



GRÖNINGER
Cleaning Systems

Cleaning systems

NEWS

2021



**cleaning
your
wörld**

Gröninger branch in
Worms (DEU)



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More and more attention
to air purification



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Cosco – Shanghai
(CHN)



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Remote but close anyway

Since the beginning of 2020 the world has changed.

Business is not as usual, daily life is not as usual and our company operations are not as usual.

The latter was reinforced by a loss at personal level.

On January 1, 2021 our dear colleague Marcel Versluis passed away due to cancer. For almost 30 years he has been a key technical and commercial resource within our company. Though it is difficult to accept we rejoice above all else, the years Marcel has been with us. Apart from a nice personal friend, Marcel was also a top professional. We are proud of what he achieved and contributed to Gröninger during his lifetime. His legacy is enormous. Many people in the world of tank cleaning knew Marcel very well and in many Gröninger Cleaning Systems he has left his professional signature and technical footprint, which will be visible for decades to come. We are going to miss him in person, as a colleague and as a technical expert who showed his loyalty and dedication on numerous occasions over many years.

In our last newsletter we described many ongoing and new Gröninger plans and initiatives like:

- Data gathering
- Customer portal
- Online support
- Support beyond cleaning

In a way the COVID-19 crisis has been an extra driver to bring these plans to successful products and services. That point on the horizon is what we all hope for. Like many other companies Gröninger was forced to explore new ways to achieve company goals. The common denominator has been "remote action" and "further digitalisation".

Remote personal contacts

Although nothing matches intensive face-to-face contact with our customers, suppliers and other business partners, we are grateful we have been able to continue our daily access to partners through newly discovered "remote" meeting solutions like Teams, Zoom, etc. In the balance of the year 2021 and beyond we hope to meet you again in person without travel restrictions. We are keen to discuss your future plans on-site.

Remote service offerings

In the area of service and support the balance "remote" versus "on-site" has been changing dramatically. All our systems can be accessed remotely through modern and safe network tools. This gives a lot of opportunities to sort out "global" technical issues from our "local" home bases Rotterdam/Houston/Singapore. Of course on-site service remains key to keep the cleaning hardware (and software) up and running, but our business model is rapidly changing toward new types of "remote" service offerings (portal, online support, access to manuals and commercial documents, etc.).

Remote data gathering and reporting

Gröninger has developed a cloud environment where operational (PLC) data from systems is gathered and processed in a smart way. The backbone is our so called "universal connector" which can be used to connect to customers' ERP systems and the likes.

As a company we are committed to sustain and develop the above tools in the years to come. We are convinced the recently developed tools do offer our customers' a very good investment that adds to their bottom line. We take on the challenge to convince you and trust this will further strengthen our business ties in the years ahead.

As indicated, local presence and intensive contact with customers remains essential. For that reason, Gröninger at the end of 2020 opened a branch in Worms. Our colleagues there Michael Neumann (Senior Project Engineer) and Abdullah Özüak (Project Engineer) will serve our German-speaking customers from there, backed from our home base in Rotterdam. Enjoy reading our newsletter and please don't hesitate to contact us if one (or more) of our case stories triggers your interest. 📧

#TeamGröninger

From left to right on photo: Joost Kasbergen, Abdullah Özüak, Michael Neumann, Henk Klein



ZIMMERMANN GRUPPE - BITTERFELD (DEU)

Tank and IBC cleaning system for heavy duties

In its long history the Zimmermann group has developed into an international processor of peculiar waste flows. With over 450 employees spread over eight locations, Zimmermann offers a wide range of customer solutions. With the construction of a tank cleaning and IBC cleaning facility, new services have been added.

At the site in Bitterfeld, Germany, non-flammable liquid waste materials are handled in a physical-chemical treatment facility. These substances are delivered by road tankers. Cleaning these heavily polluted tanks is not easy. This resulted in the plan for a modern tank cleaning system for handling self-owned and third party vehicles.

