

Intelligent Drivesystems, Worldwide Services



**Bottling plant with
state-of-the-art
drive technology**



New bottling plant with state-of-the-art drive technology



36,000 bottles per hour

The Hacklberger Getränke- und Logistikcenter [Hacklberger Beverages and Logistics Center] (HGL) founded in 1998, has its headquarters in Hutthurm, not far from Passau, the "City of three rivers". HGL is a spin-off of the Hacklberger brewery, where according to historical documents, beer has been brewed since 1618. The traditional company supplies about 1,200 beverage dealers in

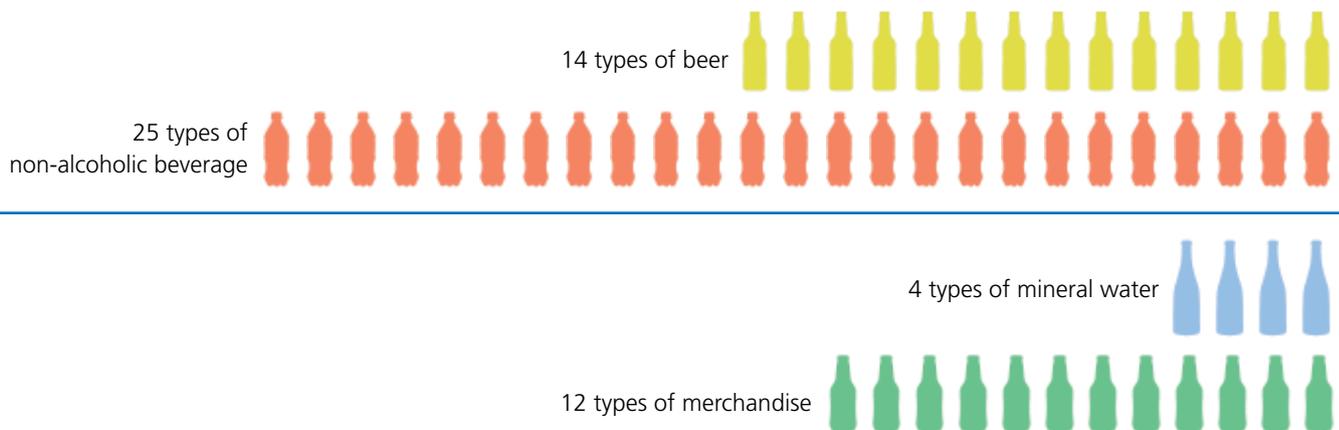
the region of Eastern Bavaria and is therefore one of the largest breweries in Lower Bavaria. The beverages bottled here using state-of-the-art technology include 14 different types of beer, 25 types of alcohol-free beer, four types of mineral water and 12 kinds of merchandise. Over 300,000 hectoliters leave the production facilities each year; the new bottling plant fills up to 36,000 bottles per hour.

Purity requirement for beer, but not for bottles

If they have too few or too many of a particular kind of beverage bottle, consumers tend to put various kinds of bottles into the crate in order to return it to the store. This is convenient for the customer, because the crates are accepted like that. However, what is easy for the customer makes it difficult for the supplier when the crates of mixed bottles arrive at Hacklberger.

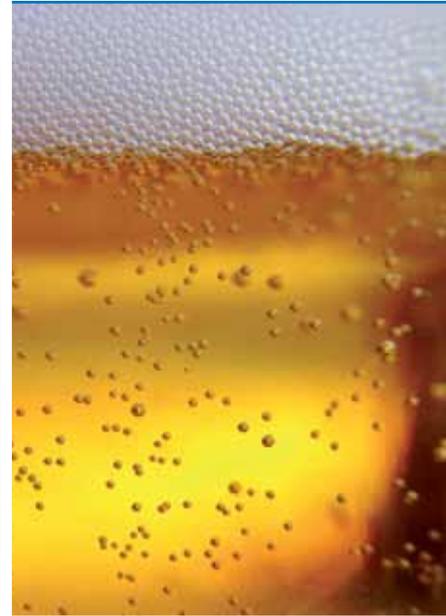
Once they arrive they are first of all placed on pallets. According to the order, the pallets are put onto the conveyor system to bring them to the actual production hall. First the crates of bottles are removed from the pallets and put onto the crate belt for transport along the conveyor sections. The bottles in the crates are automatically identified and moved to the appropriate storage areas. Bottles and crates which are not recognised are sorted into the correct sequence for manual sorting and are also transported on the conveyor system. The crates then pass through a crate-washing system. In the next

