## CLEANING SYSTEMS FOR THE RAILROAD

# MAKING GREEN WORK.



Bio-Circle Surface Technology GmbH • Railroad AL03 2026 EN
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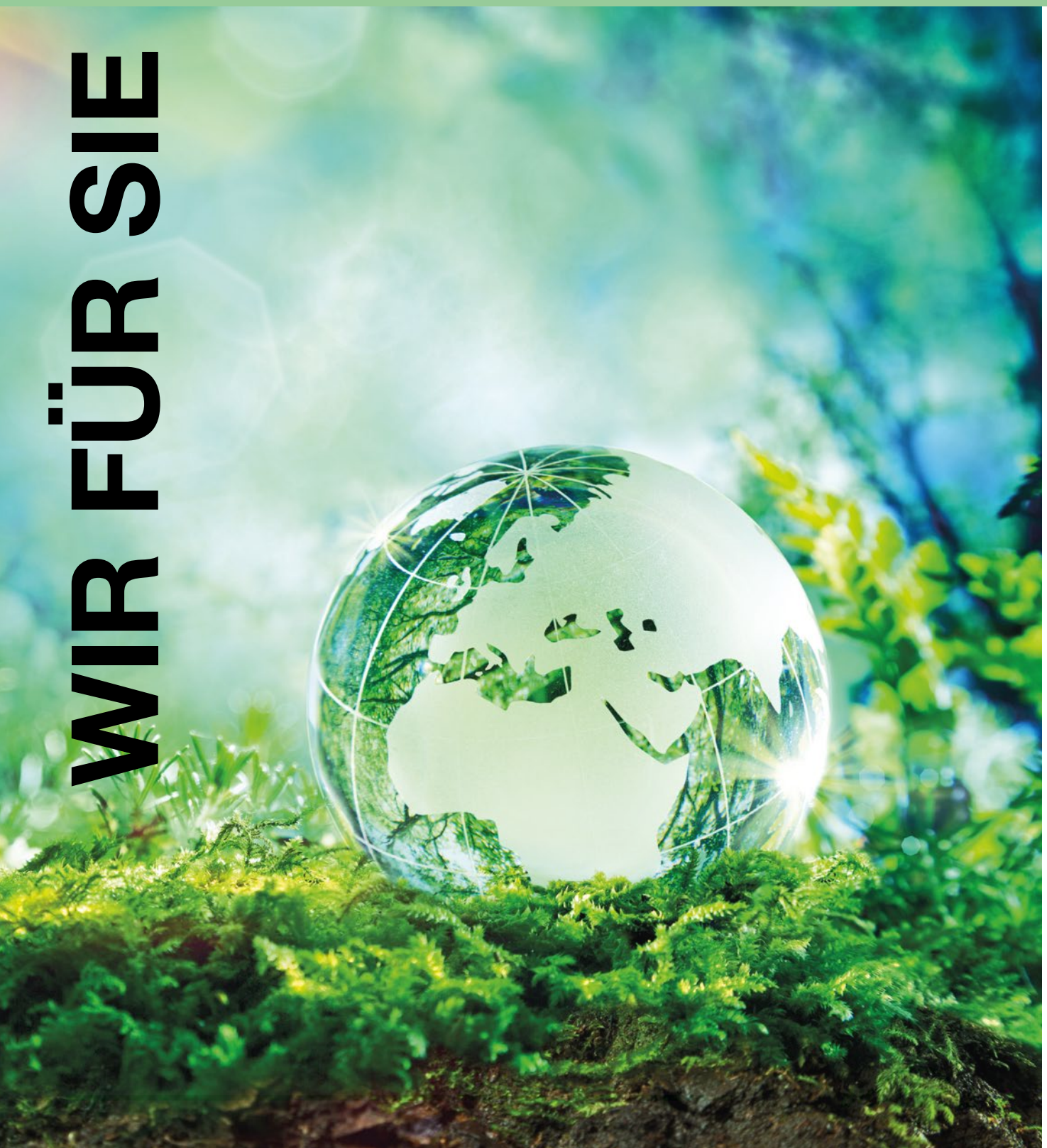
BIO-CIRCLE®

bio-circle.com

BIO-CIRCLE®

# VISION

## WIR FÜR SIE



# STRAIGHT AHEAD WITH SUSTAINABILITY

## Think holistically. Act sustainably.

Bio-Circle Surface Technology GmbH – your reliable partner for industrial products for cleaning, welding, protecting, and lubricating.

Environmentally friendly and user-friendly. For manual and automatic parts cleaning.
With 40 years of know-how and experience in research, product development, process optimization, sales, and service.

With a global network and with production sites and partners.
With around 190 employees, the Gütersloh site is the Bio-Circle headquarters.
All products are developed and manufactured here for Germany, Europe and beyond.
Made in Germany.

Mitglied Member
Die Bahnindustrie.
Verband der Bahnindustrie in Deutschland
German Railway Industry Association

BRONZE | Top 35%
ecovadis
Sustainability Rating
AUG 2025



# SET HIGH STANDARDS!

The way the company works is reflected in the six building blocks of the circle. They are constantly reviewed and optimized. Transparency and sustainability are the basis of all these building blocks that interlock like cogwheelp. Bio-Circle products cannot save the world, but they can contribute to the conscious treatment of the environment and our fellow human beings.

**A clean world with you at the centre** – this vision has shaped the company's thoughts and actions for 40 yearp. Especially nowadays there is a lot of talk about sustainability. But the only thing that counts is to act sustainably.

## Sustainable raw materials

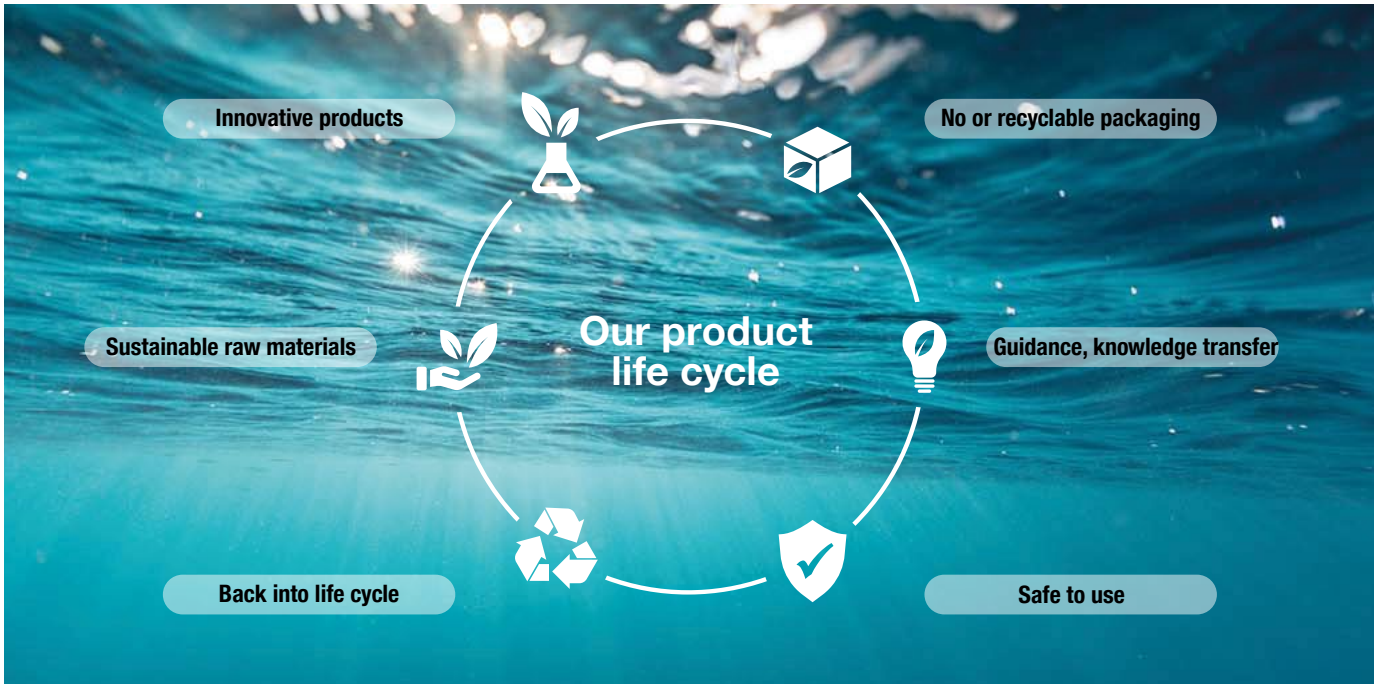
As a manufacturer of industrial cleaners and cleaning systems, Bio-Circle has a great responsibility. After all, these products have a high value in the maintenance of machines, plants, and componentp. They are an important part of the production chain in every industry. We take a close look and use sustainable raw materials to produce **environmentally friendly and user-friendly industrial cleaners.**

## Innovative products

Bio-Circle has always been committed to sustainability in an industry where the harmful effects of solvents on the environment, humans and animals are still being glossed over. Our innovative products for the cleaning sector stand for **safe application** in manual and automatic parts cleaning.
**We are pioneers**, we do things differently and we walk a straight path. We formulate and produce industrial cleaners that are non-labelled and low-labelled. In our own laboratory and in our own production facilities.

## No or recyclable packaging

The piles of rubbish are getting higher and higher, the plastic vortexes in the oceans are getting bigger and bigger. These are just two problems – we all know that. When it comes to packaging, Bio-Circle is constantly moving forward and developing.
The best bottle is no bottle, because refillable application systems are the solution – they make bottles dispensable! And if there's no other way, we have recyclable 500 ml PET bottles made from **100% recycled material**.
To make your work easier, cleaners in IBCs and 200-litre drums can be transferred into 20-litre jerrycans with hand pumpp. Of course, the IBCs, drums and jerrycans are made of the **easily recyclable** plastic HDPE.
In **shipping,** only **recycled and recyclable paper** that has been awarded the **'Blue Angel'** eco-label is used as filling material. In addition, we ship **$CO_2$-neutral** through our parcel service provider and our freight forwarder.




## Sound advice and knowledge transfer

We share our experience and know-how with you so that you can clean easily, quickly, safely, cost-efficiently and in an environmentally friendly way.
**You have questions, we provide answerp.** If you are satisfied with the cleaning performance and with your work, if we have been able to optimise your work processes – then we are satisfied too.

## Safe to use

Working with non-labelled and low-labelled industrial cleaners and recirculating cleaning equipment can trigger a domino effect:
For the company, the longer service lives, the reduced health and safety measures and the increased productivity are just a few reasons to be happy about savings because **costs are reduced**.
The user, who has **more fun and motivation at work**, feels fitter because they are exposed to far fewer pollutants and toxic fumes, and they are happy about a better quality of life. For both sides, there is also the **time saving**. Not only thanks to the effectively cleaning industrial cleaners, but also because of the energy-saving, recirculating parts washers.

## Back into the life cycle

At Bio-Circle, we live and breathe life cycle thinking. **We place great emphasis on sustainability in production and application.** Longer service lives and VOC-free or VOC-reduced cleaners reduce your disposal effort and make it safer.

