

# KÄRCHER

makes a difference



## HOW MODERN FLOOR CLEANING WORKS

Facts about cleaning technology



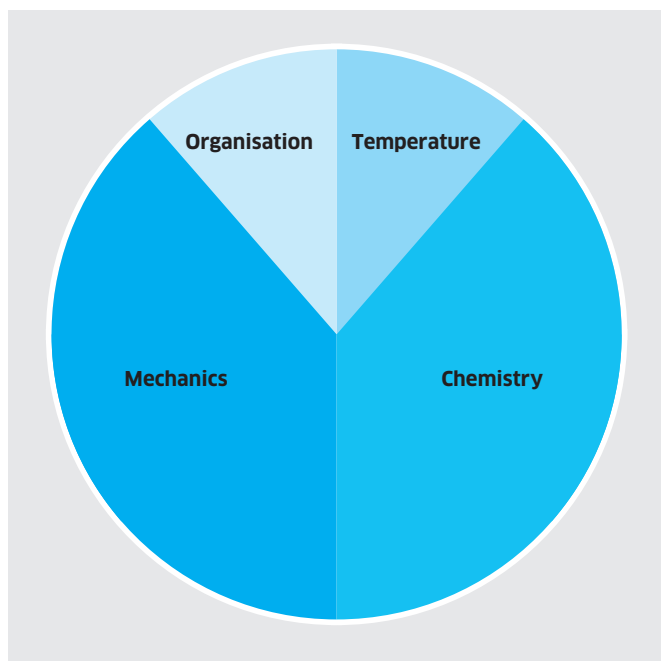
## Cleaning requires a system. The right one.

Like everything in this world, cleaning technology is subject to the laws of physics, chemistry or mechanics. Yet even in the 21st century, there are various “systems” on the market whose purported effectiveness is in direct opposition with the findings of modern science. The user however, who understandably looks for more efficient and environmentally friendly solutions, is unable to check these fantastic sounding promises for their actual benefits. The dream of perfect cleaning entirely without cleaning agents can quickly lead to disillusionment in practice. But by then the investment has already been made. Kärcher, the international market leader in cleaning technology, has compiled this brochure for users who want to make their decision based on hard facts.





# Basic factors that influence cleaning success



## The Sinner Circle in cleaning processes

According to the Sinner Circle, there are four influencing variables which determine cleaning. In addition to chemistry, temperature and time, mechanics are a decisive factor. The perfect interplay of these four factors is vital. If one of these variables is missing, cleaning cannot function optimally.

### ■ The right cleaning agent in the correct dosage

Kärcher cleaning agents for scrubber driers are developed in our own laboratories to specifically meet the needs of the user and optimally protect all unit components. Precise dosing is a further prerequisite to ensure optimum cleaning performance and environmentally compatible and economical consumption.

### ■ The right brush or disc for every task

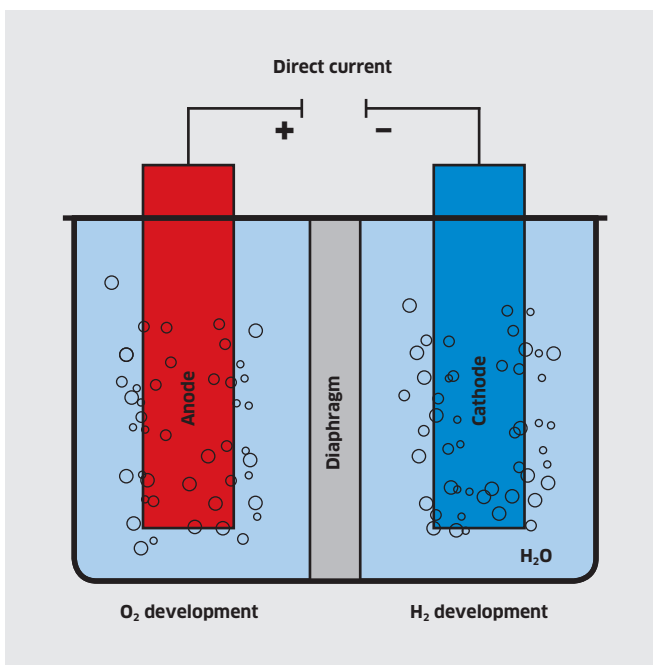
Different materials and degrees of hardness of the brush rollers, disc brushes or pads enable perfect adaptation to almost all commonly used floor coverings and types of contamination.