The existing washing hall for exterior cleaning has been converted by Gröninger into a tank cleaning bay. All cleaning technology is positioned in three technical containers. Tanks can be cleaned with 50 to 150 bar, hot water up to 95°C and with a choice of three different cleaning chemicals. Besides the high

pressure equipment the scope of delivery included an air purification system with gas scrubber and active carbon filters. A separate stainless steel booth was built for cleaning IBCs. The IBCs are turned upside down by using a smart lifting mechanism and are easily cleaned and drained using this technique. 🚧



STUBBE - GOUDA (NLD)

Complete renovation after 15 successful years

In 2004 Gröninger was awarded the contract to build a tank cleaning system into the most beautiful designed tank cleaning buildings thus far, on a typical Dutch site in Gouda, way below sea level. In 2005 the system was commissioned, consisting of among others a Cleanpack feeding two bays in alternate mode.

After 15 successful years of intensive operations Stubbe decided to completely refurbish their tank cleaning plant, not only for technical and economic reasons, but also because of the stewardship and sustainability role the company practices.

In a joint effort the system have been transferred into a state-of-the-art 2021

system. By making use of as many currently available components, the complete water preparation has been transformed into a far more ecological system. In a new pump room, the high pressure pumps are now fed with hot water and have control valves to exactly set the required temperatures. A modern and remotely accessible Siemens control system has been applied. All drive motors are frequency controlled. The system has been set-up and prepared to allow for future expansion. Commissioning was completed without causing any downtime! 🚧



NRS - SHUNAN (JPN)

Commissioned 'Remotely'

In 2018 the NRS depot in Kawasaki was equipped by Gröninger with a new tank cleaning system. In 2020 it was Shunan's turn. This port city is home to one of the many NRS depots in Japan.

The new depot has four positions for cleaning ISO tanks. A dedicated washing bay is equipped for cleaning latex. During latex cleaning, chemicals are circulated in large volume over the tank container internal wall. This way the contamination

is dissolved and the inside tank wall is "peeled" bit by bit.

The cleaning system is placed into a 20ft technical container. Under normal circumstances a system like this would be commissioned by a Gröninger project supervisor on-site. Due to the travel restrictions imposed by COVID-19 this was not possible. Thanks to intensive communication, ingenuity from both sides and the possibility of remote access, Gröninger succeeded in performing the commissioning remotely.

To make the cleaning as user-friendly as possible the control panels are - with help of NRS - written in Japanese. This way user errors are reduced to an absolute minimum. 🇯🇵



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PERNA - MAXDORF (DEU)

All-round service provider by investment in tank cleaning

For over 30 years Domenico Perna has been offering a variety of logistics services in the Mannheim/Ludwigshafen region. To add to these services a plan was made to invest in a tank cleaning system. This extra service will make Perna a truly all-round tank container service provider.

Following a thorough selection process the contract to build the cleaning system was awarded to Gröninger. The emphasis is on cleaning tank containers



Brand new depot in Dubai

Goodrich has opened a brand new tank container depot in Dubai. A key activity is tank cleaning. Goodrich selected Gröninger for the design and assembly of the cleaning equipment.

The basis is high pressure cleaning with rotor jets. Upon choice cleaning detergents are added via automated cleaning programs. Latex tanks are cleaned using special circulation equipment. The unit heats and circulates chemicals which are continuously filtered.

For easy set-up all equipment was delivery in plug-and-play modules. Piping and cabling work took a couple of weeks, followed by on-site commissioning by a Gröninger project supervisor. 🚧



with chemical residues. To process these efficiently and in an environmentally friendly way, the waste water is separated into several streams. By means of physical-chemical waste water treatment, extended with a sand filter and an active carbon filter, the water can be purified to meet the requirements of local authorities. Sludge is dewatered using a centrifuge and then disposed.

An air purification system is placed to collect and purify chemical vapors. Since it cannot be determined in advance which specific products are to be cleaned, Perna has opted for a combination of a gas scrubber and activated carbon filters. An alkaline dosing system is used to increase the efficiency of the scrubber.

The tank cleaning has two bays, each divided into two positions. With smart Gröninger software, both containers and tankers with multiple compartments can be cleaned simultaneously. A number of steaming points were built for heating



loaded tank and these are temperature controlled for optimal safety. A special circulation unit for latex and synthetic resin cleaning completes the delivery. 🚧

Air purification

In recent years, more and more attention has been paid to capturing and purifying harmful vapours and substances at tank cleaning sites. Installing an air purification system is usually done for two reasons. Health of the cleaning crew is often cited as the main reason. Good air purification in combination with good procedures ensures that exposure to hazardous substances and vapours is significantly reduced. In addition the environment and neighbours benefit from limiting odour and dust nuisance. Legislation is also playing an increasingly important role in this area. This year Gröninger has commissioned several air purification systems.

