

# MAINTENANCE

## CLEANING SYSTEMS for the railroad



MAKING GREEN WORK.



## PROLAQ

### Cleaning of varnishing systems and tools

The PROLAQ product range revolutionizes the cleaning of all varnish application- and varnish processing tools. The PROLAQ L cleaners can be used in manual and mechanical applications and score with their reduced VOC content and excellent cleaning performance. The PROLAQ Compact and PROLAQ Auto cleaning systems feature plenty of details that facilitate the work process and contribute to a cost-effective way of working. The 3-stage treatment with coarse filter, sedimentation tank and fine filter extends the cleaners' service life. Praxis analyses show that this system allows the cleaner to be reused 5 to 10 times.

### PROLAQ Compact



*Manual cleaning system for all varnish application- and varnish processing tools*



### PROLAQ Auto



*The manual and automatic cleaning station*



# The PROLAQ L range

The PROLAQ L cleaners impress with their incredibly strong cleaning performance. The safe, eco-compatible cleaners remove wet paint, varnish and printing ink. Wherever pre-cleaning used to be done with cellulose thinner, or cleaning used to be done with fresh solvents such as acetone, PROLAQ L provides a remedy. No more unpleasant odours, no fire hazard, no environmental hazard. The VOC-reduced cleaners advocate employee protection and occupational health and safety. The powerful PROLAQ L cleaners are just as efficient as conventional cleaners. They have been tested with solvent – as well as with water-based varnishes. In addition, they are recyclable, which makes them reusable.

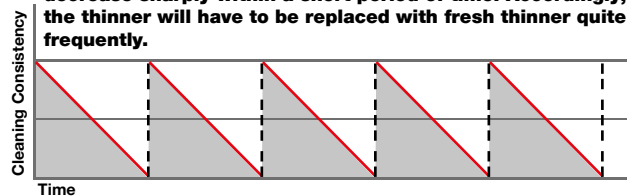


**Individual customer benefits**

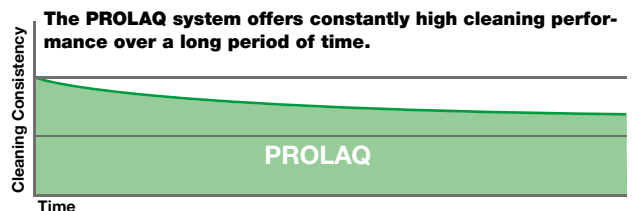
- ▶ **Cleaning performance**
- ▶ **VOC reduction**
- ▶ **Workplace safety**
- ▶ **Professional cleaning system**

## CLEANING CONSISTENCY

The cleaning performance of conventional solvents will decrease sharply within a short period of time. Accordingly, the thinner will have to be replaced with fresh thinner quite frequently.



The PROLAQ system offers constantly high cleaning performance over a long period of time.



## PROLAQ L 500

*VOC-reduced varnish remover*

- ▶ Primarily for varnish and paint containing solvents
- ▶ For mechanical and manual use
- ▶ VOC-reduced (EC: < 20 % VOC content)
- ▶ Cleans filters, brushes, paint rollers
- ▶ For the cleaning of different varnishing systems
- ▶ Cleans hose sets, gravity fed paint guns and all sorts of varnish equipment
- ▶ Recyclable
- ▶ Non-flammable