### ■ The optimum temperature

Cleaning with cold water is the most ecological application when using the scrubber drier, since when using warm or hot water, the water cools rapidly when it comes into contact with the floor surface and the heating energy that is used beforehand is lost.

### ■ The longer, the better

For almost all kinds of dirt, longer defined soak times mean that the dirt particles dissolve better. They can then be removed using the brush mechanics and the water and optimally picked up by the machine.



## The same performance, with or without cleaning agent – is it possible?

For some time now, there have been cleaning systems available that promise maintenance cleaning without the need for cleaning agents. These systems apparently employ processes that change normal tap water in such a way that it makes the use of cleaning agents unnecessary.

Kärcher, as a world market leader in cleaning systems, has tested the effectiveness of these processes using scientific methods. The result: All tests showed that there was no difference between the effect of “electrolysed” water and that of normal tap water. Whether “ionisation”, “electrolysis” or “activation” – none of these processes clean any better than normal tap water.

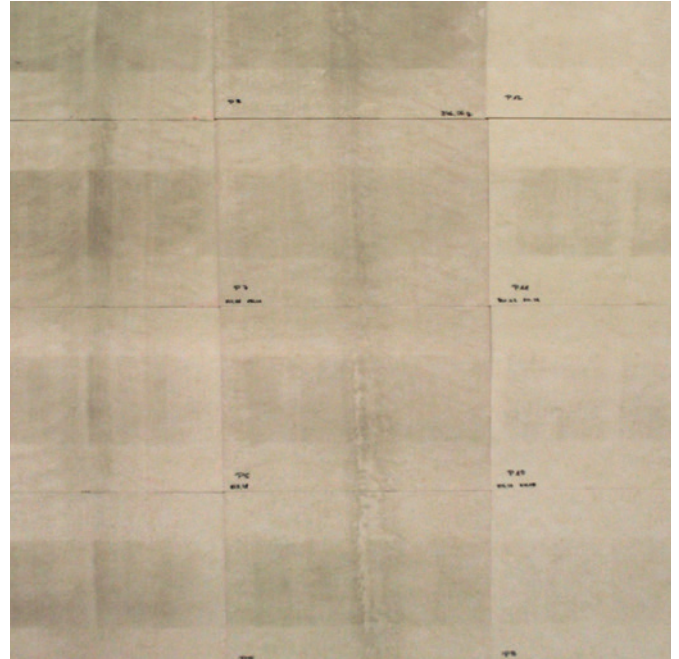
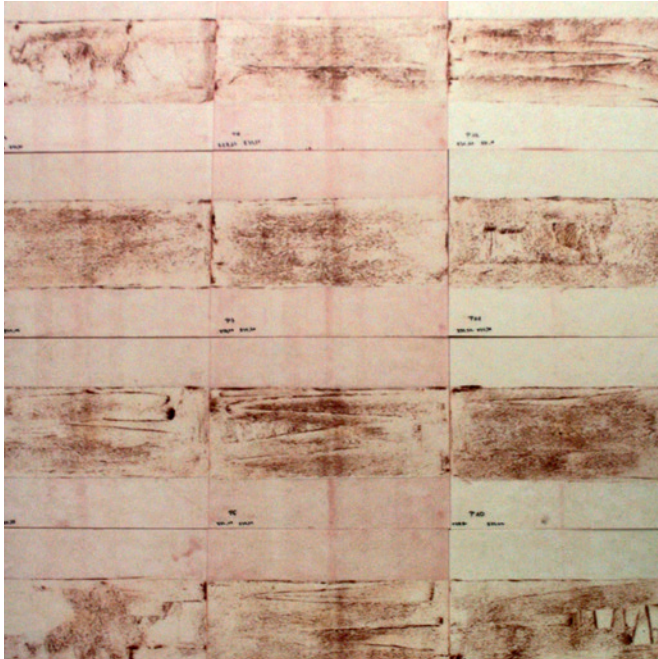
### The function of an electrolytic cell