**MAKING GREEN WORK.**

# AT A GLANCE

## Your page overview

**This table provides an overview of the possible applications for various cleaners, along with the relevant data and product information. We will, of course, visit your premises to provide on-site advice and demonstrations.**

| | pH value* – Values from MSDS | VOC content in % | Flashpoint in °C | BIO-CIRCLE GT-i | BIO-CIRCLE HP, HP Vigo | PROLAQ | Parts washer | Ultrasonic | RWR | Steel/Stainless steel | Aluminium | Non-ferrous metals | Plastics | Painted surfaces | Zinc-coated surface | Hazardous substance symbol | VOC-free | VOC-reduced | NSF | Label-free | Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AF Clean | 9.6 | 10.4 | 53 | | | | | | | ■ | ■ | □ | ■ | ■ | □ | - | - | VOC reduced! | - | ◇ | 28 |
| ALUSTAR 500 | 7 | - | - | | ■ | | ■ | □ | □ | ■ | ■ | ■ | □ | □ | □ | ◇ | VOC free! | - | - | - | 21 |
| ALUSTAR 300 | 13 – 14 | - | - | | | | ■ | | | ■ | ■ | ■ | ■ | ■ | ■ | ◇ | VOC free! | - | - | - | 30 |
| BIO-CIRCLE L | 8.5 | - | - | ■ | | | | | | ■ | □ | □ | ■ | ■ | ■ | - | VOC free! | - | NSF | ◇ | 23 |
| BIO-CIRCLE L Evo | 8 | - | - | ■ | ■ | | ■ | | | ■ | ■ | ■ | ■ | ■ | ■ | - | VOC free! | - | NSF | ◇ | 22 |
| BIO-CIRCLE L Ultra | 8.5 – 9.5 | - | - | ■ | ■ | | ■ | | | ■ | □ | □ | ■ | ■ | ■ | - | VOC free! | - | NSF | ◇ | 23 |
| CB 100 Alu | 8.6 | - | - | | ■ | | ■ | □ | ■ | ■ | ■ | ■ | □ | □ | ■ | - | VOC free! | - | NSF | ◇ | 26 |
| CB 100 V | 10.0 | 1.2 | - | | | | | | | ■ | □ | □ | □ | □ | □ | - | - | VOC reduced! | - | ◇ | 27 |
| Defoamer HT | 10.6 | 0 | - | ■ | ■ | | ■ | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ◇ | VOC free! | - | - | - | 34 |
| FT 300 | 10.8 | 18.9 | 40 | | | | | | | ■ | ■ | ■ | ■ | □ | ■ | - | - | VOC reduced! | - | ◇ | 25 |
| GS 200 | - | 19 | 118 | | | | | | | ■ | ■ | ■ | □ | □ | ■ | - | - | VOC reduced! | NSF | ◇ | 32 |
| Corrosion Protection | 8.6 | - | - | ■ | ■ | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | - | VOC free! | - | - | ◇ | 33 |
| Neutraliser | 14 | - | - | | | | ■ | ■ | ■ | ■ | | | □ | □ | | ◇ ◇ | VOC free! | - | - | - | 33 |
| OMNI | - | 5 | 100 | | | | | | | ■ | ■ | ■ | □ | □ | ■ | ◇ | - | VOC reduced! | - | - | 32 |
| Power Cleaner DB | <1 | 2.6 | - | | | | ■ | ■ | ■ | ■ | ■ | □ | ■ | □ | □ | ◇ | - | VOC reduced! | NSF | - | 33 |
| PROLAQ L 400 | - | 44 | 63 | | | ■ | | | | ■ | ■ | ■ | □ | □ | ■ | - | - | - | - | ◇ | 24 |
| PROLAQ L 500 | - | 20 | 61 | | | ■ | | | | ■ | ■ | ■ | □ | □ | ■ | ◇ | - | VOC reduced! | - | - | 24 |
| Smoke Resin Remover DB | 14 | - | - | | | | ■ | ■ | ■ | ■ | | | □ | | | ◇ ◇ | VOC free! | - | - | - | 29 |
| STAR Future V | 11.4 | - | - | | | | | | | ■ | | | □ | □ | | ◇ | VOC free! | - | - | - | 20 |
| STAR Future V Strong | 14 | 1.5 | - | | | | | | | ■ | | | □ | | | ◇ ◇ | - | VOC reduced! | - | - | 20 |
| Stripper | 12.5 | 2.3 | - | | | | ■ | ■ | □ | ■ | □ | □ | □ | | | ◇ | - | VOC reduced! | - | - | 25 |
| UNO W | 13 | - | - | | | | | | | ■ | □ | □ | ■ | ■ | □ | ◇ | VOC free! | - | - | - | 31 |
| Air Force | | | | | | | | | | | | | | | | | | | | | 28 |
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| Stainless-Steel Foam Sprayer 24 L | | | | | | | | | | | | | | | | | | | | | 18 |
| PROLAQ conversion kit | | | | | | | | | | | | | | | | | | | | | 15 |
| Foam Injector | | | | | | | | | | | | | | | | | | | | | 18 |
| Service | | | | | | | | | | | | | | | | | | | | | 17 |

APPLICATION SYSTEMS

■ recommended □ limited use not usable

# System solution for the railway: sustainable – innovative

**Safe and convenient cleaning**

Bio-Circle cleaning systems offer a wide range of cleaning machines, using water-based cleaning agents, for safe and convenient cleaning and degreasing. The areas of application could not be more diverse. Whether for components or machines, these cleaning systems enable you to carry out your tasks efficiently. Take advantage of our regular maintenance of the cleaning system and the cleaning agent carried out by our service engineers.

## MANUAL



**BIO-CIRCLE parts washer**

Systems for natural, biological parts cleaning

P. 8



**BIO-CIRCLE HP**

The parts washer with flow brush yet the cleaning power of high-pressure cleaning

P. 10



**HP Vigo**

Manual high-pressure cleaning for all needs

P. 10



**CLEAN BOX**

The mobile solution for parts cleaning

P. 13



**PROLAQ Compact**

Cleaning of painting tools and spray guns

P. 15



**Stainless steel foam sprayer Foam injector**

Manual foam application for large surfaces

P. 18

## AUTOMATIC



**BIO-CIRCLE Turbo**

2-in-1 – automatic and manual cleaning

P. 9



**HTW**

Robust, fully automatic hot-water parts washers

P. 11



**RWR**

Cleaning system for pipes and tanks in the railway's fresh and waste water systems

P. 12



**RWR Multi-channel**

Cleaning of brake pipe systems

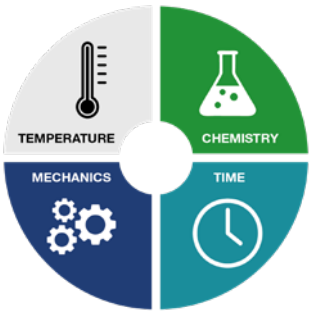
P. 12



**PROLAQ Auto**

Automatic and manual cleaning of paint application and finishing tools

P. 14




- Spray application methods
- Ultrasonic
- Brush

- Type: neutral / acidic / alkaline
- Low-foaming
- Corrosion inhibitor
- Concentration

# Bio-Circle Parts Cleaning

Naturally safe and convenient




The award-winning BIO-CIRCLE brush-washing stations are true specialists. They clean without solvents or cold cleaners, thereby protecting staff and the environment from volatile fumes. With its convenient, well-designed and easy-to-use features, as well as its wide range of accessories, the BIO-CIRCLE offers you a long-term solution for effective, natural parts cleaning.

- **8-year BIO-CIRCLE unit warranty***
- **Double-walled liquid tank – energy efficiency**
- **Manual or automatic – the choice is yours**
- **System comprising machine, cleaning agent and**







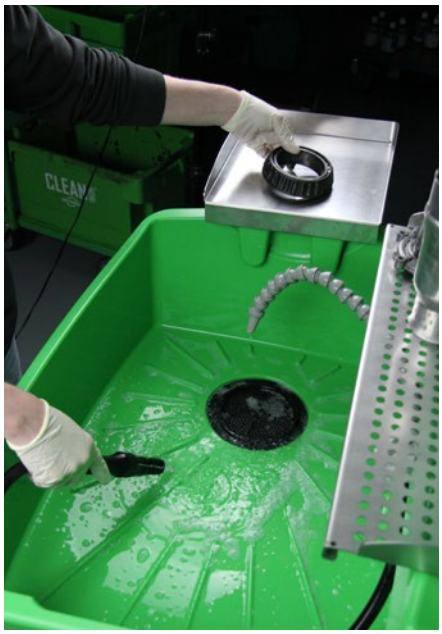

**Difference between the two units: size and load capacity**

- **BIO-CIRCLE-iSi technology, integrated as a high-performance chip in the control box of the BIO-CIRCLE GT-i and BIO-CIRCLE For U parts washing unit**
- **Easy to transport using a pallet truck**
- **Optimal basin depth for good splash protection**
- **Filter system in the basin drain (coarse, fine and bag filters, plus a magnet)**
- **Drainage system**
- **8-year BIO-CIRCLE equipment warranty**
- **Available to book separately:**
  - **Filter housing with various filter inserts**
  - **Rail system with castors for mobility**
  - **and much more**

| | BIO-CIRCLE For U | BIO-CIRCLE GT-i Maxi |
|---|---|---|
| Dimensions (W x H x D) | 840 x 1030 x 560 mm | 980 x 1110 x 705 mm |
| Worktop (W x D) | 720 x 510 mm | 810 x 520 mm |
| Load capacity | 100 kg | 250 kg |
| Working height | 800 mm | 860 mm |
| Operating temperature | bis 41 °C | bis 41 °C |
| Heating | 650 W | 650 W |
| Pump | 40 W | 40 W |
| Optimum capacity | 100 l | 120 l |
| Material | LDPE | LDPEf |
| Weight (empty) | 45 kg | 60 kg |
| Electrical connection | 230 V. 50 Hz | 230 V. 50 Hz |







# BIO-CIRCLE TURBO

## 2-in-1 – automatic and manual cleaning

The perfect combination of the precision of manual cleaning and the efficiency of an automatic washing system.
In manual cleaning mode, the rotating brush can be used to clean hard-to-reach areas of the part.
In automatic mode, the system cleans fully automatically.



*BIO-CIRCLE Turbo 800*

**It is possible to retrofit existing systems to the Turbo Bio.
Please get in touch with us.**

- **2-in-1 – combination of manual and automatic cleaning**
- **with access for manual cleaning whilst the hood is closed**
- **Precise, manual cleaning with a rotating brush or nozzle**
- **Compressed air gun, max. 6 bar, in the cleaning chamber**
- **Automatic cleaning pressure: 4 bar**
- **Insulation of the entire body**
- **Long service life of the cleaner thanks to microorganisms: integrated oxygen supply via compressor/oxygen pump**

**Optional equipment: high-pressure module.
The module includes a high-pressure gun including hoses, up to a maximum of 60 bar**

| | BC Turbo 800 | BC Turbo 1000 | BC Turbo 1200 | BC Turbo 1500 |
|---|---|---|---|---|
| Overall width x overall depth (mm) | 1220 x 1255 | 1420 x 1350 | 1630 x 1580 | 2080 x 1810 |
| Height, lid open with exhaust elbow (mm) | 2010 | 2175 | 2350 | 2760 |
| Machine dimensions (WxDxH) (mm) | 1730 x 2010 x 2010 | 1925 x 2015 x 2175 | 2140 x 2340 x 2350 | 2590 x 2770 x 2760 |
| Internal diameter of wire basket, approx. (mm) | 775 | 975 | 1175 | 1495 |
| Maximum usable height (mm) | 400 | 450 | 650 | 700 |
| Maximum payload (kg) | 350 | 350 | 350 | 350 |
| Useful volume of washing fluid tank – min./max. capacity (L) | 130/170 | 200/260 | 300/380 | 375/475 |
| Total weight of the cleaning system excluding tank contents, payload and optional extras approx. (kg) | 350 | 420 | 430 | 610 |
| Total electrical power consumption, excluding optional extras, approx. (kW) | 7.7 | 9 | 9 | 16 |
| Power supply – three-phase current (V)/frequency (Hz) | 400/50 | 400/50 | 400/50 | 400/50 |
| Plug | 16A CEE 5-pin 6-pole | 32A CEE 5-pin 6-pole | 32A CEE 5-pin 6-pole | 63A CEE 5-pin 6-pole |
| Air connection min. – max. (bar) | 5–8 | 5–8 | 5–8 | 5–8 |
| Compressed air hose diameter (mm) | 10 | 10 | 10 | 10 |
| Automatic pump cleaning: Flow rate ($m^3$/h) | 12 | 12 | 12 | 14.4 |
| Manual pump cleaning: Flow rate ($m^3$/h) | 4.8 | 4.8 | 4.8 | 4.8 |
| Electric heater in the wash tank (kW) | 4.5 | 6 | 6 | 2 x 6 |
| Treatment temperature (guide value) (°C) | 45 | 45 | 45 | 45 |

# BIO-CIRCLE HP



## Manual cleaning with the lid open or closed

- **Manual cleaning with a through-feed brush with the lid open or closed**
- **Cleaning temperature 45 °C**
- **Insulated tank prevents heat loss**
- **Operating pressure 20–60 bar; optimal handling via a high-pressure gun**
- **Extendable step**
- **Payload up to 350 kg; can be loaded by crane**
- **Significantly longer bath service life thanks to microorganisms**
- **A manually operated turntable is available as an option**

ROSTFREI
**Edelstahl**

# HP Vigo




## Manual cleaning with the hood closed

- **Cleaning temperature adjustable up to 45 °C**
- **Operating pressure adjustable up to 80 bar, optimum handling via a high-pressure nozzle**
- **Compressed air gun for drying parts**
- **Payload up to 150 kg**
- **Significantly longer bath service life thanks to microorganisms**
- **Shuts off automatically when the liquid level is too low via a float switch (to protect the heater and pump)**

| | BIO-CIRCLE HP | HP Vigo |
|---|---|---|
| Dimensions (W x D x H) mm | 1150 x 1229 x 1800 / 2430 | 1348 x 857/1334 x 1574/1953 |
| Worktop (W x D) mm | 860 x 580 x 480 | 1200 x 800 x 450 |
| Load capacity | 350 kg | 150 kg |
| Working height (mm) | 950 / 1210 | 950 / 1050 |
| Operating temperature | 45 °C | 45 °C |
| Heating | 0.65 kW | 2 kW |
| Pump | 1.6 kW, working pressure = up to 60 bar | 1.85 kW, AD = up to 80 bar |
| Optimal filling capacity | 100 l | 125 l |
| Material | Stainless steel | Stainless steel |
| Weight (empty) | 235 kg | 125 kg |
| Electrical connection | 230 V, 50 Hz | 230 V, 50 Hz |

# HTW Hot Water Parts Washer
# Bio-Circle HTW II

## Robust, fully automatic cleaning machine for single-stage cleaning and degreasing of small parts

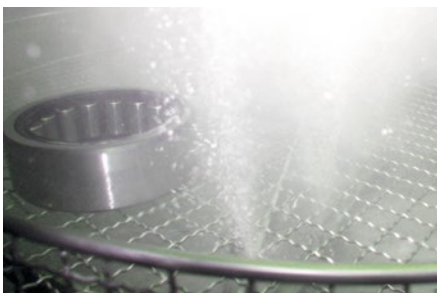



A low-maintenance high-pressure spray system, fitted with a special nozzle system, ensures thorough cleaning and degreasing of tools and other parts. Thanks to the driven rotating basket and the spray pressure, the Bio-Circle cleaning agents in the hot water parts washer act optimally on the items being cleaned.

