

Beer in PET is a big seller

PET filling- and packaging equipment at Radomyshl brewery accelerates growth

Consumption of beer and kvass in the Ukraine is increasing by leaps and bounds. Although Ukrainians consider glass bottles an indication of the premium nature of a brew, the Radomyshl brewery nevertheless has invested in a new PET filling and packaging plant to keep up with increasing food and beverage consumption.

The **Ridna Marka Corporation**, a Ukrainian Group with headquarters located in Kiev, is famous for one thing above all others: supplying up market consumers with a correspondingly persuasive taste experience. Founded in 2000, within the last eight years the Ridna Marka Corporation has become one of the Ukraine's leading food and beverage suppliers. In the last four years alone, the company has tripled its sales volume and today, the Ridna Marka Corporation's product range includes different beer brands, kvass, fruit juices, nectars and fruit drinks, along with vegetable products, sauces, and ketchup. In 2004, the Ridna Marka Corporation also became internationally known through one of its companies, the **Radomyshl brewery**, winning two awards that year with **Etalon**, its southern German-style wheat beer (known as Weizenbier in Germany). The Etalon brand created a lot of attention within the international brewing world when it was awarded a gold medal for the best wheat beer at the 2004 Beer World Cup. This was followed by a gold medal for the best wheat beer in the world at the Brewing Industry International Awards competition. Pavel V. Rodnin, President of Ridna Marka: "These awards mean a lot to us, not least as proof that we are on the right path with strict quality control and that we have placed our trust in the right partners."

One of the Radomyshl partners is **KHS**, which has worked together with the brewery from its earliest times right up to the present. From the start of its brewing activities, KHS has not only acted as a turnkey supplier of filling and packaging equipment but has also supplied comprehensive advisory services for building planning and the organization of brewery activities. KHS' consulting even included selecting the master brewer responsible for the development of the highly awarded wheat beer brand. Rodnin says: "To this day, KHS has been a trusted and competent partner. Because KHS' top quality requirements for technology and systems are a perfect match for our demands for high quality. We again chose KHS for our most recent investment in PET filling and packaging equipment for beer and kvass."

System capacity 25,200 PET bottles per hour

Investment in new PET filling and packaging equipment was necessary to achieve these sales figures. KHS was the choice once again. As Rodnin says: "We have extremely strict requirements for our new PET line, not least in terms of microbiology, because it is used for filling both kvass and beer. KHS has implemented all our requirements in a line that simply couldn't be any better. We are very satisfied with the quality of the line technology."

Particularly when filling kvass, a highly sensitive product, the system needs to meet top quality standards. **The premium quality-oriented Radomyshl brewery is one of only a few companies in the Ukraine that brews all of its beers in accordance with the German Purity Law of 1516.** Kvass, manufactured here as a natural product, is the result of the fermentation of the basic ingredients water, rye, and malt. Rodnin predicts: "We are confident that our consumers can tell the difference between our natural kvass and those kvass products produced using synthetic components. By 2011, we expect to be supplying 40 percent of the Ukraine kvass market with our Drevlyansky brand plus five percent of the Ukrainian beer market."

In the Ukraine, kvass is normally sold in PET bottles and thus the Radomyshl brewery supplies its Drevlyansky kvass brand in 0.5-, 1-, and 2-liter PET bottles. In the medium term, however, it is looking at marketing kvass in glass bottles in order to exploit the premium connotations of this style of bottle for its high quality beverage.

The new KHS PET line processes approx. 25,200 0.5-liter PET bottles per hour and the PET bottles are now produced in situ by an InnoPET Blomax stretch blow molder. Each of the 14 cavities of the blow molder produces 1,800 PET bottles per hour. The PET preforms are fed automatically into the InnoPET Blomax stretch blow molder and heated in the machine oven according to a precisely defined heating profile. They are then stretched mechanically and inflated by compressed air. The freshly produced PET bottles leave the mold, are turned, and then transferred to the Innoline LTR air conveyor. The blow molder incorporates a fast format part changeover module so that mold forms can be changed in a very short time to guarantee the high efficiency of the line. In addition to the technical system, KHS Corpoplast supplies the Radomyshl brewery with a comprehensive consulting service for the design and optimization of PET bottles for kvass and beer. This was preceded by intensive testing of bottle types at KHS Corpoplast's "Bottles & Shapes Technical Center" where one of the options was to focus on reducing the weight of the PET bottle. This resulted in bottle production with reduced material costs and lower energy consumption. After production, the air conveyor transports the PET bottles gently and reliably by their necks under extremely hygienic conditions. The plant is equipped with an automatic rail adjustment to compensate for different PET bottle sizes. A special radial blower integrated into the air duct of the air conveyor ensures reduced flow loss and minimum energy consumption. Specially shaped louvers also drastically reduce the amount of air needed for conveying with a row of louvers arranged along the sides to effectively prevent air from being blown directly into mouth of the bottle. The conveying speed can be adjusted as required by frequency control.

