EliTe®CompactSet-L

SUESSEN EliTe®Compact Spinning System
for Worsted Ring Spinning Machines
COGNETEX and SUESSEN signed a contract for the cooperation in the field of Compact Spinning.

COGNETEX is the well reputed manufacturer of worsted ring spinning machines based in Imola/Italy and enjoys an eminent respect in the field of fine wool applications.

COGNETEX supplies the new worsted ring spinning machines IDEA with SUESSEN EliTe®Compact Spinning System.

The SUESSEN EliTe®Compact Spinning System was first introduced to the market at ITMA Paris 1999. In a short period of time the system achieved the reputation as being the most versatile Compact Spinning System and is universally accepted as the preferred way to produce highest quality worsted compact yarns.

The EliTe®CompactSet-L compact spinning system is designed to meet the most challenging demands that high-end spinning mills make on a compact spinning system:

- Optimum and sustained yarn quality
- High consistency of all yarn parameters
- Minimal variation between spinning positions
- No restrictions in regard to raw material and yarn count
- User friendly
- Universal application
- Can be installed on almost all machine types
- Many optional features
Ermenegildo Zegna
Customer Testimonial
Spinnovation No. 29 - Mill Report

Spinning the Story of Wool: From Noble Fibres to the Finest Fabrics

Lanificio Zegna: where tradition merges with modernity

When young Ermenegildo Zegna first launched his dream of becoming the most important Italian manufacturer of precious fabrics, and founded Lanificio Ermenegildo Zegna (Zegna Wool Mill) in his home town of Trivero, Italy, he turned his attention to this ancient noble fibre - Wool.

He established his wool mill within a territory whose wool tradition dates back to the 14th century. Ermenegildo leveraged this ancient experience and actively sought to improve the efficiency, dedication and knowledge base of his workers because he understood that if cultivated, it would be handed down from one generation to the next. In this way, Lanificio Zegna could ensure the highest levels of craftsmanship and expertise, as master artisans would train their sons and daughters to intimately understand the intricacies of the craft.

A pioneer in every sense of the word, Ermenegildo Zegna used research and patience to improve the very attributes of fine Australian wools in order to develop new fabrics boasting the finest quality and most innovative characteristics. Over the years as industrial spinning and weaving processes have improved, Lanificio Zegna has adopted these new technologies without forgetting the importance of manual ability and craftsmanship. Nor has it forgotten the importance of its roots. Trivero is one of the most important textile districts in all of Italy largely due to the proficiency and skill of the workers and the quality of natural resources, such as water, which are fundamental to the fabric making process.

Even now, the choice of location, the choice of machinery and the choice of methods are all concentrated on producing the very best final product, and the union of avant-garde technologies and century-old traditions is part of what has made Ermenegildo Zegna the worldwide leader in the production of exceptional, highly innovative fabrics.

ElTe®Compact Spinning Technology meets Ermenegildo Zegna

In the worsted yarn sector Suessen started in 2005 with the modernization of FIOMAX 2000 machines, and today ring spinning machines of Cognetex, Gaudino and Zinser can also be equipped with the ElTe®Compact Spinning System.

In order to safeguard their trend-setting role and leadership in the field of high-class wool worsted fabrics, Zegna invested in the Suessen ElTe®Compact Spinning Technology. After a first order to Suessen for 4 sets of ElTe®Modernizations of existing Cognetex IDEA machines, they purchased from Cognetex six new worsted ring spinning machines IDEA (double drive) with integrated ElTe®Compact Spinning System.

The Lanificio Zegna spinning mill produces approximately 500,000 thousands kg a year of worsted compact yarn in counts from Nm 40 to Nm 140. Suessen is proud to contribute with the ElTe®Compact Spinning System to the future of Ermenegildo Zegna.
Milestones achieved in SUESSEN
EliTe® Compact Spinning

SUESSEN is a pioneer in the compact spinning technology, a worldwide technological leader and a highly successful supplier of compact spinning systems.

Customers are free to choose their favourite basic machine for the EliTe® Modernization. SUESSEN experts install the EliTe® Modernization Components on the preferred machine.

As a result of the technological competence and vision of many mill owners, the new spinning system was received with great enthusiasm.

