

Process Technology & Tanks

For the juice industry



For more than 170 years Ziemann Holvrieka has been offering tailor-made solutions for the beverage industry. In 1852 August A. Ziemann established a coppersmith workshop.

The first brewhouse was delivered to China in 1903 – long before the beginning of the age of globalisation. Since 1947, Holvrieka has been playing a pioneering role in the development, manufacture and installation of stainless steel tanks. Nowadays you can find our solutions everywhere in the world.

The technical knowledge of our engineers paired with practical experience from countless projects makes us a strong and reliable partner. Our customers may trust in us finding the best solution for their individual needs – technically and economically.

It's our tradition of long-standing global relationships that allows us to give our customers answers they can rely on. We know the challenges to our customers and meet them with state of the art and practice-approved solutions.

Experience makes the difference

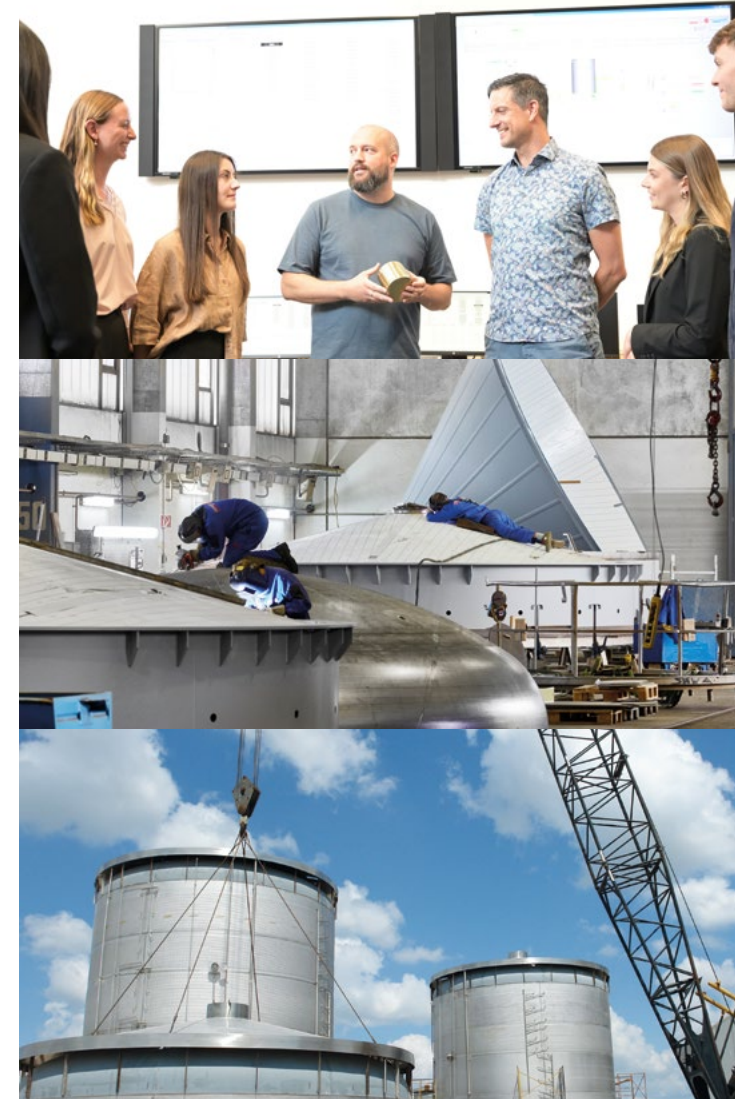
Highest quality from a single source

Ziemann Holvrieka provides individual and tailor-made solutions for the beer, beverage and liquid food industries from a single source. The services are offered worldwide, with the highest quality and the reliability of a global group of experts. The group of Ziemann Holvrieka companies is one of the largest international suppliers of tanks and process technology.

Ziemann Holvrieka plans, engineers and automates the process and the cleaning technology in all production areas, including the installation of process pipework and the integration of all required utilities. For modernisations, capacity expansions as well as for completely new plants – Ziemann Holvrieka provides innovative solutions and is a valued expert.

Project Management: fast & flexible

Our project managers ensure the safe implementation within cost and schedule estimate. Our project monitoring and on-site coordination result in the accomplishment of all guaranteed values and contractual requirements.



