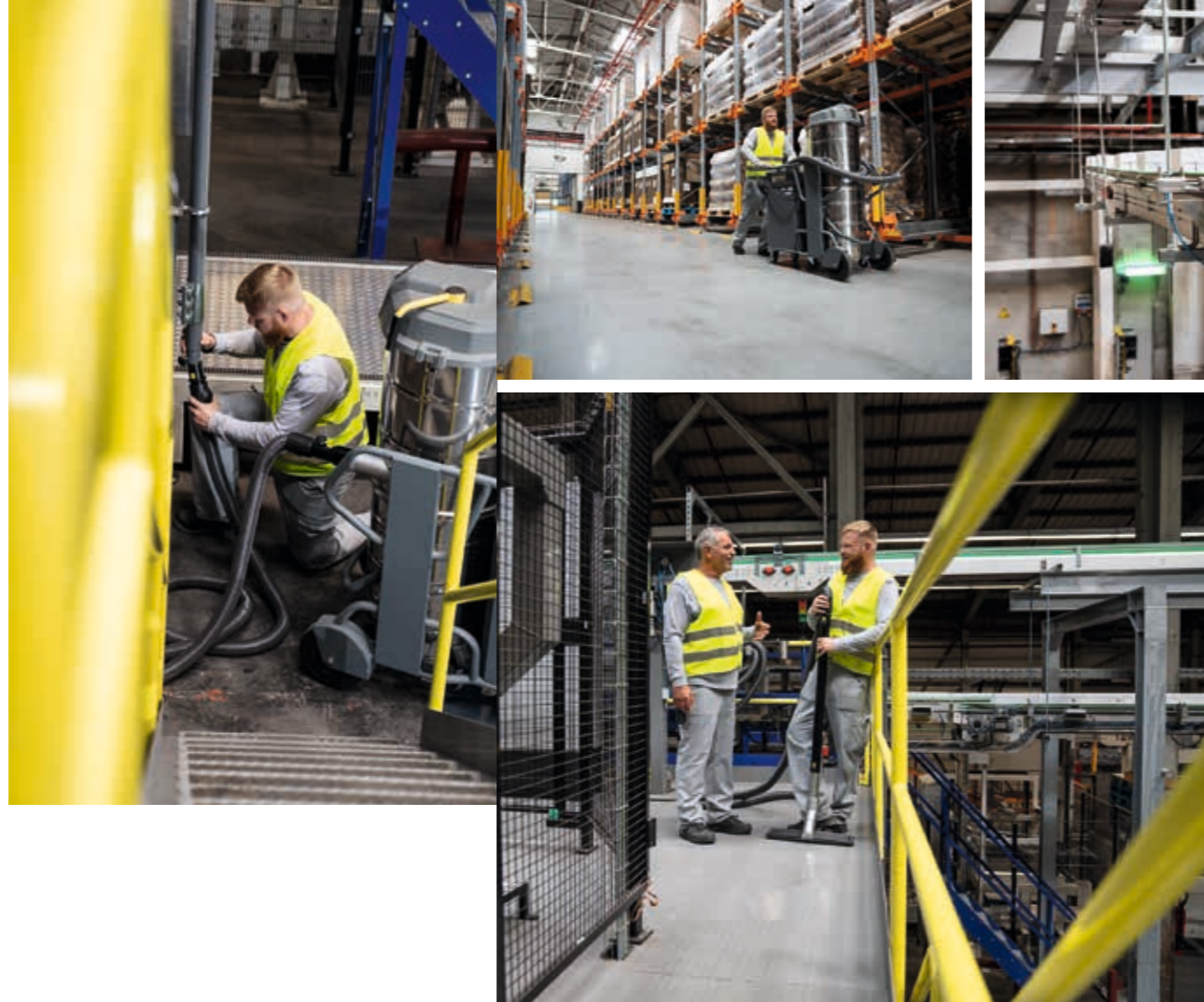
NESTLÉ BIESSENHOFEN: THE FIGHT AGAINST DUST

Challenge: among other things, the site at Biessenhofen produces milk powder for baby food. Dust accumulates on belts and the conveyor system, and this needs to be vacuumed up.