- **Tank with sloping base for rapid emptying**
- **Digitally adjustable thermostat (up to 90 °C), digital timer controls the duration of the cleaning cycle**
- **Machine body, basket insert, spray system and control box made of V2A**
- **Electric rotating basket drive**

| | HTW-II 800 | HTW-II 1000 | HTW-II 1200 | HTW-II 1500 |
|---|---|---|---|---|
| Overall width x overall depth (mm) | 1180 x 1145 | 1370 x 1210 | 1580 x 1505 | 2080 x 1681 |
| Height of closed/open lid with exhaust air bend (mm) | 1361/1790 | 1524/2005 | 1580/2200 | 1840/2700 |
| Internal diameter of wire basket, approx. (mm) | 775 | 975 | 1175 | 1500 |
| Maximum usable height (mm) | 400 | 450 | 650 | 700 |
| Maximum payload (kg) | 350 | 350 | 350 | 350 |
| Washing fluid tank – capacity (L) | 150 | 300 | 485 | 770 |
| Total weight of the cleaning system without tank contents, payload (kg) | 280 | 350 | 350 | 550 |
| Total electrical power consumption / electric heating approx. (kW) | 6/ 4.5 | 8.5/ 6 | 11.5/ 9 | 21.5/ 2 x 9 |
| Automatic cleaning pump: flow rate ($m^3$/h/bar) | 4.8/3.8 | 12.0/3.8 | 12.0/3.8 | 14.5/4.5 |







# RWR Pipe and Vessel Cleaning System

## Cleaning system for pipes, tanks and heat exchangers

The RWR pipe and tank cleaning system, manufactured entirely from stainless steel, is specially designed for cleaning and flushing contaminated pipework, sewage tanks, fresh water pipes and tanks, heat exchangers and coolers. The Power Cleaner DB cleaning agent used effectively removes contaminants such as urine scale, limescale and corrosion. Grease, oils and oil sludge can be reliably removed using the CB 100 Alu cleaning agent.

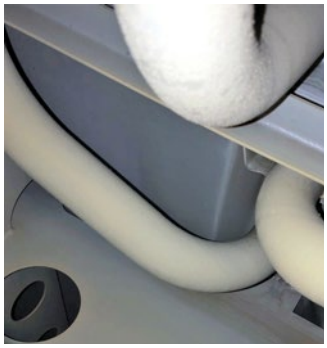
- **Cold and hot operation (thermostat adjustable up to 90 °C – factory-set to an optimum 60 °C)**
- **Easy to operate thanks to PLC control**
- **Stainless steel filter protects the pump from solids**
- **Collection tray for hoses with a drain for easy emptying**
- **Mobile – the unit is mounted on a trolley and can therefore be taken directly to the point of use – for all units, this can also be done using a forklift via a guide rail or with our RWR-Mover**
- **Available in sizes with a usable volume of 300, 500 and 1000 litres**





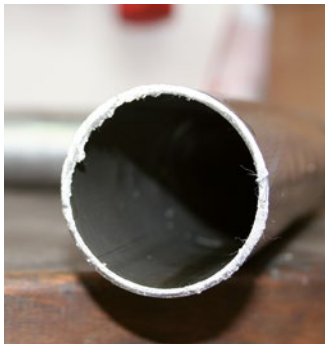


| | RWR multi-channel | RWR-500 DB-A SPS | RWR-500 DB-F SPS |
|---|---|---|---|
| Dimensions | 2410 x 1200 x 1335 mm (L x W x H) | 2495 x 1100 mm (L x W) | 2495 x 1100 mm (L x W) |
| Media tank capacity | 300 l | 500 L with drain for easy emptying | 500 L with drain for easy emptying |
| Feed pump | up to max. 12 $m^3$/h | up to max. 12 $m^3$/h | up to max. 12 $m^3$/h |
| Return pump | - | Vogelsang-Pump, up to max. 12 $m^3$/h | up to max. 12 $m^3$/h |
| Electrical connection | 400V, 16A, 16 kW/Heating: 2 x 6 kW | 400V, 32A, 17 kW/Heating: 2 x 7,5 kW | 400V, 32A, 17 kW/Heating: 2 x 7,5 kW |
| VA heating | factory-set to an optimum 60 °C | factory-set to an optimum 60 °C | factory-set to an optimum 60 °C |
| Hose connections | Supply: 8 x ½' Return: 8 x ½' | Supply: 1' Return: 1½' | Supply: 1' Return: 1' |
| Total weight | 160 kg | 440 kg | 350 kg |









# CLEAN BOX

Your washing station

**The CLEAN BOX Max and Flex are the perfect washing stations for large parts and extremely bulky workpieces.** This makes them suitable for use in many workshop and production areas, such as maintenance, mechanical engineering and industrial construction. The CLEAN BOX units are characterised by their ease of use and the use of low-temperature cleaning agents.

Due to the built-in pump, they are only suitable for aqueous alkaline cleaning agents:

## CLEAN BOX Max

- **For large, bulky workpieces**
- **Through-feed gun with integrated washing brush**
- **Grating on the work platform**
- **Available in two sizes (Max 1 and Max 2)**
- **Feed pump for cleaning fluid**
- **Electropneumatic foot switch for switching the pump on and off**

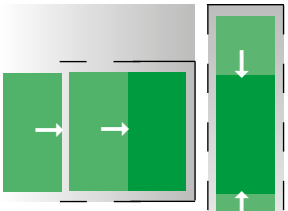


## CLEAN BOX Flex

- **Expandable modular design**
- **Available to order in standard sizes with a feed pump for cleaning agents**
- **Integrated collection tray in accordance with the German Water Resources Act (WHG) with leak detection and a tank with a lid**



| | CLEAN BOX Max 1 | CLEAN BOX Max 2 | CLEAN BOX Flex |
|---|---|---|---|
| External dimensions W x D x H (mm) | 1420 x 1420 x 520 | 2400 x 1420 x 740 | Standard 2725 x 1505 x 390 variable work surface (1.2 m modules) available to order only |
| Usable area W x D (mm) | 1220 x 1220 | 2250 x 1220 | variable |
| Material | PE | PE | PE-HD |
| Load capacity | 1000 kg | 1000 kg | 1000 kg |
| Net volume min./max. | 200 L / 300 l | 700 L / 1000 l | 250 L / 350 l |
| Total usable volume | 590 l | 1400 l | 355 l |
| Working pressure | 0,2 bar | 0,2 bar | 0,2 bar |
| Weight | 100 kg | 160 kg | 250 kg |
| pH operating range | 4,5–12 | 4,5–12 | 4,5–12 |
| Rated input voltage | 230 V/1,3 A / 50 Hz | 230 V/1,3 A / 50 Hz | 230 V/1,3 A / 50 Hz |
| Power consumption | 330 W | 330 W | 330 W |
| Operating temperature | Room temperature | Room temperature | Room temperature |
| Max. operating pressure | 2 bar | 2 bar | 2 bar |
| IP | 68 | 68 | 68 |



CLEAN BOX Flex – Depth and width extendable to in 1200 mm increments

Gefördert durch:
Bundesministerium für Wirtschaft und Energie
aufgrund eines Beschlusses des Deutschen Bundestages

# PROLAQ Auto

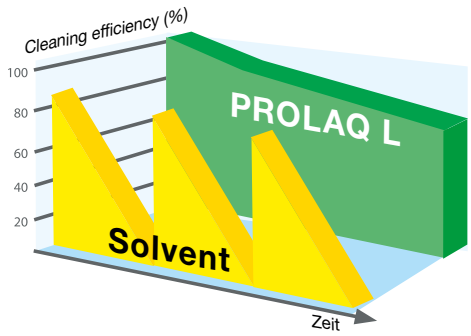
## Manual and automatic cleaning for all paint application and finishing tools

The PROLAQ Auto is a compact cleaning station for paint spray guns and tools. Cleaning in explosion-protected areas can be carried out manually or automatically. Flow cups and suction cups can be cleaned automatically.
The cleaned components can then be dried using an air shower. The integrated extraction system and hood effectively minimise odours and ensure a clean working environment.




- **Manual and automatic cleaning, even in explosion-protected areas**
- **Automatic cleaning of 2 guns simultaneously**
- **For suction and flow cup guns**
- **Follow-up air flushing**
- **Manual cleaning with a through-feed brush is also possible**
- **Lockable by means of a cover**
- **Sedimentation and filtration unit included**

### Cleaning performance




| | PROLAQ Auto |
|---|---|
| Dimensions (W x H x D) | 857 x 1554 x 508 mm |
| Manual work surface (W x D) | 415 x 415 mm |
| Working height | 1040 mm |
| Pump | Compressed air diaphragm pump with PTFE diaphragm |
| Pump flow rate | 12 l/min |
| Air consumption of pump | 58 l/min |
| Filling capacity | 60 l |
| Material | Steel/stainless steel |
| Weight (empty) | 94 kg |
| Air pressure | 5 – 6 bar |
| Automatic cleaning | 14 nozzles; cleans 2 guns |
| Noise level | <70 dB |
| Exhaust pipe diameter | 76 mm |
| ATEX | Zones 1 und 2 |





# PROLAQ Compact

## Manual cleaning system for all paint application and paint processing tools

The mobile PROLAQ Compact offers the user a high degree of flexibility. It can clean a wide range of paint application tools such as nozzles, squeegees, stencils or hose-fed airless systems. The robust cleaning unit, made of plastic (PE), is powered by compressed air. It is operated via a foot switch. A high-quality through-feed brush ensures optimum cleaning results. A compressed air gun on the side provides a quick way to dry the cleaned parts.



- **Compressed air-powered**
- **Integrated hopper**
- **Mobile set**
- **High-quality flow-through brush, optionally available in various degrees of stiffness**
- **Lid with splash guard (optional)**
- **Accessory box (optional)**
- **Mount for accessories box (optional)**



Gefördert durch:
Bundesministerium für Wirtschaft und Energie
aufgrund eines Beschlusses des Deutschen Bundestages

| | PROLAQ Compact |
|---|---|
| Dimensions (W x H x D) | 840 x 1060 x 600 mm |
| Worktop (W x D) | 740 x 450 mm |
| Load capacity | 100 kg |
| Working height | 980/840 mm |
| Pump | Compressed air diaphragm pump with PTFE diaphragm |
| Optimum filling capacity | 40 – 60 l |
| Material | LDPE |
| Weight (empty) | 50 kg |
| Air pressure | max. 6 bar |

# PROLAQ conversion kit

The **PROLAQ conversion kit** for existing systems can be installed quickly and easily in all spray gun cleaning systems. For example, the label-free paint remover **PROLAQ L 400** replaces conventional solvents, and **cleaned micro-particles are separated** from the medium **by sedimentation.**



# BIO-CIRCLE Turbo Ventricle

Cleaning of vacuum ventricles, WC modules and WC components in a single cleaning system



- **Made entirely from stainless steel**
- **Transportable using a pallet truck**
- **A wide variety of WC components – one machine**
- **Basket diameter 1,000 mm or larger**
- **Height-adjustable nozzle assembly with fan nozzles**
- **4 bar centrifugal pump for the nozzle assembly or for special use in ventricle cleaning**
- **4 bar centrifugal pump for manual cleaning using an adjustable jet nozzle or brush**
- **Compressed air gun for blowing off components in the enclosed cleaning system**
- **Connections for ventricle cleaning using the flush-through method**
- **Filter unit for ventricle cleaning with filter pressure monitoring**
- **Digital temperature and time control**
- **Powerful steam vapour extraction with condensate recovery elbow**
- **Connections: compressed air max. 6 bar and electricity 400 V/32 A**
- **DB AG-approved cleaning system**
- **Approved 'Power-Cleaner DB' cleaner for toilet module cleaning**

