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Werner Strasser, Head Business Group PTC
Editor in Chief SPINNOVATION

Dear Reader,

In China, the year 2014 is the year of the horse. The Chinese interpret this as a call to approach new projects with confidence and determination. So do we! Therefore we bring some of the best horses of our shed to the ITMA Asia, taking place from June 16 to 20 in Shanghai: the companies Bräcker, Graf, Novibra and Suessen will present their innovative products in the course of the most important Asian Textile Machinery Exhibition.

Before I go into these innovations, I would like to briefly recall the year 2013. It was a challenging year that we were able to master successfully. I'd like to thank our customers cordially for their confidence and trust in our Premium Products:

- The demand for Bräcker spinning rings and travellers is increasing worldwide.
- The card clothings of Graf are well established in the premium market segment.
- A growing number of OEMs implement Novibra's underwinding-free CROCOdoff spindles in their ring spinning machines.
- With the EliTe®CompactSet Suessen still dominates the world market in compact spinning systems.

These successes are no coincidences. Such accomplishments are achieved when sophisticated customers still ask for more; our Sales Representatives seriously follow up the requirements of our customers and our designers master these challenges with smart ideas.

In this issue of SPINNOVATION you will read of some success stories, proving that "Experience the difference" is much more than just words. No marketing slogan, but the serious promise to do anything to optimise the benefit for our customers. This is true for yarn parameters as well as for energy consumption and the exploitation of the fibre material.

A good example for this is the new EliTe®CompactSet *Advanced*. It leads us back to the innovations I mentioned at the beginning of the Editorial. EliTe®CompactSet *Advanced* again will raise the bar for compact ring spinning systems.

With our Premium card clothings, spinning rings, spindles, etc. you can operate your mills even more efficiently and economically than before.

I'm very proud and honoured that well-known companies and entrepreneurs give their name to vouch for our Premium Products. For instance Ermenegildo Zegna: This world-famous Italian label for up-market men's fashion tailored of the finest fabrics is among the new testimonials.

You will come to ITMA Asia? If so, please find the time to drop in at our booth C07 in hall W4. My colleagues and myself are well prepared to demonstrate to you our understanding of "Experience the difference".

Yours sincerely



EliTe® CompactSet *Advanced* (patents pending)

Next Generation of a Recipe for Success



Fig. 1: EliTe® CompactSet *Advanced*

For more than 15 years Suessen has been very successful in merchandising the EliTe® Compact Spinning System in the markets.

Right from its market introduction during ITMA Paris 1999 for short staple ring spinning as well as worsted spinning, the whole ring spinning system received another boost after the “doffer revolution”.

For a very long time, it was “common knowledge” that it would be neither realistic nor possible to improve the already excellent yarn parameters to such a level that the productive advantages of the so-called “new” spinning systems as open-end rotor spinning and air-jet spinning could be outweighed, so that the “old” ring spinning system would inevitably become an easy prey to the very high production speeds of the “new” systems.

But if nothing else, the innovative strength and determination of Suessen and its research & development company WST enabled the ring spinning system to even further strengthen its exceptional position in the spinning mills.



While the compact spinning system was originally designed to improve the various yarn parameters, reduced yarn hairiness leading the way, in the course of time innovative spinning mill owners increasingly developed procedures to transform lower valued raw material into excellent ring yarn.

Some cotton provenience and also combing noils that could only be marketed as rotor yarns, now find their way – as addition to virgin fibres – into ring yarns and are merchandised as if they had a much higher value. That's not only very economical for our customers, but also very ecological with regard to better exploitation of natural resources.

Suessen is technology and market leader

Over the years the EliTe® Compact Spinning System was consequently and continuously refined and further developed.

Worldwide more than 7,000,000 ring spindles are equipped with EliTe® CompactSet. At the same time all kinds of customers could be served: customers buying new machinery as

well as those spinning mills preferably investing in their existing machinery park.

Suessen scoops out of a pool of experience and the on-site tradition in modernizing spinning machines of over 60 years. Already in the 50's of the last century Suessen started with optimizing and adapting drafting arrangements and spinning geometries on ring spinning machines and roving frames. In this long period of time, over 60,000 machines were converted, more than 7,000 of which with the EliTe®CompactSet.

EliTe®CompactSet *Advanced*

In this article in SPINNOVATION No. 29 we present as a world premiere the next generation in EliTe®Compact Spinning.

The EliTe®CompactSet *Advanced* is a superior and additional version level of our EliTe®Compact Spinning System. The standard compact spinning system EliTe®CompactSet V5 will live on as EliTe®CompactSet *Classic*.

The EliTe®CompactSet *Advanced* distinguishes itself by the following exceptional features:

- EliTop Concept
- EliTube Concept
- EliVAC CDS Concept
- New advanced spinning components and parts

Specifically the following criteria are the driving force and objective target in all of our development work for superior solutions and new product levels:

- Reduced energy consumption
- Reduced maintenance work and costs
- Less consumables
- Improved yarn quality and parameters
- Sustainable constant yarn quality
- Improved production security
- Increased production

The increased customer benefits therefore are undoubted and can be verified in terms of money.

Hereafter we would like to briefly introduce the new advanced features of EliTe®CompactSet *Advanced* (technical and technological details will be published in the next issue SPINNOVATION No. 30).

The EliTop Concept (patents pending)

The EliTop was redesigned. Extensive test series and years of practical experience showed that the adapted new dimensions of the top roller diameters give some improvement in yarn parameters as well as running and process stability of the system.

In spinning cotton fibres we now use a much smaller diameter for the EliTe®Roller cot. The diameter of the delivery roller cot was somewhat increased. Still the EliTe®Roller cot is somewhat bigger than the delivery roller cot. Caused by the regular grinding cycles necessary the cot diameters of the top roller in the EliTop are reduced. When the delivery roller cot reaches the end of its service life, the whole delivery roller is exchanged with the EliTe®Roller of the EliTop whose cots have by now reached the initial diameter for delivery roller cots.

The delivery roller receives new bigger top roller cots and is placed within the EliTop at the position of the EliTe®Roller. With this procedure the top roller cots in the EliTop have the double service life.

- Economical:
less maintenance, less consumables
- Ecological:
better exploitation of natural resources

The EliTube Concept (patents pending)

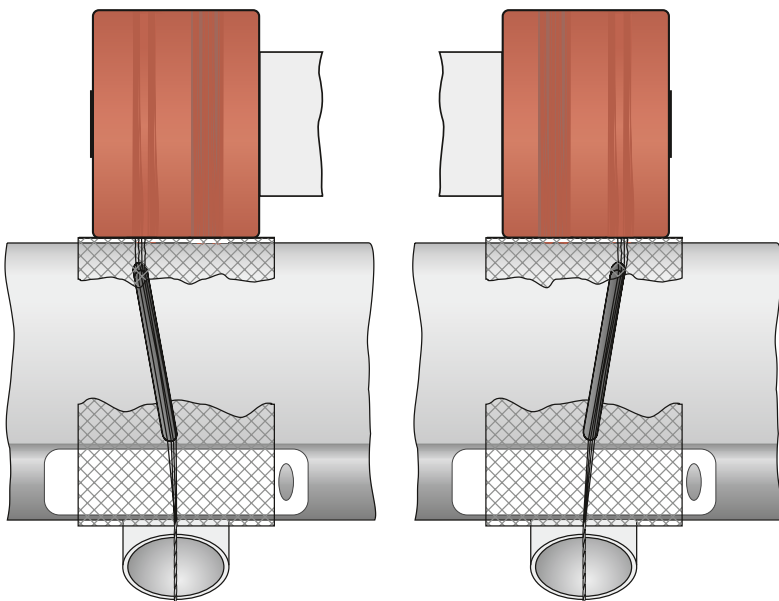
The *Advanced* Concept complies two different types of EliTubes – the inclination of the suction slot with the collection edge has two different angles: on the left machine side we install EliTubes with left-angled inclination, on the right machine side EliTubes with right-angled inclination. The slots are not centred in regard to the individual spinning position, but off-centred to the direction of the inclination. Thus the top roller cots of the EliTops are



Fig. 2: Left machine side

Fig. 3: Right machine side

Fig. 4



engaged in the spinning process friction work of only on one half left or right from the centre of the cots.

When it is time for a scheduled cot grinding procedure you only exchange the EliTops from the left-angled machine side (with the left angled suction slots on the EliTube) with those EliTops from the right machine side: now the other "half" of the cot is engaged in the spinning process.

Only when both sides of the cots show the process-related wear (Fig. 4), the cots have to be buffed – so the cots of the EliTop reach the double service life.

- Economical: less maintenance, less consumables
- Ecological: better exploitation of natural resources



Fig. 5: EliBox motor with piggy-back inverter

To distinguish the inclination of the suction slots in the machine, the end caps of the EliTubes have different colours. For easier handling while exchanging the EliTops from one machine side to the other the bodies of the EliTops also have different colours.

