The Right Drive for Injection Molding

The LS Mtron, the largest Korean injection machine maker and a global corporation in the field of injection molding systems, has developed a large electric injection molding machine (LGE2000HB) together with Siemens, in a collaboration that began in 2009. The clamping force is 2,000 t, and the main driving mechanisms – with the exception of clamping force generation and the movement of the split tie-bar nut and carriage – are implemented by servo-motors.

Strategic product
The LGE-2000HB was designed as a strategic product that targets high-end molding in the field of electronics, optics, automobiles, and general industrial goods. In addition to the features of a conventional all-electric molding machine, it also includes mechanisms and control functions that facilitate injection-compression molding and chemical foam molding. Unlike most all-electric injection molding machines, whose clamping force is generated through a link mechanism, this machine was developed with a two-platen mechanism like those of medium and large hydraulic machines, making it small in size and easy to maintain.

By applying a system comprising of four 1FT6 water-cooled synchronous motors, a 1PH8 asynchronous motor, and five Sinamics S120 drives to the injection axis, mold positioning axis, and plasticizing, the best results in terms of speed, cycle time, accuracy, and energy savings are achieved. Engineers from Siemens Germany in Cologne and Erlangen participated in all stages from early development to machine commissioning. Potential problems were minimized by predicting issues related to machines and control through a kick-off meeting, on-site mechatronic support, and training on the IMX injection molding platform. The issues that arose during molding at the end user’s site were solved by online remote support from Siemens headquarters in Germany and the technical support of a local Siemens subsidiary.

Leading solutions for a high-end market
With the development of the LGE2000HB, LS is expected to provide leading solutions for the high-end molding market and set a new standard in the large-sized injection molding machine market.

The new LGE2000HB injection molding machine sets standards in terms of speed, cycle time, accuracy, and energy savings thanks to an advanced drive solution.