RSA Talke - Dubai

A few years ago, a tank cleaning system including an air purification system was set up at RSA Talke. When expanding the activities with a filling line for barrels and IBCs, the need for air purification again arose. The system supplied by Gröninger consists of an alkaline gas scrubber and an activated carbon filter. The gas scrubber is designed "duplicated" in order to achieve a higher efficiency.

Industry

As with the cleaning of tank containers and trucks, the cleaning of IBCs frequently releases hazardous substances and

vapours. In recent projects in Venray (NLD) and Mendig (DEU) gas scrubbers and activated carbon filters have been installed in combination with IBC cleaning systems.

Germany

In Germany, the use of air purification systems has been commonplace for years. The requirements are laid down in the TA-Luft legislation. In the past year, systems were placed at Perna in Maxdorf, Zimmermann in Bitterfeld and Truckcenter Bauer in Wernberg-Köblitz. More information about these projects can be found elsewhere in this newsletter. 





CASE: AIR PURIFICATION

TRUCKCENTER BAUER - WERNBERG-KÖBLITZ (DEU)

Air purification in container

Since 1996 the Bauer family has operated a logistics center in Wernberg-Köblitz. This location is adjacent to the A93 highway and offers an excellent point for all kinds of logistic services like cleaning, repairs, refuelling and parking. With the addition of an air purification system, Bauer is now equipped to serve its customers even better.

By installing an air purification system, tanks with products that previously had to be cleaned elsewhere are now taken care of on-site. The new system was built into an insulated 20ft container and was placed next to the existing washing hall. As a result, no additional technical space was required and the on-site assembly time was kept to a minimum. The scrubber and activated carbon filters are working in parallel in order to achieve optimum efficiency. Bauer now complies with the emission standards set by the TA-Luft. Apart from the customer, the cleaning crew and the environment benefits. A win-win situation. 🏆



Ready for the future

Back in 2004 Van Moer Logistics started cleaning tank containers and bulk trailers in Melsele. In 2008, when the head office in Zwijndrecht opened, Van Moer expanded the services for bulk and tank logistics.



Since the start of 2021 the existing cleaning system has been running at capacity. Van Moer therefore recently decided to invest in an upgrade of the system and to bring in state-of-the-art technology for future proof operations. The cleaning plant will not only be renovated but also expanded with more capacity on five bays for chemicals, one for food and two for bulkers.

Gröninger is participating in this renovation project by supplying new pump sets and a complete new PLC control system including data logging.

To kick-off this process, Van Moer in April took delivery from Gröninger, a circulation unit for cleaning (synthetic) resins and latex.

The complete renovation of the cleaning equipment will be finished by the Summer of 2021. 🏗️

The first professional tank cleaning station

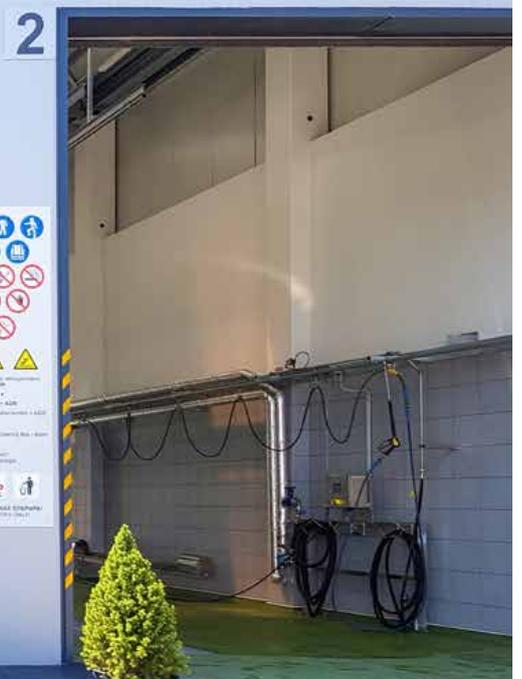
Designed to meet the latest requirements in the market, the first professional tank cleaning station in Sofia and the region is now officially open and fully functional.

Initiator Iva Veneva is the proud operator of the system. The site has two clean-

ing bays working in alternate mode, steam options and offers many other cleaning related services.