Solution: Kärcher vacuum cleaners with suction supply line and hoses as well as mobile models take the load off employees and ensure dust-free logistics.



Christian Bäckerbauer,
Head of Logistics at Nestlé Biessenhofen



To ensure the required degree of cleanliness in the logistics halls at Nestlé, industrial vacuums with hoses are connected to pipelines.

HYGIENE AT ITS BEST

When cleanliness is crucial

As a food producer, Nestlé works in an extremely sensitive area, where the production of baby food results in even more stringent requirements for cleanliness and hygiene. The specifications vary depending on the hygiene zone. Dust must not swirl around, there must be absolutely no contamination, the cleaning technology must have the appropriate power and capacity. Not a single particle may come loose from the surface material of the devices. The search for providers can prove challenging depending on the area of application. Whereas surface cleaning is fairly simple to resolve, the complex cleaning of the belts and conveyor system involves numerous individually developed elements.

Dust-free zone: modern logistics involves new requirements

Christian Bäckerbauer, Head of Logistics at the Nestlé site in Biessenhofen, is responsible for by far the largest area in the plant. He summarises the importance of smooth logistics concisely, "If things go wrong here, nothing comes in and nothing goes out – that is a huge responsibility". A huge amount has been invested over the last few years to make the processes even more efficient. In the meantime, order processing is fully automated and TPM (Total Production Management) has been implemented, as known by Toyota, for example.

Following the modernisation, the cleaning technology that had previously been used became something of a stumbling block.

The problem: the dust that accumulates on the belts and conveyor system has to be vacuumed up, and even the wooden pallets used produce dirt that must be eliminated. "We wanted to update our dust control technology and tailor it to our requirements. We also wanted it to be easier for our employees to use."

The hunt for the right vacuuming technology

And so the hunt began for a manufacturer with the right solution up their sleeve. Off-the-shelf products are not suitable for Christian Bäckerbauer, as the hose lengths or

supply lines of the vacuuming technology must fit perfectly, for example. "It's fascinating how differently providers respond to an enquiry", says the logistics expert. "One sends a brochure, another sends a vacuum cleaner. Kärcher impressed us immediately with a product presentation in which our employees were able to test the entire portfolio. Anything that was not possible was made possible."

“ANYTHING THAT WAS NOT POSSIBLE WAS MADE POSSIBLE.”

CHRISTIAN BÄCKERBAUER,
HEAD OF LOGISTICS AT NESTLÉ BIESSENHOFEN

0%

tolerance of dirt – that is the motto in the food production industry – including in logistics.



Left: cleaning on several levels is easy and ergonomic.

“MY EMPLOYEES TELL ME THAT THEY FINALLY HAVE A GOOD TOOL.”

CHRISTIAN BÄCKERBAUER,
HEAD OF LOGISTICS AT NESTLÉ BIESSENHOFEN

Three vacuum cleaners were initially purchased, which impressed employees during a trial phase in terms of their performance, material properties and quality. These were stationary models with a suction supply line and hoses as well as a mobile solution. Now the company is poised to purchase further vacuum cleaners, as the feedback from the team has been extremely positive. “When I hear my employees tell me that they finally have a good tool, I know we’ve done something right”.

What else would you like to see from Kärcher?

After the first phase of modernising the cleaning technology at Nestlé in Biessenhofen, employees are extremely satisfied. Delivery

was fast, installation by in-house tradesmen was simple and any problems that occurred were eliminated immediately. Looking to the future, however, Christian Bäckerbauer already has new innovations from Kärcher in mind. “We have very long conveyor belts. If there was a flat industrial robotic vacuum cleaner that could automatically clean beneath them, that would make our lives a lot easier. Not only for us in logistics, but for the entire plant.” ■

WHAT’S CHANGED? FACTS AND FIGURES

When processes are adapted, initial costs are involved. Only when input and output are proportionate and added value is being created does the outlay pay off.

Challenge

- Mobile wet and dry vacuum cleaners were being used to clean the logistics area.
- An insufficient suction power resulted in a high dust impact in the warehouses.
- A huge amount of effort was required, as the vacuum cleaners had to be carried up and down stairs and from place to place.

