

Macro Engineering & Technology Inc., Canada

World-class extrusion

Macro Engineering develops high-tech solutions for film and sheet extrusion. Top priority is on continuous optimization of production processes and product quality.



Corbis



The winding spindle is precisely positioned over the entire winding cycle via the Sinamics S120 drive (right)

Sheets perfectly wound on to a roll (left)

Macro Engineering & Technology Inc.

Macro Engineering & Technology Inc. is one of the world's leading suppliers of extrusion machines for a large number of plastic film and sheet applications. Located close to Toronto, the company offers a wide range of line solutions including blown film systems, cast systems, and winding machinery.

A newly developed, hybrid cast extrusion system is used to manufacture CPP and barrier films (cast polypropylene; CPP). A key component of this new product range is the winding solution, which depends upon all components working together perfectly for its efficient operation.

Precisely held positions

One of the fundamental requirements for roll building is the precise positioning of the winding spindle during the winding process, which takes place at speeds of up to 300 m/min. The spindle is designed to remain at a specific distance from the driven lay-on roll, thus creating a gap between the surface of the film roll and the lay-on roll. This precisely maintained gap aids isolation

of the tension, which is crucial for the roll quality of thin films.

To assist Macro's programming experts with this task, the reference for precise positioning of the winding spindle is determined throughout the entire winding cycle by a Sinamics S120 drive function for diameter calculation. Micro-incremental adjustments are made via a Siemens servo motor with absolute value encoder along a linear guide. The diameter calculation function is also used to trigger automatic roll changing. A Siemens servo motor precisely positions the air-shaft loading system.

Large systems with safety modules

Another product developed by Macro with the support of Siemens is the AUTOMAX-SBG reversible surface winder. Unlike conventional machines that only wind film in one direction, Macro's new machine has a reversible winding mode that allows winding of the rolls with the film's treated side on the inside or on the outside. Simatic S7 with Sinamics S120 drives, together

with Simotics S-1FK7 servo motors and a Simotics M-1PH8 main motor, ensure highly precise winding and roll change speeds. The necessary position calculations are carried out via the Sinamics S120 drive.

ASi is the vital, flexible tool that Macro relies upon when installing the additional safety modules necessary for the development of large systems. This saves valuable time when installing the modules as no wiring work is necessary and the programming of additional safety interlocks is simplified. In all developments, Macro focuses on quality and innovation, promoting new technology for the improvement of production processes and product quality for its customers. ■

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