The shiny building and the smoothly run cleaning operations hide the story of setbacks and perseverance. After a process of over four years all permit

issues have been overcome. Uven Tank Cleaning station now has been SQAS assessed, is allowed to provide ECD's and is Kosher certified, setting a new Bulgarian tank cleaning standard. 🏗️



COSCO - SHANGHAI (CHN)

Tank cleaning with modern air purification and wastewater treatment system

In 2019 Gröninger co-founded a company in China: Groninger Cleaning Technology Co., Ltd (Shanghai). With joint efforts a professional branch office was established in the shortest possible time.

The company had a great start by being awarded the first major tank cleaning site for Cosco in Zhangjiagang (Shanghai region). This site is now a state-of-art logistics depot with a dedicated section for ISO tanks. A large crane puts a contaminated ISO tank onto automated



trolleys that roll the tanks into the cleaning bays. High pressure tank cleaning takes place on six bays for chemicals and two bays for food. The cleaning process is closely monitored; the system further includes a modern air purification system and a high-end wastewater treatment facility. At the end of the cleaning cycle and after the drying and inspection, the ISO tank is automatically rolled out of the cleaning bay into storage and is ready to pick up for a new trip around the globe. With this new site Cosco is confirming and strengthening its leading position as a major depot operator. 🚧



TRIMAC - MISSISSAUGA (CAN)

Reduced waiting times due to the implementation of the latest cleaning technology

From its inception in 1945, Trimac Transportation has consistently sought and achieved industry leadership. The company has a proven reputation for safe and reliable service.

Trimac Transportation has become one of the largest bulk carriers in North America through internal growth and strategic acquisitions. With more than 100 branches throughout North America, Trimac is one of the leading logistics service providers in the industry. Tank cleaning services have been a key activity for Trimac for a long period of time. Recently it was decided to install



a Gröninger system at their flagship location in Mississauga, close to Toronto, Canada. The system is planned to operate at 100 bar and will be equipped with the patent pending spreaders. It will allow Trimac to further improve customer service by reducing waiting times and by offering the most modern cleaning technology available. The system is designed in modules, thereby maximising uptime and the optimal usage of utilities. The equipment is built into technical containers for optimum usage of the available on-site space. Within the following months the system with two cleaning bays will be operational. 🚧

VAN HEES GMBH - WALLUF (DEU)

Automatic and food safe sterilization

For over 70 years Van Hees GmbH in Walluf – Germany (near Wiesbaden) has been producing various types of spices, spice mixes, additives and marinades for meat and sausage specialties. The family owned business is active in more than 80 countries and employs over 500 people.

In the production process stainless steel food containers are used. The containers are shipped with end product to customers. After use, the food containers are returned to the factory to be cleaned and sterilized.

Van Hees was looking for ways to improve the sterilization process and found Gröninger. A few years ago, Gröninger developed a system to automatically sterilize stainless steel food container, without the operator having to perform any actions.

The fully automated process consists of four steps:

- Heating: to a temperature (100 °C to 130 °C)



- Sterilization: for a certain (adjustable) time
- Cooling: with air (inside) and water (outside); the internal pressure is continuously measured to prevent implosion of the container
- Conditioned storage: of the container, with a slight overpressure, at the factory

The system is equipped with a data logging system in order to build up a sterilization history per container. Before a container is actually sterilized, various

parameters and set points must be reached. If for example the sterilization temperature to be reached is not met, the monitoring system of the PLC controller will ensure that the sterilization is rejected.

Companies that want to sterilize food containers with a validated method like Van Hees, can contact Gröninger in order to help them on the way to higher food safety. 🇩🇪

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OILTRADE - WERKENDAM (NLD)

IBC cleaning line in new factory



Oiltrade B.V. started twelve years ago with the supply of various types of vegetable oils, organic oils and compounded oils and fats. The company serves various sectors and is growing rapidly.

In 2020, Oiltrade gave the starting shot for the construction of a new factory in Werkendam. The factory will be commissioned during May 2021.

In addition to new production and packaging lines, a completely new IBC cleaning line has been built. Oiltrade uses its own IBCs to transport the end product to the customers. The IBCs are returned after use and must then be cleaned in a professional way.

In consultation with Oiltrade, Gröninger has developed a system where three IBCs can be cleaned and dried simultaneously. The system uses various automatic programs. In order to be refilled with end product the cleaning process of the IBCs is 100% validated.

