Lindauer DORNIER GmbH, Germany

Efficient, flexible, and future-proof

Over the past 20 years, Lindauer DORNIER has evolved from specializing in transverse stretching machines to supplying complete, customized film production lines. The company’s close collaboration with Siemens in the areas of drive and automation technology not only provide for an overall higher process efficiency but also for a high degree of flexibility in terms of product diversity, product quality, and throughput.

Until the 1990s Lindauer DORNIER GmbH was known in the trade as a supplier of high-quality transverse stretching machines with superior clip technology that produced a particularly high quality of product thanks to a special heating solution. Since then, the German family firm has gradually evolved to become a supplier of complete film production lines. These lines cover the entire process, from raw material handling and extrusion to casting, longitudinal stretching, coating, transverse stretching, take-up, winding, and even recycling. “For our business, this development was the logical consequence of our strategic decision to start supplying complete production lines,” says Bernhard Wandinger, sales director at Lindauer DORNIER. “Only by supplying the complete process – from the granulate to the finished film – are we able to fulfill our customers’ exacting requirements in terms of quality, speed, and
flexibility.” This decision has paid off. Today Lindauer DORNIER’s film production lines are among the most efficient and flexible in the world.

“Our plants can produce cut film widths of up to 8,700 mm, offer line speeds of more than 500 m/min, and allow product changeovers in less than 30 minutes,” adds Wandinger. “One of our customers produces 50 different types of film in thicknesses of between 12 and 75 μ on a single line. The customer is fully supported in this by six modes of semiautomated plant start-up.”

Perfect division of labor

This extraordinary performance is possible thanks to the effective collaboration that has developed over the years between Siemens and Lindauer DORNIER – with a clear division of labor. “Lindauer DORNIER takes care of the customized design and all the mechanical and technical systems, and we look after the drive and automation technology on their behalf,” says Richard Gesswein, responsible sales manager at the Siemens office in Kempten, Germany. And looking after this technology involves quite a lot of work. For example, a regular film production line made by Lindauer DORNIER has more than 50 different electric motors from Siemens – ranging from the high-powered Simotics M-1PH8 motors with Flender gearboxes for the extruder, to the high-precision Simotics T-1FW6 torque motors of the casting unit, to the numerous Simotics T-1FW3 torque motors on the rollers of the longitudinal stretching machine (MDO) and the two main motors of the transverse stretching machine (TDO), to the heat-resistant Loher fan motors for zone heating. All these motors and the associated Sinamics S120 frequency converters are integrated via Profibus and distributed I/O devices, automated via Step 7, and visualized using Simatic WinCC. The Siemens specialists in Kempten supply all the drive technology and program the customized solution. “Our software and drive specialists are always on hand during commissioning of the plant,” adds Gesswein.

Higher speed, greater production output

When it comes to films for packaging, the primary concern is achieving the highest possible production output. Lindauer DORNIER’s specialists are therefore working on developments to increase the high throughput speeds even further. “Some of the components of our film stretching lines are already designed for speeds of 600 m/min,” explains Wandinger.

“Thanks to the high standard of technology and engineering of the Lindauer DORNIER film stretching lines and the potential of drive and control technology, we are now able to fulfill our customers’ increasing demands in terms of quality, line speed, availability, and flexibility.”

Bernhard Wandinger, Sales Director, Lindauer DORNIER GmbH

Less load peaks, greater energy efficiency

To reduce the energy consumption of a film production line, Lindauer DORNIER and Siemens are constantly working to optimize the energy efficiency of the plants, not only by using more efficient motors and developing innovative methods of heat recovery, but also by making improvements to the process itself. “A good example of this is the use of frequency converters for the fan motors for the zone heating, which we have fully optimized and now offer to our existing customers as a retrofitting service,” says Wandinger. “We are optimizing energy consumption by carefully adjusting the quantity of air required to suit the type of film being produced. This enables us to reduce the energy consumption of the transverse stretching machine by up to 35%. In other words, given today’s energy costs, this investment usually pays for itself within a very short time.” Thanks to the consistent automation system, the maximum amount of energy used throughout the plant can be accurately controlled, facilitating the avoidance of peak loads, which are very expensive, particularly from public grids.

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