Consequently, SUESSEN market leadership expanded significantly due to continuous improvement and advancement. This meant that by June 2015, over 8.5 million EliTe® Spindles had been installed, 250,000 of which for worsted spinning.

EliTe® Yarns provide revolutionary advantages in all yarn parameters and have already set new quality standards. Furthermore, they have proven to be cost effective in terms of spinning and downstream processing. This has ensured an unrivalled quality improvement not only in the yarn, but also particularly in the textile end product.

What is compact spinning?

The purpose of a genuine compact spinning process is to arrange the fibres in a completely parallel and close position before twist is imparted. This is the most important criterion for perfect compact yarn.

The eliminated spinning triangle is a by-product of this concept. This close and parallel arrangement of fibres immediately before twist is imparted is responsible for the characteristic advantages of compact yarn (see page 11 – How Our Customers Will Benefit).
The Distinctive Features of EliTe®CompactSet

Process of Compacting

- Compacting takes place in the compacting zone following the main drafting zone of the drafting system. The drafted fibre strand is compacted before twist is imparted, meaning fibres are arranged in a close and parallel position to one another. And by using the EliTe®CompactSet, this effect is achieved by an air flow produced by a vacuum and an inclined slot.
- Drafting is carried out by the conventional drafting system.
- When the open fibre strand leaves the clamping line of the main drafting zone, a lattice apron will guide it over an inclined slot that is under negative pressure.
- The compacting of the fibre strand will start at the edge of this slot.
- The fibres leaving the compacting zone are perfectly parallel and in close contact with one another.
- Twist is imparted to the round fibre strand without a spinning triangle; through being perfectly embedded, all fibres contribute to the yarn strength; there will be hardly any fibres over 3 mm in length that stick out; no fibres are lost in the spinning triangle.
- Such crushed or reversed fibres as those passing through a condenser will not be found.

EliTe®CompactSet-L - the most flexible, successful and versatile compact spinning system for worsted spinning available on the market:

The basis is the EliTe®CompactSet-L for spinning single EliTe®Yarns, which comprises four well harmonised structural groups:

- Encapsulated EliTop with front top roller and EliTe®Roller
- EliTube suction tube with lattice apron, insert and reversing rod
- EliVAC system for providing the vacuum, including all pipes and connectors
- Reinforced gearing adjusted for the basic machine type and length
- Optional: HP-GX 5010plus top weighting arm
The Distinctive Features of EliTe®CompactSet

Applicability of the System

EliTe®CompactSet can be retrofitted to almost all types of worsted ring spinning machines of renowned manufacturers.

To increase the operational reliability of a retrofit solution a reinforced gearing is installed if necessary, which is adjusted to the machine type and length.

The EliTe®CompactSet-L can be supplied with the SUESSEN HP-GX 5010plus Top Weighting Arm.

In addition, it is possible to reuse the top weighting arms of renowned manufacturers already installed on the machines.

Spinning limits

There are in fact no restrictions regarding the number of yarn counts that can be spun. Thanks to the improved embedding of the fibres in the fibre strand (utilisation of fibre substance) the number of fibres in the yarn cross-section can be reduced when reaching the limit of spinning stability. This means that a finer yarn count can be spun with the same fibre quality.
The following optimized spinning accessories and components are used for the EliTe®CompactSet-L:

The encapsulated EliTop with new intermediate gears named EliGears is even more efficient.

The lattice apron 5star®Q will guarantee a long service life and long maintenance intervals, as well as low variation of the yarn parameters between the individual spinning positions.

The EliTube 5star®Tube has been equipped with a large insert that can very easily be ‘snapped in’. This will improve the precision of setting and service life.

Different slot shapes (delta, straight) optimize the yarn quality achievable in the coarse and fine yarn count range. The V-shaped slot is used for EliTwist®.

The special surface finish minimizes the friction between EliTube and lattice apron and helps to extend the service life of the lattice aprons.

The new EliTube “5star®Tube” can be retrofitted to older versions of EliTe®CompactSet-L. Ideally, it should only be used in combination with 5star®Aprons.
The vacuum for compacting is produced by means of two central ducts, which are usually fitted in the area of the creel. One EliTube on the left and on the right of the machine respectively are connected to the ducts with flexible hoses, tubes and a distributor.

