

GRÖNINGER
Cleaning Systems

Cleaning systems
for the world

NEWS

2019



**cleaning
your
world**

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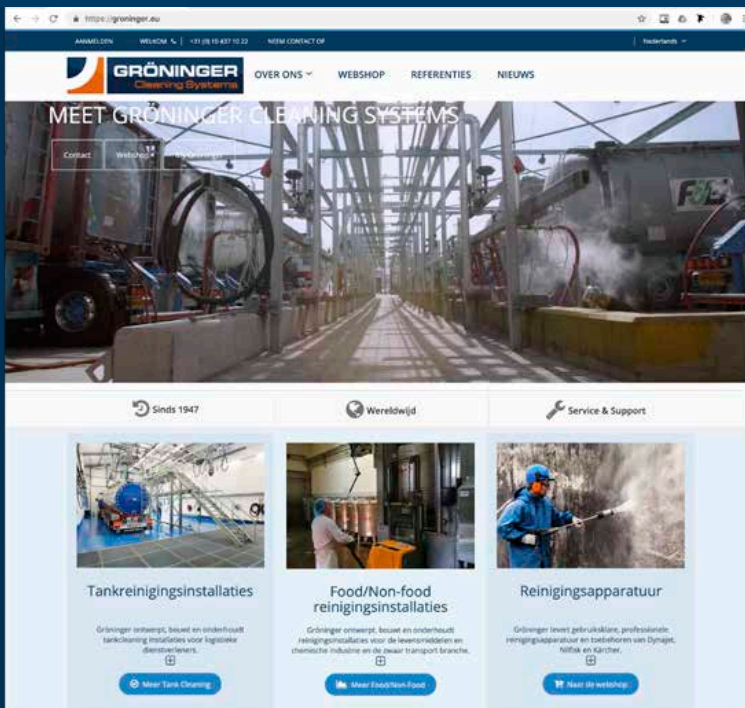


Gröninger Cleaning Systems

In 2018/2019 numerous initiatives were taken and many new systems commissioned by our company. Gröninger is happy to share some of these developments in this newsletter. Please let us know if you are triggered or inspired by something.

New website

In April 2019 Gröninger launched a new website. Of course the “look and feel” was completely updated according to the latest developments. But more importantly groninger.eu has become a central point for intensive interactions with our customers; from small to large, for simple and complex systems, anywhere in the world. To make the site more user-friendly and accessible, Gröninger has decided to have less content pages. The Gröninger activities are now divided into three segments.



Gröninger are proud to introduce “My Gröninger”; a digital portal in which information is unlocked (via a secure access code) for any project or system supplied by Gröninger. This content includes user manuals, technical documentation, P&IDs, service history, invoices, work orders, exploded view drawings, etc. All content is “customized”, so 100% based on the systems specifically supplied to any particular customer. From the P&ID and the exploded view drawings you can place an order for spare parts, consumables, components and accessories with just a few mouse clicks. Service requests can be done on-line as well. The system is fully operational already and in use by several customers.

Support Beyond Cleaning

The customer portal described is actually part of “Support Beyond Cleaning”, introduced by Gröninger in 2018. Support Beyond Cleaning includes three Service & Support modules essential for successful business operations based on efficient and effective processes and a fourth

Consultancy module. Gröninger offers Support Beyond Cleaning with the aim to offer the global client base a complete program for maintenance, service and support. Many contracts/subscriptions have already been implemented and we get very enthusiastic responses from our customers.

Start-up of Groninger USA

In July 2018 Gröninger Cleaning Systems Inc. based in Houston, Texas began operations with Mr. Garth Belue as the Director of Operations. Gröninger Project Supervisor Robbert Vijlbrief will re-locate his family to Houston as he will be responsible for all things technical (project management, system installation and maintenance). The establishment of the new company is a result of years of hard work aimed at selling Gröninger technology in the USA. During this process quite a few technical challenges

had to be overcome. USA tank cleaning operations are done in a completely different way versus Europe. It was not easy to convince potential customer of the possibilities that Gröninger systems offer. After a thorough vetting of our technology and a few validation visits to Europe we are pleased to introduce Quala based in Tampa, Florida as the early innovator / adopter of our game changing technology as they have purchased a number of systems that will be fully operational in 2019.

