EliTe® CompactSet V5

SUESSEN EliTe® Compact Spinning System for Short-Staple Ring Spinning Machines
The EliTe® CompactSet 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

Your Compact Spinning System
for any Application
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 July 2012, over 5.5 million EliTe® Spindles had been installed.

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.

This development has been furthered through SUESSEN EliTwist®, which perfectly combines the fundamental principles of compact spinning and “Siro spinning”. And in many respects, the EliTwist® Yarn spun on the ring spinning machine even outclasses two-ply yarn from the 2-for-1 twister.

Impressively, every seventh compact spindle supplied by SUESSEN is already using EliTwist® Technology.

The wide application range covers anything from bed sheets to shirts to T-shirts (not to mention many other products).

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 10 – 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.

• Normal drafting is carried out by a 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 tension draft between the front top roller and the EliTe®Roller also supports the compacting effect.

• 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 - the most flexible, successful and versatile compact spinning system available on the market:

EliTe®CompactSet V5 is an upgraded version of the successful EliTe®CompactSet. The innovations – either individually or collectively – can be retrofitted to preceding versions.

The basis is the EliTe®CompactSet 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 hoses and hose connectors

• Reinforced gearing adjusted for the basic machine type and length

The EliTe®Technology Components are installed by our highly experienced SUESSEN technicians.

• Can be applied to new machines by the OEM or retrofit to all types of ring spinning machines of renowned machine manufacturers

• Designed for all types of fibres and blends

• Works with spinning single yarns, two-ply yarns and core yarns

• Optimized and universally applicable spinning accessories and components

• Retrofit possible to most different types of top weighting arms of well-known suppliers

• Optional equipment for vacuum monitoring and control
The Distinctive Features of EliTe®CompactSet

Applicability of the System

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

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

The EliTe®CompactSet-S is usually supplied with the SUESSEN HP-GX 3010 Top Weighting Arm.

In addition, it is possible to re-use the top weighting arms of renowned manufacturers already installed on the machines. The SUESSEN sales department will be happy to provide you with further information on this matter.

Machines with suction tubes for groups of spindles can optionally be equipped with single suction tubes.

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.
Optional EliTe®Technologies
EliTwist® and EliCoreTwist®

The EliTwist® variant will enable you to produce compact two-ply yarn in a single operation on the ring spinning machine. It can be extended by a core-yarn device to produce EliCoreTwist® yarns. The yarns distinguish themselves by lowest hairiness values, excellent utilization of fibre substance, high yarn evenness, maximum work capacity and good cost effectiveness.

EliTe®CompactSet V5 represents a further advancement of the most successful and versatile compacting system available to the market. Consequent innovation and progress ensure the following: universal applicability of components and structural groups, improved yarn quality, extended service life, even less maintenance and maximum operational reliability in industrial application.

“Nothing can compete with the flexibility and reliability of EliTe®CompactSet.”

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 retro-fitted to all EliTe® Spindles so far delivered. All ring spinning machines suitable for the EliTe® CompactSet can be equipped with EliTwist®.
The following revised spinning accessories and components are used for the EliTe®CompactSet:

The encapsulated EliTop with new pins to guide the intermediate gears is even more efficient.

The lattice apron 5star®Q will guarantee a long service life and increased 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 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 the suction tube and lattice apron and in doing so helps to extend the service life of the lattice aprons.

5star®Tube can be retrofitted to all versions of EliTe®CompactSet. Ideally, it should only be used in combination with 5star®QAprons.
The HP-GX 3010 Top Weighting Arm is equipped with the „Active Cradle“. Incorporating very close apron nips, this cradle provides optimum fibre guidance and improves yarn irregularities and the number of IPI yarn defects, especially in combination with stepped bottom apron nose bar.

The vacuum is produced by means of one or two central ducts. These ducts 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 ducts are connected to a central fan unit with filter box. 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. Reduced maintenance and energy consumption, as well as faster erection create a cost-saving effect.
Like all compact spinning systems, the EliTe®Compact Spinning System increases the torque of the front bottom roller.

Consequently, SUESSEN reinforces the entire drive system up to the front bottom rollers.

Naturally, the design of this reinforcement is dependent on the machine type and length.

Therefore, the service life of the gearings – relative to the machine prior to the conversion – will be significantly extended.

Single-motor draft gearings on modern ring spinning machines are supported, if required, by additional high-performance motors.
Customer Value

Advantages for your yarn

• Tenacity increased by up to 25%
• Zweigle (S3) hairiness (fibres exceeding 3 mm) reduced by up to 85%, Uster (H) hairiness reduced by up to 30%
• Elongation increased by 15% (CO) to 20% (WO)
• Work capacity increased by up to 50%
• Yarn irregularity often improved
• IPI imperfections frequently reduced significantly

Your advantages in spinning

• Optimum utilisation of fibre substance
• Substantially improved spinning stability
• Possibility of reducing yarn twist by up to 10% with corresponding production increase
• Ends-down rate reduced by up to 60%
• Fewer fibres/inexpensive raw material
• 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 single yarns requiring up to 20% less twist

Weaving preparation
• Less fibre fly and reduced ends-down in beaming and warping increase efficiency
• 30-50% less sizing agent required

Weaving
• Better weaving machine efficiency, resulting in increases in production of up to 15% (For example: Ne 30 in air-jet weaving machine: weft insertion with conventional ring-spun yarn 500-600 m/min, with EliTe®Yarn 700-800 m/min)
• 33% less ends-down in weft insertion
• 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
• Less waxing
• 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

Savings in raw material are also possible

• More inexpensive raw material
• Carded compact yarn instead of combed yarn
• Standard PES instead of „low-pilling fibres“
• Reduced combing in case of combed yarns
• Spinning of coarser wool

Advantages in the textile article

• Increased strength in the fabric
• Less pilling tendency
• Improved lustre
• Clear print
• 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 Ring-Spun Yarn  EliTe®Compact Yarn

EliTe®CompactSet
The compact spinning system for ring spinning machines

New ring spinning machines
Existing ring spinning machines

EliTe®CompactSet-S
for short-staple fibres
Cotton, man-made fibres and blends

EliTe®CompactSet-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

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

HP-GX top weighting arm family

Other top arm types of renowned manufacturers

New components: EliVAC-CDS

New optional application: ACP with PINSpacer NT
Suessen is built on a solid foundation. In conjunction with the sister companies, Bräcker, Graf and Novibra, Suessen is securely embedded in the network of total solution and application expertise in yarn processing.

Bräcker  www.bracker.ch
Graf  www.graf.ch
Novibra  www.novibra.cz