ELECTRONIC PATTERN DRIVE IN WARP KNITTING
(TRICOT AND MULTIBAR LACE MACHINES)

Zekai Kilicarslan\textsuperscript{1}, Klaus Schulze\textsuperscript{2}
\textsuperscript{1} ERKO SINAİ ÜRÜNLER MÜMESSİLİK TİCARET A.Ş., Istanbul, Turkey
\textsuperscript{2} KARL MAYER Textilmaschinen GmbH, Obertshausen, Germany
zekai@erko.com.tr

KARL MAYER is the world leader in producing warp knitting machines and warp preparation units. We supply high-quality products with brand-name status. With its innovations the company sets the technical standards of the trade and assists its customers all over the world with comprehensive support, covering a competent and fast service as well as practical staff training, and rendering help for the development of new products.

The production of warp-knitted products involves the use of pattern-disc controlled bars in warp-knitting machines. Each bar of a warping machine has its dedicated pattern disc, which has to be created on the basis of lapping designs by the textile development department. As new designs are created, new pattern-discs have to be produced, to manufacture the specific fabric. Though do pattern-discs offer the most precise curved form. This ensuring a very smooth machine run at highest possible working speeds along with very accurate shog motions of the guide bars. But such a pattern disc is made for a specific lapping repeat only. Besides, the pattern disc cannot always be used in a compatible way for all the guide bar positions. In other words: a pattern disc cannot necessarily be used for ground bar 1 and alternatively for ground bar 4, for example, even if both guide bars work the same lapping. Pattern discs are a reliable and time-tested technology, newer and more sophisticated technologies are beginning to change the industry.

The technology leader KARL MAYER wants to present at the XIII\textsuperscript{th} International Izmir Textile and Apparel Symposium is called “Electronic Pattern Drive (EL)”. This technology has several advantages when compared to the pattern-disc system. Whereas the pattern-disc based system requires new physical pattern discs for each design pattern, the patterning possibilities with the EL technology are without limits. Usually, a pattern disc is capable of providing patterns with a maximum of 32 courses, and a maximum shopping movement of 28 needles (1 inch, E28 gauge). The EL drive however has no limits regarding the quantity of courses per pattern and has a shopping movement of 56 needles (2 inch, E28 gauge). On electronic pattern drives each guide bar is controlled by its own motor, thus ensuring a very precise shog motion. By simple programming it is possible to obtain various lappings, along with the longest shog distances. This is made possible by servo-motors, which are programmed digitally via a USB interface. Designs can be created by two possibilities: 1) a direct input of the lapping layout (chain link) via the operator interface or 2) create the pattern on a specific Software program “ProCad Warpknit” from Texion. With that program it is possible to simulate the textile as 3D pattern on the screen before produced. When the design is ready you can uploaded it and transfer via USB stick into the system via touchscreen, the motors are automatically programmed and the design can immediately be put into production. With this transfer from the computer to the machine easy and fast pattern changes as well as the possibility of pattern storage are big advantages. Moreover the producers save time and
money to change patterns. They don’t have to order pattern discs anymore and no machine stops due to assembly of it. Electronic pattern drives are extremely flexible, fast and easy to maintain. Electronic drives are available across all product categories of KARL MAYER, including Lace, Tricot and Raschel machines.