15 years after the acquisition

On April 19, 2004 Henk Klein and Berthold Schaap took over the company from Frank and Ralph Gröninger. Shortly thereafter Joost Kasbergen joined the team. A lot has happened in those 15 years. Gröninger has grown from a regionally operating supplier of cleaning technology to a globally active turnkey project organization; from 20 employees to a company with around 60 colleagues. The heart of the company is still formed by high-pressure technology. But a lot has been added, in the sphere of hardware but also in the field of software and

process automation. Innovation continues to be our driver. Gröninger continues to invest in order to create added value and better returns from operations for our global customers. Thanks again for your trust shown in our company. 📄

The Gröninger Team



Q3 2019: state-of-the-art tank cleaning facility

Leveraging their experience gained over the past 60 years in transportation, Filzhut transportation decided to start a tank container terminal and tank cleaning station in the port of Neuss, Germany. The company will operate under the name CoTaLo (Container-Tank-Logistics) GmbH.

The family-led company first entered the scene of the chemical industry in the late 50's as a tank truck transportation service company. This branch of the company was led successfully for over 40 years. With this expertise the Filzhut family decided to expand and take the next step in the Filzhut business.

In 2018 the goal was set to open a



Container Depot in the Port of Neuss, allowing tank operators to deposit their tanks at a location which is connected

via rail, water and road. Close to the Ruhr area, a hub for transport and logistics in Western Germany.

From Rotterdam to Kawasaki

NRS corporation provides logistic services for various industries all over the world. Apart from the well-known name NRS, Interflow is also part of the group. In total a significant number of ISO tanks is operated by NRS corporation. To support the logistics, NRS runs several depots throughout Japan to clean, maintain and repair ISO tanks. After thorough market consultation, NRS selected Gröninger to refurbish their depot in Kawasaki.

As land is scarce in Japan, the Gröninger engineering department was challenged to design a system with a surface area as small as possible. Given the local circumstances, the final design led to a high pressure cleaning system that fitted into a 20 ft. box container. Apart from the high pressure cleaning, a separate latex cleaning circulation unit is positioned at the cleaning bays.

The new system is able to clean ISO tanks on three bays in alternating mode. The new system enables NRS to clean and work in accordance with the latest rules on worker safety and reduces the

environmental impact by minimizing water and chemical consumption. After the tanks have been cleaned they can be dried by an efficient Gröninger Drypack.

Despite the distance between Kawasaki and Rotterdam, the commissioning of the system went according to plan. Not at least due to the fact that local staff visited Rotterdam for a Factory Acceptance Test. Doing business is all about trust and getting to know each other. Values that are shared by both NRS and Gröninger. 🇯🇵



The second part of the development, the cleaning station, will be completed in August 2019 and will be equipped with a system from Gröninger Cleaning Systems BV. The facility will have three cleaning bays for chemical products and two bays for food products. Four bays work with a cleaning pressure of 100 bar and for heavy chemicals one special bay will work with a pressure of up to 200 bar. Every cleaning can be altered to include hot water, steam, acids or alkaline detergent of any kind depending on what the product requires or the customer wishes.

The cleaning procedures in the food area will be performed up to the standards of the Cleaning Guard system, meaning that all containers and tank trucks cleaned will receive a cleaning certificate that describes all properties of the cleaning.

In addition to standard cleaning of containers and tank trucks, it will be possible to clean difficult products such as latex and resins. To complete the cleaning service there will also be capabilities for cleaning IBCs. Once all operations are up and running the cleaning capacity will be around 20,000 per annum. 🇯🇵

IEPERSE TRUCKWASH - IEPER (BEL)

Expansion for Ieperse Truckwash



In our previous newsletter we reported on the newly built cleaning of Ieperse Truckwash. Due to the good location and the Flemish work mentality, many chocolate and milk products carriers were soon attracted as customers. The cleaning apparently satisfied a need and within a year the management decided to expand with two extra cleaning bays.

The new bays are equipped for cleaning food tanks. To this end, these bays were also equipped with the Gröninger Cleaning Guard system. Cleaning data is processed and stored in accordance with the washing order executed. This data can be used to demonstrate that a cleaning has been completed in accordance with a predefined procedure. Moreover, the system offers a lot of

management information.