Fig. 7: *JETSert* – new insert for EliTube



Interaction of EliTop and EliTube Concepts

The interaction of the two concepts results in an almost quadrupling (4-times!) of the service life of the top roller cots of the EliTop. This reduces maintenance work and costs for new top roller cots and the grinding and mounting of the cots in the work shop.

EliVAC CDS Concept

The new advanced EliVAC CDS System is basically energy optimized. The highly efficient EliBox motor (Fig. 5) carries the respective inverter in a piggy-back installation. The fan wheel as well as the air guide nozzle are optimized in accordance with the laws of fluid mechanics. The entire system of EliVAC and EliBox has a modular and flexible design: all individual components are perfectly harmonized. Motor/inverter size, positioning of suction ducts as well as waste treatment station and filter types are adjusted to the individual requirements,

New advanced spinning components and parts

JETSert ^(patents pending) – new insert for EliTube

The advanced *JETSert* (Fig. 6) for EliTubes made from a different material than classic inserts is extremely wear resistant. Due to the modified contouring it further supports the spinning stability in the spinning process (reduction of ends-down rate by up to 50 % depending on yarn count and fibre material) and realizes even better yarn parameters.

BlackLine ^(patents pending) – Advanced Lattice Apron Technology

The advanced series of *BlackLine* lattice aprons (Fig. 7) is very shape-retaining and durable, with extended service life.

Alternatively we offer a new „Low-Energy Lattice Apron“. The special advanced surface allows excellent yarn quality with a reduced negative pressure level for compact spinning – the negative pressure can be set much lower; this results in approx. 50 % energy savings in the generation of the negative pressure.



Fig. 7: BlackLine (patents pending) lattice apron



Fig. 8: EliTop Advanced

New EliTop Geometry (patents pending)

The advanced EliTops with optimized geometry give better yarn parameters and allow much longer service life periods of the components like EliGear, top roller cots, etc.

EliTe®CompactSet *Advanced* in the field trials

EliTe®CompactSet *Advanced* with all the advanced concepts, spinning components and parts was exhaustively checked and examined in a number of spinning mills worldwide. During ITMA Asia 2014 in Shanghai the complete system is presented to the public as a world premiere.

In all pilot installations and arrangements the upgraded compact spinning system with all the new concepts and components could convince us, but more important, convinced our customers.

In all cases EliTe®CompactSet *Advanced* generated added value for the user, be it due to reduced maintenance costs, savings in spinning components and consumables, better energy budget, reduced ends-down rate, increased production and better yarn parameters.

Customer Benefits:

- Reduced energy consumption ElIVAC up to -50 %
- Reduced maintenance effort/costs up to -30 %
- Less consumables up to -50 %
- Lower ends-down rate up to -50 %
- Improved yarn quality in IPI
- Substantial increases in production can be achieved depending on raw material, machine type, etc.
- Sustained constant yarn quality from spinning position to spinning position



Urs Kurath. Technical Sales

Importance of Maintenance on Card Clothings

In addition to the choice of the correct card clothings which depends on the type of card, raw material processed as well as the production rate and the end product, it is essential to maintain the carding elements with the correct service equipment.

The quality of the card sliver is directly related to the sharpness of the clothings. The number of neps is influenced positively or negatively by the condition of the card clothing.

The tooth points of cylinder wires and flat clothings are subject to wear in the carding process and therefore have to be resharpened in regular intervals to restore an optimum carding quality.

Planning of regular maintenance and servicing of the clothings (Chart 1) with Graf service equipment DSW Flat Grinding Roller and TSG Traversing Resharpener, developed for their particular applications, can extend the lifetime of the clothings by approx. 20% with little compromise on the sliver quality.

The Graf Card Clothing Management, compiling years of experience, provides customers with an ideal tool for preventive maintenance for most types of cards.

The Card Clothing Management contributes to assuring the timely resharpening or replacement of the various carding elements in order to maintain best possible carding results throughout the lifetime of the clothings.

Chart 1

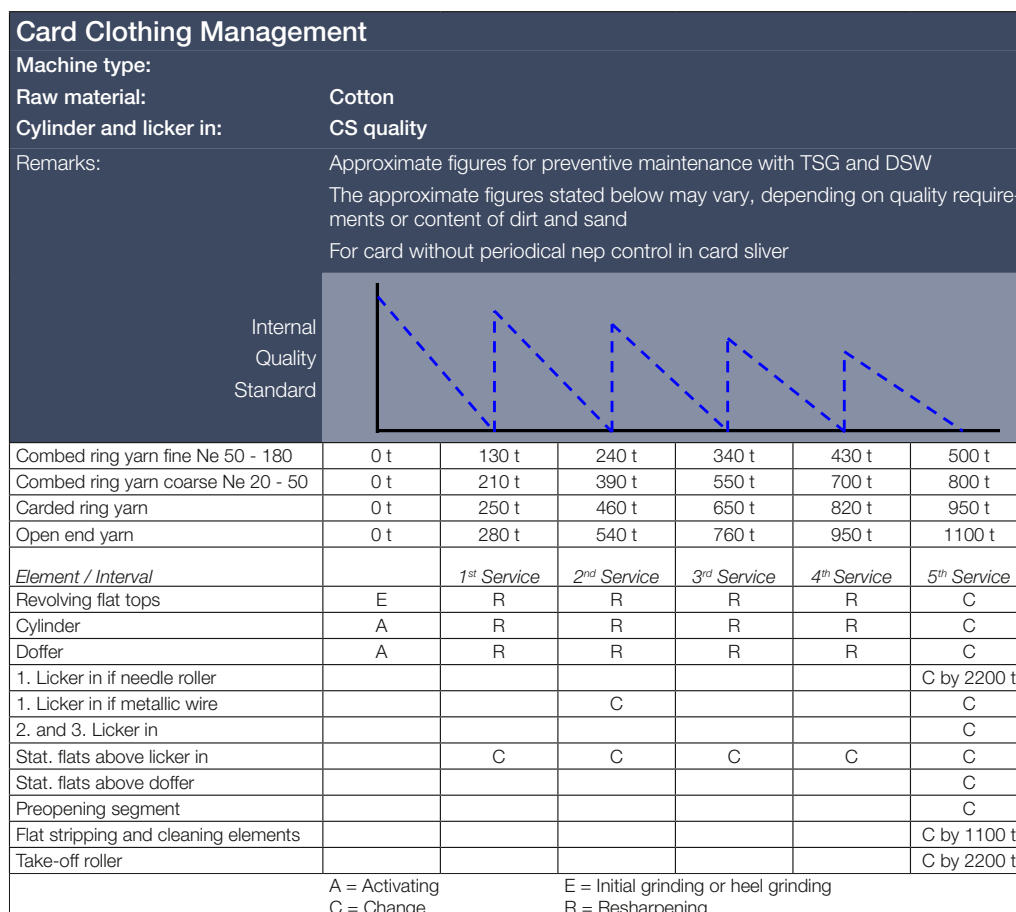




Fig. 2: TSG Traversing Resharpener Device



Cylinder worn tooth tip

Our well-proven TSG Traversing Resharpener Device for the grinding of metallic card clothings (Fig. 2) has been successfully applied by service centres and customers alike for years.

The TSG can be applied on all high production cards as well as on most types of conventional cards.



Cylinder resharpener tooth tip

The activating and resharpener of today's high performance metallic card clothings puts high demands on the maintenance personnel. Even highly experienced service engineers will find it most difficult to restore a burr-free tooth point on the minute teeth with conventional grinding equipment. Today's steel qualities

Fig. 4: DSW Flat Grinding Roller



made from high alloy tool steel throw hardly any sparks and therefore do not allow any visual control during the resharpener process.

There is no danger of improper resharpener of metallic card clothings with the TSG since the pressure of the grinding head is applied by controlled and defined spring pressure. The wire tips are thus evenly activated or resharpener across the entire width of the carding organ, irrespective of concentricity and straightness of the roller.

