Compact Yarn

Technology for top quality & flexibility
Despite the high precision of the ring spinning process, ring-spun yarns still present some defects. These defects arise from the fact that the fiber bundle coming out from the front cylinders is wider than the spinning triangle. This entails that edge fibers are usually lost or caught in a disordered way into the yarn.

Compacting technology allows to reduce the width of the fiber bundle so that all fibers are caught and integrated into the yarn structure, with the following benefits:

- Reduced yarn hairiness;
- Enhanced yarn evenness;
- Higher strength and elongation values;
- Less variability in yarn strength and elongation;
- Lower required twist on the spinning frame (higher production);
- Reduced fiber fly in weaving and knitting operations (fewer defects on the fabrics and higher efficiency of the machines);
- Enhanced fabric properties (fabric strength, abrasion resistance, pilling behavior, visual and tactile characteristics).

The positive effects of compacting systems have fostered spinners to use them on an increasing variety of counts (coarse, medium, thin and extra-thin counts) and types of yarn (combed, carded and synthetic yarns). Meeting the market demand for a versatile compacting system that could achieve superior quality outcomes for all types of productions, Marzoli has designed an innovative, state-of-the-art compacting system, the Mac3000.

The results obtained with Marzoli partners witness outstanding quality results with the highest degree of reliability on all types of yarns (carded and combed) and with all types of fibers (cotton, synthetic and technical), testifying Marzoli Mac3000 superior versatility.
Compacting zone

With Marzoli Mac3000 compacting is performed by means of a suction nozzle positioned between the first cylinder and an auxiliary cylinder; the fibers are supported by a special perforated apron that has been designed by Marzoli in order to achieve outstanding results and to guarantee maximum visibility and accessibility. The special design of the perforated apron allows this component to generate an auto-cleaning effect which further reduces cleaning and maintenance costs. The Mac3000 compacting zone guarantees that the fiber flow reaching the yarn formation point is so narrow that the spinning triangle includes almost every fiber for a virtually perfect structure and substantially improved properties of the yarn.

Driving System

The auxiliary cylinder of Marzoli Mac3000 Compacting System is driven by a servo-motor which allows to precisely set the desired speed of the cylinder for the best setting of the tension for top compacting results.
Suction System

The suction duct has been designed in order to achieve a constant air depression throughout the machine and, consequently, the perfect uniformity of the yarn being produced. The suction box is equipped with an advanced filter which undertakes automatic cleaning: this entails that suction works always at its best with constant depression and reduced human intervention. The speed of the suction motor is set by inverter so that the customer can always achieve the best balance between compacting effectiveness and low energy consumption.

Yarn Quality Results

The results obtained with the latest Uster Tester technologies with Marzoli partners testify outstanding quality results:

- a reduction of yarn hairiness of 30%
- an increase of yarn strength for cotton yarn up to 30%
- an excellent reduction of thin and thick points in the yarn
- a substantial improvement of yarn evenness

Alternatively, the great improvements on yarn structure, achievable with Marzoli Mac3000, allow to reduce the twist and increase the speed of the spinning frame for production levels up to 30% higher than standard yarns production.
Marzoli Mac3000 / Software Platforms

End2end production management platform: the YarNet

The YarNet is Marzoli’s highly innovative production management software which allows the user to easily monitor and manage from his/her computer each and every machine of the spinning mill. Thanks to the simple and logical structure of YarNet, with no complicated and useless functions, the customer can have a clear overview of the entire spinning plant and reach a highly improved speed of response in production operations. Furthermore, when the customer must insert a new production recipe, he can do that while sitting in his office instead of standing in front of the idle machine: this highly reduces the chances of mistakes and machine downtimes.

The Remote Maintenance

The Remote Maintenance is Marzoli’s unique service that draws on diagnostic technology installed inside the machine to identify technical malfunctions at an early stage and, thus, reduce all the related inefficiencies, costs and losses of productivity. Through the adoption of a specific hardware, sensors installed in critical parts of the machines, predictive algorithms developed in the research phase and the latest paradigms and technologies (IoT, data warehouse, big data, cloud computing, machine learning, M2M, M2H) based on an important partnership with Microsoft, it is possible to scan the machine operating conditions, to monitor critical parameters and send, electronically, the relevant information to a dedicated team inside Marzoli. This team monitors in real time all Marzoli machines installed at the client’s plant, sends reports on their status on a weekly basis and, if there is any parameter out of control, it contacts the customer and provides live assistance.

Benefits of the Remote Maintenance

- Higher productivity
- No machines unplanned downtimes
- Prevention from major machine failures
- Longer plant lifespan
- Higher efficiency
- Complete reliability
- Trouble free spinning experience
- Better maintenance planning