The central ducts are connected to a central filter box called EliBox. The uniform vacuum at all spinning positions is realized with various orifices. The speed of the fan and the resulting vacuum can be adjusted by a frequency inverter.
EliTwist® – Optional EliTe® Technology

The development has been continued by SUESSEN EliTwist®, which perfectly combines the basic principles of compact spinning and “Siro” spinning. In many aspects, EliTwist® Yarns even outmatch two-ply yarns produced with the two-for-one twister.

Almost every seventh compact spindle delivered in the worsted sector is equipped with the EliTwist® Technology. The EliTwist® variant will enable you to produce compact two-ply yarn in a single operation on the ring spinning machine. The yarns distinguish themselves by lowest hairiness values, excellent utilization of fibre substance, high yarn evenness, maximum work capacity and good cost effectiveness.

The EliTwist® Spinning Method is the most cost-effective method world-wide to produce two-ply compact yarns. Their technological yarn parameters are unequalled. The EliTwist® System can be retrofitted to all EliTe® Spindles so far delivered. All ring spinning machines suitable for the EliTe® CompactSet can be equipped with EliTwist®.
Advantages for your yarn

- Tenacity increased by up to 10%
- Zweigle (S3) hairiness (fibres exceeding 3 mm) reduced by up to 80%
- Elongation increased by up to 25%
- Work capacity increased by up to 50%
- Yarn irregularity improved by up to 1.5 CV%
- IPI imperfections reduced by up to 70%

Your advantages in spinning

- Optimum utilisation of fibre substance
- Substantially improved spinning stability
- Possibility of reducing yarn twist by up to 15% with corresponding production increase
- Ends-down rate reduced by up to 60%
- Fewer fibres in the yarn cross-section or inexpensive raw material possible
- Fibre loss reduced by up to 0.01%
- Fibre fly definitely reduced

Sustainable advantages in downstream processes

Winding

- Increased efficiency, reduced contamination
- Higher winding speeds possible
- Fewer clearer cuts due to fewer ends-down in spinning

Twisting

- EliTe®Yarn often replaces conventional two-ply yarn
- EliTwist®Yarns replace conventional two-ply yarn
- Two-ply yarn made of compact yarns requiring up to 20% less twist

Weaving preparation

- Less fibre fly and reduced ends-down in beaming and warping increase efficiency

Weaving

- Better weaving machine efficiency, resulting in increases in production of up to 15%
- Up to 40% less ends-down in warp and weft
- Less fibre entanglement in the warp
- Less contamination/accumulation of fly on the machine

Knitting

- Increase in machine efficiency and production
- Less contamination, less maintenance, less idle periods
- Waxing can often be dispensed with
- Single thread can substitute for double threads
- Reduced wear of needles

Finishing

- Singeing is reduced or even eliminated – less loss of weight on the spun yarn (yarn is „burnt“ during singeing)
- Dye liquor absorption improved, less dye liquor required
- Cone dyeing instead of top dyeing possible

Savings in raw material are also possible

- More inexpensive raw material
- Spinning of coarser wool

Advantages in the textile article

- Increased strength in the fabric
- Less pilling tendency
- Improved lustre
- Better stitch definition
- Clearer weaving structure and more defined contours
- Better touch of fabric
- Possibility of developing completely new products
- Better stability of shape
Conventional Worsted Ring-Spun Yarn

EliTe® Compact Yarn

EliTe® Compact Set
The compact spinning system for ring spinning machines

New ring spinning machines

Existing ring spinning machines

EliTe® Compact Set-L
for long-staple fibres
Wool, man-made fibres and blends

Standard: EliTe® Single Yarn
Single compact yarn

Optional: EliTwist®
2-ply compact yarn directly from the ring spinning machine

HP-GX top weighting arm family

Other top arm types of renowned manufacturers
Suessen is built on a solid foundation. In conjunction with the sister companies, Bräcker, Graf and Novbra, Suessen is securely embedded in the network of total solution and application expertise in yarn processing.

Bräcker  www.bracker.ch
Graf  www.graf.ch
Novbra  www.novbra.cz