stage the screw caps are removed from the bottles as necessary. Crown caps and other closures are also removed here. Then the belt conveys the bottles to the washing system. After a sophisticated washing process the bottles are checked for damage and dirt and defective bottles are automatically rejected. After the bottles are filled they are automatically fitted with screw caps or closed and labelled. In the next stage they are conveyed to the output station, where the bottles are packed into crates and then stacked on pallets. Once the pallets have been banded, they are finally transferred back to the central storage area.



DRIVESYSTEMS

At the Hacklberger Getränke- und Logistikcenter [Hacklberger Beverages and Logistics Center] machines from BMS Maschinenfabrik are used to handle the crates and bottles.



The bottle range of the Hacklberger Getränke- und Logistikcenter [Hacklberger Beverages and Logistics Center]

The entire drive technology from a single source

Packaging, palleting and transport technology, all from a single source.

The BMS technology can be used for various applications and guarantees an optimum palleting solution for all bottling systems. "One of the important things was the interaction of automated technology, as well as the possibility of being able to use the various containers which are unpacked by the system using a wide range of sorting methods. Customers always come to us when they require a special solution which seems impossible. That is so to speak our 'niche' ", explains Gerhard Bielmeier, designer at BMS Maschinenfabrik.

Due to their special construction, which uses balance weights, BMS robots are especially energy-efficient and optimised for the particular application. The linear systems on which they are based enable highly reproducible positioning precision. The backlash-free gear units and the integrated robot control units guarantee quick and precise movements with low mechanical stress to the system. The transport system was implemented using the tried and tested modular system from BMS. "Actually, this is quite a simple matter", says Bielmeier. "It is the speed which is decisive, and the speed is provided by the drive units. Therefore, the drive technology is the decisive factor for the productivity of our systems. Our success is certainly partly due to the innovative drive technology from Getriebebau NORD, which we have used consistently for many years.

Decentralised and integrated drive units and high performance positioning control

NORD mechanical and electronic drive technology is used in the BMS packaging, palleting and conveyor systems. Process-based solutions for decentralised system concepts can be implemented with the compact trio SK 300E, a combination of a geared motor and a fully equipped frequency inverter. The SK 300E frequency inverter is mounted directly on the motor and is therefore integrated into the drive unit. The inverter has a maximum protection class of IP55 or IP66. The CANopen interface on the frequency inverter enables the parameterisation and control of the devices in accordance with standardised CANopen specifications. Up to 127 devices can be addressed on a single bus.

In addition to decentralised drive units, centrally installed SK 700E series frequency inverters are also used. Their range of functions includes POSICON positioning control, which enables the implementation of relative or absolute position control. "This additional positioning facility greatly simplifies the work of the control unit. For example, it is possible to directly control the drive unit with a photoelectric beam detector, so that it stops or restarts. That is easy to programme", says Bielmeier.

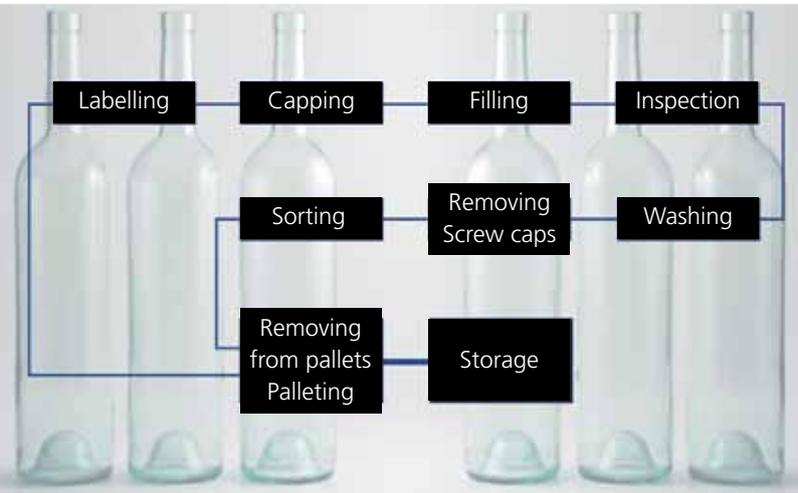


With the POSICON function, the SK 700E enables up to 252 positions to be accessed