Suitable for WC modules, vacuum ventricles and WC components of a wide range of sizes. Can also be used for cooler cleaning via the flush-through method and for external cleaning, with a cleaner suited to the application.





| | **BC Turbo 1000 Ventricle** |
|---|---|
| Dimensions (W x H x D) with steam vapour extraction | 1418 x 1815 x 1345 mm |
| Machine dimensions (W x D x H) | 2018 x 2225 x 2175 mm |
| Opening angle for the lid | 60° |
| Loading height (top edge of wash chamber) | 1005 mm |
| Internal wire basket diameter, approx. / wire basket height | 975 mm/ 115 mm |
| Max. usable height | 400 mm |
| Distance from basket base to nozzles | 480 mm |
| Max. payload | 350 kg |
| Liquid tank usable capacity | min 200 l/max 260 l |
| Total weight of the car wash (empty) | approx. 550 kg |
| POWER SUPPLY | |
| Protection class | IP 55 |
| Total electrical power rating | 11,1 kW |
| Power supply – three-phase | 400V, 32A, 50 Hz |
| Electric heating in the wash tank | 6 kW |
| CONNECTIONS | |
| Ball valve for draining the wash liquid tank | 1 ¼'' |
| SPRAY NOZZLE SYSTEM | |
| Number of compartment nozzles | 23 pcs. |
| Spray pressure approx. | 4 bar |
| Flow rate | 12 $m^3/h$ |

# MACHINE SERVICE AND CLEANING

- Thorough internal and external cleaning
- Inspection of the machine to check the functionality of its components
- Cleaning and, where necessary, free replacement of parts (excluding wear parts)
- Removal of sediment accumulated on the floor
- Refill the table with the cleaned BIO-CIRCLE Liquid or top it up, depending on the cleaner and mixing ratio




**ALSO AVAILABLE AS AN ADDITIONAL SERVICE:**

- UVV inspection
- Inspection in accordance with DGUV-V3

**PLEASE NOTE:**

- The replacement of consumables (such as freshly refilled BIO-CIRCLE Liquid, filters and brushes) is subject to a charge.
- In the event of malfunctions, the machine will be repaired within a few working days; however, we reserve the right to provide spare parts for you to fit yourself. All prices include call-out charges.
- We'd be happy to provide you with contact details for local disposal services for used liquid and sediment.

## BIO-CIRCLE GT-i Parts Washer 8 years warrenty!

During this period, we will provide you with any necessary spare parts free of charge for you to fit yourself. This excludes consumables and wear-and-tear items,
such as brushes, filters and aerators.
**Maximum reliability – low running costs over the service life.**

# Book your service package

To ensure your **BIO-CIRCLE GT-i brush washing unit** runs like clockwork, it should also be cleaned and serviced regularly. Our service technicians, who operate throughout Germany, will be with you on site promptly

**BIO-CIRCLE GT-I COMPACT OR MAXI**

- One-off service: no contractual commitment
- SP3: 3 maintenance sessions *
- SP4: 4 maintenance units
- SP6: 6 maintenance units
- SP10: 10 maintenance units

**PROLAQ COMPACT OR AUTO**

- One-off service: no contractual commitment
- SP4: 4 maintenance units

**BIO-CIRCLE HP**

- One-off service: no contractual commitment
- SP4: 4 maintenance units
- SP10: 10 maintenance units

**HP VIGO**

- One-off service: no contractual commitment
- SP4: 4 maintenance units
- SP10: 10 maintenance units




*Our maintenance units are valid for a period of 12 months.

# STAINLESS STEEL FOAM SPRAYER

**Compressed air-powered foam sprayer with a 3 m compressed air hose. Easy to use and safe to operate** thanks to a stainless steel housing, safety valve and air pressure control.
For applying aqueous, foaming cleaners, pH 2–12, such as FOR CLEAN V and CB 100 Alu.



Apply the cleaner using the compressed air foam lance





- **Compressed air: max. 8 bar**
- **Adjustable compressed air**
- **With handle and castors**
- **Efficiency: 7.3 m² per minute**

# FOAM INJECTOR

The foam injector is easy to use, virtually maintenance-free and comes with a 10 m hose and foam lance – the perfect tool for cleaning large areas. The thick, long-lasting foam breaks down stubborn dirt, even on vertical surfaces, depending on the cleaner's mode of action.



- **Compressed air: 5 bar**
- **Efficiency: 3.1 m² per minute**
- **With compressed air diaphragm pump**
- **Includes adapter for attaching an IBC or 200-litre drum**
- **Suitable for foaming cleaners with a pH of 0 to 14, e.g. FOR CLEAN, UNO X, STAR FUTURE V and STAR FUTURE V STRONG**
- **10 m or 20 m hose**
- **20 m hose with stainless steel reel**









# “CLEANING? BUT SAFELY!”

(Employee at Bio-Circle Surface Technology GmbH)

**VOC-free, VOC-reduced**
The European VOC Solvents Directive (1999/13/EC) aims to considerably reduce the use of solvents and VOC emissions into the environment, thus protecting human health. In the development and manufacturing of our products we pay close attention to developing and manufacturing VOC-free or VOC-reduced products. In plenty of applications, the water-based Bio-Circle products can replace solvents completely.

**Non-labelled**
With the aid of efficient systems and non-labelled products we succeed in optimizing the processes at our customers’. The cleaning quality is maintained although the cleaning is done without labelled products. The laborious handling of hazardous substances is obsolete. HAZMAT storages, HAZMAT trainings, and the preparation of operating instructions are a thing of the past. The employees’ health and the environment are protected. Even trainees and apprentices are allowed to handle the products.

**NSF – Cleaning in the foodstuffs industry**
The NSF-certified water-based Bio-Circle cleaners are completely miscible with water, and because of their residue-free rinsability they are suitable for applications in the foodstuffs industry according to sec. 31 LFGB (German Food, Consumer Goods and Feed Code).

**Water-miscible**
Many of our cleaners are concentrates. They are easy to mix with water and hence very economical. Please make sure the mixing ratio corresponds to the application and the contamination.

**Clean Blue – for low-temperature cleaning only**
The Bio-Circle low-temperature cleaners – Clean Blue – have been developed for mechanical and manual use. They save energy and efficiently remove strong contaminations already at ambient temperature.

**Ready to use**
These cleaners are applied ready for use. Depending on the cleaner, their application is manual or mechanical. The user is relieved of one work step, as calculating the mixing ratio is no longer necessary.

# STAR Future V SAP 1125 212

VOC free!







STAR Future V is a water-based, phosphate- and solvent-free cleaner for removing oil, grease and soot deposits. The cleaner is applied either in highly concentrated form or diluted with water up to a ratio of 1:10, before being removed with a high-pressure cleaner after a short contact time. The cleaner has a slightly viscous consistency to ensure it adheres to vertical surfaces. This viscosity prevents the cleaner from drying out or running off the components. **Available in 20 L, 200 L und 1000 L.**

- **Biodegradable in accordance with the EU Directive**
- **VOC-free**
- **Non-flammable, can be used up to 90 °C**
- **Viscous, adheres to vertical surfaces**

**APPLICATIONS:**
- The cleaner is used on bogies, for locomotive cleaning, in maintenance work and on all large oily and greasy components, freight wagons and passenger carriages

# STAR Future V Strong SAP 1173 271

VOC reduced!

STAR Future V STRONG is a gel-like, foaming, aqueous, solvent-free cleaner for removing environmental contaminants, oils, greases and soot from bogies and similarly soiled steel components. The cleaner is applied using the foam injector, either in highly concentrated form or diluted with water up to a ratio of 1:10. All other application systems are unsuitable for this purpose. As the cleaner is formulated to be viscous and foaming, it adheres very well to vertical surfaces. Due to the very low level of aerosol formation, this cleaner does not cause irritation to the respiratory tract.
**Available in 20 L, 200 L und 1000 L.**

- **Biodegradable in accordance with the EU Directive**
- **VOC-reduced**
- **non-flammable, can be used up to 90 °C**
- **Viscous and foaming, adheres to vertical surfaces**
- **Very low aerosol formation – protects staff**

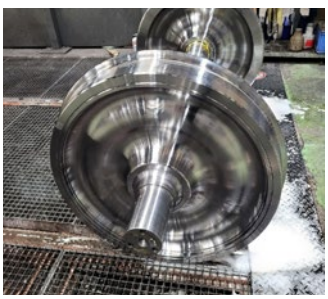
**APPLICATIONS:**
- Bogie cleaning
- Under-floor cleaning (carcass pit)
- Brake dust and environmental contaminants can be easily removed
- Oils, greases and soot are no problem for the cleaner

**EMPLOYEE-FRIENDLY**
- No aerosol formation due to the foam
- Viscous – does not run off like liquid cleaner

**COST-EFFECTIVE**
- Gel-like foam, adheres to the component
- Easy to dispose of

**ENVIRONMENTALLY FRIENDLY**
- VOC-reduced
- Biodegradable in acc. with the EU Directive









# ALUSTAR 500 SAP 1358 603

VOC free!

ALUSTAR 500 is a water-based, low-foaming neutral cleaner designed for use in fully automatic spray cleaning machines. It removes inorganic contaminants such as brake dust and biomass of all kinds, as well as very heavy grease and oil contamination. Depending on the level of contamination, ALUSTAR 500 can be diluted with water. Thanks to its neutral pH value, not only can steel and iron components be cleaned fully automatically, but also those made of aluminium, non-ferrous metals or composites containing these materials. The service life can be extended when using standard coalescing separators (e.g. plate phase separators) due to the demulsifying properties of the cleaning agent.
**Available in 20 L, 200 L und 1000 L.**

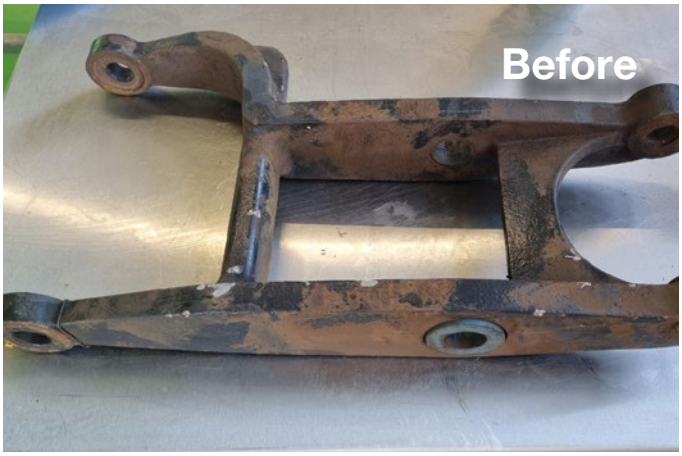
- **Biodegradable in acc. with the EU Directive**
- **VOC-free**
- **Non-flammable, can be used at temperatures up to 90 °C**
- **viscous, adheres to vertical surfaces**

**APPLICATIONS:** • Automatic cleaning of bogie components on freight wagons and passenger carriages that are heavily contaminated with brake dust and grease.

**EMPLOYEE-FRIENDLY**
- pH-neutral
- odourless

**COST-EFFECTIVE**
- sehr lange Bad-Nutzungsdauer
- Easy disposal

**ENVIRONMENTALLY FRIENDLY**
- VOC-free
- Biodegradable in acc. with the EU Directivee











# BIO-CIRCLE LIQUIDS

## A real spectacle

**CLEANING AT THE HIGHEST LEVEL: SIMPLE, FAST, SAFE.**
**The water-based, alkaline BIO-CIRCLE Liquids are solvent-free and do not require labelling, whilst offering excellent cleaning performance. User-friendly and environmentally friendly, they provide an alternative to solvents. Their use ensures greater workplace safety and lower operating costs, benefiting both users and business owners alike.** BIO-CIRCLE Liquids, when used in conjunction with BIO-CIRCLE brush-washing stations, contain microorganisms* that break down the removed oil, thereby guaranteeing a long service life. A consistently good cleaning result is achieved even as the level of contamination increases.
BIO-CIRCLE Liquids are ready to use, offer temporary corrosion protection and have an ideal cleaning temperature of 41 °C.