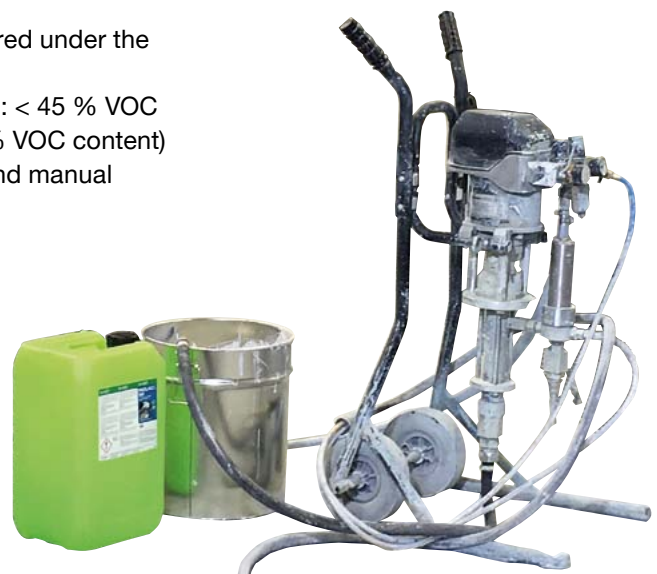
## PROLAQ L 400

*Label-free, solvent-based varnish remover*

- ▶ Effectively removes undried varnishes, inks and printing inks from paint guns, rollers, pumps, etc.
- ▶ Low-residue
- ▶ No labelling required under the CLP Regulation
- ▶ VOC-reduced (EC: < 45 % VOC content; CH: 16 % VOC content)
- ▶ For mechanical and manual applications
- ▶ Recyclable
- ▶ Non-flammable



**Tip:**  
Ideal also to remove graffiti from trains and wagons!





# BIO-CIRCLE parts cleaning

*natural – simple – profitable*



The acclaimed BIO-CIRCLE parts washers are true specialists. They clean without solvents and cold cleaners, thus protecting both the employee and the environment from highly volatile vapours. With its comfortable and easy to operate design details and the huge variety of accessories the BIO-CIRCLE provides you with a long-term solution for convincing parts cleaning on a natural basis.

#### COST EFFICIENT

- ▶ Closed-loop system
- ▶ Consistent cleaning performance





#### ECO-FRIENDLY

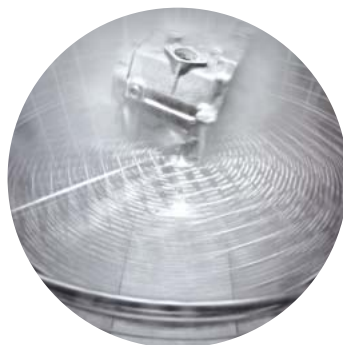
- ▶ VOC-reduced
- ▶ Biodegradable

#### EMPLOYEE-FRIENDLY

- ▶ Label-free
- ▶ Special dimensions available
- ▶ Fast and easy



				
	<b>BIO-CIRCLE GT Compact</b>	<b>BIO-CIRCLE GT Maxi</b>	<b>HP Vigo</b>	<b>BIO-CIRCLE Turbo</b>
<b>Work surface (W x D)</b>	approx. 700 x 480 mm	approx. 810 x 520 mm	approx. 954/1031 mm	Ø 775 mm
<b>Payload</b>	100 kg	250 kg	150 kg	150 kg
<b>Working height</b>	970/800 mm	1030/860 mm	972.5 +/- 25 mm	900 mm
<b>Operating temperature</b>	factory-set at 15 – 45 °C, approx. 41 °C	factory-set at 15 – 45 °C, approx. 41 °C	factory-set at 0 – 45 °C	factory-set at 50 °C variable 40 – 60 °C
<b>Heating</b>	approx. 650 W	approx. 650 W	approx. 2.05 kW	approx. 4.5 kW
<b>Pump</b>	40 W	40 W	approx. 2 kW	approx. 2.2 kW
<b>Optimum filling quantity</b>	90 litres	100 litres	90 litres	180 litres
<b>Material</b>	LDPE	LDPE	Stainless steel	Stainless steel
<b>Empty weight</b>	approx. 45 kg	approx. 60 kg	approx. 195 kg	approx. 330 kg
<b>Power supply</b>	230 V, 50 Hz	230 V, 50 Hz	230 V / 50 Hz	400 V, 50 Hz



COMING SOON:



BIO-CIRCLE Turbo: 2 in 1 –automatic and manual cleaning

\* The used micro-organisms are non-pathogenic bacteria of group 1 acc. to Directive 2000/54/EC.

(Group 1 means that it is unlikely to cause human disease).



