

Fully automated filling technology for a large storage facility

New installation during operation

An important step when installing a new system in a complex industrial plant is the commissioning. This is often the first time the individual machines are connected and all process steps can be carried out together. SMB International has realised such a complex project for LBC Tank Terminals, an independent operator of midstream and downstream storage facilities for bulk liquid goods such as oils.

At a Belgian seaport, LBC Tank Terminals mainly stores base oil, which is used for the production of petroleum products. At the end of 2019, the company decided to build a new filling plant at the Antwerp site. SMB International, a German planner and manufacturer of customised plants, received the order to install a fully automatic system, from drum feeding, filling and palletising to truck loading, and to supervise the project from planning to commissioning on site.

A perfectly matched system

For the construction of plants of this size and complexity, different technologies have to be combined whose processes must be precisely coordinated. This is the only way

to achieve a fully automatic filling process. The starting situation for this project was good: the existing hall and filling system at LBC Tank Terminals in Antwerp were demolished in order to build a new one on the same site. This permitted to build a completely new, automated plant consisting of two line filling systems for drums with matched palletisers and stretch wrappers, as well as, an IBC filling system with matched conveyor technology there. In order to be able to continue the filling of bulk liquids during the construction process, the old systems were temporarily installed in another building. SMB International had a total of eight weeks for the installation and commissioning of the system. To ensure efficient

implementation, all systems were set up at SMB's factory as far as possible and central tests were carried out there, too. Nevertheless, commissioning at the customer's site is still a decisive step, especially for fully automated systems. All interfaces between the individual components must function smoothly.

The filling system in detail

SMB's line filling systems are used for the fully automatic, continuous filling of larger quantities. With a total storage capacity of almost 300,000 m³, this type of system was exactly the right choice for LBC in Antwerp. Different designs of the line filling system allow the filling of drums, cans, canisters or



Pictures: SMB International

Central test in the factory: Jens Hachmann and Jan-Hendrik Wolدت from SMB International during the last check of the two line filling system before transport to Antwerp



Empty barrels are fed fully automatically to the filling system with the aid of conveyor technology



A stretch winder is also an integral part of the optimised filling process

buckets via one or several filling points. In the new 1,150 m² building at the Belgian location, drums and intermediate bulk containers (IBC) are filled fully automatically. The first interface that had to be set up during commissioning is the feeding of the two container types. The empty drums are unloaded automatically from three swap body positions by an automatic drum unloader and then fed to the filling system by means of conveyor technology. Empty IBCs are, however, placed on a roller conveyor outside of the building by forklift trucks. In a next step, the containers are then automatically labelled and filled. The two vacuum palletisers from SMB International are an ideal supplement for the filling system. After filling, the drums are lifted by means of a vacuum, placed on pallets and then secured with film.

Integration of an old system

SMB has already successfully installed filling systems, palletisers and stretch wrappers that work smoothly together for numerous other customers, including chemical companies. The special feature of this project, however, was that an existing SMB palletiser from the old system had to be integrated into the new filling centre. This was done after commissioning of the new filling system and the new palletiser. There remained little time for the coordination of the individual processes because without the existing palletiser, the temporary system could also no longer be used.

The design of the new system with two palletisers and two wrappers has several advantages: on the one hand, they can work at higher speeds and process larger quantities together and, on the other hand, if one palletiser or wrapper fails, the other one can

take over the palletising of both drum lines. This means that 45 pallets with four drums each can be fed to the truck loader per hour or up to 15 1,000-l-IBCs per hour can be filled and also loaded automatically. There is no longer any forklift truck used in the hall.

The magic moment

Once the individual machines had been installed and coordinated at their interfaces, the first test run of the entire system could begin. "To see such a complex, fully automatic system actually work for the first time is always impressive," says Jan-Hendrik Woldt from SMB International, describing the commissioning. "This is the moment when every hour invested in its planning, design and programming pays off in full." After the first pallets with filled drums had been loaded into a truck, final fine tunings were made before the complete system could start its routine operation. As far as the handling of bulk liquids is concerned, the challenge of this project was a home game for SMB International. The industrial transport of oil, mainly light mineral oil, is in fact one of the company's long-standing areas of activity and expertise.

www.cpp-net.com

Online search: SMB

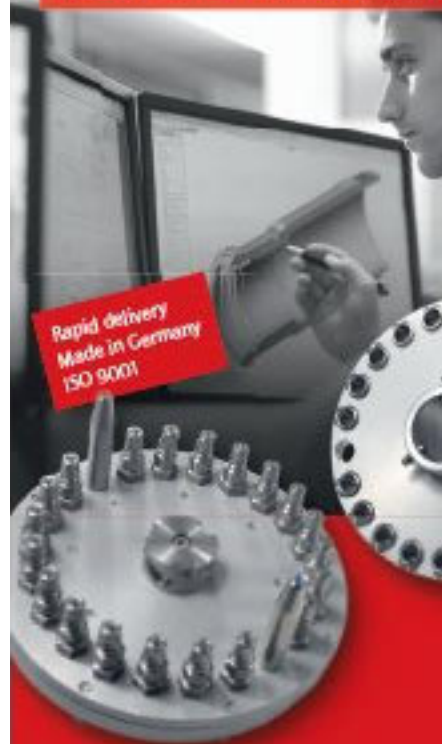


Author Andreas Heckel

Managing partner,
SMB International

**MISSION
POSSIBLE.**

**OUR ENGINEERING IS
YOUR SYSTEM SOLUTION**



Rapid delivery
Made in Germany
ISO 9001

Multi-coupling

The perfect interface. A customizable multi-coupling system that combines multiple media connections in a single interface. Robust, extremely reliable and easy to use.

- Fast, simultaneous connection and disconnection of up to 20 couplings
- Arrangement can include different coupling types and sizes
- Customer-specific configurations possible

www.gather-industrie.de

GATHER
INDUSTRIE

kupplung@gather-industrie.de - +49 2058 89...



Pump/Metering/Coupling Techn...