## BIO-CIRCLE L Evo

READY TO USE · VOC free! · unlabelled · NSF

**Available in 20 L, 200 L und 1000 L.**

- **VOC content below 1%**
- **The most versatile of the BIO-CIRCLE Liquids**
- **For medium to heavy soiling**
- **Environmentally friendly and safe**
- **For manual and machine use:**
  **in BIO-CIRCLE brush washing stations, parts washers and high-pressure parts washers**
- **VOC-free and exempt from labelling requirements in accordance with the CLP Regulation**
- **Cleans materials such as:**
  **aluminium, galvanised surfaces and non-ferrous metals, as well as steel/stainless steel and plastic**

Cleaning with BIO-CIRCLE L Evo





## Manual use

Everyday soiling* — Persistent soiling*

TOP SELLER
The right choice for your applications.

| | BIO-CIRCLE L | BIO-CIRCLE L EVO | BIO-CIRCLE L Ultra |
|---|---|---|---|
| **Mechanics** | parts washer with flow brush | parts washer with flow brush, parts washing machine, high-pressure parts washer | parts washer with flow brush |
| **Operating temperature** | 41 °C | 41 – 45 °C | 41 °C |
| **Residues** | virtually residue-free | virtually residue-free | forms a light protective film |
| **Aluminium protection** | - | ALU | - |
| **Food areas** | NSF | NSF | NSF |
| **Corrosion protection** | temporary | temporary | temporary |
| **Environmental aspect of raw material** | Surfactants based on renewable raw materials; label-free according to the CLP Regulation, VOC-free according to 2010/75/EU | | |
| **Labelling** | | | |

* Everyday soiling: oils, greases
* Persistent soiling: bitumen, anti-corrosion wax, burnt-in grease and oil, oil carbon, paint

*The microorganisms used are non-pathogenic bacteria of risk group 1 (classified according to BioStoffV 2000/54/EC, TRBA 466).
Risk group 1: Substances that are unlikely to cause disease in humans.



# BIO-CIRCLE L

SAP 935 968

**Available in 20 L, 200 L und 1000 L.**

- **The everyday choice among BIO-CIRCLE liquids**
- **Suitable for the food industry**

# BIO-CIRCLE L Ultra

SAP 1135 664

**Available in 20 L, 200 L und 1000 L.**

- **For heavy soiling**
- **Suitable for the food industry**
- **Can be used in BIO-CIRCLE brush wash basins, parts washers and high-pressure parts washers**

**BIO-CIRCLE Liquids clean a wide variety of contaminants,** depending on requirements and the cleaning system: grease, oil, release agents, smoke, soot, abrasion residues and grinding dust. In some cases also: baked-on organic contaminants, rust, oxidation and tarnish, bitumen and anti-corrosion waxes.
**Materials:** stainless steel, steel, plastic, painted and galvanised surfaces. In some cases also: aluminium, non-ferrous metals.

**APPLICATIONS:** Maintenance of components, workpieces and engines. Across various sectors: automotive, food, metalworking/CNC, rail transport, and the skilled trades.

**Do you already have a cleaning system and would like to use our innovative products? Get in touch – we'd be happy to advise you!**
**www.bio-circle.de**

# PROLAQ L RANGE

## Make a new choice!

With the **unique PROLAQ Liquids**, we offer you an alternative to nitro-based thinners: **VOC-reduced and labelling-friendly paint strippers** for removing paints, varnishes, inks and printing inks.
Recyclable. Lower costs. Optimal cleaning performance. User-friendly. Environmentally friendly.
**Fewer safety precautions, reduced operating costs and a healthier workplace.** Systematic cleaning: The ready-to-use PROLAQ paint removers are specially designed for use in the PROLAQ Compact and PROLAQ Auto cleaning systems, as well as in ultrasonic cleaning units.
**Available in 20 L, 200 L und 1000 L Containers.**

## PROLAQ L 400 SAP 1358 955

READY TO USE · CLEANBLUE · unlabelled

### Labelling-exempt, solvent-based paint remover

- **Effectively removes undried paints, varnishes and printing inks from spray guns, rollers, pumps, etc.**
- **Leaves minimal residue**
- **Exempt from labelling requirements in acc. with the CLP Regulation**
- **VOC content (EU: < 45 % VOC content; CH: 16 % VOC content)**
- **Suitable for both machine and manual use**
- **Suitable for recycling**
- **Non-flammable**
- **Removal of graffiti**



Hose system cleaning with PROLAQ

## PROLAQ L 500 SAP 1215 293

READY TO USE · VOC reduced!

### VOC-reduced paint stripper

- **Primarily for solvent-based varnishes and paints**
- **Suitable for both machine and manual use**
- **VOC-reduced (EU: 20% VOC content; CH: 36 % VOC content)**
- **Cleans brushes, rollers and filters**
- **For cleaning various paint systems**
- **Cleans suction inlets, filters, paint lines, spray guns, hoses and rollers**
- **Suitable for recycling**
- **Non-flammable**



Graffiti removal

**Die PROLAQ Liquids** dissolve paints, varnishes, ink, printing inks and pigmented inks.
**Materials:** All paint application and finishing tools, as well as stainless steel, steel and aluminium, are cleaned.
In some cases also: non-ferrous metals and galvanised surfaces

**APPLICATIONS:** across all industries, wherever paints and coatings are used; cleaning of paint application tools, hoses, printing rollers, stencils, etc.; manual and machine use in PROLAQ cleaning systems, immersion baths and ultrasonic cleaning units.

**YOUR BENEFITS**

- **High cleaning power**
- **Reduced solvent use**
- **Safe working environment**
- **Professional cleaning system**

# Stripper

**Available in 20 L, 200 L und 1000 L.**

- **Removes paints and coatings, graffiti, adhesive residues, varnishes, etc.**
- **Suitable for use on stainless steel, steel, tiles, stone, concrete, etc.**

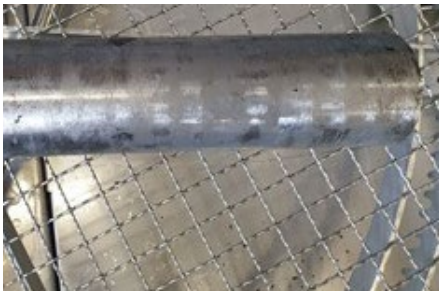
**Materials:** stainless steel, aluminium, non-ferrous metals, steel and galvanised surfaces

**APPLICATIONS:** Immersion baths, hot-water parts washers, ultrasonic baths, paint stripping systems

Shock absorber before



Shock absorbers afterwards



# FT 300 SAP 1442 115

## Leaves no residue

**The quick-drying FTs are residue- and streak-free cleaners for surface preparation and final cleaning.** Perfect for manual cleaning, such as degreasing prior to painting or for removing adhesive residues, machining oils, fingerprints and dust. **They are label-free and VOC-reduced, making them user-friendly and environmentally friendly. Available in 20 L, 200 L und 1000 L.**

- **Residue-free and streak-free**
- **Evaporates more quickly than water-based cleaners**
- **Suitable for use on all surfaces**

**The FTs remove** oil, release agents, grease, fingerprints, abrasion marks, grinding dust and adhesive residues. **From:** stainless steel, steel, tiles, aluminium, non-ferrous metals and galvanised surfaces. In some cases also from wood, plastic, rubber and painted surfaces, amongst others.

**APPLICATIONS:** across all sectors, metalworking / CNC, automotive, 3D printing, plastics processing, rail transport, trades.



# CB 100 Alu SAP 1125 344

This water-based cleaner is formulated using natural ingredients, which give it its powerful cleaning properties. It removes carbon deposits, soot, sealants and adhesives, oil residue, bitumen and protective waxes. CB 100 Alu is gentle on materials and does not damage metallic surfaces.
**Available in a user-friendly 500 ml spray bottle, refillable from 20 L, 200 L and 1000 L containers.**

**APPLICATIONS:**
- Universal for the manual and automatic removal of the most stubborn contaminants across all industrial sectors
- Cleaning of roller and ball bearings
- Maintenance of engines
- Replacement for petroleum in cleaning
- Suitable for use in ultrasonic cleaning systems
- Suitable for use in HTW and BIO-CIRCLE Turbo
- Degreasing prior to painting



**EFFICIENT**
- ▶ Extreme cleaning power
- ▶ Can be used cold or warm

**ENVIRONMENTALLY FRIENDLY**
- ▶ VOC-free
- ▶ No labelling required
- ▶ Free from hazardous substances

**SUSTAINABLE**
- ▶ Very long service life
- ▶ Based on renewable raw materials





# CB 100 V

## Salt- and residue-free foam cleaner

CB 100 V has been developed for cleaning electrical equipment such as electric motors, switch cabinets, insulators and more. **The major advantage:** CB 100 V is salt-free and therefore does not impair functionality or insulation values to earth. **The cleaner produces a very rich lather** and penetrates even the smallest gaps in windings, components and surfaces.

- **Maximum cleaning performance – reliably removes dust, oil, carbon deposits and conductive contaminants**
- **Salt-free – no disruptive residues, ideal for electrical components**
- **No mechanical reworking required – saves time and reduces maintenance effort**
- **Active foam – long contact time, reaches even hard-to-access areas**
- **Gentle on materials – insulation varnishes and sensitive components remain intact**
- **Environmentally friendly – no labelling required and biodegradable**
- **Energy- and cost-efficient – fewer drying cycles and no need for a second cleaning stage**

**APPLICATIONS:**
In addition to electrical engineering, wherever foam cleaning is used, on vertical surfaces, in industrial maintenance and servicing, and for surface preparation.










**Accessories for perfect foam.**

# AF Clean SAP 1451 191

## The perfect combination with Air Force

AF Clean is the perfect partner for the refillable Air Force aluminium spray bottle! This alkaline, labelling-free cleaner is a must-have for your manual surface cleaning, as it **delivers powerful cleaning performance whilst leaving minimal residue.**
**Available in 3-litre refill canisters, 20 L, 200 L und 1000 L containers.**




- **REMOVES oils, greases, abrasion marks, grinding dust, release agents and adhesive residues**
- **CLEANS steel, stainless steel, aluminium, plastic and painted surfaces**
- **Safe: no labelling required, VOC-reduced in accordance with the CLP Regulation**
- **Non-foaming**
- **Pleasant menthol scent**

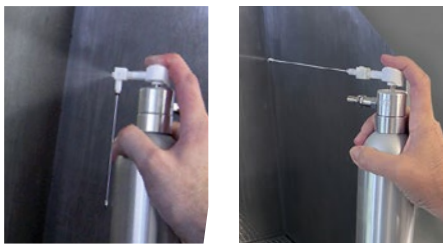
**APPLICATIONS:** Metalworking/CNC, automotive, plastics processing, trades, maintenance

**Spray on – leave to take effect – wipe off**

# AIR FORCE

## Sustainably good: the refillable spray can!

From the canister into the spray can – that's the new approach to manual surface cleaning. No more spray can waste; use as usual at the touch of a button.



Spray over large areas – apply precisely where needed




**The perfect combination – Air Force & AF Clean!**
**With compressed air and cleaner, you can do without flammable propellants.**

- **Unscrew the spray can – pour in the cleaner – screw it back on – fill with compressed air – done!**
- **at the touch of a button**
  - **→ Fine spray mist for large areas**
  - **→ Flush and rinse with a precision capillary tube**
- **Precise, accurate, overhead, ideal for blind holes**

- **AF Clean: no labelling required, low residue**
- **Spray on – leave to work – wipe away**

- **For all non-labelled products from Bio-Circle**

**APPLICATIONS:** Metalworking, plastics processing, trades, rail maintenance and, in general: as a substitute for brake cleaner, pre-treatment and final cleaning, cleaning large surfaces, components such as engine blocks with narrow gaps, overhead work and much more.
To top up the compressed air, a tyre inflator with an adapter (for cars) is required; recommended pressure: up to 6.3 bar

# Smoke Resin Remover DB SAP 667 836

VOC free!