# HP Vigo

*fast – natural – powerful*



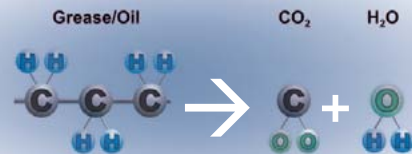
- ▶ Manual cleaning with lid closed
- ▶ Cleaning temperature adjustable up to 45 °C
- ▶ Operating pressure adjustable up to 80 bar, optimum handling via a high-pressure nozzle
- ▶ Compressed-air pistol for drying the parts
- ▶ Payload up to 150 kg
- ▶ Integrated oxygen supply
- ▶ Significantly longer bath service life due to microorganisms
- ▶ Switching off at low level via a float switch (protection of the heating element and pump)
- ▶ Optimal low-foaming cleaners and degreasers:
  - ▶ BIO-CIRCLE L Evo and CB 100
  - ▶ VOC- and label-free
- ▶ Increase of occupational safety, reduction of operating costs

## BIO-CIRCLE L Evo

- ▶ For medium to heavy contaminations
- ▶ Environmentally friendly and safe
- ▶ For manual and mechanical use:
  - in BIO-CIRCLE parts washers with brush, parts washing machines and high-pressure parts washers
- ▶ Cleans virtually all materials:
  - aluminium, zinc-plated surfaces and non-ferrous metals as well as steel/stainless steel and plastics (such as PE)

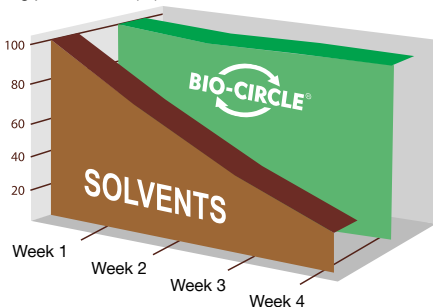


Nonfood Compounds Program Listed (A1) Registration # 146757



### CLEANING CONSISTENCY

Cleaning performance (%)





# CLEAN BOX

The innovative mobile pre-cleaning concept.



- ▶ Fast and efficient pre-cleaning
- ▶ Time saving
- ▶ Process optimization



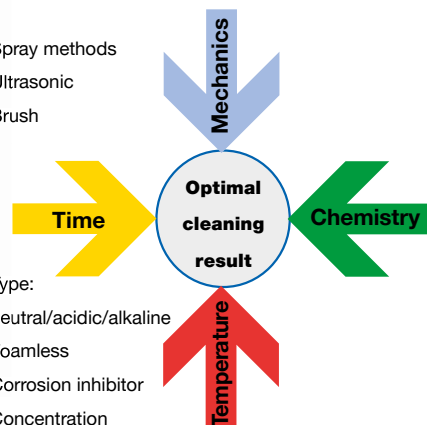
CLEAN BOX – 180° turn for convenient draining and emptying.

## CLEAN BOX Max 1, Max 2 and Flex

The perfect solution for M, L, and XL parts. Easy removal of oil, grease and dirt at ambient temperature – a resource-friendly circulation system.



- Spray methods
- Ultrasonic
- Brush



- Type: neutral/acidic/alkaline
- Foamless
- Corrosion inhibitor
- Concentration

**longer**

- ▶ Constant high cleaning performance
- ▶ 5-10 longer lifetime than traditional solvents

**stronger**

- ▶ Lifts the grease from the surface
- ▶ Superior degreasing performance

**safe**

- ▶ Convenient for the operator
- ▶ VOC-free



# Efficient cleaning of bearings and heavily contaminated train parts



*Efficient cleaner made from renewable raw materials*

CB 100 is the cleaner that benefits from the power of Nature. The water-based cleaner with its pleasant scent is produced from renewable raw materials derived from recycled products. These natural active substances provide the cleaner with its strong dissolving powers. The surface remains unaffected, and the original finish is restored.



## CB 100

*Efficient cleaner made from renewable raw materials*

- ▶ Water-based, phosphate- and solvent-free cleaner, low-foaming
- ▶ For the removal of strong contaminations, such as special greases that are difficult to remove, rubber marks, bitumen- and wax residues, oils and pastes
- ▶ Maintenance of engines
- ▶ Strong dissolving power with constantly good cleaning performance over a long time
- ▶ Long service life
- ▶ Recyclable
- ▶ Replacement of paraffin and solvents
- ▶ No labelling required under the CLP Regulation
- ▶ For manual and mechanical use