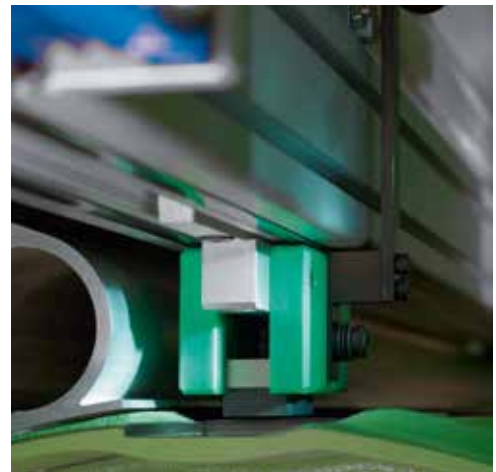
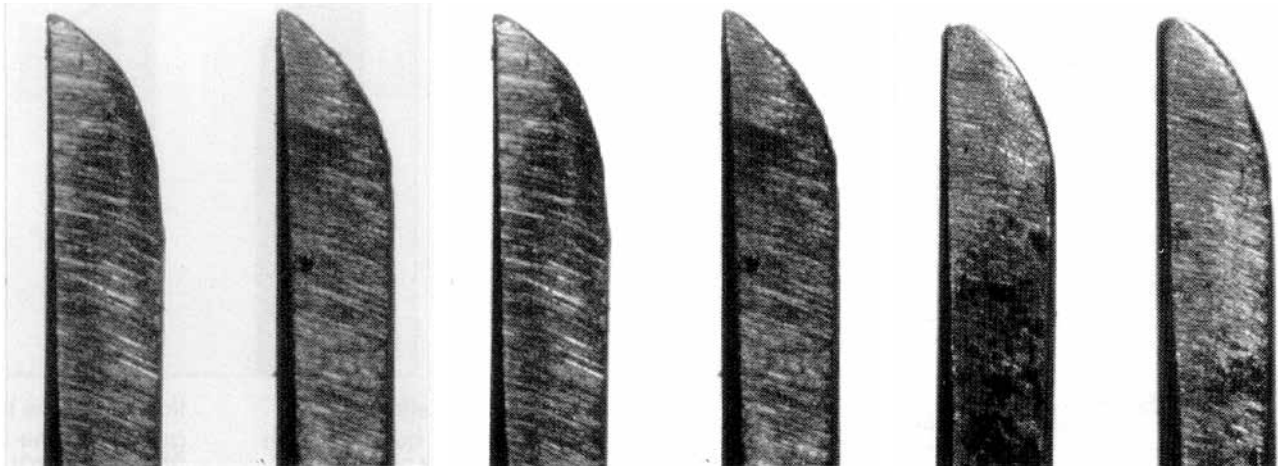


Fig. 3: TSG Grinding Head

Repeated resharpener of the metallic card clothings is possible; due to the controlled and minute abrasion as a result of the constant spring pressure the lifetime of the clothings can be substantially increased.

The DSW Flat Grinding Roller (Fig. 4) has been successfully applied in the market for years. The light weight aluminium roller with feed slide and fine adjustment can be easily used on all high performance cards as well as most conventional types of cards.

The flexible flat clothings are manufactured with highest precision and contribute to a considerably larger extent to the carding quality and therefore the number of neps in the sliver compared to the cylinder wire. Only properly sharpened flat clothings will lead to a constant nep value in the card sliver.



New tooth point

Resharpener tooth point

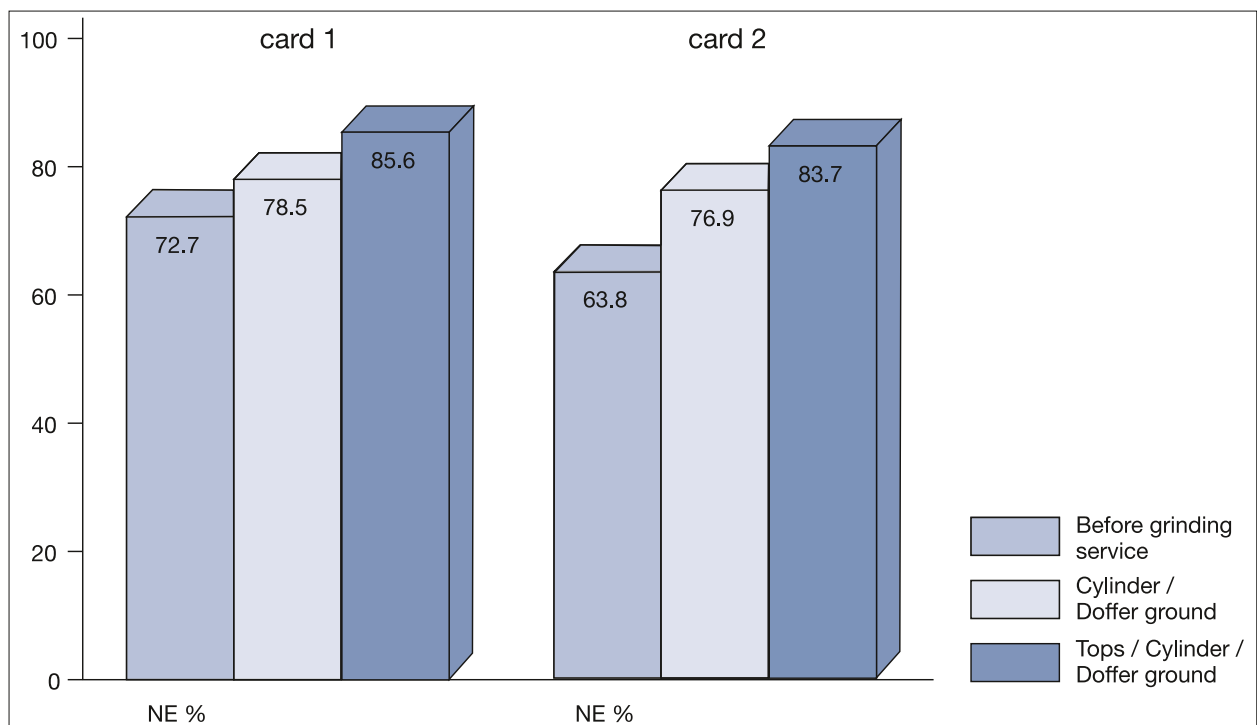
Worn tooth point

The grinding roller is clothed with a trued emery fillet which allows gentle activating or resharpener of the flexible tooth points of flat clothings.

The DSW Flat Grinding Roller can be used to resharpener a set of flat clothings on the card 3 to 4 times, resulting in a substantially increased lifetime of the flat clothings.

The teeth are resharpener from the back side with adjustable pressure to restore the original shape of the individual teeth.

Influence of properly sharpener flat clothings, cylinder- and doffer wire on the nep elimination (NE %).





Influence of Optimally Centred Spinning Rings on Yarn Hairiness

Highest quality standards in respect of roundness, evenness and concentricity ensure best centring results on the ring spinning frame



Bräcker spinning rings
– first-class quality regarding roundness, evenness and concentricity

Introduction

Hairiness has become a parameter, the textile industry would be unimaginable without, as it is extremely important in both compact spinning and conventional ring spinning.

The word “hairiness” in the sense we use it in textile technology does not exist in the colloquial language according to the Oxford English Dictionary.

In a textile technological context, however, the hairiness parameter is precisely defined:

It refers to the fibre ends and loops that are not embedded in the yarn body and therefore protrude from it.

This hairiness is measured with a number of different devices, either by numbers related to a specified distance from the yarn body or by the integral principle evaluating the scattering light of all protruding fibre ends and loops as a dimensionless number.

Irrespective of the spinning and measuring process, the slightest deviation in hairiness, for example between two spindles only, results in a diffuse fabric appearance at best.

This important characteristic influencing quality and costs is however essential in the downstream process, like weaving, knitting or dyeing.

Limiting hairiness and its variation between the individual spinning positions to a minimum is therefore of utmost importance.

Influence of not optimally centred rings on the ring spinning frame

One factor having a considerable influence on the hairiness parameter is the suboptimal centring of spinning rings on the ring spinning frame, and this applies to both conventional ring-spun yarn and yarns produced with compacting units. Therefore the rings of all spinning positions along a ring spinning frame must be perfectly centred.

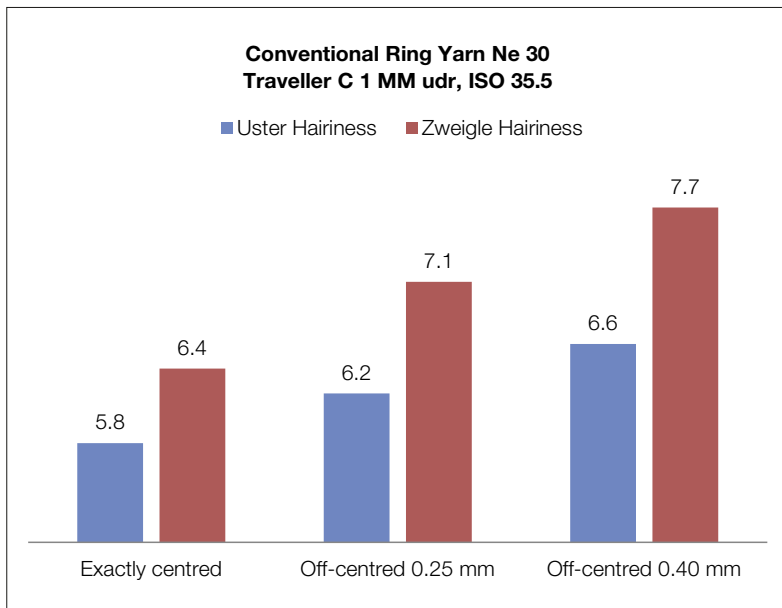
The prerequisite for an optimal centring of the rings, are rings that have been produced in accordance with highest quality standards which are made within tightest tolerances in regard to roundness, evenness and concentricity.