- With the help of tiny oxygenated bubbles, the water becomes highly oxygenated.
- This enriched water is conducted through a water cell in the cleaning device which causes it to become electrically charged.
- A current of acidic and alkaline water then flows out of the device's water cell. This is supposed to have all of the properties of a cleaning agent.
- The manufacturers claim that activated water dissolves dirt and removes it without leaving a residue, before turning into normal water again after around 45 seconds in the dirty water tank.



# Scientifically proven. Miracle water does not exist.

With the aid of a scientific study commissioned by Kärcher, a renowned institute revealed that normal tap water cleans as well as electrolysed water. A series of tests provided a clear result as shown below:



## Comparison of H<sub>2</sub>O, electrolysed water and cleaning agent

Different types of contamination, both water soluble and non water-soluble, which are regularly found in floor cleaning, were examined in several series of tests.

## The series of tests were conducted as follows:

- Left column cleaned with water.
- Middle column cleaned with "electrolysed water".
- Right column cleaned with cleaning agent.

The result: In all cases, the "electrolysed water" displayed no better cleaning efficiency than simple tap water. All influencing factors such as brush pressure, hardness degree of the water, ambient temperature, composition of the test dirt, etc, were harmonised in the test series to obtain a reliable and fair result.

# If water is sufficient, don't add detergent.

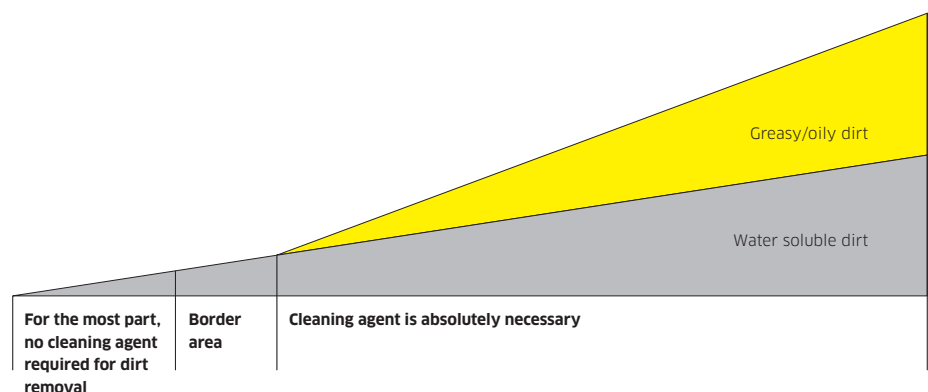
In the majority of cases, adding a cleaning agent produces a better result in daily use, in particular when using Kärcher cleaning machines, cleaning agents and accessories. With Kärcher machines with DOSE system, the cleaning agent is simply adjusted without any interruptions. An innovative solution that saves time and money.

Water is a natural and effective solvent. However, the effectiveness of pure water has a natural physical limit that cannot be shifted without additives – not even by the electrochemical fission into hydrogen and oxygen in so-called “electrolysis cells”. This has been confirmed unequivocally by all scientific studies on this topic. Water can be used in the following three cases:

- Light soiling with water-soluble dirt
- Regular cleaning of surfaces
- Mechanically using high-performance cleaning machines.