At the request of some transportation customers, the drying systems has been made suitable for loading and discharging hoses. With the expansion, Ieperse Truckwash is able to reduce waiting times and to meet the demand for more transparency within the tank cleaning industry. 📊

WEMMERS - ZAANDAM (NED)

Third dedicated Food cleaning for Wemmers



every cleaning is carried out in an agreed upon time slot. This way waiting times are minimised.

In addition to cleaning, tanks can also be heated with steam. A separate bay has been set up for this purpose. The new cleaning has the option for disinfection, kosher cleaning and drying. In this way, the highest requirements within the food industry can be met. For Gröninger, it is the third system that was commissioned by and for Wemmers. A new milestone in a relationship that goes back more than 20 years. 📊

In addition to the headquarters in Bleskensgraaf and a tank cleaning facility at the AAK factory in the Zaanstreek, Wemmers has built a third cleaning in Zaandam.

has been cleaned. ONEtoCLEAN also provides a unique booking system whereby

In the new cleaning station two tankers can be cleaned simultaneously. The station is dedicated to cleaning food tanks and is HACCP certified. In the meantime EFTCO food and SQAS audit have been carried out, which means that a European Cleaning Document (ECD) can be issued after each cleaning.

Through smart communication between ONEtoCLEAN software and the PLC of the cleaning system, all cleaning data is linked to the order number. In this way it is easy to trace back in what way a tank

QUALA - RAHWAY (USA)

Gröninger goes West – Quala

In 2018 Gröninger teamed up with US-based Quala. Quala is North America's largest independent network for tank cleaning, maintenance, and industrial services offering comprehensive inspections, testing, and repairs for the chemical, food and transportation industries. With almost 80 sites throughout North America Quala is very well represented in the North American market.

Over the last couple of years Gröninger and Quala counterparts have been looking for ways to combine the expertise both companies have. This led to a technology upgrade for Quala's sites in Rahway (NJ) and La Porte (TX). Both sites will have a number of fast track bays with Gröninger technology operating at 100 bar (1500 PSI). The washing bays will be slightly modified for the new equipment and will be

Tank cleaning facility in India

Bayarea Terminals Hazira is owned and operated by the father and son team of Captain Navjit Grewal and Inderneil Grewal. The company has 40 years of experience in various aspects of the logistics industry. Captain Navjit is the founder of the organization.

With Bayarea's installation of a state-of-the-art Gröninger cleaning system, Bayarea has become India's leading tank container service provider.

The Bayarea cleaning facility is located at the Port of Hazira in the state of Gujarat and is strategically located as the closest point of contact for the chemical industry hub of Western India. It is servicing the entirety of southern Gujarat, Northern Maharashtra as well as western Madhya Pradesh. Bayarea have the first mover advantage in this key location as there are currently no depots around the port. The depot location is 9 km away from the port and allows the company to facilitate the movement of ISO tanks and road tankers seamlessly. Bayarea has a fleet of own trucks as well as two reach stackers to do the movements.

The Gröninger cleaning bay design allows ISO tank containers to be cleaned in four static back-in positions, with a fifth drive-through bay dedicated for cleaning road tankers.

Multiple rotor jets per bay enable a fast turnaround time for both containers and road tankers. After cleaning, a Gröninger



Drypack makes sure there is no moisture left, so the container can be shipped and loaded immediately.

The cleaning equipment was prefabricated in a 20 ft. container which allowed for a reduction of on-site installation time. Apart from the actual commissioning, the Gröninger engineers put a lot of effort in training the staff at Bayarea Terminals in how to operate and maintain the system to achieve the best cleaning results and labour efficiencies.

Standard cleaning procedures for various chemical residues are stored in the PLC and by selecting a program, the tank is cleaned automatically without man-entry. This avoids putting operators at risk.

Bayarea is a complete Zero Discharge Facility where all effluent is discharged

to a communal treatment plant for environmentally friendly disposal.

A unique feature of the depot is that the boiler is powered by biofuel briquettes and pellets made out of groundnut and sugarcane husks, thereby eliminating the need to burn fossil fuels and reducing the company's carbon footprint.