## CB 100 Alu

*Cleaner and degreaser with special aluminium formula*

- ▶ Protects aluminium and brass
- ▶ For manual and mechanical cleaning
- ▶ No tarnishing of materials on components and such
- ▶ High dissolving power for persistent greases and contaminations
- ▶ Efficient corrosion protection
- ▶ Good cleaning results even at ambient temperature
- ▶ Can be heated to 40°C/104°F
- ▶ Replacement of paraffin in cleaning
- ▶ No labelling required under the CLP Regulation



## ALUSTAR 200

*Cleaner for medium and strong contaminations*

- ▶ Alkaline water-based cleaner and degreaser
- ▶ Suitable for mechanical applications
- ▶ Removes strong grease-, oil- and pigment contaminations
- ▶ Ideal for aluminium, galvanized surfaces, non-ferrous metals, and all other alkali-resistant surfaces
- ▶ Can be used in a cold state (Clean Blue Efficiency)



Norfood Compounds  
Program Listed (C1)  
Registration # 146719



BIO-CIRCLE Turbo 1200





# Efficient cleaning of bogies and electric motors

## UNO S F

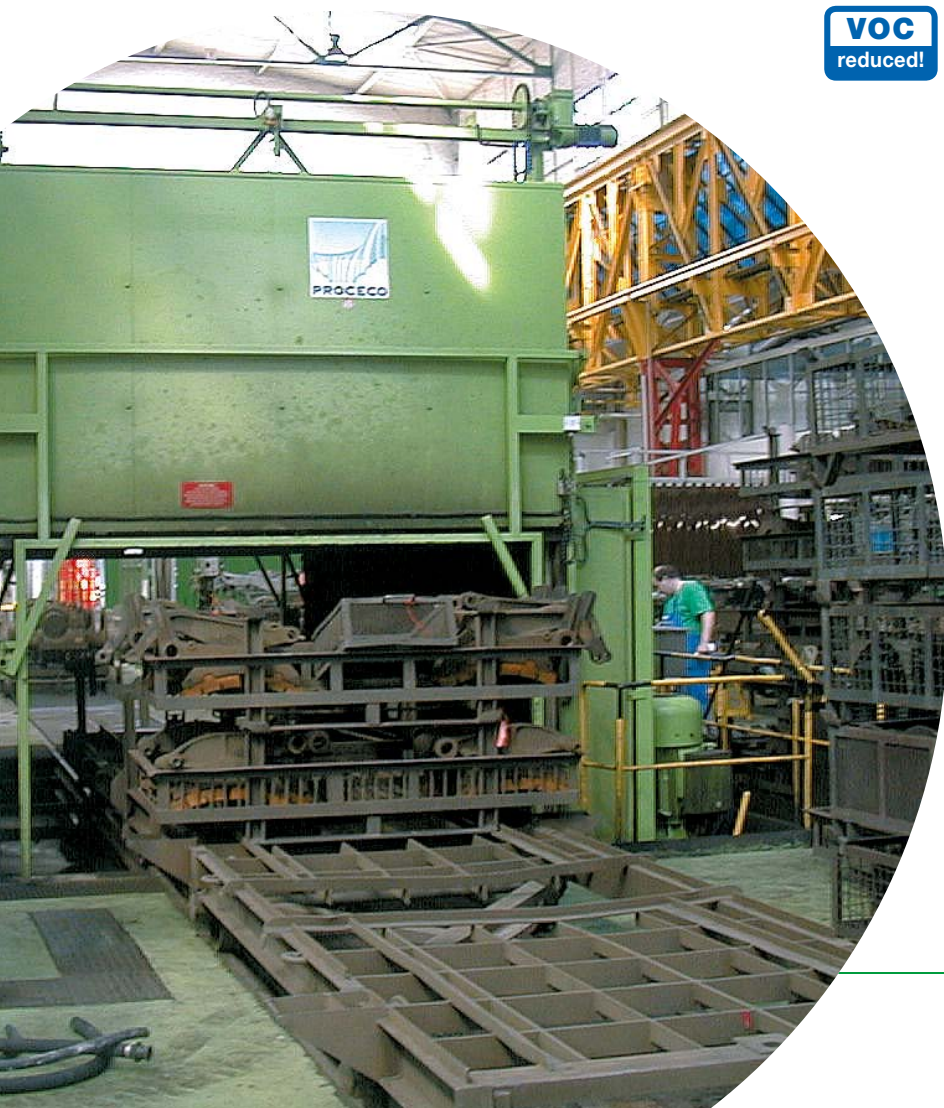
*Low-foaming cleaner and degreaser*

UNO S F is an aqueous phosphate-free and VOC-reduced cleaner and degreaser (highly concentrated, dilutable to 1:40) for removing environmental dirt, oil-, grease- and protein residues (insects, blood etc.) from surfaces made of metal, wood, plastic, ceramics and many more. UNO S F remains powerful and active for a long time. Heating up to 90 °C will increase the cleaning performance. UNO S F is the ideal product for automatic hot water parts washers, ultrasonic devices, jet cleaners and floor cleaning machines.

- ▶ **Long lifetime (demulsifying) – cost effective**
- ▶ **Non-hazardous**
- ▶ **Surfactants are biodegradable in accordance with European Regulation**
- ▶ **Compatible with oil separators**

**Fields of use**

- Removal of brake dust and environmental dirt from bogies, signs and train bodies
- Maintenance of electric motors
- Removal of insects, blood and proteins from power cars