The trio SK 300E is a motor-mounted frequency inverter, with full control and parameterisation functionality. The high IP55 protection class of the inverter, with the option of IP66 provides a robust package for decentralised drive solutions.



The pallets are unpacked and the bottles refilled.
NORD drive technology is used in the conveyor system

SK 200E: The successor of the proven SK 300E.

The new SK 225E and SK 235E versions from the SK 200E series have an onboard AS interface and are available with outputs from 0.25 to 7.5 kW. SK 200E inverters are directly mounted on the geared motor terminal box, in order to create combined, fully integrated drive units for use in the field. For AS-i wiring, only the yellow bus cable needs to be connected. These robust, reliable and economic systems are suitable for large plant installations such as conveyors, and are specially optimised for price-sensitive market segments. For more details visit www.SK200E.de



Economical and environmentally conscious advice and products

Energy-efficient and environmentally friendly drive technology



Left:
NORD drive units are mounted on both sides of the conveyor belt.

Right:
Robust drive technology for the gripper head to suit the requirements of various types of bottles

There were also other factors in favour of NORD as a partner. Energy saving is becoming increasingly important for operators of automatic systems. NORD is one of the pioneers of energy-saving drive technology and since the 90s has continuously expanded its know-how in this field. The NORD drive units used are not only efficiently controlled by means of frequency inverters, they are also equipped with an energy-saving motor and a two-stage bevel helical gear unit with 97% efficiency. NORD is also committed to a resource-saving product policy in other sectors. All equipment is painted with an environmentally friendly paint, and biodegradable oil is used for lubrication. With their sensorless current vector control, the frequency inverters ensure optimum adaptation of the drive units to the application parameters and process conditions. As well as this the trio-units have low electromagnetic emissions: Supply cables are not used between the inverter and the motor and therefore cannot be a source of EMC interference. Integrated line filters keep the supply network free of interference.

People are important

"The people you deal with are important in the selection of a supplier", says Bielmeier. BMS Maschinenfabrik not only makes great demands on its technology, but also places a high priority on interpersonal cooperation. "For us it was important how a supplier treats his customers and whether he gives good advice. In this respect we have always had good experiences with NORD." A further criterion for BMS Maschinenfabrik was the wide and comprehensive range of products which NORD supplies from a single source. "It is much simpler to concentrate on a single supplier. As well as this, we also know that NORD can comply with the food hygiene regulations."



DRIVESYSTEMS



BMS Maschinenfabrik - Company background

BMS Maschinenfabrik is a leading supplier of complete systems and stand-alone machines for the beverage industry. The development, production and sale of palleting systems, packaging machines and transportation systems is carried out from the company's plant in Pfatter in Bavaria. BMS has many years experience and intensive partnerships with established manufacturers of bottling and in-line systems. BMS specialities include planning expertise for complete industrial systems for beverage, food and stimulant manufacture as well as for the chemical industry.



Getriebebau NORD Company background

NORD develops, produces and sells drive technologies, and is one of the international leaders in the industry. In addition to standard drives, NORD supplies application-specific concepts and solutions, even for special applications, for example with energy-saving drives or explosion-protected systems. NORD produces a wide variety of drive units for torques from 10 Nm to 200,000 Nm, electric motors with powers from 0.12 kW to 200 kW as well as the necessary power electronics in the form of frequency inverters and servo controllers. The company, which was founded in 1965, recently achieved a turnover of around 330 million Euro. At present it has over 35 subsidiaries around the world. The closely meshed sales and service network ensures optimum availability for short delivery times and customer-oriented services.





www.nord.com/locator

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