Shop fabricated tanks

Due to state-of-the-art production methods, our storage and process tanks feature particularly smooth surfaces. Thus Ziemann Holvrieka sets standards in the industry, which even exceed the common requirements of international industrial standards.

Our tanks ensure a more reliable quality maintenance of the stored product and require less cleaning. In conjunction with our hygienic design, maximum biological safety is guaranteed. In our group of companies we have several production facilities in Europe (Menen, Buerstadt) and China (Nantong). All tanks are manufactured with the highest precision and are specially designed to meet the requirements of each individual project. In Buerstadt we run the world's most advanced production facility with a total area of 127,800 m² and a hall space of 25,000 m². Here 10,000 tons of stainless steel are processed every year. All tanks and vessels are manufactured in a highly automated production process, taking into account highest quality standards.

On-site fabrication of tanks

Sometimes tanks can't be delivered in one piece. Reasons can be high transportation costs, physical limitations of infrastructure or logistics, etc. In such cases we can manufacture the tanks directly on site at the production plant. If this method is chosen, the individual components are prefabricated at the factory and inspected according to the regional regulations of the country of destination. Afterwards the tanks are shipped to the erection site in parts that can be easily assembled.



Zumos Valencianos del Mediterráneo S.A. (Zuvamesa)

The juice plant is located in Puerto Sagunto, Spain, and produces fruit juices, mainly NFC (not from concentrate) from oranges and clementines mostly for European export.

Zuvamesa, with a consortium of 57 fresh citrus producers and a 140,000 m² facility, is one of the biggest and most modern juice plants in Europe. The new plant enabled Zuvamesa to process up to 400,000 tonnes of local citrus and produce up to 100 million litres of NFC juice annually.

Here Ziemann Holvrieka designed, manufactured and installed 80 stainless steel storage tanks, each with a volume of 500 m³. All parts were pre-fabricated in our factory in the Netherlands and carefully shipped to the project site. Our experienced engineers and on-site project management and ensured a perfect project execution in just 22 weeks.

Beside the tanks and the tank processing Ziemann Holvrieka was in charge of the nitrogen installation, an important component of every juice plant as it prevents the product from oxidization.

Turnkey Projects

Effective solutions for process, transport and storage.

Long term storage – no risk

Even in the 1990s ZIEMANN HOLVRIEKA developed a process of aseptic bulk storage. Our concept allows a raw product to be pasteurized, cooled and stored in large tanks. The primary advantage of aseptic bulk storage is that it enables the raw product to be partially processed, stored and / or shipped prior to the final processing. Furthermore, it supports incremental product withdraw without compromising sterility. With this concept fruit juice suppliers can store high quality juices for a long period of time without the risk of microbial contamination.

Sophisticated engineering

The storage tanks are cylindrical units with vertical axes and a design which meets the latest aseptic standards. The bottom of each tank slopes to a definite lower point; the top is dished. All wetted surfaces that come in contact with fruit juice are made of stainless steel and are grinded to a specific surface roughness.

The product piping is equipped with aseptic diaphragm valves. Into these valves sealing solutions are incorporated to prevent the introduction of microorganisms.

Larger valves, which cannot be sealed with diaphragms, include valve rod seals. These are fitted with spirit reservoirs to support volume changes and wiping action on exposed portions of the valve. Flanges are designed to the German DIN 11864 standard to eliminate cavities where bacteria could come about.

The piping is connected to the lowest point to enable the tanks to be fully drained. Nitrogen pipes fill the head space of the tanks. The protective atmosphere of nitrogen is used in all tanks and piping systems to prevent juice oxidization. The storage terminal is equipped with an nitrogen buffer system for maintaining the appropriate levels in all tanks and the whole piping.

Propeller-type tank agitators ensure the circulation of the tank contents when natural juice is being carried. Customized tank cleaning systems ensure aseptic conditions when cleaning and disinfecting large tanks. Fresh water for tank cleaning and rinsing is drawn from the CIP installation. Empty tanks are filled with nitrogen after cleaning to ensure sterility.

Our support is your asset

The aseptic storage terminals by Ziemann Holvrieka are equipped with clean-in-place and sterilize-in-place installations. Our process engineers develop complete cleaning programs and train on how to use them.