Phosphate- and solvent-free **intensive cleaner with germ-reducing properties** for cleaning and degreasing (highly concentrated, dilutable with water up to a ratio of 1:100). For removing the most stubborn soiling, such as resinified and cracked greases and oils, and ball and roller bearing greases. Raising the cleaning temperature to the optimum 60 °C shortens the cleaning time. The cleaner contains a corrosion inhibitor for components susceptible to corrosion. **Available in 20 L, 200 L und 1000 L.**

**COST-EFFECTIVE**
- ▶ High cleaning performance
- ▶ Can be diluted

**ENVIRONMENTALLY FRIENDLY**
- ▶ VOC-free
- ▶ Biodegradable in accordance with EU directives

**PROFESSIONAL**
- ▶ Approved by DB AG
- ▶ System application

**APPLICATIONS:**
- Cleaning of air filters, roller bearings and gearbox housings
- Removal of caked-on greases and oils from steel and castings
- Professional
- For the mechanical removal of the heaviest soiling, such as rolling element and roller bearing greases – approved by Deutsche Bahn AG





# ALUSTAR 300 SAP 799 125

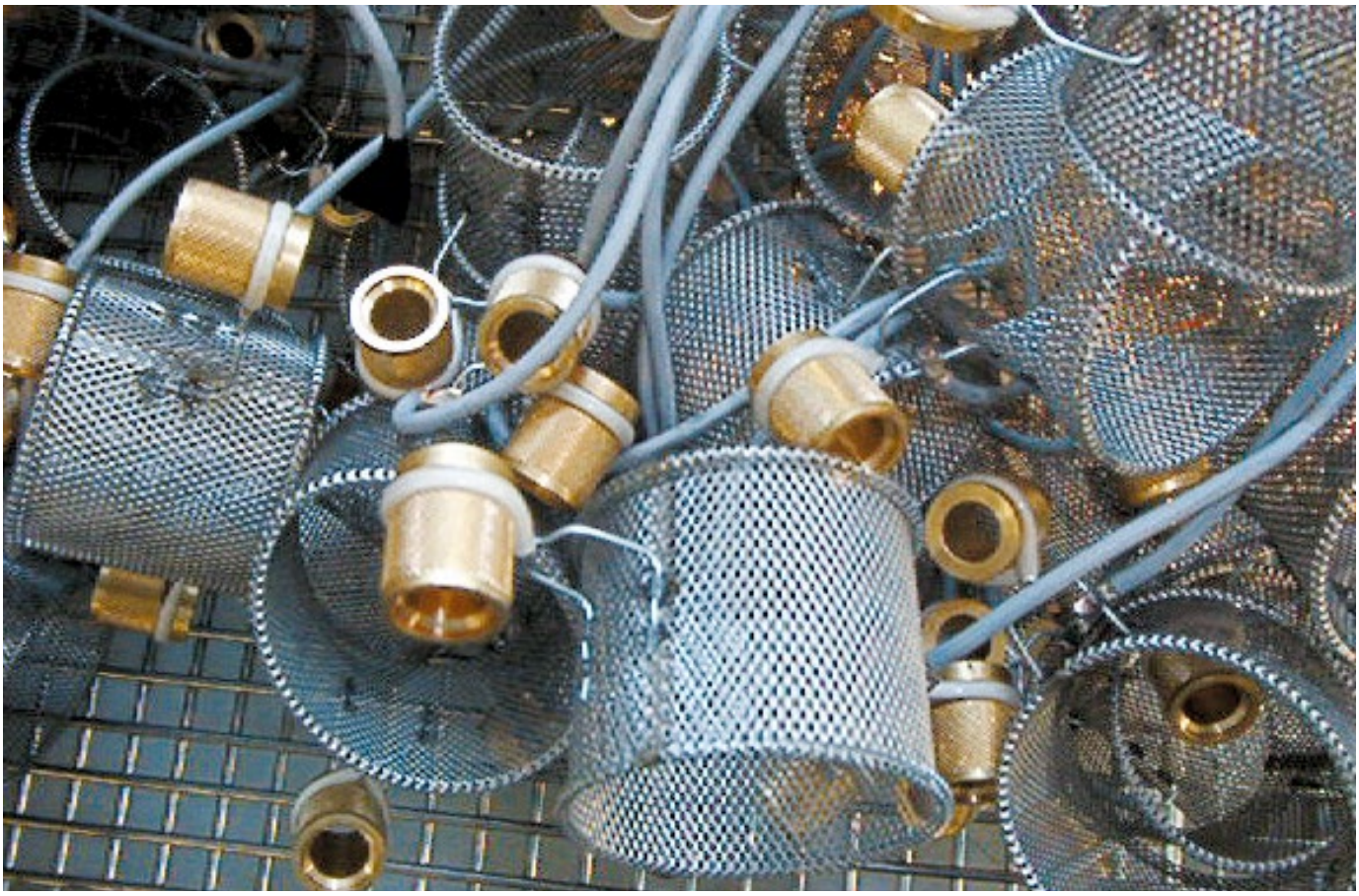
VOC free!

Professional, liquid, highly concentrated **cleaner and degreaser for the mechanical cleaning and degreasing of parts.** Suitable for use as a highly alkaline cleaner in maintenance and repair work, as well as a substitute for solvents. Suitable for use on aluminium and brass components.
**Available in 20 L, 200 L und 1000 L Containers.**

- **Compatible with oil separators**
- **Demulsifying – entrained oil and grease can be removed by mechanical methods (e.g. plate-type phase separators)**
- **Very low application concentrations (from 1 per cent)**
- **Formulated to minimise foaming**
- **High dirt-carrying capacity**
- **Optimum cleaning temperature is 60 °C**

**APPLICATIONS:** • universell – manuell und Machinell einsetzbar (z. B. in Hochdruckreinigern, Teile-Reinigungsanlagen und Ultraschall-Reinigungsgeräten)

**Note:**
We will be happy to send you titration instructions and curves for determining concentration we will be happy to send to you!



# UNO W SAP 816 650

VOC free!

Aqueous, phosphate-free, alkaline workshop cleaner containing selected low-foaming surfactants (highly concentrated, dilutable with water up to a ratio of 1:40) for cleaning and degreasing machinery, tools, workshop equipment, floors, chassis, vehicles, etc. (Corrosion inhibitors guarantee temporary corrosion protection). Powerfully removes oils, greases, resins, waxes, nicotine, insect residue, food residues, soot, bitumen and tar splashes, etc. from metal, plastic, tiles, wood, rubber, coated floors, etc. (gentle on materials and non-abrasive).
**Available in 1 l, 20 L, 200 L und 1000 L Containers.**

- **Non-flammable, can be heated to 90 °C, speeds up the cleaning process**
- **Universal cleaner for workshops**
- **Product description in accordance with ÖNORM**
- **Aqueous, alkaline, phosphate-free surfactant cleaner**
- **Suitable for manual use**
- **For cleaning and degreasing machinery, tools, etc.**
- **Dissolves greases, resins, waxes, nicotine, insect residue, soot, bitumen and tar splashes, etc.**
- **Compatible with oil separators**

**APPLICATIONS:** • Can be used not only for manual cleaning but also in floor cleaning machines, high-pressure washers, spray-extraction machines and hot-water parts washers



| Use UNO W | | | | | |
|---|---|---|---|---|---|
| Recommended application concentration | 1:40 | 1:30 | 1:20 | 1:10 | concentrated |
| Aluminium parts | ● | | | | |
| Work pits | | | | ● | |
| Car headliners | | | | ● | |
| Bitumen splatter | | | | | ● |
| Buses | | ● | | | |
| Chrome | | ● | | | |
| Diesel residues | | | | ● | |
| Stainless steel degreasing | | ● | ● | ● | ● |
| Grease | | | | | ● |
| Fly droppings | | | | ● | |
| Forklift | | ● | | | |
| Hard floors | | | | ● | |
| Plastic parts | | ● | | | |
| Plastic flooring | | ● | | | |
| Lorry | | | | ● | |
| Lorry tarpaulins | | | | ● | |
| Machinery | | | | ● | |
| Nicotine | | | | ● | |
| Oil | | | | ● | |
| Oil residues | | | | ● | |
| Oil-contaminated engines | | | | ● | |
| Spare parts | ● | ● | ● | ● | |
| Soot | | | | | ● |
| Steel degreasing | | | ● | | ● |
| Gates | | ● | ● | ● | ● |
| Workshop equipment | | ● | | | |
| Tools | | ● | ● | ● | |
| Machine tools | | ● | | | |
| Tent tarpaulins | ● | | | | |

| | |
|---|---|
| High-pressure cleaners | 3 – 5 % |
| Floor cleaning machines | 3 – 10 % |
| HTW | 3 – 10 % |
| High-pressure cleaners | 3 – 5 % |

# GS 200

GS 200 is an alternative to VOC-containing cleaners for removing bitumen, waxes, bearing grease, tar, resins and rubber residues from surfaces. The cleaner does not attack steel, aluminium or painted surfaces. It even removes burnt-on oil deposits from gearboxes and engines. The cleaner is not subject to labelling requirements, is extremely economical to use and has a flash point of over 100 °C.

**Available in 500 ml spray bottle (for manual application), as well as in 20 L, 200 L und 1000 L containers.**






**EFFICIENT**
- Extremely economical when applied to surfaces
- Slow evaporation – long contact time

**ENVIRONMENTALLY FRIENDLY**
- No labelling required
- VOC-reduced
- Reduced use of hazardous substances

# OMNI SAP 687 107

High-yield, multi-purpose spray with excellent capillary action. Forms a lubricating, non-resinous anti-corrosion film. Dissolves rust and graphite, removes hardened greases and oils, lubricates everything from hinges to pneumatic components, and protects against rust and stray currents.

**Available in 500 ml, 20 L, 200 L und 1000 L containers.**

**APPLICATIONS:**
- Indispensable for everyday use in maintenance, production and workshops
- Can also be used in immersion tanks for dewatering
- For efficient pre-cleaning of heavy resin, grease and oil contamination in the BIO-CIRCLE

**EFFICIENT**
- Extreme cleaning power
- Can be used cold or warm

**ENVIRONMENTALLY FRIENDLY**
- VOC-free
- No labelling required
- Free from hazardous substances

**SUSTAINABLE**
- Very long service life
- Made from renewable raw materials

# Power Cleaner DB SAP 155 4581

**Water-based**, phosphate- and hydrochloric acid-free **intensive cleaner** (highly concentrated, can be diluted with water up to a ratio of 1:40). When used cold, it removes cement and limescale deposits, urine scale, moss and algae, rust, as well as deposits on brass and copper, water marks and black fungal stains, whilst simultaneously reducing germs and disinfecting. The cleaner can be heated to 90 °C.
**Available in 20 L, 200 L and 1000 L containers.**

**APPLICATIONS:**
- Toilet pipe and cistern cleaning
- Vacuum toilet cleaning
- Greywater tank cleaning
- Fresh water pipe and tank cleaning
- Radiator cleaning

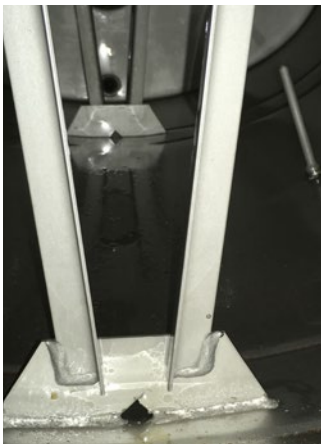
**PROFESSIONAL**
- ▶ Developed for railway-specific applications
- ▶ System applications for the entire toilet module

**COST-EFFECTIVE**
- ▶ Cleaning tasks can be repeated countless times
- ▶ One cleaner for many applications

**EMPLOYEE-FRIENDLY**
- ▶ Safe handling in accordance with AA





# Neutraliser SAP 729 798



Used to neutralise acidic cleaning baths (HTW, US, RWR). Mainly used for vacuum toilet cleaning and for cleaning pipes and containers.
**Available in 20 L and 200 L containers.**

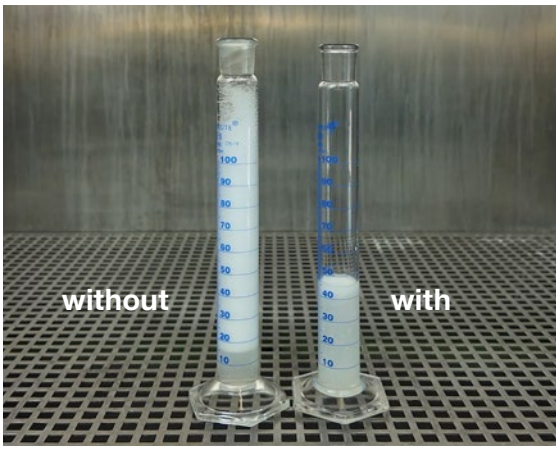
- ▶ **Highly concentrated**
- ▶ **environmentally friendly design**
- ▶ **very economical; one litre of neutraliser neutralises 2.35 L of Power Cleaner DB**

# REFILL FOR MACHINE CLEANERS

## Defoamer HT

VOC free!

- ▶ **Rapid and permanent foam elimination**
- ▶ **Contains only readily biodegradable substances**
- ▶ **For use in hot-water parts washers, etc.**




**Important:**
Mix with 2 litres of process medium and add to the system.
See label for mixing ratio

## Corrosion protection for aqueous systems

SAP 699 606

VOC free!