Solution

- The use of industrial vacuums with sufficient suction power reduces the dust impact.
- Installation of pipelines to which vacuum cleaners can be flexibly connected.
- Connection points on various levels in packaging and logistics make handling much easier.



Short set-up times as a result of optimal positioning of pipelines. Long operating cycles thanks to larger containers.



Reduced dust impact, a lower risk of accidents and less strain on employees thanks to ergonomic operation.

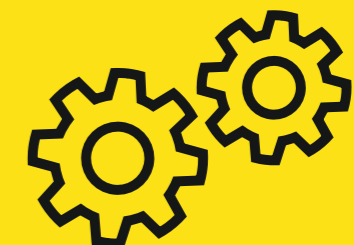
30%



Maintenance effort reduced by 30% thanks to less frequent filter replacements and a longer service life.

25x

The industrial vacuums have a 25 times longer lifetime than the vacuum cleaners that were previously being used.



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PREVENTING WASTE

In the central workshop of the BMW Group plant in Munich, the L2P dry ice blaster has improved logistics and processes, much to the satisfaction of workshop foreman Alfred Weber.



BMW GROUP PLANT IN MUNICH: DRY ICE ON DEMAND

Challenge: dry ice was previously being bought in in order to clean tools by means of dry ice blasting. Due to the fluctuating workload, either dry ice was left over or there was none available when it was needed.

Solution: the L2P dry ice blaster produces dry ice on demand, meaning that work can be carried out at any time and waste can be prevented.



When spot welding guns require maintenance, they first need to be tested.

sometimes we had no cleaning to do, so it evaporated – other times we had so much cleaning to do that we didn't have enough. This is unsatisfactory in terms of both costs and logistics." Weber spoke to a cleaning service provider, who cleaned various areas of the plant with dry ice at the weekend. Even there, large quantities of dry ice were often left over, depending on cleaning requirements.

Just like a drinks crate: the hunt for a solution

Weber started the search for a provider who could solve his problem – without a concrete idea of what the solution might look like. His research finally brought him to Kärcher, where a new dry ice blaster was just being launched onto the market. Best of all, the L2P itself produces dry ice from CO₂, which means that processes can be made significantly more efficient. Several members of the Kärcher team visited the central workshop to demonstrate the product. One thing

5

minutes of extra cleaning are happily conceded by the maintenance team if it means effort, downtimes and costs can be reduced.

MAKING THE UNPLANNABLE PLANNABLE

The unknown when and how

Spot welding guns, grippers and adhesive equipment on robots are maintained in the central workshop of the BMW Group plant in Munich so that they can subsequently be returned to production. Depending on the tool category, there are around 700 tools in use, which creates a considerable workload. The maintenance department faces yet another challenge: it is not possible to know when which tools will enter the workshop and how much effort will be involved in maintenance and repair. This means that 90%

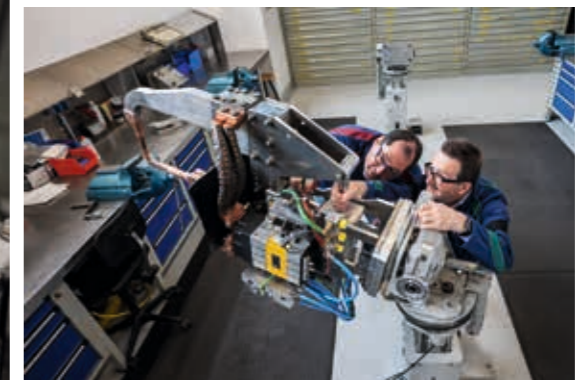
of the work cannot be planned – and this not only applies to maintenance but also to the cleaning that is required in advance.

Classic dry ice blasting technology versus logistics

Dry ice blasting has proven an effective cleaning method for spot welding guns and other tools. This is why the Central workshop of the BMW Group plant in Munich invested in a blasting cubicle and a dry ice blaster some time ago. To make sure they were always ready, dry ice had to be delivered every week. Alfred Weber, foreman at the central workshop, explains, "Over time, we experienced the familiar problem with dry ice blasting:



Before maintenance is carried out, the tools are cleaned with dry ice gently, quickly and on site.



