When productivity is synonymous with reliability
Modernized packaging lines based on SIMOTION and SINAMICS

In the heart of “Packaging Valley”, not far from Bologna, one of the most dynamic and important companies active in the field of tissue is located: KPL Packaging S.p.A. In partnership with Siemens, the company has developed a plant using the SIMOTION and SINAMICS systems to renovate its range of packaging machines, bagging machines and complete lines for tissue products, increasing the reliability, performance and productivity.

KPL Packaging is part of Körber Paper Link (KPL), a multinational group with headquarters in Hamburg, able to provide system solutions for the industry of transforming paper into tissue. The KPL Packaging machines are manufactured by the Casmatic brand, synonymous with quality and success for over 50 years.

A leader in the design and manufacturing of packaging machines, bagging machines and complete systems for products such as toilet rolls, kitchen towels and folded products in general, KPL Packaging can boast today of: over 7000 functioning machines operating for more than 850 clients across the world, 200 employees, an extensive presence on the market guaranteed by a capillary network of sales, as well as service and competence centers spread throughout all the world. In a global market, increasingly dynamic and in search of the most advanced technology solutions, where high standards of productivity and reliability are indispensable factors for success, KPL Packaging S.p.A. has made technological innovation and quality the key elements on which to base their production lines. Within the family of “wrappers”, KPL Packaging offers various high-level solutions including the Wrapper 435, powered by 24 servomotors, having a production speed of 180 strokes per minute, the A5T with a fully automatic regulator for format change and, as the latest arrival, the CUBE with 34 servomotors, having a production capacity of 200 rounds per minute.

Eng. Gabriele Canini, assistant head of Research and Development in KPL Packaging, recounts the genesis of CUBE, “The market demand was to have flexible machines that could be adapted to the most various formats: from one-dimensional or single-product, to those with geometries dimensionally more complex and challenging, formed by three layers of 5x2x3 products, while having extremely low change-over and adjustment times for the various productions.”

The control platform for CUBE also had to be consistent throughout all the wrapper lines: from those at high level (24–30 axes) up to entry levels of 10 axes. These industrial arguments, or rather the industrialization with a scalable platform and the generalization of the software,
led the R&D department at KPL Packaging S.p.A. to adopt the SIMOTION platform (controls) and SINAMICS (drives) from Siemens to realize the automation of machine and axes control.

“The benefits of this choice are evident: identical structures, economies and tested products, low put into production times, reduction of testing times and the possibility to introduce new functions in lesser time,” Canini specifies. “The possibility of having a scalable platform along the development line of the wrapper family that grows exponentially is an extremely interesting result that has allowed us to configure the software practically automatically. The realization of this software project has been of crucial importance because it has enabled us to create a single master from which we can derive all possible hardware configurations of the machine and deploy any wrapper within few hours.”

The programming software Scouts allows indeed a type of modular programming that is well suited to the needs of this kind and allows the operator to enable or disable by means of a flag, software modules, corresponding to sections, or modules of the machine, thereby creating a perfect correspondence between the software and the hardware of the machine.

It has become evident that, using a single master program, it is possible to then create more machine variations or customizations with, however, the advantage of using a sole software, thereby reducing programming time and machine maintenance. The SINAMICS drive plat-
form, too, meets these needs thanks to its DC bus, which can be easily extended with single- or dual-axis modules. SINAMICS can also handle any type of motor: synchronous, asynchronous, linear or torque, thus harmonizing the components used for the various motorizations. As for the inverters, the electrical department of KPL Packaging chose specifically the SINAMICS G120 family for its characteristics of performance, wiring and security functions similar to the SINAMICS S120 drive.

With this choice, KPL Packaging S.p.A. could exploit the security features built into the SINAMICS drive thereby creating a machine with a high level of security while saving wiring, electromechanical and maintenance. “Our clients are almost all multinational, having technical offices and qualified personnel who are able to understand and appreciate the technology in our machines,” concludes Canini.

### Highlights
- With modular software programming, the operator can enable the software modules using flags corresponding to the machine modules
- The DC bus structure of the drive allows easy expansion of the axis motion system
- The use of security functions integrated into the drive saves wiring, electromechanical components and maintenance
- The possibility of using a single platform for all machine types, from the entry level to the high-end performance
“Siemens is known to be synonymous with quality and to have spare parts available anywhere or to be able to carry out service at the international level. For these reasons, Siemens is considered to be a most reliable partner.” Commenting on the possible market developments Canini specifies, “It’s very important that our machines can follow the dynamics of the product. Having a flexible machine, thanks to Siemens, we can intervene at any time in the future, inserting new functions, adapting the machine to new products very quickly and with little effort to satisfy any demand of our customers.”