**Low-foaming corrosion inhibitor** for neutral and alkaline Bio-Circle cleaning agents. Contains 100% active ingredient and effectively protects bare iron and steel surfaces against corrosion. Can also be used as a rinsing medium in two-chamber systems.
**Available in 1 l, 20 L and 120 L containers.**

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- ▶ **Free from mineral oil, nitrite, PTBB and secondary amines**
- ▶ **Easily miscible with water and very economical; low application concentration**
- ▶ **Exempt from labelling requirements under the CLP Regulation**

**APPLICATIONS:** • particularly suitable as a replacement for nitrite-containing corrosion protection formulations in neutral and alkaline solutions

# Bio-Circle – the system solutions

## For rail-specific types of soiling, we have the ideal cleaning system for you.

**Bio-Circle technical consultants work with you – and, if required, with your suppliers – to develop cleaning solutions for specific applications. Here, the Bio-Circle technical consultants benefit from their many years of experience with a wide range of industrial applications. Everything from the planning of system solutions and machine development right through to the documentation of the systems takes place in close consultation between the railway staff involved and the Bio-Circle technical advisers.**

Over the last 15 years, numerous projects have been successfully implemented in collaboration with Deutsche Bahn AG. These projects involve solving cleaning tasks that require a combination of machinery, cleaning agents, maintenance, service and, where necessary, the treatment of process water or baths.
This also requires contact with railway suppliers, who provide Bio-Circle's specialist consultants with information on the technology and the materials used.

# Projects developed in collaboration with the client Deutsche Bahn AG:

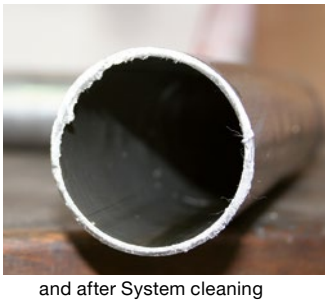
- **Cleaning and disinfection of vacuum toilet components using hot-water parts washers**
- **Bogie cleaning using a viscous, foaming cleaner**
- **Semi-automated cleaning and disinfection of fresh water tanks and pipes**
- **Removal of limescale deposits and urine scale from toilet pipework and tanks**
- **Cleaning of expanded metal filters made of stainless steel and aluminium in the hot-water parts washer**
- **Cleaning of displays and sensitive surfaces using the FT 300**
- **Filling and filtering of coolants in radiators**
- **Replacing brake cleaner with AF Clean**
- **Graffiti and tag removal with PROLAQ 400**
- **Automatic cleaning of paint spray guns with a VOC-reduced cleaner**
- **Cleaning of brake line systems using a recirculation process**
- **Cleaning and removal of old paint and brake dust using a stripper**

**Tip:**
If you require further information on system application, please contact the Bio-Circle technical advisers directly on **05241 9443-770**

The cleaning agents used in these systems have been approved by Deutsche Bahn AG and have an SAP number. All products within the system solutions are included in the framework agreement.



Vakuum-WC tube before



and after System cleaning

# Pipe and tank cleaning of toilet facilities

In the pipework leading from the vacuum toilet to the waste tank, the build-up of limescale and urine scale reduces the internal diameter of the pipes. This can lead to blockages in the pipework, which then have to be cleared manually.

In the waste tanks, deposits of limescale, paper and urine scale frequently build up in the inlet area. These are difficult to remove manually as there are internal fittings within the tanks.
The tanks are often difficult to access.

**The following business units and employees played a key role in the design of the modern SPS systems:**
Karl-Heinz Hederer (DoSto product line manager), Bernd Buggenhagen (DB Systemtechnik), Ralph Gärtner (Siemens Mobility), Monika Maluche (DB Fernverkehr AG)
and Olaf Schmeichel (Bio-Circle Surface Technology GmbH).
We would like to thank the various rolling stock maintenance companies for their kind support.

## Project description

This project brief was set for us following the development of the small 80-litre pipe and heat exchanger cleaning system and the RWR 500 DB. The cleaning of toilet pipes and waste tanks is to be carried out in a single operation and, where possible, automatically.

## Task

Feeding the cleaning agent through the toilet pipework, extracting the medium via the drain connection (often fitted with a Roediger valve). The cleaning medium is to be filtered and recirculated.

An initial prototype of the RWR 500 DB was delivered to DB Regio AG in Magdeburg in 2009.

From 2020, the RWR systems have been fitted with a SPS. The SPS-equipped RWR cleaning systems are designed for use in the toilet modules and galley areas within the waste water system. Programming the system ensures a tamper-proof cleaning process. The member of staff performs a monitoring role and comes into contact only with clean water when connecting and disconnecting the fittings. There is no contact with the cleaning agent throughout the entire cleaning process. The ‘Power Cleaner DB’ and the ‘Neutraliser’ are each used in concentrated form. Both cleaning agents have an SAP number and are specified in the framework agreement.

The RWR 500 DB A-SPS system is manufactured and distributed by Bio-Circle Surface Technology GmbH in accordance with these specifications. **All systems come with a 10-year warranty and are serviced annually.**

## Einige Referenzen für RWR 500 DB Anlagen

| | |
|---|---|
| Aachen | Cologne |
| Cottbus | Magdeburg |
| Dresden | Neumünster |
| Frankfurt | Nürnberg |
| Hamburg | Munich |
| Krefeld | Stuttgart |
| Kassel | Wittenberge |

Now over 100 plants.

## Requirements for the cleaning process

Flushing the toilet pipework and the waste tank is intended to remove urine and limescale deposits, as well as faecal matter and paper residues. Another function of the cleaner is to kill microorganisms and bacteria. The neutraliser is used to dispose of the entire medium, enabling the contaminated medium to be discharged via the public sewage treatment works. Disposal is only necessary if the cleaning medium exceeds a pH value of 3, or if it no longer meets the application requirements in terms of appearance.

## Workflow

Faecal matter is extracted using the railway's own disposal system. The faecal tank must be completely emptied and rinsed with 200 litres of water. The cleaning system is checked for the correct level of cleaning medium, then connected to the mains and switched on. The inlet hose is connected to the toilet pipe. The toilet pipe and the faecal tank are automatically flushed with water and then emptied. The tightness of the connections must be checked at this stage. The system forms a circuit and can now be filled with Power Cleaner DB once the cleaning solution has been heated to the preset temperature of 60 °C. Once the waste tank is approximately 85 per cent full, the drain pump switches on. In this way, the system circulates the cleaner through the circuit. Once cleaning is complete and the waste tank has been emptied, the system is flushed with water via the inlet hose. This flushing water is then automatically extracted and sent for separate disposal.
All hoses and connectors are disconnected. There is no risk to the employee here, as they do not come into contact with hot cleaning fluids.
The cleaning system is ready for the next cleaning task. The user is provided with a manual containing a detailed description of the system. The technical advisers at Bio-Circle Surface Technology GmbH carry out the initial training of staff on the RWR.

## Chemicals

**In order to offer a comprehensive system solution, a cleaning agent has been selected that is used for similar tasks (cleaning of vacuum toilet systems) at Deutsche Bahn AG.**

- Effective descaling (deposit-removing) and cleaning action
- Surfactants are biodegradable in accordance with the EU Directive; can be disposed of via the public sewerage system after neutralisation (see neutralisation instructions; local regulatory discharge conditions must be observed)
- Contains no additional disinfectants; disinfects via pH value and temperature (60 °C)
- Does not corrode the materials and components of pipework and tanks, including fittings
- Approved by Deutsche Bahn AG for the Power Cleaner DB (SAP 155 4581) and for the neutraliser (SAP 729 798)
- Complies with the Biological Agents Ordinance and the hygiene regulations of DB AG

## Machine

**The cleaning system is characterised by the following parameters:**

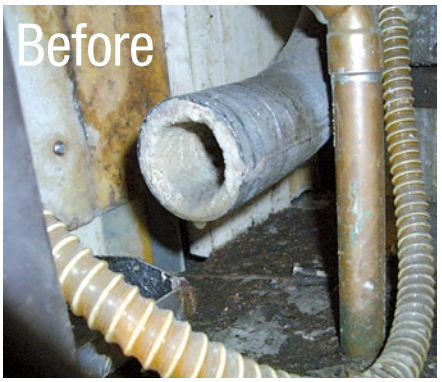
- SPS-controlled cleaning sequence, vehicle-specific
- All parts in contact with the medium, platform trolleys, control box and components are made of V2A steel
- Cleaning temperature preset to 60 °C
- Can be moved by hand, using the RWR-Mover or with a forklift
- Dry-run protection for heating and pumps
- Integrated filter systems
- Compact design, also suitable for plants with limited manoeuvring space
- Hose and cable holders
- Various connection adaptors available















# Toilet pipe and cistern cleaning with

## Power Cleaner DB SAP 155 4581

- **Approved by Deutsche Bahn AG for the cleaning of waste water and drinking water pipes and tanks**
- **Highly concentrated, low-foaming**
- **System cleaning – the cleaner and machine are designed to work together**
- **Approved by Deutsche Bahn AG**
- **Very good material compatibility**
- **Very effective disinfection**
- **Recommended for pipe and tank cleaning systems**

**Application:**
The toilet pipework is disconnected downstream of the toilet; this is where the cleaning agent is fed in. Standardised RWR connections are fitted. The return flow is routed externally on the vehicle via the standard 3” Kamlok coupling. Cleaning is carried out by circulating the cleaning agent, heated to 60 °C. The total cleaning time is 120 minutes. After cleaning, the connections are re-established and the pipe is ready for use again.

**Your benefit:**
The use of an RWR SPS requires only minimal staff involvement, as the machine operates autonomously. Connecting and disconnecting the system takes just a few minutes. Disposal of the cleaning solution can be simplified through neutralisation. The neutralised cleaning solution can then be discharged into the public sewage treatment works.

## Neutralisator DB SAP 729 798

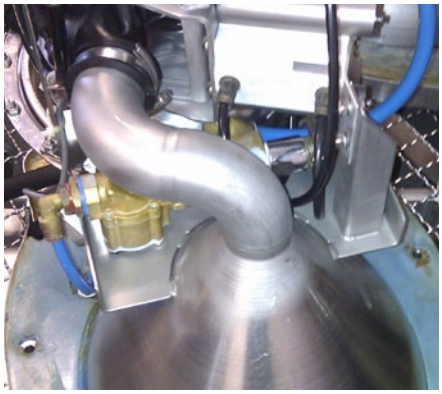
**Application:**
1 litre of Neutraliser neutralises 2.35 litres of unused Power Cleaner DB (concentrate). This neutraliser has been designed with the environment in mind and can be discharged into the sewage treatment plant provided the discharge regulations are observed.

**Your benefit:**
You save on the disposal costs of the highly acidic cleaning agent.
Easy to use, as the neutraliser is a liquid product and mixes easily.









# Cleaning of vacuum toilets with

## Power Cleaner DB SAP 155 4581

- **Highly concentrated, low-foaming**
- **System cleaning – the cleaner and machine are designed to work together**
- **High cleaning power**
- **Very effective disinfectant**
- **Easy disposal**
- **Ideal for use in ultrasonic cleaning units and spray washers**

**Application:**
Place the toilet to be cleaned into the cleaning unit. The toilet parts washer is a system tailored to the requirements of Deutsche Bahn AG. (For further information, simply give us a call.) At a concentration of 5% and a cleaning temperature of 60 °C, the washing time is 10 minutes. Turning the toilet over after 5 minutes improves the cleaning result. Spray extremely soiled areas with undiluted Power Cleaner DB. After dismantling, soak the internal parts of the toilet in undiluted Power Cleaner DB or clean them in the cleaning system.

**Your benefit:**
You can use Power Cleaner DB in a variety of ways.
You save on water and energy costs through efficient recirculation.

## Neutralisator DB SAP 729 798

**Application:**
1 litre of Neutraliser neutralises 2.35 litres of unused Power Cleaner DB (concentrate). This neutraliser has been designed with the environment in mind and can be discharged into the sewage treatment plant provided the discharge regulations are observed.

**Your benefit:**
You save on the disposal costs of the highly acidic cleaning agent.
Easy to use, as the neutraliser is a liquid product and mixes easily.

# Pipe and tank cleaning in fresh water systems

**In fresh water tanks and pipework leading to washbasins or toilets, temperature fluctuations cause limescale precipitation as well as deposits of iron and manganese. This can lead to blockages in the supply to the wash-basin or toilet.**
**The tanks are often difficult to access and consist of between one and three tanks made from a wide variety of materials. Copper, stainless steel and plastic tanks are used, as well as copper, brass and plastic pipework.**

**The following business units and employees were involved in this project:**
Herr Karl-Heinz Hederer, Design Manager for DoSto, DB Regio AG Nürnberg
Herr Olaf Schmeichel, Bio-Circle Surface Technology GmbH
Frau Monika Maluche, DB Fernverkehr AG
Herr Ralph Gärtner, Siemens Mobility GmbH
We would like to thank Deutsche Bahn AG for its kind support.

## Project description

We were tasked with this project following the development of the RWR 500 DB wastewater pipe and tank cleaning system. This system is used in many Deutsche Bahn AG depots for the cleaning and disinfection of pipes and tanks in the wastewater system of a vehicle. Eight years after the first generation of RWR fresh water systems was introduced, a redesign was carried out and a RWR was programmed – the RWR 500 DB F-RWR. As a result, the system regulates itself automatically, tailored to the specific vehicle.