Areas of application	Automotive	Metal business	Construction	Food	Hospitals, nursing, home, private practitioners	Hotels, gastronomy, catering	Industry	Municipalities	Retail	Do-it-yourself stores	Haulage companies, bus carriers
<b>Cleaning agent required</b>											
Coated floors	■				■	■	■	■	■		
Sanitary facilities	■	■	■	■	■	■	■	■	■	■	■
Grease removal, floor cleaning	■	■		■		■	■			■	■
Shop-floor level	■	■	■								
Production area		■		■			■				
Final cleaning of new buildings			■								
Kitchen area				■	■	■		■		■	
Treatment rooms					■						
Swimming pools								■			
Meats and sausages/vegetables									■		
Counter									■		
<b>Water mostly sufficient</b>											
Foyer/reception	■	■	■	■	■	■	■	■	■	■	■
Exhibition areas	■										
Office area	■	■	■	■	■	■	■	■	■	■	■
Storage depots*	■	■	■	■			■		■	■	■
Corridors*				■	■	■		■	■	■	
Living and waiting zone					■						
Rooms						■					

\* Depending on degree of soiling/carry over of oil and grease containing soiling.



# Cleaning is more than just removing dirt.

Only a cleaning agent can dislodge and bind oily and greasy dirt, clean and simultaneously care for high-quality floors. Many flooring manufacturers recommend the use of cleaning agents that clean and protect floors at the same time. Using a cleaning agent offers a number of further advantages:



- Cleaning brush glides easily over surfaces for excellent vacuuming performance.
- Less adhering dirt on the brush and brush head and less brush wear.
- Binding the lime in the washing solution noticeably reduces surface discolouration.
- Fresh smell conveys a feeling of cleanliness.
- Active agents protect carpets and keep them looking like new.
- Dirt particles in the dirty water are reliably bound and the tank is easier to clean.



# Kärcher is the right choice. Every time.

The patented Kärcher DOSE system allows flexible, reliable and efficient cleaning agent dosing for all cleaning tasks. Dosing is simple by operating a switch – without any changes to the machine or interruptions. Greatly reduced cleaning times make this Kärcher system very economical and cost-efficient. For heavy soiling, Kärcher can always achieve a superior cleaning outcome from machines and cleaning agents by comparison with regular cleaning without cleaning agents.



## DOSE – the efficient cleaning agent dosing method

With DOSE, the cleaning agent is continuously and directly added to the brush head:

- No more manual filling. Insert bottle, screw lid tight, ready to use.
- No overdosing results in reduced consumption.
- Precise adjustment of the required dose from 0.5 – 3% on the display.
- Dose can be adjusted during cleaning as required.
- Quick, easy changing between different cleaning agents without emptying the tank.
- No contamination of the fresh water tank by cleaning agents – protects the machine.

# Hard or soft makes all the difference.

The best cleaning results are only achieved by using brushes optimally tailored to the individual surface. The scrubbing mechanic is a decisive factor in relation to the cleaning performance of a scrubber drier. A good cleaning result is only guaranteed when the correct brush, pad, microfibre roller or microfibre pad are selected.



## 1 Brush colours


The disc brush colour system makes it easy to select brushes or discs with the required properties: White = soft, Black = hard. Our sample brushes show different bristle hardnesses in one brush.

**Sample disc brush** Order no.: 6.907-160.0

**Sample roller brush** Order no.: 4.762-429.0

## 2 The well-rounded solution for resilient floors

The pad roller combines the advantages of roller technology with the benefits of microfibre. Pads of various degrees of hardness for diverse floorcoverings cover the entire range of applications: Cleaning, removal of dirt and polishing.