“THE MACHINE IS USER-FRIENDLY, EASY TO SWITCH ON AND READY TO USE STRAIGHTAWAY.”

ALFRED WEBER, FOREMAN, CENTRAL WORKSHOP, BMW GROUP PLANT IN MUNICH

that was noted was that the cleaning speed was not quite as high as with a large dry ice blaster. As Weber says, "There is no single solution to every problem and every solution has its pros and cons. I want to be able to speak openly about this with my suppliers."


The L2P has now been in use for some time and the fact that logistics is now simpler is a clear plus as far as Weber is concerned. "The machine is user-friendly and is easy to switch on and start up. We can store the CO₂ bottles without loss of quality. It's just like a drinks crate. You take out a bottle..." Weber and his colleagues do not mind at all that individual cleaning tasks now take 5 minutes longer than before.

Lesson learned: do away with pressure reducers

Weber was also pleased with the approach to a problem that was not discovered until the

product had been delivered. An employee reported that the L2P did not have the same power as the previous model. "I talked to Kärcher about this and a service technician came immediately to take a look." The issue was a technical one: the CO₂ bottles used featured a pressure reducer, but the L2P needs bottles without a valve in order to work at full power. "Problems exist everywhere. When a supplier comes along and solves them, I'm impressed", says Weber. ■

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The L2P machine produces dry ice from CO₂ during cleaning. That impressed Alfred Weber and his team.

“WHEN A SUPPLIER COMES ALONG AND SOLVES PROBLEMS, I’M IMPRESSED.”

ALFRED WEBER, FOREMAN, CENTRAL WORKSHOP, BMW GROUP

WHAT’S CHANGED? FACTS AND FIGURES

Sometimes it’s obvious that an existing process is inefficient, but there is no other solution. All the better when the right product appears out of nowhere.

Challenge

- In order to guarantee smooth production, spot welding guns and other tools need to be cleaned and maintained.
- The frequency and timing of work cannot be planned.
- For dry ice blasting, the dry ice must be purchased in advance, which means that large quantities often evaporate having not been used.

Solution

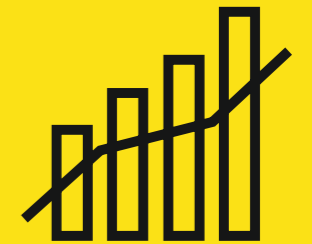
- The fact that there was an existing infrastructure for dry ice blasting meant that the new L2P dry ice blaster could be purchased and used straight away.
- The dry ice is produced by the machine from CO₂, which can be stored in bottles.
- This makes cleaning possible at any time, prevents waste and completely eliminates the need for logistical planning for the purchase of dry ice.



Value preservation for long-term use of the tools.



Downtimes in production are minimised thanks to prompt cleaning and maintenance of the tools.



Increased productivity in the maintenance department, as cleaning can be carried out at any time.