- Floor cleaning and general cleaning of machines and train parts



Nonfood Compounds  
Program Listed (A1)  
Registration # 144386



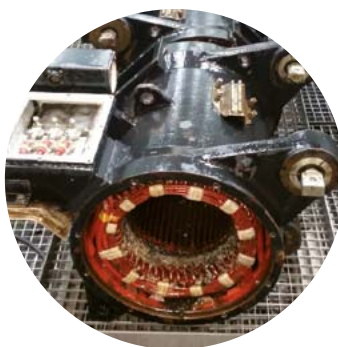




# STAR FUTURE V und UNO X

*Efficient cleaning of bogies and electric motors*

STAR FUTURE V and UNO X are viscous, foaming aqueous solvent-free cleaners for removing environmental dirt, dust, oil, grease and soot from bogies, electric motors and similarly contaminated steel parts. Both cleaners should be used highly concentrated or diluted up to 1:10 with water. We recommend using a foam gun when applying both STAR FUTURE V and UNO X. Since the cleaners are viscous and foaming, they adhere very well to vertical surfaces. This grants an advanced cleaning result, while keeping the usage of cleaners, wastewater and overall costs low.



## UNO X

*Extreme gel foam cleaner for bogies and electric motors*

- ▶ phosphate and solvent free
- ▶ minimize consumption by strong foam
- ▶ extremely powerful by long contact time
- ▶ to remove coal, dust, fat, and strongly adhering pollution



## STAR FUTURE V

*Intensive gel foam cleaner for vertical surfaces*

- ▶ for degreasing of machines, tools and vehicles
- ▶ dissolves brake dust, oils, greases, resins, waxes, nicotine, insect dirt, tar splashes etc.
- ▶ powerful and effective by gel foam





# BIO-CIRCLE pipe and tank cleaning device

*Cleaning system for pipes, tanks and heat exchangers*

Completely made of stainless steel, the BIO-CIRCLE pipe and tank cleaning device has been designed especially for the cleaning and flushing of contaminated pipes, wastewater tanks, freshwater pipes and tanks, heat exchangers and coolers. With the bio-chem Power Cleaner DB cleaning fluid contaminations such as urine scale, limescale and corrosion can be removed efficiently, benefiting from a simultaneous antibacterial effect. The CB 100 cleaning fluids can be relied on to remove greases, oils and carbonized oil.