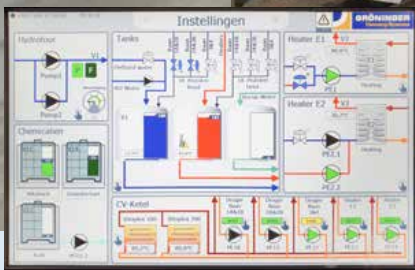
The Bayarea facility will add to the group's three container freight stations located at Mundra, Kandla and Pipavav ports (all Gujarat), plus an industrial park in Baroda along with bonded warehouses at Hazira (Gujarat), Krishnapatnam (Andhra Pradesh) and Nhava Sheva (Mumbai). All supported by a transport division complete with customs brokerage and freight forwarding services. 🚚



suited for ISO tanks and tank trucks.

The Rahway system is a completely containerised system, placed next to the washing bay, using existing utilities as much as possible. By spring 2019 the first Quala site will be fully operational with its new European influences, the first fruits of a promising partnership. 🚚

Arrival of cleaning system in Rahway



Large screens visual displays



A Cleanpack dated 2003 and 2019 join forces

The sky is the limit

In 2007 this Newsletter had an item on De Vleesschauwer, also known as Spoelhal Rosteyne in Zelzate, Belgium. The item told the story of Mr. Daniel De Vleesschauwer seeing an opportunity in 1993 and him rising to the occasion. Starting with a manually operated single cleaning bay his commitment to quality spread all over the region. Soon a second bay was built and operated and after ten years of manual operation, the company teamed up with Gröninger and automated the two original bays. Soon after two additional manual bays were added. In order to keep ahead of the game a major investment was made in a state-of-the-art waste water treatment system, built by Gröninger long term partners AAQUA.

Shortly after the start-up Daniel's daughter and son, Sabine and Wim De Vleesschauwer, joined the company and have been director-owners of the cleaning station since Daniel's retirement. It is genetically impossible for Sabine and Wim to stand still and soon plans were made for a major enlargement of the cleaning facility. The whole process of planning and permit applications has taken a while, but early summer of 2018 the decision was made for a major expansion.

The new facility will have six washing bays, four for bulk products and light chemicals and two for food. The water preparation system is best-in-class, combining hot water and steam boilers, thereby optimizing fuel efficiency. In addition the waste water will be partly recuperated, making use of a reverse osmosis system. A highly intelligent pump back-up system ensures zero downtime. All automation, including the automation for the existing bays, is upgraded to the latest standards. This will give Sabine and Wim control over both the cleaning process (Cleaning Guard) and the technical processes.

Gröninger is proud to be called partners of this challenging, family-owned company which now is a diamond in the industry. 🇳🇱



Wim and Sabine De Vleesschauwer



Modern technology for efficient operations

CLAESSEN TANKCLEANING - VENLO (NED)

Existing cleaning facility modernized and prepared for the future

Claessen Tankcleaning Venlo has been in the tank cleaning industry since 2000. In this period numerous tank wagons, tank containers, bulk trucks and IBC containers containing chemical, food or feed residues have been cleaned.

Recently the successor (son) of the owner decided to upgrade the existing, low pressure/high volume system to reach a higher efficiency and a better throughput. After probing the market for a good

supplier and partner Gröninger Cleaning Systems was selected.

Claessen Tankcleaning Venlo has eight bays, three food, four chemical and one special products bay, running in full operation. It is a challenge to exchange one existing system for another without having too much downtime. In the last two years Gröninger has upgraded the cleaning system for the chemical bays 3 & 4 and the food bays 6 & 7. Later this year the systems for chemical bays 1 & 2

and food bay 5 will be modernized with a 200 bar system which has an option to run at 100 or 50 bar if a lower cleaning pressure is required.

At the end of 2019 the facility will be perfectly equipped to clean trucks according to the latest standards. Cleaning can be done with a pressures of 50, 100 or 200 bar, worker safety is guaranteed by the use of a modern fall protection and the system uses the latest software to control and visualize all steps of the cleaning process. An internet connection enables remote access for quick service, system changes and software updates.

Along with their new 10.000 m2 tank container storage depot the Claessen Tankcleaning Venlo facility is ready for any future challenges. 🚚



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COGENT LOGISTICS - SINGAPORE (SGP)

First home in Singapore for a Gröninger system

Cogent Logistics new Dangerous Goods ramp-up warehouse on Jurong Island will incorporate the first installation in Singapore of a state of the art Gröninger ISO tank cleaning system.