ROI < 2 YEARS

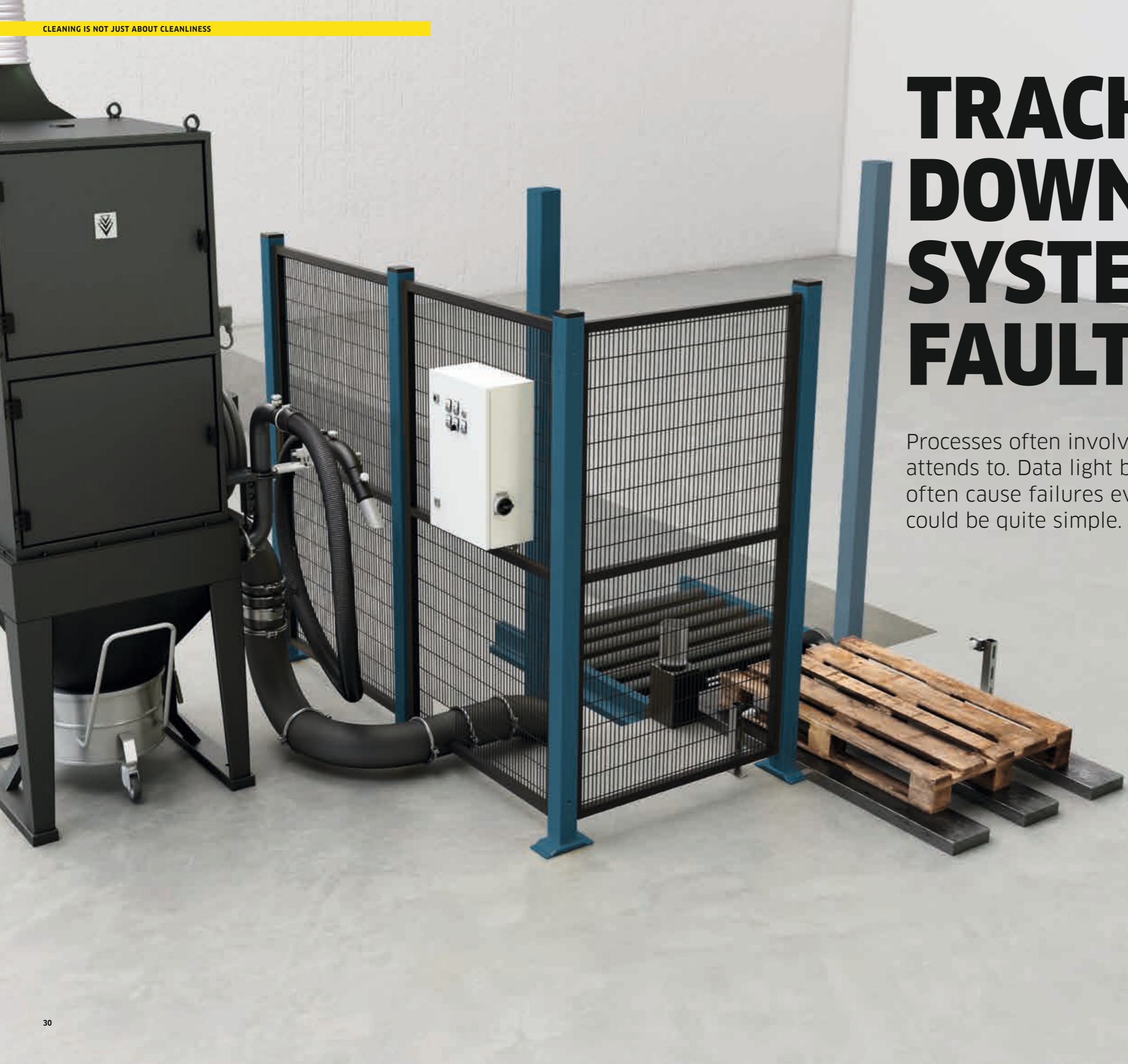
The investment in an L2P machine pays for itself extremely quickly, as no dry ice is wasted.



€6,600

Considerable cost savings every year, as only as much CO₂ as is needed has to be bought.





TRACKING DOWN SYSTEM FAULTS

Processes often involve problems that no-one attends to. Data light barriers in storage systems often cause failures even though the solution could be quite simple.

CLEANING IS NOT JUST ABOUT CLEANLINESS

Challenge: automatic storage systems use countless wooden pallets. These bring a huge amount of dirt into warehouses, contaminating data light barriers in the process and causing system faults.

Solution: installing a pallet underbody vacuum system before the pallets enter the warehouse solves three problems and ensures everything runs smoothly.



The pallet is guided into the warehouse via a feed-in system.



The pallet moves across brushes that remove the dirt, which is then automatically vacuumed up.



SMOOTH LOGISTICS FOR ALL

Tracking down the problem

Cleaning technology is often only associated with eliminating dirt and establishing cleanliness. As a result, it is often seen as an unwanted by-product of certain operational processes, as it has nothing to do with the products a company manufactures. This way of looking at things causes a certain organisational blindness to creep in and the sources of process faults to remain undiscovered.