Test procedure and evaluation

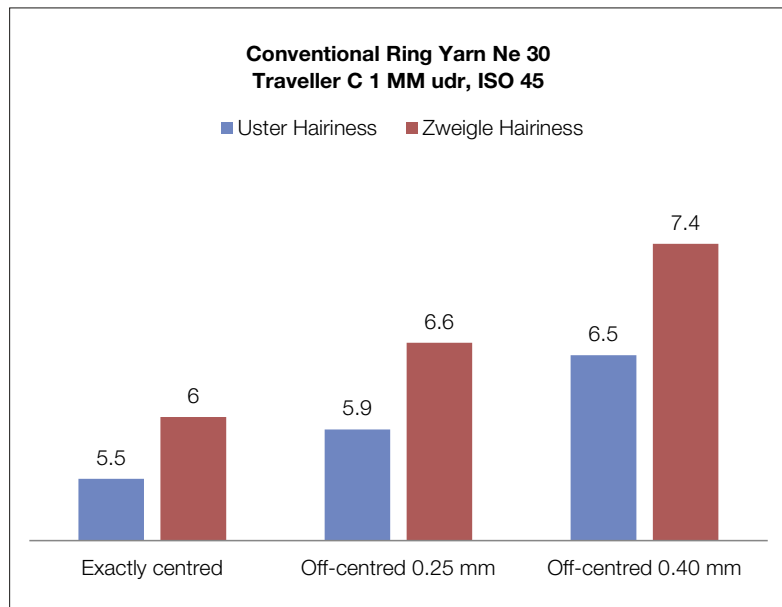
We produced a number of cotton yarns of the count Ne 30, conventionally spun with varying precision in ring centring (measured with ring centring device Center P+).

Yarn quality was tested with the following instruments:

- Hairiness UT4 and Zweigle
- Yarn irregularity UT4
- Tensile strength Tensojet



Conventional ring yarn, Ne 30, spun with traveller C 1 MM udr, ISO 35.5



Conventional ring yarn Ne 30, spun with traveller C 1 MM udr, ISO 45

No abnormality could be observed regarding IPI values. Only minor deviations could be found in irregularity, tensile strength and elongation.

Concerning hairiness, however, which was measured with both hairiness instruments, the deterioration by insufficient centring of rings is immense.

The diagrams clearly show how hairiness values grow with increasing decentration. If the centre of the ring only deviates by about 0.4 mm (measured with the Center P+ ring centring device) from the theoretical centre, the hairiness value will deteriorate significantly by 0.8 to 1.0 points.

Summary

Insufficient centring of the spinning rings influences the hairiness value of the spun yarn as a function of the extent of decentration.

To achieve optimum hairiness parameters on the spinning frame, and particularly between one spindle and the other, it is necessary to centre the rings with the highest precision possible.

We thank our colleagues of Rieter whose support enabled us to carry out this test.



Good – Better – HP-GX 4010*plus* Top Weighting Arm



Fig. 1: HP-GX 4010*plus* Top Weighting Arm

Any mistake you make in the production process of a component influences the quality of the final product. The earlier in the process these mistakes occur, the bigger are the negative influences that might even increase exponentially until the product is completed.

In the textile world this starts with the selection of the raw material, continues with the fibre preparation procedure, the spinning process and is still not finished in the weaving or knitting department. But it is obvious that the fibre preparation – in our special case the roving – as a relatively early production step has extensive influence on all subsequent production steps.

The demands on a roving machine with its high material throughput are obvious. The focus is especially on the components of the drafting arrangement that have to ensure a sustainable constant draft influenced by high forces.

Our HP-GX 4010 Top Weighting Arm so far mastered these challenges impeccably and reliably. Actually there was no obvious reason to put this solid product up to the test bench – still we did so.

On the test bench

The concept of the modular design for the gauges 90 mm, 100 mm and 110 mm proved well in the market, as well as the option for 3-roller or 4-roller drafting system, where the cradle could be placed either on the 2nd or 3rd position in the top weighting arm. The drafting system also serves for spinning of short, middle and long staple fibres by applying the corresponding cradle. The HP-GX 4010 may be used in any application for staple fibres up to 65 mm in length. It goes without saying that the new top weighting arm will keep all these features.

The HP-GX 4010 Top Weighting arm is known for the best CV%-values in the market, especially the CVb%-values, this with a practically wear- and maintenance-free operation.

Our mechanical principle in this respect has enormous advantages over any pneumatical solution, which are known for their excessive operating costs.

The combination of high-value material with outstanding design ensures a long-term sustainably constant quality.

After a certain time the quality of top arms of different makes declines due to missing stability or off-centre as a result of their construction principle. This influences negatively the quality of the roving material.

However, the principle of the HP-GX 4010 Top Weighting Arm ensures an optimal and frictionless positioning of the top rollers on the bottom rollers due to the steady and precise guidance. This is realized by the processing of the top roller retainers in mounted condition.



Fig. 2



Fig. 3

Thus all top rollers are guided parallel to the bottom rollers and the transfer of the top roller pressure to the bottom rollers is constant.

In one word: there is nothing that has to be changed in this superior concept of the HP-GX 4010 Top Weighting Arm.

The „new“ features

Still there will be an updated Top Weighting Arm we call HP-GX 4010*plus*.

So what was changed? Shortly – we changed nothing, but improved significantly!

First of all the seating of the HP-GX 4010*plus* on the support bar was adapted to a smaller diameter of 32 mm. The amendment includes the adaption to the standard support bar profile used today in most roving machinery. Apart from the advantage of less expensive support bars it is most convenient for modernization projects, as the customer may reuse existing equipment.

Further we modified the retainer of the top roller weighting units and correspondingly the seating on the top roller (Fig. 4). This as well is adapted to the global standard – as mentioned before:

In modernization projects customers may reuse their existing top roller equipment. This reduces costs and simplifies handling and procedures.

Next to standard top rollers we naturally continue to optionally provide coated top rollers (Fig. 3).

The major improvement in the new HP-GX 4010*plus* Top Weighting Arm is the height setting system.

Instead of the pivot pin this is now realized with an eccentric bolt (Fig. 5). This is not only much faster, but also superior in precision. It saves time and money in the setting and further improves the quality consistency in the roving.

Summary:

We have maintained the decisive characteristics of the HP-GX 4010 Top Weighting Arm, but improved some important features in regard to application and handling:

A *plus* in reduced costs, better comfort and simplified procedures.

**Thank you, HP-GX 4010.
Welcome, HP-GX 4010*plus*!**

Fig. 4

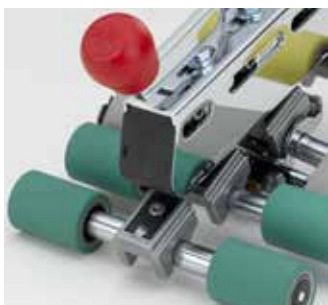


Fig. 5: Eccentric bolt





Spindle Lubrication and Cost Saving

Different spindle systems need different maintenance. Cost of maintenance needs to be considered more and more; the higher the wages are, the more it will have a direct influence on the manufacturing costs.

Furthermore the cost of oil and environment protection are other aspects to be considered. Modern high speed spindles need much less maintenance and the oil changing intervals are longer. According to our experience a lot of spinning mills are just following the old rules with short oil changing intervals. That means that oil changes are often made unnecessarily.

Different spindle systems:

Casting iron bolsters and conical tip spindles

Most of the Chinese bare blade spindles and spindles from India are equipped with a bolster housing made of casting iron. The start-up of these spindles needs special steps taken to get a good lifetime from the spindles. The start-up procedure of both conical type insert and spherical point footstep bearing is the same. The main point is to clean the housing from open graphite particles. More or less it is a running-in process for the casting iron housing.

For new casting iron bolster spindles the following oil changes are recommended:

- 1st oil change after 24 hour running of the spindle. The speed should be reduced to 80 % or maximum 15,000 rpm in the first 24 hours of running. After the first oil change, the speed can be increased by 1,000 rpm every 24 hours.
- 2nd oil change 15 days after the start.
- 3rd oil change after 2 months running.

The running-in procedures vary, depending on the recommendation of the spindle manufacturer.

Regular oil change after the running-in process

Depending on the speed and the insert type (conical or spherical) the oil change after

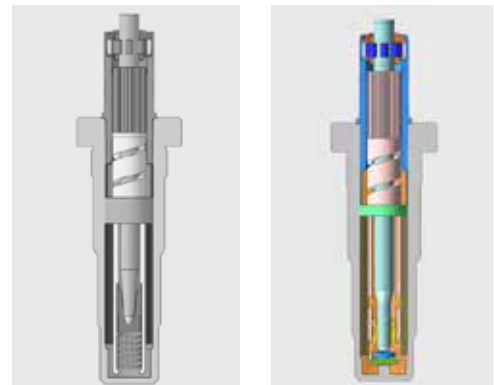


Fig. 1: Conical tip spindle (left)
HPS 68 Novibra spindle (right)

running-in process varies. In general the conical type spindles need to be re-oiled more frequently. Usually the oil change for casting iron bolsters is done every 6 months. At low speeds up to 15,000 and in connection with a spherical footstep insert it may be up to one year. On the top of it there is another specific maintenance for casting iron bolsters required. Every few months the oil level must be topped up. Casting iron bolsters have the tendency to leak, some spindles more, some less. Normally the topping up is done every 3 months.

