

Enhancing sustainability and efficiency at the cold end

To supply sustainable production solutions for the container glass industry, MSK has developed new technologies for the cold end in the area of bottle conveyor systems, palletising and packaging, and pallet handling in general, Uwe Jonkmanns reports.

In recent years, climate protection and carbon footprints, hence sustainability, have become more relevant than ever. The ban on single-use plastics, in addition, played no small role in increasing demand for glass containers. Against this backdrop, large energy price increases put enormous pressure on the industry, making innovative solutions in glass production necessary. Machines must work with the greatest possible energy efficiency and their demand for energy must drop significantly.

The glass industry is investing more now than it has done in years. We are currently seeing a great deal of activity in the cold end. The validity of MSK's investments in sustainable machine concepts is being corroborated by orders from the glass industry. As a supplier for the entire cold end, MSK is leading the way and taking the creation of energy and material-saving systems seriously. The confidence displayed by the glass industry in this area is a great incentive for the company.

Shrink technology

MSK's latest generation of shrink-wrap machines reduces energy consumption. Before the most recent developments in its shrink-wrap technology, the mean energy requirements of an MSK shrink frame were already roughly 10% below the average. Now, the new generation of shrink frames introduced in 2020 lowers gas consumption by an additional 13%. For producers who want to do without using gas completely, MSK offers a new electric shrink frame of the MSK Corritech model.

Short term energy savings are possible even without having to invest in a new shrink-wrap system. "On standard models it is possible to retrofit MSK systems with the MSK Covershrink energy-saving kit," states Michael Bouwmann, Key Account Manager Glass at MSK. "Depending on pallet size and film thickness,



MSK EMSY analytics software for enhanced efficiency at the cold end.

energy savings of up to 40% are possible with the MSK Covershrink," says Mr Bouwmann, citing more specifically the benefits in cost savings and CO₂ emission reduction.

Energy-saving

MSK has also optimised its systems to reduce electricity consumption. For example, high-efficiency IE4 motors are now used.

"On drive systems that run continuously, like bottle conveyor systems, the higher purchase price of the drives pays off in a short time," states Mr Bouwmann. "On top of that, for such investments glass manufacturers can sometimes profit from European subsidy programmes."

In the case of frequent vertical movements, another logical technique for saving energy is the use of counterweights to reduce motor capacity. Optimisations of the machine design contribute to a minimisation of energy

consumption, say, through reducing the weight of moving parts.

Mr Bouwmann adds: "An example of this is the MSK Unitech universal palletising head, the weight of which has been reduced by an additional 15%."

Another feature contributing to savings is the gripper head design with clamping bars developed by MSK: compared to conventional gripper tubes, not only does it reduce air consumption, it also has considerably lower spare parts requirements. "The adjustment options also make job changes quicker and easier," notes Mr Bouwmann. ▶



MSK cold end concepts provide sustainability and high investment security.

Automation in pallet and material handling

Forklift traffic is increasingly being reduced or completely eliminated through the use of mobile pallet shuttle cars and automated guided vehicles (AGVs). In addition to improved flow in the production process, danger potential is reduced for employees, exhaust fumes and noise are minimised, and the use of fuels for forklift operations avoided.

MSK offers an extensive portfolio of pallet conveyor systems, designing the software in-house. All pallet data is reliably maintained throughout the entire logistics process, allowing seamless tracking.

Reduction of packaging materials

To avoid the use of supplementary consumables that may be harmful for the environment, MSK designs its systems to avoid mixing materials and to ensure the most environmentally friendly consumption possible. The MSK Traymaker, for example, uses a consumable-free click mechanism without any stapling or gluing – removing the need for glue or metal staples. Even the labeller developed by MSK only requires a paper label. During the palletising process it is folded and wedged into the next bottle layer by way of a secure attachment. No use of glue or self-adhesive labels is necessary. In pallet dressing systems the bottom film on the wooden pallet can also be fastened without the use of staples or glue. It is simply shrunk on with hot air, thus fixing it to the empty pallet.

Investment security

With some MSK machines the savings achieved through the conservation of resources exceed the initial machine investment after only a few years. Machine characteristics such as



Fully automated pallet handling without forklift traffic.

maintenance-free time-belt technology or the use of counterweights to reduce motor capacity through balancing can also increase the service life of the systems, while the use of water-based powder coatings and the avoidance of hydraulics and lubricants helps to protect the environment.

MSK produces its equipment based on a modular design, which provides flexibility to account for future modifications and expansions. This means that MSK palletising, packaging and conveyor systems offer high investment security by allowing for new product requirements which may not yet even exist today.

To ensure machines are ready for reliable use for years to come, the availability of spare parts is important. Thanks to the high vertical integration in its own production and to regional spare parts storage facilities, MSK spare parts are available quickly, and

will remain so for a long time.

With self-learning technology and intelligent sensor systems along the lines of Industry 4.0, MSK develops processes which further extend the service life and operational readiness of the machines.

Sustainability through digitalisation

Sustainability is increasingly made possible and visualised through the digitalisation of processes. As such, with the latest digital MSK EMSY products, MSK systems can be monitored for energy and material consumption in real time, using live figures and statistics.

The web-based MSK EMSY analytics software, developed specifically for the glass industry in terms of Industry 4.0, connects the data of all machines controlled with EMSY at the cold end, allowing centralised analysis of the entire cold end based on real-time data. The software provides transparency regarding the overall efficiency of the cold end and reveals ways to enhance efficiency even more.

The MSK EMSY smart app for smartphone or tablet is an information tool that provides status information of the systems to users without their having to be on site. Live information on performance indicators such as time statistics, availability, efficiency and error messages is available quickly, wherever you are, and allows prompt reactions to any deviations from targets.

Environmentally-friendly machine concepts, energy savings, reductions in emissions and digitalisation under Industry 4.0 are goals that will continue to mark the development and production processes of the MSK group in coming years.

MSK will present some of these innovations at the glasstec 2022 trade show in Düsseldorf, Germany in September. ●



Energy savings through new shrink-wrapping technology.

About the author:

Uwe Jonkmann is Director Sales & Marketing at MSK

Further information:

MSK Verpackungs-Systeme GmbH, Kleve, Germany
tel: +49 2821 5060
email: sales@msk.de
web: www.mskcovertech.com