Dirk Jörn Hahn, Head of Professional Sales in Germany at Kärcher, explains, "When customers contact us about these issues, we visit their site to inspect their premises and to interview those involved in existing processes". This gives us an overview of the situation and enables us to make recommendations that sometimes involve cleaning and sometimes involve other aspects.

When details result in high costs

The devil is often in the detail. Once a problem has been identified and resolved, it becomes apparent just how much cost has been

involved. Every measure that makes processes smoother and reduces downtimes saves an industrial operation hard cash. "The same is true of the pallet vacuum system", explains Dirk Jörn Hahn. "We have now implemented this across a wide range of facilities and realised that this is relevant to all industries." The crucial point here is that wooden pallets bring wood chips and

coarse dirt into warehouses. That much is obvious and makes cleaning necessary. The fact that the pallets also contaminate data light barriers and thereby cause system failures, however, was only discovered by Kärcher when visiting a customer's site.

Killing three birds with one stone

When a pallet underbody vacuum system is installed, wood chips and other dirt particles are brushed off the pallet and vacuumed

“WE REALISED THAT THIS SUBJECT IS RELEVANT TO ALL INDUSTRIES.”

DIRK JÖRN HAHN, HEAD OF PROFESSIONAL SALES IN GERMANY

1 year is all it takes for the investment in a vacuum system to pay for itself.

“WHEN THESE PROBLEMS OCCUR, WE VISIT THE CUSTOMER’S SITE TO ENSURE WE FULLY UNDERSTAND THE CIRCUMSTANCES.”

DIRK JÖRN HAHN, HEAD OF PROFESSIONAL SALES IN GERMANY

up before they can enter the warehouse. As dirt is no longer brought inside, the cost and effort involved in maintenance cleaning of warehouses is significantly reduced. Damage to sweepers caused by larger dirt particles occurs much less frequently. Best of all, production failures are reduced to practically zero, as the data light barriers can work cleanly, which means that productivity is also significantly increased.

The path to clean pallets

Kärcher uses an ROI calculator to show customers how investments compare to possible savings. “At the end of the day, it’s the bare figures that count”, explains Dirk Jörn Hahn. “We design suitable systems and give an idea of the return on investment once the project is complete.” Customers benefit from standard systems that can be adapted with piping to suit their specific requirements as well as from the fact that the power of the systems can be adapted to the application in question. “Of course this is different everywhere”, says Dirk Jörn Hahn. “On average, the investment in the necessary vacuum system pays for itself within a year.” ■



For more information on the pallet vacuum system, scan the QR code for the video.



The pallet vacuum system is a space-saving solution that can be adapted to local circumstances.

WHAT’S CHANGED? FACTS AND FIGURES

Disregarded details can often cause problems that are initially a mystery. Once the solution is found, a huge amount of time and effort can be saved.

Challenge

- Wood chips or dirt deposits on pallets can interfere with data light barriers.
- This causes malfunctions and results in systems having to be shut down.
- The system can be restarted after manual cleaning has been carried out.

Solution

- Installation of an automatic pallet vacuum system before the pallets enter the warehouse.
- Fault-free operation of the system without interruptions.
- No manual cleaning by logistics personnel.



Minimisation of downtimes per year
Smooth operation is guaranteed, as the light barriers no longer signal a fault.



Increased employee safety
The pallets no longer bring dirt into the warehouse, thereby reducing the risk of slipping.



Less time cleaning
Thorough cleaning of warehouse floors and the manual cleaning of the light barriers are no longer necessary.

€30,000

Cost savings per year
The minimisation of downtimes and cleaning times results in a fast return on investment.



ACHIEVING OUR GOALS

Finding out where the problem lies. Finding the one detail that is having a huge impact. Developing solutions that think outside the box - this is what we do when it comes to cleaning technology for industrial customers. And it is only by working together that we can reach our goal.