The system includes the latest European cleaning techniques featuring superfast 4 minute drying of cleaned tanks, a 200 bar power bay for handling difficult to clean cargoes and an air purification system to allow odorous chemicals to be treated

in order to avoid problems of escaping odours. Poised to be operational in July, the cleaning depot will offer levels of cleaning options and services not previously available in Singapore. 🚚



Focus on the online portal

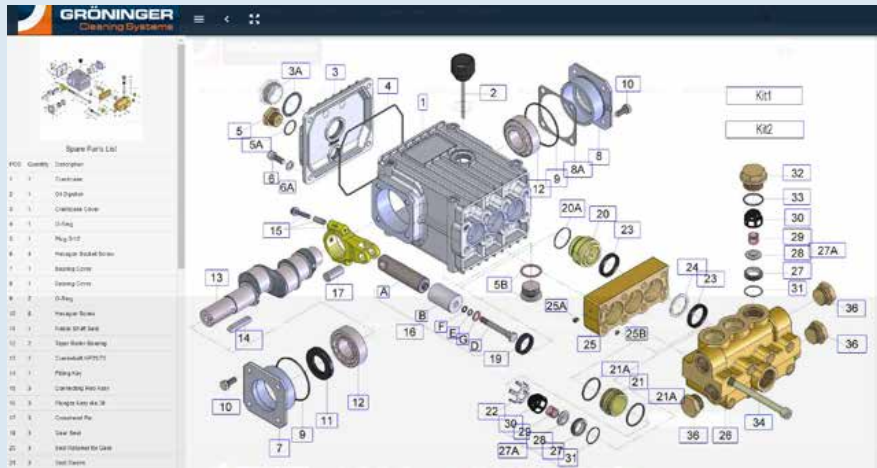
There is only one point of reference for service & support: the customer and his cleaning activities. Gröninger Service & Support modules result from a thorough analysis of the customer's requirements that are essential for successful business operations after the equipment has been put into operation. "Support Beyond Cleaning" is a complete program for maintenance, service and support. From delivery of spare parts, consumables to remote support and training of staff and operational personnel. There are three different Service & Support modules with matching rates and a range of options that are discussed in more detail in a separate brochure. Furthermore Gröninger offers various forms of Consultancy.



A very important element of Support Beyond Cleaning is a customized customer portal. This portal is integrated into our new website environment and accessible via a secure login. The online portal offers customers, among others, access to an ordering system for spare parts and consumables and the latest information about the systems.

P&ID and electrical schemes

Gröninger systems are custom-built. The P&ID is a schematic representation of the process flow and the system components. The actual P&ID is accessible through the portal. The P&ID contains all system components such as rotor jets, dryer, pumps, etc. All electrical schemes are also accessible.



Exploded view drawings

A mouse click on a specific part in the P&ID opens an exploded view drawing with all sub-components, parts and consumables. From here a selection can be made of parts to be ordered. The advantage is that everything in the portal is 100% "customized". Only those parts that are actually in use at the customer location are available. This makes ordering of wrong parts virtually impossible. The "dryer filter" selection specifically provides the dryer filter with the right specs that is in use by the customer.

Technical documentation and manuals

All technical documentation is also available through the portal. Think about user manuals of system components and parts, service announcements, but also the complete manual of the system itself. Also here 100% "customized" applies. Finding the right information will become a very easy assignment.