Conical tip spindles with steel bolster do not need to be cleaned by means of frequent oil changes within the first few months. After filling the spindles with oil it is recommended to check the oil level of the spindles. A random control should be done 3 months after start up for the oil level and the colour of oil.

Novibra Spindles

Novibra high speed spindles do not need a running-in procedure. There is no need to change the oil more frequently (except for Novibra insert spindles with casting iron bolsters) or to run in at a lower speed. A lower speed may be required for other components of a new ring frame, but not for the Novibra spindle itself.

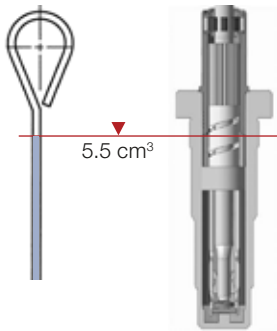


Fig. 2: Long lubrication cycles

Novibra recommends using the following oil and oil changes depending on the speed (see Fig. 2).

- Use High-Performance Hydraulic Oil only

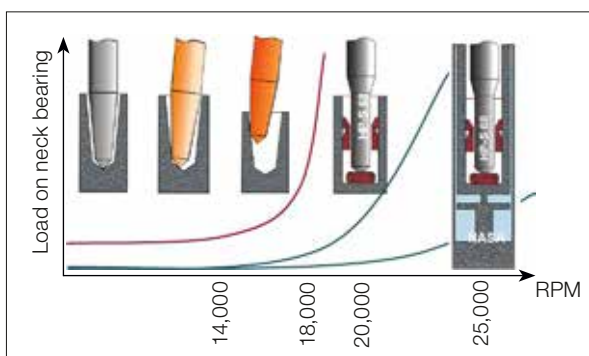
- SHELL TELLUS C 10 or MORLINA C 10 (DIN 51 524)
- BP BATRAN HV 10 (ENERGOL HLP-HM 10)
- ESSO NUTO H 10
- SPINESSO 10
- MOBIL DTE 21 HLP 10 or DTE 11M
- AGIP OSO 10
- KLUEBER CRUCOLAN 10
- TEXACO RANDO HD 10
- CASTROL HYPIN AWS 10
- AVIA FLUID HVI 10

RPM up to 20,000: 16,000 working hours
 RPM over 20,000: 8,000 working hours

Why do you have longer oil changing intervals using Novibra Spindles?

Beside the different running-in procedures between casting iron bolsters and steel bolsters there is also a difference in using conical or Novibra spindles. With conical type spindles the footstep bearing can only work for axial loads, not for radial loads. But there is always a certain portion of radial load at the footstep bearing. The conical spindle has to shift a little sideward to absorb the radial load. In connection of the main working principle of conical spindles, it will end up in a metal to metal contact, which means a wear out of the conical footstep part. The higher the speed of the spindle, the higher the wear out and therefore

Fig. 3: Spindle lifetime and performance



the shorter the lifetime will be. At a certain speed (normally over 17,000 rpm) the radial load cannot be absorbed fully and it will result in a vertical jumping of the spindle (see Fig. 3).

There are different bearings available to absorb radial and axial loads. The most common bearing type is the well-known ball bearing. But a ball bearing is relatively expensive and consumes quite high energy; all the balls have to rotate. The dream of every design engineer is a hydrodynamic plain bearing. Lowest possible energy consumption, no metal to metal contact at all which means no wear out of the bearing and all that for the lowest price. But there are some physical requirements like minimum speed and oil bath. Novibra footstep bearing is designed to absorb axial as well as radial loads, no metal to metal contact, lowest possible energy consumption and no wear out which are ideal conditions for a hydrodynamic plain bearing. Therefore the lifetime is extremely long and oil change intervals are much longer compared to other bearing types.

Handling of spindles

The right handling of the spindles during oil change is a main factor for a long lifetime. Inadequate handling may result in early spindle failures.

Oil changes

When using an inadequate oiling device or changing the oil carelessly the spindle may not get enough oil or even no oil at all. Therefore we recommend a careful measuring of the oil level after the oil changes. Not enough oil will end up in a fast wearing out of the neck bearing. Without any oil the spindle shaft will face temperatures of over 300 °C and will fail in few hours.

The coil spring in the spindle bolster has very narrow gaps between the different layers. The oil between the layers does not just flow out during an oil change. Therefore the new oil should press out the old oil.

Novibra Lubrico (Fig. 4) is designed for this technique and assures additionally that the spindles get exactly the right oil level.



Fig. 4: Lubrico

Dark brown oil is a sign that the spindle is not running as it should, in most cases the neck bearing is overloaded. Overload of the neck bearing mostly happens due to bent spindles. The uneven running of a bent spindle is only visible at speeds below 1,000 rpm. The so-called gyros force will put the spindle upper part in the right position, no vibration is visible, but the entire overload will go to the neck bearing. A constant vibration of the spindle is only visible if the neck bearing is already damaged and spindle has to be replaced.

Many spinning mills measure the “vibration” with the help of a stroboscope light. Actually this is not the vibration, but the necessary orbit of the spindle upper part. Every spindle needs to compensate unload of the tube and the yarn wound on the tube. The spindle is equipped with a spring and damping system, comparable with that of a car. The spindle orbit has the same function as the moving of the chassis of a car when running on uneven roads.

Oil viscosity

In general we recommend the use of Hydraulic oil viscosity VG10. Because of the hydrodynamic bearing we need Hydraulic oil, not so called “Spindle oil”. The expression “Spindle oil” does not mean it is meant for a spinning mill spindle. It is meant for spindles at tooling machines, where other requests to the oil apply.

To run coarse counts the right Novibra spindle is L HPS 68. Due to different load parameters coarse counts need a harder damping. If a spinning mill has to run for a certain time coarse counts with existing HPS 68 spindles due to market needs it may happen that the spindle will start shaking at full cops. This shaking can be avoided by reducing the speed during that time and by using a higher oil viscosity VG46. When using VG46 oil viscosity the energy consumption will be slightly higher, but especially at low speeds of coarse count spinning, the difference is marginal. However, processing mainly coarse counts the right spindle specification is L HPS 68.



Without this system a lot of old oil will remain in the spring and will mix up and contaminate the new oil.

Contamination during an oil change

As long as the upper part is assembled within the bolster the spindle is protected from contamination from the outside. If due to oil change or other maintenance the upper part is not in the bolster for long period of time, some contamination from the air, especially from compressed air can get into the bolster. If there is a certain portion of sand in the air, the sand will remain in the bolster at the footstep bearing. During running the sand will be pressed into the soft bronze part of the bearing. The bearing will then work like a grinding machine. The sand in the soft bronze part will grind the hard part of the shaft (Fig. 5).



Fig. 5: Worn-out footstep portion of the spindle shaft due to oil contaminated with sand particles

To avoid contamination going into the bolster, the upper part should only be removed to change the oil; afterwards it should be put back as soon as possible.

Dark oil

We recommend randomly checking the oil level and colour every 3 to 6 months. If dark oil is found in one or several spindles, the oil must be changed immediately and the spindles should be observed carefully.

Cost comparison

It is not easy to make some general cost comparison; each country has different cost factors and calculations. In order to get a general impression we calculated the costs involved for a Chinese spinning mill with 50,000 spindles. Local Chinese oil has tendency to change its features after a few months. Therefore for the purpose of our calculation we used imported oil.

The cost just for the first filling and running-in period is on average 5 times higher when using conical type casting iron spindles. Beside that we have to be aware of the loss of production due to lower speeds during running-in process, the approximately 30 % higher energy consumption of conical type spindles and more and more important the economical aspect when using 6 times more oil just for the cleaning and running-in processes (Fig. 6).



Fig. 6

Regular oil change and topping up process

Normally the spinning mills change the oil at conical type spindles every 6 months. Additionally they need to top up the spindles every 3 months. Topping up will take approximately half of the time compared to a complete oil change.

Compared to Novibra HPS 68 spindles the cost for oil handling for conical type spindle is US\$ 5,000 higher every year.

Compared to total cost of a spinning mill, the oil handling costs are marginal. But more and more important is the availability of workers and energy consumption. Plus what to do with the old used oil? Environment protection has become a topic of importance all over the world.