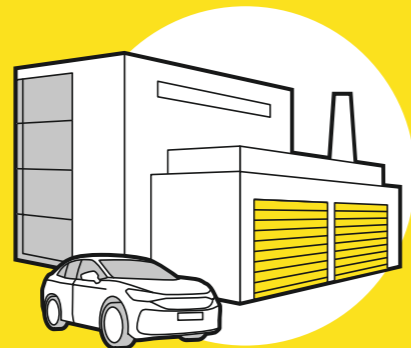
HOW WE WORK

The path to achieving our goals takes us through your production or logistics department. Once we have understood all your processes, we can deliver a solution that is tailored to your exact requirements. Step by step, systematically and efficiently.



01 REQUIREMENTS

Production and logistics need to do one thing: run smoothly. Tell us where this is not the case and improvements need to be made.



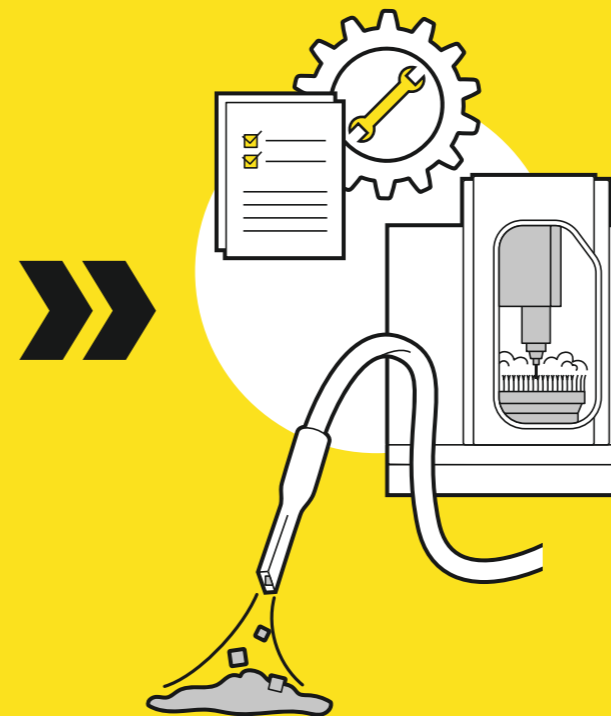
02 ON-SITE VISIT

We visit your site to get an idea of the situation and familiarise ourselves with your operating procedures. We use this as the basis for discussing initial solutions.



03 CONSULTATIVE SELLING

If necessary, we can offer more in-depth consultation and put together an appropriate package. This may include standard products, accessories and detergents, but also tailor-made solutions, financing offers or service agreements.



04 INSTRUCTION AND INSTALLATION

We do more than just ship our products. We provide support for installation, commissioning and instruction to ensure that everything runs smoothly. This also includes application advice for the best possible results.

05 SERVICE

You remain our customer, even after the conclusion of the contract. There are various service packages, we supply consumer goods (detergents and accessories) – whatever you need.



THE RIGHT SOLUTION FOR EVERY REQUIREMENT



HOT WATER HIGH-PRESSURE CLEANERS



COLD WATER HIGH-PRESSURE CLEANERS



STATIONARY HIGH-PRESSURE CLEANERS



WET AND DRY VACUUM CLEANERS



INDUSTRIAL VACUUMS



STATIONARY INDUSTRIAL VACS/ DUST EXTRACTION SOLUTIONS



DRY ICE CLEANING



STEAM VACUUM CLEANERS



PUSH SWEEPERS



RIDE-ON VACUUM SWEEPERS



PUSH SCRUBBER DRYERS



RIDE-ON SCRUBBER DRYERS



SCRUBBER DRYER ROBOTS



MUNICIPAL EQUIPMENT



VEHICLE WASH SYSTEMS



MANUAL CLEANING



DETERGENTS



WATER AND AIR

WHAT IF THE FUTURE OF CLEANING CHANGES TOMORROW?

No matter how radically your business changes, we can help you to keep up with the challenges ahead. Just reach out for us to reach out for the stars. **Nothing can stop you. With Kärcher Services.**

-  cleaning consulting
-  financial solutions
-  rental
-  used
-  fleet
-  all brands service
-  service packages
-  service app
-  original spare parts
-  visual remote support



MORE INFORMATION

Our support for your success: we are your reliable partner when it comes to cleaning.

More information about our top services can be found at [karcher.com](https://www.karcher.com)

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makes a difference

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