As is becoming more common, the system is equipped with a remote access option. The Gröninger service team in the control room in Rotterdam can remotely monitor and take over the system if necessary. 🇩🇪

IBC neutralization station with air purification

Greif has American roots. The company has a large factory in Mendig in Germany where new IBCs are produced. At this location, used IBCs are also collected, inspected, modified and cleaned and then readied for remarketing as re-used IBCs.

The used and then collected IBCs contain a range of residual products, including various acids. These IBCs with acids cannot be cleaned safely on the IBC cleaning lines and must be neutralized first. This means that the pH value of the acid (pH 1–4) has to be raised to neutral (pH 7).

In collaboration with Greif, Gröninger has developed a neutralization station with an air purification system.

Two IBCs can be positioned simulta-

neously at the flushing station. The IBCs are cleaned inside with rotor jets using hot water with pH value 10. This process neutralizes the residual product.

The system operates based on water recirculation, whereby values such as



temperature, pH and the degree of pollution are continuously monitored. If necessary these parameters are automatically adjusted to the desired level.

During the cleaning of the IBCs with acids, vapours are released; these vapours are extracted by a newly installed air purification system. This technology is built into a box container and consists of an air scrubber with two filters filled with activated carbon. The unit filters the extracted air completely; afterwards the purified air is safely discharged to the outside environment.

By applying these processes, the IBCs can now be cleaned safely on the existing IBC cleaning lines. 🏠

Cleaning in a booth and drying with a robot

TPS Rental Systems rents bag-in-box containers to various industries. The rental fleet has expanded considerably in recent years. Bag-in-box containers are so-called foldable containers; these have the advantage that – when empty – less transport and storage space is required. When folded out, a so-called “liquid liner bag” is placed in the container (a large plastic bag with a volume of e.g. 1,000 litres) into which liquid product is pumped. After pumping out and removing the liner, the container can be folded for storage and/or transport “as empty”.

In the summer of 2019, TPS moved to a new depot in Emsdetten. At this site containers are received, inspected, repaired, cleaned, dried and made ready for shipment again.

Gröninger has developed and built a fully automated cleaning and drying system, specifically for this type of container. A rather challenging project where a lot of new technology is utilised.

Cleaning of containers takes place in a cleaning booth where one container at the time is cleaned both internally and externally. Specific washing programs were developed for the various sizes and types of containers (food, pharma and cosmetics).

The containers are transported using a stainless steel chain conveyor system. The containers are first guided through

the cleaning booth and then past the drying robot. The stainless steel chain conveyor of the drying robot is equipped with a stainless steel turntable. During drying, the container rotates 360° thereby enables the drying robot to dry the container inside and out. After the container has been dried, it is transported to the run-out conveyor, where the containers are prepared for transport to the customer. 🏠





ATC - BUDAPEST (HUN)

Cleaning and controlled heating positions

After three years of planning, building and market research ATC Professional Services started as a new player in the tank/IBC cleaning market in Budapest, Hungary.

Having chosen a Gröninger cleaning system, ATC now offer services for cleaning of road tankers, ISO tank containers and IBCs containing food or chemicals

residues. The fully equipped wastewater treatment takes care of the cleaning water.

In addition to the cleaning system ATC offer six temperature-controlled heating positions to warm up the load of road tankers / ISO container before unloading at a factory. 🚚

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COTAC - ROTTERDAM (NLD)

Minipacks for exterior cleaning

Every day many tank containers are cleaned at Cotac Rotterdam. Attention is not only paid to the interior but also to the exterior of the tanks.

Difficult to remove stickers, remnants from polishing, product spills, nothing escapes the eye of the cleaning crew.

Heavy contamination requires a combination of high pressure and high temperature for many hours, day in, day out. The robust Gröninger Minipacks are built to perform for long operational stretches. Four Minipacks were placed in a container; the existing system removed and the new one commissioned in no time. 🚚



Ongoing projects

Van den Bosch – Ghana (GHA)

ISF – Malaysia (MYS)

Imperial – Terneuzen (NLD)

Van Moer – Zwijndrecht (BEL)

QUALA – Columbus-Ohio (USA)

Global Talke – Zaragoza (ESP)

Freund – Kerpen (DEU)

Premier Mercantile Services –

Karachi (PAK)

Murphy – Cork (IRL)

Cleaning Twente – Hengelo (NLD)



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