Very specialized equipment has to be properly operated and maintained to ensure the product remains sterile. Any breakdown could cause a contamination of the juice product. Therefore automation systems are installed to avoid the risk of human error. We automate on the highest level to ensure correct procedures and asepticity. Specifically electronically controlled processes for filling and withdrawing from the tanks ensure the sterility of the end product.

Even fully automated aseptic juice terminals still require human involvement, particularly during loading and discharge processes. At this stage terminals often use food grade hoses to connect the trucks to the terminals. But these and the piping have to be sterilized before product is pumped through them. We train your crew to reduce the potential for contamination of the product with microorganisms when the sterilization is not carried out properly.



Normally the juice is loaded at the required temperature. The refrigerating system of the terminal has the capacity to maintain the defined temperature no matter what ambient conditions are encountered. The capability of the equipment ranges from $-10\text{ }^{\circ}\text{C}$ to $+40\text{ }^{\circ}\text{C}$.



Citrosuco: MV Citrus Vita Brazil

Citrosuco is the largest global producer of orange juice concentrate, with about 45% of the product market in Brazil and 25% in the world. A container ship for the transportation of their FCOJ and NFC from Santos in Brazil to Florida, USA was needed.

In the maritime industry, innovation usually takes place through conversion, as in our development of Citrus Vita Brazil from a refrigerated ship for FOJC tank containers to a combined FOJC and NFC tanker with a capacity of 27.000 m³. Existing chillers continue to be used, but the intermediate decks have been removed, and 15 tall, vertical stainless steel tanks have been inserted into the outward insulated holds. An insulation of the stainless steel tanks was not necessary. In addition, a state-of-the-art measuring and control technology, circulation pumps and charge pumps were installed, as well as a nitrogen system to drive a nitrogen gas cushion in the full tanks above the cargo. A double piping system was installed for the combined transportation of NFC and FCOJ. A stand-alone CIP installation was included in the process installation.

An additional request was that it should be developed and build within a time frame of 10 months – which Ziemann Holvrieka accomplished.

Flexible Marine Cargo Systems

A fully equipped and automated modular system.

Tank design

Our engineers always focus on the customers' success and provide the complete turnkey design with 2D and 3D inventor drawings as well as AutoCAD P&IDs. The interior complies with EHEDG / 3A hygienic standards and is consistent with the common classifications Bureau Veritas (BV), Lloyds, Det Norske Veritas (DNV). No matter whether it is site erected or shop built, our stainless steel executed cargo tank design always matches the ship structure and includes a protective coating. Our ship dedicated design covers complete insulated holds, anti-floating hooks and shifting blocks. The complete processing is installed in holds.

Module design

We develop and manufacture modular systems for liquid bulk transport and storage. Tank modules with or without thermal conditioning systems can be installed in an existing or new ship.

The modules can also be used as on-shore storage in a harbour along your logistics chain. We are offering a self-operating system including stainless steel tank, pumps, valves, cooling, piping and automation. The self-insulating design covers 125 mm sandwich panels, connection doors, cooling fans, cage ladders and support frames. Our critical bottom frame design

consists of carbon steel girders and frame, hard wood layers, a protective coating and a stainless steel bottom plate. Turnkey customers benefit from us assuming responsibility for the pre-fabrication processing, site- and project management, transportation, hoisting and installation. We offer a training on the job and assist in the first loading and discharging.

Customers' benefits

Ziemann Holvrieka offers CIP & SIP systems (cleaning in place & sterilising in place). CIP & SIP is a cleaning and disinfecting system, which is integrated into the overall plant concept and which effectively removes all residues and deposits and kills microorganisms. This ensures a consistently high product quality. With our turnkey storage terminals, the producers can easily store their products in an aseptic way over a period of 18 months.

The tanks and vessels are tailored to the individual needs and requirements of the customer. Our deck tank units guarantee the optimum use of the ship deck including tank, insulation, cooling and processing. Customers profit from short production times with our land module units. The temporary storage units are easy to install and have a moveable design. And of course, our worldwide service includes all pre-installed processing.



Thank you for your time.

For all enquiries, please contact one of our sales team at a Ziemann Holvrieka office near you.

Scan the QR code or visit www.ziemann-holvrieka.com