Cost of running-in process by using conical casting iron bolsters compared to Novibra HPS 68 spindles:	
Amount of oil for conical spindle type:	9 ml/Sp
Amount of oil for Novibra HPS 68 spindle:	5.5 ml/Sp
Cost of Chinese local oil per kg:	US\$ 2.15
Cost of imported oil per kg:	US\$ 4.80
Direct and indirect labour cost per month and person:	US\$ 750
Time for 1008 spindle machine:	6 people 1 hour
Novibra HPS 68 first filling:	250 kg of oil and 300 working hours
Direct cost for oil and manpower:	US\$ 2,500
Casting iron spindle with conical footstep bearing:	
Conical casting iron bolster:	1 st filling plus 3 running-in changes: 1,620 kg of oil and 1,200 working hours
Direct cost for oil and manpower:	US\$ 12,900



Antonio Durante, Senior Sales Manager

Ermenegildo Zegna –

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

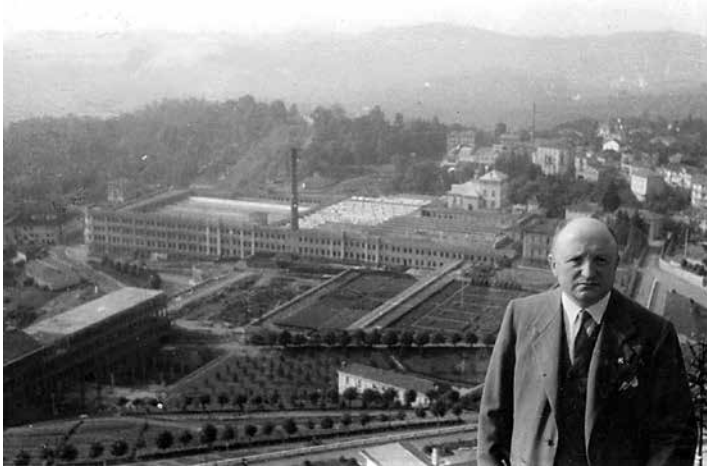
Wool. One of the world's oldest fibres, it is an ancient staple that was likely used to clothe primitive man and shield him from the elements. Over time wool has travelled through centuries, people and places offering versatile protection from cold, heat, wind, rain and to a certain degree, even fire. 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; a fibre which has become a fundamental part of Zegna's most luxurious fabrics. Still today, the most valuable lots of wool fibres travel from far-off countries such as Australia with its prized Merino sheep, or others famous for vicuna, alpaca, cashmere, mohair and silk, all the way to Italy's Lanificio Zegna located 700 metres above sea level in the mountainous region surrounding the city of Biella.

Lanificio Zegna: where tradition merges with modernity

When in 1910 Ermenegildo Zegna established his eponymous wool mill, he did so 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 founder: Ermenegildo Zegna

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.

Cognetex IDEA machine equipped with Suessen EliTe® Compact Spinning System



EliTe®Compact Spinning Technology meets Ermenegildo Zegna

At the Paris ITMA in 1999, Spindelfabrik Sues- sen introduced the EliTe®Compact Spinning Technology. On the exhibition stand, the FIOMAX E2 Worsted Compact Spinning Ma- chine was presented to enthusiastic visitors.

Some years later Rieter acquired Suessen and as a result of the extensive reorganization of Suessen machine building was discontinued. FIOMAX ring spinning machines were no longer part of the product portfolio, so Sues- sen has offered the EliTe®Compact Spinning System for the modernization of existing ring spinning machines. In the worsted yarn sector Suessen started in 2005 with the moderniza- tion of FIOMAX 2000 machines, and today ring spinning machines of Cognetex, Gaudino and Zinser can also be equipped with the EliTe®Compact Spinning System.

More than 14 years have passed since the presentation of the EliTe®Compact Spinning Technology, and the successful installation of the EliTe®Compact Spinning System on several thousands of spindles in the Biella area and in other countries underlines the leading role in the production of high-class Compact worsted yarns.

In order to safeguard their trend-setting role and leadership in the field of high-class wool worsted fabrics, as reported in our SPINNOVATION No. 26, Zegna invested last year in the Suessen EliTe®Compact Spinning Technology. After a first order to Suessen for 4 sets of EliTe®Modernizations of existing Cognetex IDEA machines, they purchased from Cognetex six new worsted ring spinning

machines IDEA (double drive) with integrated EliTe®Compact Spinning System.

Cognetex is a well reputed manufacturer of worsted ring spinning machines based in Italy. This solution allows Zegna the production of high quality Compact Yarns supported with high flexibility of the double drive ring spinning machine.

Nowadays, the Lanificio Zegna spinning mill – consisting of Cognetex IDEA machines equipped with Suessen EliTe®Compact Spinning System – 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 EliTe®Compact Spinning System to the future of Ermenegildo Zegna.

Advantages of Worsted Compact Yarns

The EliTe®Compact Yarns have outstanding qualitative features compared to conventional worsted yarns in terms of:

- Reduced hairiness
- Improved Uster evenness
- Maximum tenacity
- Increased elongation
- Increased fabric resistance to wear
- Improved fabric comfort

Due to the better quality of EliTe®Yarns pro- duction and cost benefits in the downstream processes (mainly in weaving and finishing) can be achieved. Also the EliTe®Yarns open new fields of application and offer the devel- opment and production of new fabrics, which with conventional worsted yarns were not possible to create.



Successful Economic Application of BERKOL® Grinding Machines

Mr. Xuan Kan talked to Mr Jianmin Xu, General Manager of
San Yang Textile Co., Ltd.



Mr Jianmin Xu, General Manager of San Yang Textile Co., Ltd.

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San Yang Textile Co., Ltd. is a joint-stock cotton spinning and weaving company established in 2003. Over the past years, San Yang Textile has successfully built a strong reputation with its commitment to quality and services and has made a profound statement by receiving the China Top Brand for 2006-07 award from the Chinese Government.

The company is also listed in the "China Cotton Textile Industry Most Competitive Top 20 Enterprises" for four continuous years since 2008. Further, in 2011, San Yang greige cotton yarn and cloth won the honorary title „The Influential Cotton Industry Brand of China“.

At present San Yang Textile Co., Ltd has 520,000 spinning spindles installed, thereof are 300,000 compact spindles.

Production range is Ne 50/1 – 140/1, combed cotton. Only premium grade A cotton such as Chinese Xinjiang T137, Pima II and SJV Acala, both from USA, is used. Yarn is produced on high grade European machinery and all are "usterized". Annual out-put is well over 30,000 tons. Main markets are the top domestic weaving factories as well as the export markets Europe, USA, Japan, Korea and others.

As a customer of Bräcker BERKOL®, the General Manager, Mr. Jianmin Xu gave us the opportunity to ask him a few questions.

Question: When did San Yang start to use BERKOL® equipment?

Mr. Jianmin Xu: The first BERKOL® equipment including one BGSLMB auto grinder was installed in 2005.

Question: How many BERKOL® auto grinding machines do you have now?

Mr. Jianmin Xu: There are now 3 sets of automatic BERKOL® grinding machines as well as Berkolizing (UV-radiation), lubricators, presses and some other auxiliary equipment installed.

Question: San Yang has a very high components quality and maintenance requirement. Why is it so important?

Mr. Jianmin Xu: As a producer of high-end cotton yarn and to fulfil the quality requirements from the market it's essential to use the optimal hardware. This includes the top-roller production and maintenance equipment which is very often ignored by our competitors.

Question: What are the main criteria's when you evaluate the equipment?

Mr. Jianmin Xu: High production, stable machine performance, high grinding quality, minimal manpower, low power consumption.

Question: What is your experience: did BERKOL® fulfil the requirements?

Mr. Jianmin Xu: More than fulfil.

- The machines have a very high reliability, in performance as well as in surface consistency of the top rollers. This leads to stable yarn quality over a long period which is most important to maintain the highest quality levels.
- The service life of top rollers is extended by using BERKOL® grinders.
- Less manpower requirement is essential when considering the difficulty to hire skilled people nowadays and it reduces the labour costs. This is an important factor because of the very tense labour situation in the textile sector. Labour shortage becomes more and more serious, as well as a lack of experienced and specialised personal. Also, the labour costs are increasing rapidly year by year. Before we used BERKOL® auto grinders we had more than 20 employees involved while now 3 persons per shift are enough. The machines are running 3 shifts / day, 7 days a week.
- Less space requirement reduces the plant building cost.
- The excellent machine stability and low failure rate
- Perfect service offered by BERKOL® agent and very skilled local technicians.

Question: How do you see the future in BERKOL® grinding business?

Mr. Jianmin Xu: With the Chinese industry developing and transforming, all kinds of industry must change from extensive into intensive form. It means it is difficult to increase the production scale. Every spinning mill needs to find their new market position and improve the technology. Hardware problems can easily be solved but not the software which needs precise management. Within these problems, the precise management of components, where top roller processing is the most important procedure, is usually ignored by most enterprises so far.

The initial cost of BERKOL® grinding machine might be higher than others, but will be reduced significantly by low indirect costs, by the constant and high quality of the machine, the saving of material and labour costs. These facts will be noticed by more and more enterprises, so the market prospect of BERKOL® can be promising.