## Task

Supplying the cleaning agent via the fresh water fill line, returning the cleaning agent via the second fill line or via the frost drain or the tank bottom outlet. The cleaning medium is filtered and recirculated. An initial prototype of the RWR 500 DB-F RWR was delivered to DB Regio AG in Bremen in 2017. Fresh water RWR systems have been supplied to our customers since 2010.

Various modifications to this RWR 500 DB-F SPS model were discussed and implemented during further tests. Additional tests were carried out in Düsseldorf and Dortmund. The galley area is also cleaned using the RWR 1000 DB-F SPS. All modifications that were technically feasible were discussed with the users and project staff at Deutsche Bahn AG and implemented. Comprehensive documentation of the system and the cleaning process was drawn up. This was adapted in accordance with the criteria and using the technical terminology of Deutsche Bahn AG. Once the technical modifications to the cleaning system and the documentation had been finalised, the system was approved. The ‘Power-Cleaner DB’ cleaner is mixed with water at a ratio of 1:4, whilst the ‘Neutraliser’ is used in concentrated form. Both cleaners have an SAP number and are included in the framework agreement.
The RWR 500 DB-F SPS system is manufactured and distributed by Bio-Circle Surface Technology GmbH in accordance with these specifications.

## Some references for RWR 500 DB-F SPS systems

DB Regio AG Bremen
DB Regio AG Dortmund
DB Fernverkehr Frankfurt
DB Fernverkehr Berlin
DB Fahrzeuginstandhaltung GmbH Cottbus
DB Fahrzeuginstandhaltung GmbH Krefeld
and over 25 first-generation systems in operation.



## Requirements for the cleaning process

The cleaner is used to remove contaminants from the tank and pipework and to disinfect the system. After rinsing with drinking water, no residues of the cleaner are detectable. Another function of the cleaner is to remove algae and to kill microorganisms and bacteria. The neutraliser is used to dispose of the entire cleaning medium so that the contaminated medium can be discharged via the public sewage treatment works. Disposal is only necessary if the cleaning medium exceeds a pH value of 3, or if it no longer meets the application requirements in terms of appearance.

## Workflow

The drinking water tank must be completely emptied. The cleaning system is connected to the mains and switched on. The level of the cleaning medium is monitored electronically. The inlet hose is connected to the fresh water inlet. Return hose 1 is connected to the fresh water tank and return hose 2 to the opposite inlet. The system forms a circuit and can be filled with Power-Cleaner DB once the cleaning solution has been heated to the preset temperature of 60 °C. The cleaning process begins with a so-called 'bottom flush', during which the cleaning solution is fed in via the inlet and returned to the system via the return line. Following this initial flush, which rinses out loose particles, the system is flushed whilst full. This is carried out by feeding water through inlet connection 1 and returning it via the frost drain. In this way, the system circulates the cleaning agent. The RWR automatically switches between the cleaning agent and water for flushing. The system is flushed with water via the inlet hose. This rinse water is then discharged. Once the pH value of the drinking water matches that of the supplied drinking water, the rinsing can be stopped. The inlet is disconnected. There is no risk to the operator here, as they do not come into contact with hot cleaning fluids. The RWR 500 DB-F SPS is ready for the next cleaning task.

## Chemicals

In order to offer a comprehensive system solution, a cleaning agent has been incorporated which is used by Deutsche Bahn AG for similar tasks (cleaning of vacuum toilet systems and waste water pipes and tanks).

- Effective descaling (deposit-removing) and cleaning action
- Biodegradable in accordance with the EC Directive; may therefore be disposed of via the public sewerage system after neutralisation (see neutralisation instructions)
- Contains no additional disinfectants; disinfects via pH value and temperature (60 °C)
- Does not corrode the materials and components of pipework and tanks, including fittings
- Approved by DB AG: SAP 155 4581 for the Power Cleaner DB and SAP 729 798 for the neutraliser

## Machine

**The cleaning system is characterised by the following parameters:**

- All parts in contact with the medium, platform trolleys, control box and components are made of V2A steel
- SPS-controlled cleaning cycle, vehicle-specific
- Cleaning temperature preset to 60 °C
- Can be moved manually, using the RWR Mover or a forklift
- Dry-run protection for heating and pumps
- Integrated filter systems
- Compact design, also suitable for plants with limited manoeuvring space
- Hose and cable holders
- Various connection adaptors and return systems available










# Cleaning oily and greasy components with the BIO-CIRCLE

## BIO-CIRCLE L Ultra SAP 1135 664

**COST-EFFECTIVE**
- ▶ Recirculation system
- ▶ Consistent cleaning quality

**ENVIRONMENTALLY FRIENDLY**
- ▶ VOC-reduced
- ▶ Biodegradable

**EMPLOYEE-FRIENDLY**
- ▶ No labelling required
- ▶ Special sizes available
- ▶ quick and easy

**Application:**
Clean heavily soiled, oily and greasy parts with a brush, applying light pressure. The contaminants are quickly and easily loosened and washed away by the flow of the cleaner. The cleaning time is between 2 and 5 minutes. Many other types of contaminants, such as greases, oils, resins and environmental pollutants, can be easily cleaned in this way.

**Your benefit:**
Simple and quick cleaning of components with various types of contamination, such as oils, greases, soot and even rubber abrasion, can be removed from metals and plastics. Long service life thanks to microbiological oil degradation. A cleaning system that is safe for staff and the environment, for which we offer a special Bio-Circle maintenance service.

**Note:**
High-gloss aluminium surfaces should only be cleaned very gently or with our soft brush, and then rinsed with demineralised water!

*Cleaning of oil-contaminated parts in the BIO-CIRCLE GT-i*





*Stainless steel attachment G60030-18-i*
*Optional extra: with two brush connections*







# Cleaning bearing and gearbox components – manually and automatically

## CB 100 Alu SAP 112 5344

**ENVIRONMENTALLY FRIENDLY**
- ▶ VOC-free
- ▶ Long bath service life
- ▶ Based on renewable raw materials

**EMPLOYEE-FRIENDLY**
- ▶ No labelling required
- ▶ Pleasant odour

**COST-EFFECTIVE**
- ▶ Recirculation system
- ▶ Cleaning at 55 °C

**Application:**
Effectively clean and protect contaminated components from corrosion in the Bio-Circle BIO-CIRCLE Turbo wash basin or in the hot-water parts washer. The grease is liquefied by the cleaner and drains out of the roller bearing, even from behind the cage. A liquid film of grease forms on the cleaning bath in the cleaning system; this can be extracted and disposed of.





# Cleaning of components with brake dust deposits and the heaviest oil contamination

## ALUSTAR 500 SAP 1358 603

VOC free!



vorher

- ▶ **Biodegradable in accordance with the EU Directive**
- ▶ **Not classified as a hazardous substance**
- ▶ **Can be cleaned at low washing temperatures**
- ▶ **Miscible with water**
- ▶ **pH-neutral**
- ▶ **Compatible with aluminium**

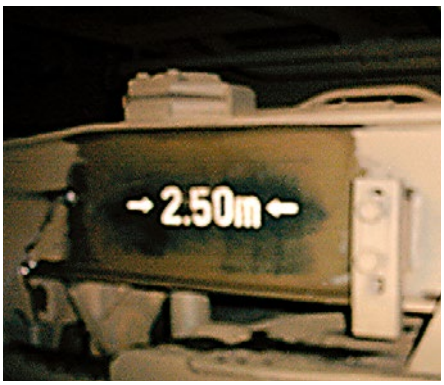


nachher

**Application:**
Place the components to be cleaned into the Bio-Circle Turbo to allow the first stage of cleaning to run automatically. Following the cleaning cycle, which lasts approx. 30–60 minutes, the deeper channels and blind holes are cleaned in the Bio-Circle Turbo using the spot jet nozzle. After this manual cleaning, the components are blown dry with compressed air inside the unit. This is followed by a final cleaning cycle of approx. 30 minutes in the ultrasonic cleaning bath. All cleaning cleaning steps are carried out using the same cleaning agent at the same concentration. The components are then blown dry with compressed air.



**Your benefit:**
Less manual cleaning with brake cleaners, some of which are hazardous.
Energy cost savings through cleaning at 55 °C
Long service life of the cleaner thanks to our machine maintenance service.



Chassis markings



Cleaning hazard signs


Floor cleaning

# Chassis and floor cleaning with

## UNO W SAP 816 650

- **Designed for Deutsche Bahn AG workshops**
- **Free from complexing agents and therefore suitable for both new and old water treatment systems**
- **Tested to be compatible with oil separators**
- **Low-foaming**
- **Slightly viscous**
- **Warning and information signs become visible again**

**Application:**
Simply spray UNO W onto the surface to be cleaned. Wipe smooth surfaces with an absorbent cloth. Treat textured surfaces, such as compressed air valves, with a brush and rinse off the loosened dirt with clean water.
Compatibility – suitable for all painted surfaces, plastic, glass, concrete and metal. Removes oils, greases, resins, waxes, soot, abrasion marks, environmental contamination and bitumen splashes.
Suitable for all workshop facilities, floors, doors, windows, machinery, equipment and vehicles. UNO W can be used on the chassis of locomotives and carriages without damaging the surfaces or removing material (see certificate below).

**Your benefit:**
One product for a wide range of applications. Wastewater disposal made easy. Effective cleaning with viscous cleaning agents.


Die Bahn DB

Workshop Cleaner (UNO W) – Approved by Deutsche Bahn AG

# SMALL $CO_2$ FOOTPRINT

in industrial cleaning

## We'll make sure of that: Of course!

**TRANSPORT** ✓
- Short distances
- $CO_2$-neutral forwarders
- Preferably regional suppliers

**PRODUCTION** ✓
- Consciously sustainable selection of raw materials
- Focus of product development on recycling management
- Self-generated energy

**PACKAGING** ✓
- Refill
- Recycled packaging
- Preferably regional suppliers



## Cleaning process with you:

**Up to 75 % of the $CO_2$ footprint of your cleaning process consists only of the pure application!**

**We reduce the footprint of your application through:**

**Application consulting** ✓

**Process optimisation** ✓

**Bio-Circle products** ✓

Bio-Circle Surface Technology – the team of experts with more than 35 years of experience.

# References: Deutsche Bahn AG*

### Vacuum toilet cleaning
**Dortmund**
**Hamburg**
**Köln**
**München**
**Wittenberge**

### Cleaning of toilet pipework and cisterns
**Aachen**
**Cottbus**
**Hamburg**
**Kaiserslautern**
**Köln**
**Krefeld**
**Magdeburg**
**München**
**Münster**
**Neumünster**
**Ulm**
**Wittenberge**

### Cleaning of fresh water pipes and tanks
**Cottbus**
**Frankfurt a.M.**
**Hamburg**
**Kassel**
**München**
**Neumünster**
**Nürnberg**

### Vacuum ventricle cleaning
**DB FZI Wittenberge**
**DB Regio München**

### Cleaning and protecting pneumatic components in doors
**München**
**Neumünster**

### BIO-CIRCLE Parts Washer
**Braunschweig**
**Cottbus**
**Hannover**
**Hamburg**
**Krefeld**
**Neumünster**
**Nürnberg**

### Cleaning of bogies and engines
**Bremen**
**Cottbus**
**Krefeld**

### Cleaning of roller bearings
**Cottbus**
**Hamburg**

### Cleaning of paint spray guns
**Cottbus**
**Hamburg**
**Krefeld**

* Only a few locations are listed here.

## SAP Numbers

| | |
|---|---|
| AF-Clean | **SAP 1451 191** |
| ALUSTAR 300 | **SAP 799 125** |
| ALUSTAR 500 | **SAP 1358 603** |
| BIO-CIRCLE Liquid | **SAP 935 968** |
| BIO-CIRCLE Liquid Evo | |
| BIO-CIRCLE Liquid Ultra | **SAP 1135 664** |
| CB 100 Alu | **SAP 1125 344** |
| Defoamer, silicone-free | **SAP 1438 965** |
| FT 300 | **SAP 1442 115** |
| GS 200 | |
| Corrosion protection f. water systems | **SAP 699 606** |
| Neutraliser | **SAP 729 798** |
| OMNI | **SAP 687 107** |
| Power Cleaner DB | **SAP 155 4581** |
| PROLAQ L 400 | **SAP 1358 955** |
| PROLAQ L 500 | **SAP 1215 293** |
| Smoke Resin Remover DB | **SAP 667 836** |
| STAR Future V | **SAP 1125 212** |
| STAR Future V Strong | **SAP 1173 271** |
| UNO W | **SAP 816 650** |

# A STRONG GLOBAL PARTNER:

BIO-CIRCLE®

- ▶ CLEANING
- ▶ PROTECTING
- ▶ LUBRICATING
- ▶ WELDING

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## Present around the globe

Our products are sold and used in 63 countries. We have a global network of own subsidiaries, production sites, and trade partners.

