



Atlas Copco

Tönnies Group sustainable meat processing success story

Region: East Westphalia, Germany

Sector: Meat slaughter and processing

Benefit: Up to 50% in energy savings

The Tönnies Group is a family company that is active at several levels of the food industry. The family group is active around the world with its eight divisions of Meat Pork, Meat Beef, Convenience, Sausages, Ingredients, Logistics, International and Central Services. The Tönnies Group has 25 international offices and production locations in Germany and other countries.

The core business of the company, which was established in 1971, concerns the slaughter, butchering, processing, and refining of pigs, sows and cattle.

Challenge:

In 2017, the Tönnies Group acquired a slaughterhouse in Badbergen, Germany with the intention of transforming it to a cattle competence center. With an investment of over 85 million Euros, converted the site into a modern and efficient facility for slaughter, cutting and finishing process based on state-of-the-art cooling technology, machine-assisted dismantling and highly automated picking and shipping routes. Several hundred tons of meat are processed at the site every day.

To achieve these volumes, Tönnies has installed several packing lines in the halls. These include seven thermoforming roller machines and two robot-operated shrink bag packaging machines. They were looking for an energy-efficient vacuum pump solution to support their state-of-the-art infrastructure. The need was for the efficient supply of rough vacuum to mold film rolls into plastic packages and fine vacuum to evacuate atmospheric air from meat-filled packages to ensure a long-lasting and fresh meat product.



Atlas Copco GHS VSD+ oil-sealed screw vacuum pumps



DRB booster pumps

Solution:

Tönnies Rind GmbH & Co. KG chose the energy-efficient GHS VSD+ oil-sealed screw vacuum pumps and the DRB booster pumps to help address their need for stable vacuum across their packaging lines. Vacuum is supplied from two central stations by the Atlas Copco variable speed vacuum pumps.

The vacuum for the thermoforming packaging machines is provided by a system of four oil-injected, speed-controlled screw vacuum pumps of the GHS 585 VSD+ series. The GHS pumps work in conjunction with speed-controlled Roots pumps to provide the so-called rough vacuum at 40 mbar(a) for the two-stage packaging process.

The end-packaging pressure in the second stage of packaging is provided efficiently and safely at 3 mbar(a) by a two-stage Roots pump combination.

In another network, the thermoforming vacuum, the vacuum required for thermoforming the packaging is provided by a speed-controlled vacuum pump of the GHS VSD+ series at approx. 150 mbar(a).

At a second vacuum station, Atlas Copco supplied five GHS 730 VSD+ oil-sealed screw vacuum pumps. These are used to evacuate the air from the shrink bags on the Cryovac lines.

"With the forming or deep-drawing vacuum, as it can also be called, the plastic shell is formed from a cut of the film roll," explains Waldemar Metzger, Technical Manager at Tönnies Rind. "After filling the bowl with rather smaller pieces of meat, the cover film follows and seals the package, and with the help of the fine vacuum, the packaging is sealed airtight at 3 to 5 mbar."

Outcome:

"As far as the technology is concerned, the energy-saving speed control of the GHS VSD+ vacuum pumps are the be-all and end-all for us," emphasizes Waldemar Metzger. "Compared to machines with fixed speeds, you can certainly save a third of the energy here - depending on the simultaneity factor, perhaps even half."

The control display of the GHS VSD+ vacuum pumps are equipped with a user-friendly plain text display, which provide easy-to-read pump performance data such as operating hours, maintenance dates and many other important parameters. Since the GHS VSD+ series are available in air-cooled variants; the installed pumps are connected directly to an exhaust air system. This further improves the indoor climate in the utility room. Additional cooling of the room, which is often present in central vacuum systems, is no longer necessary, leading to further energy savings.