Gentle and reliable PET bottle conveying

The rinser-filler-capper monoblock of the new PET line is housed in an ultra-clean room to meet the high standards required particularly for kvass and to achieve a filling process that is as germ-free as possible. The technologically relevant part of the roof of the ultra-clean housing is equipped with filter units that filter and clean the air for the clean room. There is a permanent flow of air from the roof to the floor within the housing with a slight overpressure with respect to the outside bottle shop area. This provides the open bottle conveyors with a continuous supply of filtered air and specifically prevents the entry of unfiltered bottling shop air. Gaps in the paneling ensure that the air introduced to the isolator can escape into the bottle shop.

The rinsing system in operation is an 80-station Innoclean FR-ZM designed to treat the PET bottles with two rinsing media which can be varied depending entirely on production requirements and thus can be perfectly adapted to the specific task. This is beneficial for both the highly sensitive kvass product and for traditional beer styles where simple rinsing with sterile water is sufficient. Specific rinsing programs are defined and stored in the system for kvass and for all beer styles. Changing to a different rinsing process for a different product or bottle involves pressing a button on the display screen. The PET bottles are filled using a computer-controlled Innofill DVF, a pneumatic pressure filling system and an extremely gentle volumetric filling method using long filling tubes.

Volumetric filling process with long filling tubes

Filling the PET bottles using an electromagnetic flow metering system ensures exact fill levels which in turn leads to product savings. Thanks to the bottom-up filling process, a key factor for perfect beer as well as for high quality kvass, the products take up very little oxygen, just 0.02 mg/l. At the same time, CO₂ consumption is only 600 g/hl and ensures specific cost savings. The

superbly flexible design of the Innofill DVF filling system makes it fully open for future developments. The Innofill DVF can be programmed to fill a wide range of different bottle sizes and bottle shapes with the appropriate filling program retrieved at the press of a button.

The Innofill SV servo screw capper is the system's capper. This capper is characterized by its simple and open hygienic design as well as the constant capping force which provides increased bottle opening convenience for consumers. It only requires a push of a button to change the Innofill SV-ACF setting. In addition, all parts of the capper are open to allow easy cleaning. The principle of one-stop shopping is of vital importance for ultra-clean filling. At the Radomyshl brewery, state-of-the-art fully automated KHS process engineering is integrated into the line in the form the Innopro flash pasteurizer and Innopro CIP system. The PET bottles are removed from the inser-filler-capper monoblock via a height-adjustable conveyor which further reduces setup times when changing bottle types. The task of labeling is handled by a modular roll-fed/cold glue labeler, after which the PET bottles are transported to the Innopack Kisters SP shrink packer. To meet its maximum hygiene requirements, the Radomyshl brewery has a separate shop for packing and palletizing equipment. The Innopack Kisters SP shrink packer processes the waiting pack formations, which vary according to the bottle type, in single lanes. High flexibility is the key here as new pack formats are implemented quickly. The Innopack Kisters SP modular design is equally well equipped to cope with possible changing packaging requirements in the future. For instance, the existing system can be upgraded if the Radomyshl brewery later decides to market not only shrink but also pad-shrink or tray-shrink packs. Other optional equipment such as leaflet inserters can also be easily integrated on request. There is also the option, with space reserved, to integrate a handle applicator into the line at some point. The Innopal PB1N2 gives outstanding service as a palletizing system. It is designed according to the KHS modular dry area concept and works with PC-based robot control. Complete layers are transferred from the layer preparation table to the pushover plate of the palletizer and each layer is centered from all sides prior to discharge onto the pallet. The result is perfect layer formations, gentle product handling, and high overall stability of the pallet load. The line inserter is activated automatically after each layer is released. The intelligent use of servomotors, cog belts and the PC-based robot controller mean a low-noise operation with minimum wear resulting in substantial savings in terms of maintenance and service costs while guaranteeing high machine availability. The pallet wrapper downstream from the palletizer secures the pallet load. Vladimir Kimlik, General Director at the Radomyshl brewery is very enthusiastic: "The overall design of this line is every bit as good as our KHS glass and KHS keg line. We are highly satisfied." Rodnin adds: "All in all, KHS systems enable us to supply our customers with the top quality products as defined by our company philosophy."

The Radomyshl slogan is still „Nothing less than top quality“

With the promise to offer customers nothing less than top quality, the Radomyshl brewery and the Ridna Marka Corporation as a whole, is set to continue its expansion in the future. The former regional brewery has long since become a nationwide operation. Around 7,000 restaurants and 25,000 outlets within the Ukraine currently carry Radomyshl brewery products. Added to this are exports to several countries, in particular Russia, Moldavia, and Belarus. The predominant export is traditional Radomyshl Pils. However, the renowned Etalon wheat beer is exported mainly to Western Europe. Incidentally, it has received yet another award in the UK as Tesco's top imported beer. In answer to the question as to whether the highly acclaimed Etalon wheat beer will be entered in future beer competitions Rodnin says: **„We have received the highest awards possible within the international beer industry. It is as far as you can go. However, we don't rule out the possibility of entering the products of our new premium “Radomyshl brewery beer” range in competitions. The brewing industry thus has something to look forward to. And who knows, they may soon again be saying that the best lager, Pils, or even stout, comes from the Ukraine.“**