	RWR 80 I	RWR 500 DB-A	RWR 500 DB-F
<b>Dimensions</b>	1200 x 720 x 940	2300 x 1200 mm (l x b)	2300 x 1200 mm (l x b)
<b>Fluid tank capacity</b>	80 L 600 x 400 x 600	500 L with drain for easy emptying	500 L with drain for easy emptying
<b>Feed pump</b>	Centrifugal pump 2.5 m <sup>3</sup> /h 0,55 kW	Up to 15 m <sup>3</sup> /h (continuously adjustable via ball cock)	Up to 15 m <sup>3</sup> /h (continuously adjustable via ball cock)
<b>Return flow pump</b>	-	Vogelsang pump, up to 15 m <sup>3</sup> /h (continuously adjustable via manual gearbox with digital speed indicator)	Up to 15 m <sup>3</sup> /h (continuously adjustable via ball cock)
<b>Power supply</b>	380V, 16 A heating 4.5kW	400V, 32A, 22kW heating 2 x 9kW	400V, 32A, 22kW heating 2 x 9kW
<b>Stainless steel heating</b>	60 °C	adjustable up to 90 °C, factory-set to optimal 60 °C	adjustable up to 90 °C, factory-set to optimal 60 °C
<b>Hose connections</b>	Inlet: 1" Escape: 1"	Inlet: 1" Escape: 1½"	Inlet: 1" Escape: 1"
<b>Total weight</b>	110 kg	440 kg	325 kg



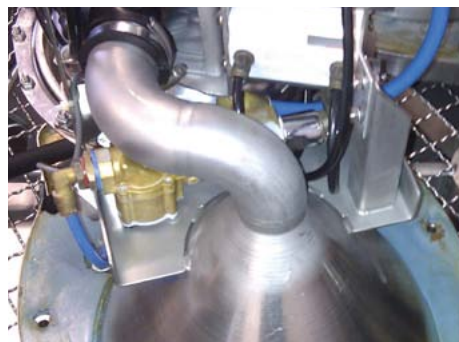
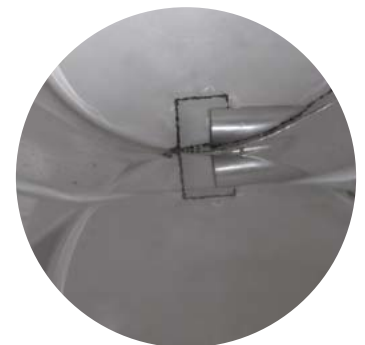
# Power Cleaner DB

*Powerful, water-based acidic cleaner*

Phosphate- and hydrochloric acid-free water-based intensive cleaner (highly concentrated, can be diluted with water to 1:40). Dissolves limescale residues, urine scale, moss and algae, rust as well as films from brass and copper, water stains and black fungus stains, with simultaneous germ reduction and disinfection.

- ▶ **Surfactants are biodegradable in accordance with EU directives**
- ▶ **Free from hydrofluoric and hydrochloric acid**
- ▶ **Highly concentrated, low-foaming**
- ▶ **System cleaning – cleaner and device are matched to each other**
- ▶ **Excellent material compatibility and disinfection effect**
- ▶ **Approved by Deutsche Bahn AG, toilet manufacturers and train operators worldwide**

- Fields of use**
- Cleaning of vacuum toilets and tanks
  - Cleaning of toilet pipes
  - Cleaning of wastewater tanks
  - Cleaning of freshwater pipes and tanks
  - Cleaning of coolers and heat exchangers
  - Perfectly suited for use in spray parts washers, immersion baths, pipe- and tank cleaning devices



## Vacuum toilet cleaning *with Power Cleaner DB*

Put the toilet to be cleaned into the cleaning device. The toilet parts washer is a system that has been geared to the requirements in vacuum toilet cleaning. Just give us a call if you require any further information. At a concentration of 5–10 % and at a cleaning temperature of 50–60 °C the cleaning time is approx. 10 minutes. Turning the toilets after 5 minutes will have a positive effect on the cleaning result. Spray undiluted Power Cleaner DB on extremely contaminated spots. After dismantling soak the interior toilets parts in undiluted Power Cleaner DB or clean them in the cleaning system.

### Your benefit:

Power Cleaner DB is very versatile in use. You will save water- and energy costs by means of its well-thought-out recirculation system.



“Bio-Circle innovative cleaning solutions improve your daily cleaning processes and help our customers to work better!”

*Ulrich Berens, founder and chairman of Bio-Circle Surface Technology GmbH*



## Help the customer to work better by MAKING GREEN WORK.

- State-of the-art cleaning systems** ▶ you keep it clean, we make it green!
- Process optimization** ▶ optimize cleanliness, time and money
- Global experience meets local service** ▶ manufacturing plants and sales offices established in 55 countries
- Services** ▶ use BIO-CIRCLE full services and simplify your job



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