	Roller brush technology BR			Disc brush technology			Recommended detergent
	Brush	Pad	Microfibre roller brush	Brush	Pad	Microfibre pad	
Deep cleaning							
Linoleum	■	■		■	■		RM 754
PVC, vinyl, synthetic resin coatings	■ ■	■		■	■		RM 752
Dark marble, granite, smooth ground terrazzo	■	■		■	■		RM 752/754 <sup>1)</sup>
Light-coloured/white marble	■			■			RM 752/754 <sup>1)</sup>
Granite, porphyry, stone carpet – structured	■						RM 752
Tiles, glazed brick	■ ■	■		■	■		RM 752/751 <sup>2)</sup>
Fine stoneware	■ ■	■	■	■	■	■	RM 743/753
Studded rubber	■						RM 754
Carpets	■			■			RM 768 iCapsol
Everyday cleaning							
Linoleum	■	■	■	■	■	■	RM 746/780
PVC, vinyl, synthetic resin coatings	■	■	■	■	■	■	RM 746/780
Marble, granite, smooth ground terrazzo	■	■	■	■	■	■	RM 730/746/755/780
Granite, porphyry, stone carpet – structured	■						RM 746/755/780
Tiles, glazed brick	■	■	■	■	■	■	RM 730/746/780
Fine stoneware	■	■	■	■	■	■	RM 743/753
Studded rubber	■						RM 780
Diamond cleaning system							
Synthetic resin coating, PURE					■ ■ ■		RM 746/755/780
Marble, granite, terrazzo, travertine, sanded					■ ■ ■		RM 730/746/755/780
Polishing							
Linoleum	■	■		■ ■ ■	■ ■ ■		RM 748
PVC, vinyl, synthetic resin coatings	■	■		■ ■ ■	■ ■ ■		RM 748
Marble, granite, smooth ground terrazzo	■	■		■ ■ ■	■ ■ ■		
Granite, porphyry, stone carpet – structured							
Sealed parquet	■	■		■	■ ■		RM 748
Studded rubber	■			■			RM 748
Terracotta	■			■			
Interim cleaning							
Carpet						■	RM 768 iCapsol
Crystallising							
Marble, terrazzo and other lime-based floor coverings	■ ■				■ ■		RM 749/775 <sup>3)</sup>
Pad and brush colours							
■ white ■ beige ■ natural ■ yellow ■ blue ■ green ■ red ■ silver ■ black ■ blue/white (microfibre)							
■ bronze ■ orange							

<sup>1)</sup>For high-gloss marble (alkaline < pH 11). <sup>2)</sup>For removing cement residue. <sup>3)</sup>Only disc system.



# Sustainability. So important because the future is infinite.

In our quest for sustainability, the way is the goal. The way to the future, which Kärcher has followed for decades with exemplary consistency. Sustainability for Kärcher is based in equal part on the pillars of economy, social responsibility and environmental protection. A sound financial situation and appropriate earnings achieved in fair dealings with others, along with the responsible use of resources. This is how Kärcher embraces sustainability as one of its corporate goals: Conducting business fairly with a sense of responsibility for people and the environment.



## Using energy efficiently

The best form of energy is energy you don't consume. Kärcher is constantly reducing its primary energy consumption. We employ various heat recovery systems with high operating efficiency; for example, waste heat from the plastic injection moulding plant heats an adjacent production building. Annual saving: 19,000 litres of heating oil and 51,300 kg of CO<sub>2</sub>. This corresponds to driving 225,000 km with a mid-range car. Original Kärcher chargers have a very high cos- $\pi$  value of 0.98 to 0.99, so nearly all of the charging electricity is actually stored. These are just two examples of technology that helps use energy as efficiently as possible.

## Increasing effectiveness

Use less to achieve the same result. Or even more. The options are as diverse as Kärcher products. Kärcher steam cleaners work without the use of environmentally harmful chemicals. Innovative nonwoven materials improve cleaning performance to the point that cleaning agents are unnecessary in most cases. Where necessary, cleaning agent consumption can be substantially reduced by innovative dosing systems. Numerous other technical devices for improving efficiency can significantly reduce energy and cleaning agent consumption by up to 30% or more, depending on the application.



