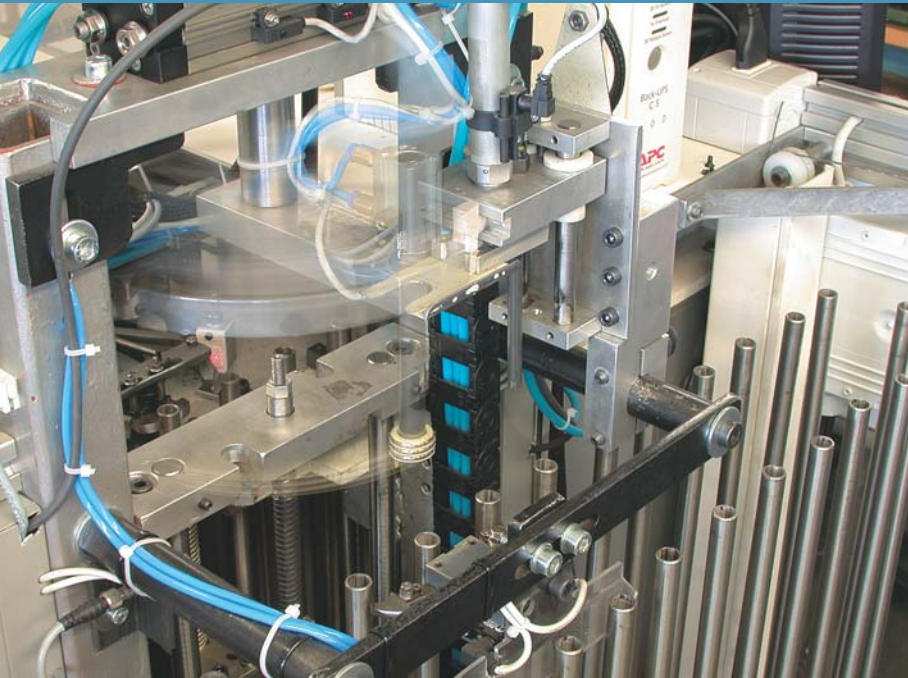


Exclusive textile processing technology with PC control

Traditional workmanship merges with high-tech

→ The company Castello Officine s.r.l., based in Trivero, Italy, has been producing textile machines since 1948. Utilizing decades of experience, the company produces exclusive stretcher machines using state-of-the-art technology and distributes them worldwide.



Machine detail – Ring discharge store for the bars of the main chain

The stretchers manufactured by Castello Officine can be used to produce the whole range of existing fabrics and can be adapted to any frame model available in the market. As structural components of the weaving frame, the stretchers maintain the height of the woven fabric at the edges. At the core of the stretcher is a ring that is produced in about 80 variants. It is similar to a traditional wedding ring and features an annular series of metal tips that protrude from the edge and make contact with the fabric. The stretcher consists of a series of rings of different types that are combined to match the different fabric processing phases.

PC-controlled ring configuration

The rings required for the current stretcher are automatically arranged in the "intelligent ring store." The store is subdivided into two main areas. The main ring store chain features 400 bars with a height of around 1 meter each and can hold about 120,000 rings in total. TwinCAT control software from Beckhoff subdivides this chain into dynamic sections of fixed sizes containing a certain number of bars. The discharge chain features 40 bars with a length of approx. 50 cm each. The rings removed from the main chain are temporarily stored here in the order required for configuring the current

stretcher. The machine is controlled by a C6140 Industrial PC from Beckhoff that is connected to the corporate Ethernet network. The Castello Officine operating software is written in Visual C# .NET and enables connection of the machine with the central factory server on which all stretcher ring configurations are stored.

When an order is received, the stretcher ID is entered in the PC. The PC retrieves the ring configuration for the current stretcher from memory, loads the required information, automatically calls up the bars in the right sequence to prepare the rings for removal in the order required for assembly, and finally arranges them on the discharge bar using a special device.

Ethernet coupler enables real-time communication

The hardware configuration of the system consists of a PC with Bus Terminals and a BK9000 Ethernet Bus Coupler, plus a KL2502 for controlling a stepper motor, a KL5151 for position detection, and a KL4001 for controlling the speed of the main chain. The PC features an additional Ethernet network card for the sole purpose of communicating with the BK9000. The Ethernet coupler was chosen to enable real-time Ethernet operation of the standard PC hardware. Another advantage: Since Ethernet is used as fieldbus, no additional Fieldbus Cards are required in the PC. The system remains lean and development costs are reduced.

→ Castello Officine s.r.l. www.temple-castello.com

→ Beckhoff Italy www.beckhoff.it