We thank Mr. Jianmin Xu for this interview.





K.C. Oberoi, Venus Textile Systems, India



The Sportking Formula:

Vision + Determination = Success

The success story of Sportking started in the year 1977: Mr. Raj Avasthi started a ready-made garment unit in Ludhiana. This was a bold step at a time when not too many such units were operating in India.

His vision and his determination to succeed paid off! Today the Sportking Group is a vertically integrated organization, having spinning, processing, knitting and garment making, and has an annual turnover of around US\$ 200,000,000.

Sportking has two units in Punjab state of India. The first unit is at Ludhiana and has 72,480 spindles.

Sportking has started a new unit located near Bathinda where 138,720 spindles have already been installed. Out of these 57,120 are on Compact Spinning. The new mill is located on a plot of 68 acres, of which about 34 are occupied so far. Clearly, Sportking has intentions to expand – and they surely will do so!

Today, Sportking operates under the dynamic leadership of Mr. Munish Avasthi, Managing Director.

Mr. Stahlecker, MD of Suessen, and myself met Mr. Avasthi for the first time in June 2010.

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Fig. 1: Mr. Munish Avasthi - Managing Director



Fig. 2: Mr. Shiv Kumar Sharma - President

Chart 1: installed spinning capacity, production capacity and the range of yarns

Department	Installed Capacity	Production Capacity (TPA)	Products
Ring Spinning	81,600 spindles	14,875	100% combed cotton yarn, poly cotton blended yarn, organic cotton, BCI cotton, Ne 20's to 40's (weaving and hosiery)
Compact Ring Spinning	57,120 spindles	11,132	100% combed cotton compact yarn, EliTe®Yarn, organic cotton, BCI cotton, Ne 20's to 40's, EliTe® 2/40 (weaving and hosiery)
TFO	4,320 drums	3,960	100% combed cotton ring/compact yarn, organic cotton, BCI cotton, NE 2/20's to 2/40's (weaving and hosiery - spliced)

Very obviously, we discussed compact spinning, and Mr. Stahlecker was visibly impressed with his absolutely detailed knowledge of the systems available in the market, their applications, their strength and their weaknesses.

Less than 18 months later, Mr. Avasthi had decided, which compact system was best for him, and Suessen received their first order for conversion of 24,480 spindles on Rieter's G32 Ring Frames with EliTe® Compact Spinning System.

Satisfied with the system, quality and the production achieved, ease of operation and the service provided by Suessen and its associates in India, Sportking followed by the conversion of further 32,640 spindles on LMW LR 9 machines with EliTe®, and also some EliTwist® Compact Systems.

Today, about 42% of the installed spindles at Sportking, Bathinda Unit, are equipped with Suessen EliTe® or Suessen EliTwist®. The exact break-down of the installed spinning capacity, production capacity and the range of yarns is given below in Chart 1.

Some quality and productivity data given by the mill's President Mr. Shiv Kumar Sharma are reproduced below in Chart 2.

At Sportking, they know that quality does not just happen, but it is the result of hard work and constant monitoring. The mill has highly trained and motivated staff and employees. To achieve the high quality standards the mill is equipped with state-of-art technology machines and testing equipment like latest cards and combers from Rieter, ring frames from Rieter and LMW, compact equipment from Suessen and latest testing equipment from Uster.

No doubt Sportking is leader in both knitting and weaving yarn and commanding premium. The mill is exporting about 80 % of its production to more than 50 countries across the globe including USA, Europe, Latin America, China and other countries in Asia etc.

At Sportking they know that good and consistent quality requires a conducive environment. The layout of the mill is in line with this knowledge, as may be seen in Figs. 3 and 4.

Chart 2: Quality and productivity data

System	Compact EliTe®V5	Compact EliTe®V5	EliTwist®V5
Yarn Count	40/1	30/1	2/40
Material Code	CWC	CWC	CWC
Twist	Z	Z	S /Z
Average Count	40.2	30.2	20.2
Count CV%	1	1	1
TPI	26.25	22.46	19.00
TM	4.15	4.10	4.25
CSP	3200	3250	3400
RKM	21.50	22.50	24.50
Elongation %	4.50	5.50	6.2
UT5 Test Results			
U%	9.80	9.20	7.5
Thin (-50%)	0	0	0
Thick (+50%)	20	15	8
Neps (+200%)	45	30	15
Total IPI	65	45	23
H	3.9	4.4	4.4
Gms / Spdle / Shift	128	200	300

Fig. 3: Quality assurance



Fig. 4: New Bathinda Mill



As one enters the mill this first impression is confirmed: The mill is spotless, see Figs. 5 and 6.

One vision of the MD was to get closer to the final customer of his mill's products. Thanks to his determination, Sportking has 74 show rooms all over India – and knowing Mr. Avasthi you can be sure that this number will increase. Well-known brands of Sportking include Mentor, Woodburn and Sportking kids wear and Sublime – the high quality Compact Yarn.

At Sportking social responsibility is taken seriously. Employment for about 8,000 people has been created. Not content with this achievement, the Sportking Institute of Fashion Technology was established in Ludhiana in 2005, offering young people the opportunity to acquire marketable skills.

It is a pleasure for Suessen to be associated with such a dynamic group!

Fig. 5



Fig. 6



Fig. 7: One of many Sportking show rooms





Christoph Schönbächler
Head Marketing & Sales

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Fig.1: Xinjiang Ruisheng Textile - Main entrance

Xinjiang Ruisheng Textile Co., Ltd. is a young and dynamic company situated in Xinjiang province in the far north-west of China. Xinjiang province is the biggest province in China, but the size of the province is not its only highlight. Within Xinjiang you can find the second highest place of China, the K2 Mountain 8611 metres above the sea level. In Turpan area is also the lowest point in China 155 metres below the sea level, temperatures can vary from -20 °C up to over +40 °C.

Xinjiang is rich in natural resources and during the last years they have built up one of the biggest wind power production areas worldwide. Last but not least Xinjiang grows the highest quality cotton in China.

Shihezi is located in the north-west of Xinjiang province, 140 km west of Urumqi, the capital of Xinjiang province, close to the point where Xinjiang province, Inner Mongolia, Russia and

Kazakhstan join. It is one of the places with the longest distance in the entire world to a sea port. Shihezi is dominated by the cotton, textile and food industry. Shihezi area is a spinning centre of northern Xinjiang province with many high reputed spinning mills.

Xinjiang Ruisheng Textile Co. was established in August 2009. Just at the beginning they set their target in high quality cotton yarn production. They first started with a spinning mill installation of 50,000 spindles with Shanghai Erfangji Ring frames with autodoffer to produce mainly Ne 40, Ne 50 and Ne 80 combed yarn.

Half of the production is with Suessen EliTe® Compact System, half conventional. Beside the ring spinning machines they have invested in machines and test equipment from Rieter, Schlafhorst, Savio and Uster Technologies. Xinjiang Ruisheng is ISO 9001 certified.



Fig.2: Mr. Frank Xiao agent of Bräcker/Novibra with Mr. Xu Yongzhi, Production Manager. of Xinjiang Ruisheng

After start-up of the first spinning mill, Xinjiang Ruisheng was able to extend their business to the ginning industry as well as to cotton trading. Thanks to their consistent work on upgrading the quality and efficiency of the spinning mill, Xinjiang Ruisheng was able to extend the spinning capacity in 2013 by adding first 10,000 spindles from TongHe, long machines with autodoffer equipped with Bräcker TITAN spinning rings and Novibra HPS 68 spindles with CROCOdoff.

Additionally they have added a 72,000 spindle installation with Jingwei long frames equipped with Suessen drafting system, TITAN spinning rings and Novibra HPS 68 spindles with CROCOdoff. Today the average yarn count is Ne 55 with a quality within the Uster 5% statistic range, excellent smoothness, low hairiness, good evenness and high strength.

Xinjiang Ruisheng is mainly selling their production of 17,000 tons a year to high reputed Chinese customers to the provinces of Guangdong, Jiangsu, Zhejiang, Shandong and Tianjin, like Esquel, Luthai and other famous enterprises. Xinjiang Ruisheng also endeavours to establish their brand name actively to introduce the brand "Ruisheng" to the stage of the world textile industry.

Today main topics discussed in the spinning industry in China are the labour cost and labour shortage beside the Chinese cotton price. Many spinning mills are moving from the east coast to inner China due to labour cost and labour shortage. Shihezi is located close to the west border of China. Nevertheless Shihezi as well as whole Xinjiang province is even more negatively affected by labour shortage compared to the east coast. Therefore Xinjiang Ruisheng has to focus on labour reduction, more automation, less cleaning and less maintenance.