## Concentrating on the essentials

Concentrating on the essentials includes the art of achieving more with less. Because less can be more. For example, when machines achieve more with fewer components. Fewer components means lower material usage, lower weight, lower energy consumption and therefore lower environmental impact. Kärcher has for many years followed the principle of using as few components as possible. Current Kärcher products have 20% fewer components on average than comparable products by other manufacturers, despite technical refinements such as cleaning agent dosing units, filter cleaning and soot filters. Kärcher cleaning agents are environmentally friendly as they are more than 90% biodegradable and contain no solvents and additives. They are sold in highly concentrated form to reduce material usage, packaging and transport emissions.



## Using our own energy sources

The future belongs to renewable energy. And at Kärcher, the future is already reality. Two 30 kWp solar power plants generate around 33,000 kWh annually. A geothermal system uses geothermal energy for heating in winter and cooling in summer. With up to 80% less energy. Our wood chip heating plant alone saves 340,000 litres of heating oil and over 1 million kg of CO<sub>2</sub> annually.



# We're there for you, wherever you need us.

Kärcher stands for top performance – not just with our products, but also with service. As the world's largest manufacturer of cleaning machines, we are there for our customers worldwide and at more than 50,000 service and sales points. With sound advice, excellent service and quick repairs. This is how we give you peace of mind. Kärcher – your reliable partner.



## **Hotline**

Friendly. Competent. Solution-oriented. Our hotline staff are familiar with all products and can provide sound advice and assistance by telephone.

## **Application advice**

We provide application advice to ensure that you always have the most efficient solution. The size of the operation and areas of application are the decisive factors in determining the products that suit your needs.

## **Service contracts and extended warranty**

Consistently high performance: Service contracts keep your machines fit for service. Optionally with inspection, service or the full service package. Our warranty extension and machine breakdown insurance provide you with additional protection.

## **Refurbished machines**

Machines in top condition at very attractive terms. A new machine is not always cost-effective. This is why we also offer you affordable refurbished devices for economical planning.

## **Local presence**

We guarantee you personal service. Our global service and sales network ensures that you always have a competent contact partner locally, for all enquiries regarding service, advice or sales.

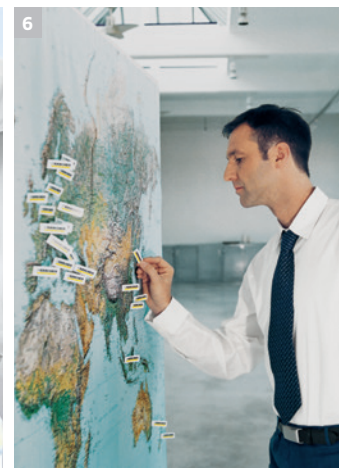
## **Technical training**

Get the most out of your equipment: With our local technical training courses, we can show you and your employees how to use each Kärcher machine as effectively as possible.



# Enthusiasm. Innovation. Success.

Since its beginnings more than 75 years ago, as a value-oriented family business, Kärcher has become a world brand with three strong attributes: top performance, innovation and quality. Today, the Kärcher brand enjoys the reputation of being a global leader and resource-conserving supplier of professional cleaning systems and is synonymous with reliable products, optimal user value and ongoing commitment to the environment, culture and sport.



## 1 Seattle's highest building: the Space Needle

A Kärcher team pressure-washed the structure up to a height of 184 m. The job took eight weeks, working only at night.

## 2 A facelift for the heads of state

Clean again: In 2005 Kärcher cleaned the National Memorial on Mount Rushmore.

## 3 Innovative right from the start

In 1950, Kärcher developed the first hot water high-pressure cleaner in Europe for professional cleaning.

## 4 Clean environment

Kärcher works on environmental protection every day, with new products, technologies and investments in production facilities.

## 5 In-house research and development

Kärcher develops high-performance cleaning machines, accessories and special cleaning and care products.

## 6 Internationally represented

We are there for our customers all around the world.

## 7 Commitment to sports

Clean performance on the pitch. For several years, Kärcher has supported German and international football as a partner.

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