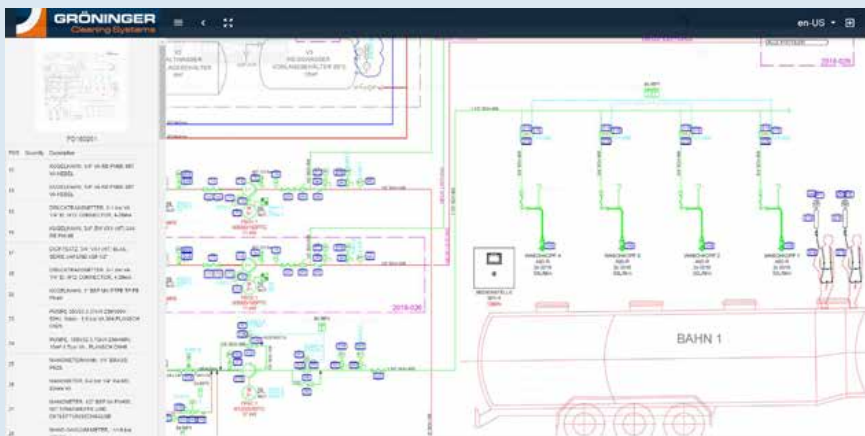


Service checklists and service history

Gröninger regularly performs extensive checks. The result, the service checklist, is digitally available and can be shared easily with shippers. The service history is also available through work orders and invoices for service and maintenance. Customers can therefore easily ascertain when the last maintenance was done and what was specifically performed.

Interested?

Support Beyond Cleaning offers many possibilities. Access to online support, remote monitoring, consultancy; actually too many options to mention. We are therefore happy to discuss the options face-to-face. After all, not every customer has the same needs and requirements. You can choose the type of subscription (basic, plus and premium) that matches the scale or development phase of your company. Whichever choice it is: Gröninger guarantees real added value in all cases.



INTRODUCTION

Challenges when cleaning production tanks in the food and non-food industry

In the industry (fixed) tanks are used to make products. Gröninger comes across many different tanks:

- Different in size and content
- Various shapes (round, square and rectangular).
- With central agitator (in various variations), with multiple agitators or without agitator
- With a variety of baffles or bulkheads
- Pressure tanks and pressure-free tanks
- With or without a built-in heating coil
- From brand new to very old (with signs of wear and wear)
- With various openings, manholes, spouts, etc.


The cleaning challenges therefore are also diverse. As an expert in this field, Gröninger is frequently asked to make an analysis of the tanks and to come up with a cleaning solution. This usually concerns existing tanks where no cleaning technology was built-in.

Gröninger encounters the following problems in food and non-food / chemical industry:

- Caking of product on the tank wall and top due to exposure to air
- Product dehydration due to high temperature at spots where heating coils are positioned
- Poor accessibility behind agitators, baffles and mixers
- Poor accessibility for operators for manual cleaning
- Manual cleaning quality issues due to physically difficult and poor ergonomic conditions

In the end many tanks cannot be properly cleaned anymore, which affects the:

- Quality of the batch to be produced (with risk of rejection)
- Production costs, that rise because the cleaning process takes longer
- Hygienic conditions due to bacterial growth (also with risk of rejection)

It is a challenge to come to a good quality cleaning solution within the available investment space. Gröninger has built up a lot of experience in this field over the years. In this newsletter we describe a few cases. 



CASE 2 - KONINKLIJKE VAN WIJHE

No more manual work in production tanks

Koninklijke Van Wijhe Verf is an independent, Dutch paint producer with brands such as Wijzonol and Ralston. This independent family business has more than 100 years of history and a passion for making quality paints.

The water-based paints are developed in-house and produced in production tanks with a capacity of 5,000 litres and 10,000 litres (with a built-in agitator). After use, the tanks must be cleaned



'Retractable' cleaning system for production tanks

IFF Nederland in Tilburg has been a valued Gröninger customer for decades. The company uses various Gröninger systems for the cleaning of tanks, IBCs, containers, factory premises and production tanks.

In 2018, two new production tanks (with agitator) were installed at IFF. These are operated automatically and are so called pressure tanks. The rotor jets therefore could not be fixed in the tanks

since pressure tanks produce with high temperature and high internal pressure.

The rotor jets are positioned externally and after each production batch are automatically led to a central position in the tank. This is done with an air cylinder mounted on the rotor jets. Prior cleaning tests had shown that the tanks were to be cleaned with a pressure of 200 bar. The system consists of a high-pressure unit (working pressure 200 bar / capacity

100 l p / m) and two "retractable" systems (air cylinder / rotor jet) per production tank and a central control cabinet. The PLC of the cleaning system is linked to the operations control of the production tanks. The automated procedure is now as follows: **(1)** filling and heating up the tank, **(2)** producing and mixing, **(3)** emptying the tank, **(4)** cleaning the tank, **(5)** cleaning the pipework. Easy does it. 🏠

ork required when cleaning

prior to a new batch. Previously this was done manually with a high pressure spray lance. A long-lasting and heavy job. And in many cases the tanks were not always thoroughly cleaned. The challenge for Gröninger was to improve and automate this manual process. After making an analysis of the tanks and assessing the contamination, it was decided to install two rotor jets per tank. The rotor jets are fed by a high-pressure pump (working pressure 100 bar / capacity 100 l p/m). A central control cabinet operates the

system and offers the possibility to develop customised washing programs.

