New weaving machine concepts are intended to meet the growing demand for high quality woven ware – cost and time effectively. Based on a comprehensive automation solution portfolio, Siemens has the right answer for each individual customer. The prerequisite for this is finding the most economic mechatronic equipment while taking into account the diverse techniques: weft insertion technique (projectile, gripper, air nozzle), shedding (shaft movement), patterning with Jacquard machines of various kinds and handling properties of such different threads as cotton, silk, monothreads, hard fibers and wire.

Modules as a basis
From now on, it is possible to adapt the product range through specific project work with the OEM and common market research so that the weaving process is improved on the one hand and at the same time new technological solutions and markets emerge.

Based on a controller for textile machines, the weaving-technological movement tasks have been defined user-specifically both on the hardware and software level and implemented in the platform portal of the Simotion control. This first module which determines a basic weaving function serves as a foundation for further automation solutions.

Modules such as the so-called winding computer function module (FM) could also be integrated in the technological object by splitting the process chain, i.e. eliminating the mechanical functions linked to the main drive. The winding computer FM ensures high-precision axis coordination in the repositioning after a thread break. The warp and weft density, thread tension, binding etc. are converted into optimized equivalent axis drive parameters which simplifies changing of the fabric quality.

The new module concept has already proven itself in machines with different weaving technologies such as in plastic die weaving machines with gripper rod weft shot or in projectile weaving machines for flat fabrics.

Versatile
Regardless of the machine manufacturer’s philosophy, the Simotion basic project runs on different hardware platforms. No new application has to be created in Simotion either for different machine-technical requirements. With standard interfaces which can be freely combined and exchanged, projects which have already been created can be adapted with little effort to the new object qualities. All supplementary units such as color selector, shaft machine, Jacquard machine, forward winding machine etc. can be accepted or deselected. Actuators and sensors are also standardized – by bus technology and use of only one standard voltage.

Rejuvenation
Servo and asynchronous axes have also been implemented in mixed mode depending on the requirement profile. In one case only a regulated drive (asynchronous warp let-off) is used while all other functions are still derived from the main axis or from direct drives. Here too the basic technological object was adapted to the existing machine periphery. This relatively “painless operation” is also recommended for “retrofitting” older machines.

The weaving machine goes modular with Simotion
Time to Say Good-bye
The most sophisticated discipline in textile machine manufacturing – the building of weaving machines – is freeing itself of the vertical shaft: the age of the modular weaving machine has come. With a system of function modules, a wide range of combinations becomes possible.