Additionally they are focusing on energy consumption, environmental protection (frequency and amount of oil changing for spindles) durable goods by means long lifetime of the components. Therefore their choice is Graf wires, with high consistency, long lifetime, Suessen drafting system for constant yarn quality, Bräcker TITAN spinning rings for high consistency of yarn quality combined with longest lifetime and Novibra Spindles with longest lifetime, best noise absorbing system, low maintenance, remarkably lower after doff end downs, highest possible speeds and last but not least high energy saving.

High labour cost and the problem of labour shortage combined with the pressure of energy saving result in higher investments. Higher investments have to be compensated by higher productivity, which means higher speeds with equal quality. Xinjiang Ruisheng successfully invested in well-known quality brands that bring back the investment with the same high quality at high speeds, longest possible lifetime, low energy consumption and lowest maintenance work.

Thanks to the experienced management team of Xinjiang Ruisheng with extremely high efficiency and well trained employees focused on high quality, high efficiency, low labour involvement, low energy consumption and maintenance, while keeping an eye on environmental protection, Ruisheng will keep developing and will have a successful future. Despite the fact it is not yet 5 years that Xinjiang Ruisheng has been established, they are already running 132,000 spindles, a ginning mill, cotton trading with a total of 600 employees.



Peter Stahlecker, Managing Director

L.S. MILLS LTD., Theni



Mr. S. Manivannan, Managing Director

L.S. Mills is a vision that has grown richer with time. From one strength to another, the group has grown to become an entity that not only has raised the bar in excellence through production, but has worked to become an exemplary Corporate entity.

From a vision born in 1979 in Theni, a small hamlet in Tamil Nadu, South India, to a group with a well entrenched presence in spinning, weaving and made ups, L.S. Mills has grown from strength to strength. Its visionary management, its passion for innovation and its commitment to excellence has fuelled its growth.

Mr. L.S. Prabhakaran, Joint Managing Director



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The L.S. Mills empire is built on a bedrock of values: putting its people first, scaling up to the next level of technology and always being able to travel the extra mile for its clientele and associates.

With every growth ring, the group travels a step further: by creating more value and by enriching its capabilities.

Headed by Mr. S. Manivannan, the Managing Director and Mr. L.S. Prabhakaran, the Joint Managing Director, the group is managed by a team of qualified and experienced professionals. This has ensured that the group maintains a steady growth curve, whilst paving way for its people to embrace newer technologies.

The group has consistently invested in technology and has helped it create a vertically integrated entity. With an integrated spinning, weaving and fabric manufacturing facility, each division functions as an independent profit centre.

Innovation is one of the keystones of the group, be it in technology led initiatives or in exploring different possibilities. This is made possible by creating a free-spirited work culture, allowing people to nurture creativity.

Spinning

At the Spinning Division, the focus is on retaining the purity of the nature-sourced fabric. This is achieved by using a judicious mix of conventional, people-monitored processes and state of the art machinery.

The Spinning Division of L.S. Mills comprises 150,000 spindles that cater to a daily production demand of 25 tonnes of ultra fine yarn everyday:

L.S. Mills is equipped with TFO, Gassed Yarn and Dye Cone Winders. The spinning shop floor sports a range of imported machinery



LS Mills, Office

from globally recognised names including Suessen, Muratec, Rieter and SSM. This allows complete control over the spinning processes and thereby ensures maximum purity.

The company operates 60,000 EliTe®Compact Spindles and 35,000 EliTwist®Compact Spindles. Further pending orders include another 11,000 EliTe®Compact Spindles.

L.S. Mills specialises in the manufacture of Ne 60 to 160s in Egyptian, Indian and Supima cotton. The yarn is spun in single, double, plied, gassed and greige (before gassing) varieties. The division also caters to customised demands of soft packaging.

Weaving

From spinning, to weaving, the progression was a natural transition for L.S. Mills. The expansion was also a result of an increase in demand for quality woven cottons from around the world.

Spinning mill



The weaving division caters to a daily demand of 300 to 1200 thread counts of grey fabric in twill, drill, satin, stripe and dobby varieties. Keeping pace with the production need, are the latest line of Beninger Sizing and Warping machines and Tsudakoma air jets.

Quality takes precedence in every stage of the weaving process. The division caters to both European and American markets and is graded on the American 4 point system. Since its inception, the unit has scaled up its performance levels to match less than 10 points per 100 linear metres.

Made Ups

Innovation led L.S. Mills to create a distinct identity as a quality manufacturer of made ups. With the worldwide demand for ethnic Indian made ups and wovens steadily climbing, the company has already established a niche in select markets.

A qualified talent pool steers the innovation in design and texture. Besides offering comprehensive design training programmes for people, the company also ensures that the processes are upgraded to the next level of technology.

The stitching unit produces world-class bed linen in 300 to 1200 thread counts and caters to a ready demand of about 100,000 sets per month.

The Fruit: Our Yarn Products:

Single: Ne 60s to 160s
Normal and Compact produced from Indian, Giza and Supima Cotton & Tencel Yarns from Lenzing

Plied: Ne 60/2 to 120/2
Two for One Twisted Yarn

Gassed: Ne 60/2 to 120/2
Gassed yarn in hard & soft packages

L.S. Mills entered into Innovation in 2006 by installing compact spinning. L.S. Mills, a pioneer in finer counts, found Suessen Compact a blessing. The quality team of L.S. through R&D have studied the advantages reaped by using Suessen EliTe®CompactSet.



Weaving - graphics



Home furnishing

The benefits are:

- Superior quality
- Reduction in imperfection & hairiness
- Increase in CSP
- Increase in production
- Better realization
- End breakages are lower

The performance of yarn in the loom is observed in their own campus as they have a well facilitated weaving department running the latest Tsudakoma Airjet Looms.

EliTwist® Yarn

Compared to TFO gassed yarn, there are considerable savings when producing EliTwist®. We have replaced TFO in some market with EliTwist® yarn completely. Please refer to Chart 1 for details.

Advantages of EliTwist® Compact Yarn

- Imperfection is lower
- End breakages are lower
- In some market, we can eliminate the parallel winding, TFO and winding. The cost of power and labour associated with this process is eliminated
- Production rate is double than Conventional TFO

Advantages of compact yarn

- The spinning, warping and loom performance increases by 10-15 %
- Better realization
- Better hairiness binding; lower fly libration, lower size pickup in sizing
- Warp breaks are lower in looms
- Resistance against abrasion and pilling
- Fuzziness is lower on finished fabric
- Extra smoothness on fabric surface

Fabrics

Manufacturers of Plain Satin, Satin Stripes, Percale and Dobby Fabrics in the range of 300 TC to 1200 TC out of Indian, Giza and Supima cotton.

Chart 1

	EliTwist® versus TFO comparison.	
	Ne 100/2s CW High Twist TFO, gassed	Ne 100/2s CW EliTwist® Compact, gassed
Count	50.0	50.0
CSP	2700	3150
CT CV%	1.5	1.5
ST CV%	4.5	4.5
RKM-UTJ4	20.68	24.70
RKM-UTR	18.00	21.5
RKM CV%	11.50	8.50
Elongation	8.00	7.50
Elongation CV%	10.20	8.50
U%	9.30	9.50
THIN (-50%)	1	6
THICK (+50%)	15	24
NEPS (+200)	84	60
Total	100	90
Hairiness Index greige (before gassing)	2.80	1.50
sh	0.22	0.20



Mrs. Shanthi Manivannan, Director

Made Ups

Special hems like Foggotting, Marrowing, Piped, Pleated, etc. on designs like Dobbies, Striped, Satin and Percale can be supplied. Exceptional finishes like Bio polishing, Super-soft, Wrinkle resistance, Nano and Aloe Vera are also done based on customer's requirement.

Quality – The Ruling Philosophy

At L.S. Mills, the passion for quality underlies every endeavour. From acquiring the best of technology, to bringing together rare talent, the L.S. group ensures that its products always conform to the highest possible quality standards. An ISO 9001 certified company by BVC warrants streamlined processes across the divisions. Each division is equipped with modern testing equipment, making it possible for L.S. Mills to make inroads in quality conscious markets throughout the world.

The QA team adopts online and offline monitoring measures to continuously assess the quality compliance of various processes.

The passion for quality permeates to the grass roots level, which means that every member of the team is aware of the collective progress towards perfection.

Santiniketan Matriculation School

Success for the L.S. Mills group is a measure that travels beyond boundaries. The Santiniketan Matriculation School, run by the L.S. Educational and Charity Trust, is a reflection of the group's conscious effort to create an ideal environment for learning.

Located on the Theni-Cumbum Main Road, the school has become the educational institution of choice for school goers around the region. With an emphasis on grooming all-round personalities through holistic learning and a Montessori system for pre-schoolers, this landmark institution envisions transforming the lives of the rural and semi urban communities.

Santiniketan is spread over a lush expanse of land and is well equipped with a Swimming pool, Badminton & Tennis courts and a state of the art gymnasium.

The Management takes active part in overseeing the functioning of the school and has enabled the school to become one of the most sought after educational institutions in the region.

Santiniketan Matriculation Higher Secondary School



Workers taking the pledge



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