Prior to the project field tests were carried out. The results were satisfactory. The PLC of the cleaning system is linked to the operations controls of the production tanks and matches the following cycle: **(1)** filling the tank, **(2)** preparing paint, **(3)** emptying the tank, **(4)** cleaning the tank, **(5)** cleaning piping connected at the tanks. The result is a 100% automatic cleaning. 🏠



First destination Gröninger Drypack Electrical

Gröninger is strongly committed to use electricity as heating source in water preparation. Heating cold water for cleaning is usually done with steam, gas and diesel fuel. But electric heating is enjoying more and more interest, following the trend of "electrification".

Recently the Gröninger Drypack series was also expanded with the Drypack Electrical; an industrial drying unit that heats filtered air to 60 °C to dry tanks and IBCs.

The first customer is Greif. This company is active worldwide in the market for industrial packaging and services. Steel drums, plastic drums and IBCs are produced at several production locations. Greif is also active in the cleaning and reconditioning of packaging. For the Greif location in Spain a 100% electrical solution was selected, both for cleaning and drying of IBCs. Very good for the CO2 footprint.

This system was successfully commissioned this spring. 🏠

Interested?

The possibilities for the cleaning of production tanks are endless. Don't hesitate to contact us; we would like to help you to find the best cleaning solution for your company.

QMUT - CHN

First Gröninger tank cleaning facility in China



After visits to other Gröninger ISO tank cleaning depots in Asia, Brian Liu – the Sales Director of QMUT – was convinced that the European cleaning technology could bring the marketing advantage needed for their new cleaning depot.

On a fast track schedule from completing the design specifications to the equipment installation, Qingdao Million Union Tank Container Service Co., Ltd became Gröninger's first customer to have a tank container cleaning system installed in China.

Qingdao itself is a major port in the East of Shandong Province bordering the Yellow Sea and has a long history with Europe (particularly Germany) and has its own International Beer Festival and much German architecture.

Of more current significance, Qingdao is a major nodal city of the One Belt/One Road initiative which has motivated Brian and his team at QMUT to bring to such a strategic location a more efficient, clean and safe working style to the tank cleaning industry in this fast growing economy. 🇨🇳

HOUWELING GROUP - BLEISWIJK (NED)

Environmentally friendly IBC cleaning line commissioned

In 2018, the Houweling Group completely renovated its headquarters and warehouses in Bleiswijk. The roof was newly insulated, solar panels have been installed and the office space has been expanded.

For the new IBC cleaning line Gröninger was selected as partner. The new system has an automatic chain conveyor for the



IBCs. The cleaning process includes the following activities: (1) removal of caps / covers / opening of the ball valve, (2) external IBC cleaning, (3) internal IBC cleaning, (4) drying, (5) leak testing, (6) application of caps / covers / seal / cleaning label. By deploying several rotor jets and drying tubes simultaneously on the various sections, a large throughput is achieved. Important energy-saving measures have also been built in:

- Filtered rainwater is used to reduce drinking water consumption
- Clean rinsing water is collected for reuse in pre-rinsing
- Energy from the solar panels serves to power all motors.

With this new washing facility, the Houweling Group is heading into the future in a modern way. 🇳🇱

Ongoing projects

Kloosterboer – Rotterdam (NED)

RBS – Kirchweyhe (DEU)

Oil Field Movers – Nairobi (KEN)

Perna Clean – Maxdorf (DEU)

RSA Talke – Dubai (UAE)

Cleaning Venlo – Venlo (NED)

Quala – Cincinatti, OH (USA)

Quala – Chicago, IL (USA)

Quala – La Porte, TX (USA)

Global Talke – Zaragoza (ESP)

Cosco – Zhangjiagang (CHN)

TPS – Steinfurt (DEU)

Truckcenter – Hollenstedt (DEU)

Sappi – Maastricht (NED)

TNO – Delft (NED)



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