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Front Cover:
Suessen SOLIDRING
for rotor spinning machines



Ioannis Spiridopoulos, Head Marketing & Sales
Editor in Chief SPINNOVATION

Dear Reader,

In a few weeks, the Texfair Exhibition will be held in Coimbatore, India. While the event is well established and the venue is not new, we are eager to present to you our new products.

Of course, the four companies, Bräcker, Graf, Novibra and Suessen, will attend the fair and we look forward to meeting you at our joint booth.

We are particularly thankful that our customers also actively contribute to our magazine, and thus help to distribute the knowledge of textiles to the global textile family!

In this issue we have two very interesting mill reports. The CEO of Suraj Cotton Mills in Pakistan and Chairman of APTMA, Mr. Ahsan Bashir, gives us a very interesting interview about his business view on spinning industry and shares his positive experience of using premium textile components of all four companies.

We also have the pleasure to present the profile of the Indian company Sri Shanmugavel and their impressive story of success, as well as the people who have contributed to this success by making Sri Shanmugavel one of the biggest Spinning Mills Group in the world.

We have received a great feedback from you on our last issue of SPINNOVATION, mostly regarding our new products. Your overwhelmingly positive letters and e-mails show us that we are heading on the right direction. Praise should never be taken for granted and your reactions show us that you can identify with premium textile components.

But we are also interested in your critical comments on our products and services. We kindly encourage you to continue communicating your opinion to us, and I can assure you that we take all suggestions for improvement very seriously. You will find the address for mailing or sending your comments in our impressum on page 2 of this magazine.

Our intention is to provide the SPINNOVATION as a technical magazine with as much technical and technological information as possible for our customers.

Our aim is not to use the SPINNOVATION as a means for promoting our premium products. I am pretty sure that this task is being fulfilled with the current issue considering the very interesting technical articles, i.e. about Hipro, the new card clothing wire by Graf mainly used in the non-woven industry, the new LENA spindle bolster by Novibra as a new energy-saving concept for ring spinning machines, the new EliGear **5star**[®] for the Suessen EliTop, the comparison of traveller finishing by Bräcker and the influence on traveller service life, running properties and yarn quality.

I hope you will enjoy this new SPINNOVATION.

Yours sincerely,



Silvano Rufo
Head Marketing, Premium Textile Components

Premium Technology – Innovation and Quality

Bräcker, Graf, Novibra and Suessen are the worldwide leading suppliers of components for textile machines. Innovation and quality is our duty.

All over the world customers can rely on the consistently high standard of Graf top quality products



Novibra is the leader in spindle technology and the only 100% in-house spindle maker



The four companies Bräcker AG (Switzerland), Graf + Cie AG (Switzerland), Novibra Boskovic s.r.o. (Czech Republic) and Spindelfabrik Suessen GmbH (Germany) offer Premium Textile Components and Services for both spinning mills and Original Equipment Manufacturers.

All four units of this group strive to support the development of new yarn characteristics, optimize the economic use of raw materials and offer cost-effective modifications and upgrades for spinning systems.

In the years ahead, they intend to use their strong market presence and wide product range to further enhance their leading positions on the global market.

Bräcker, Graf, Novibra and Suessen stand for values such as precision, reliability, quality and sustainability. They have firmly anchored these values within their companies. Their research, development and production are built upon these values. Our values are our duty – worldwide.

High demands are placed on precision, technology and longevity in all four companies. Highly qualified specialists manufacture the products using state-of-the-art machines and tools in high-tech facilities.

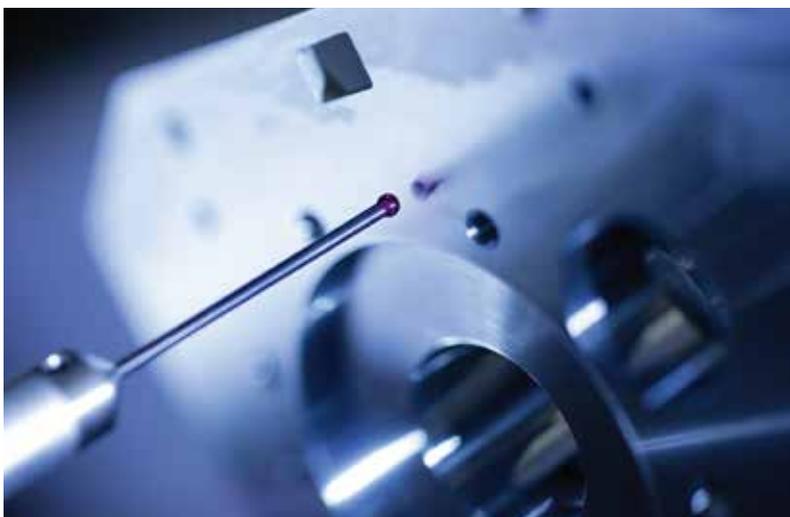
There is a long tradition of pioneering product developments in our companies.

With their high innovative strength, these worldwide leading companies will shape the textile machinery industry in the future as well. Sustained investments in research and development, to the benefit of our customers, have for instance led to the following products:



Thanks to leading-edge technology and innovative components manufacturing, Bräcker ensures optimal quality consistency

Suessen ensures to develop technical and technological components in an uncompromising and resolute manner



- TITAN spinning rings from Bräcker are ensuring customers an economic yarn production in over 30 million spinning positions worldwide.
- Graf is continuously further developing the clothings for flat and roller cards, as well as the combs for the combing machines and enhancing them with pioneering innovations. While doing so we always aim for the highest service-life and the best possible carding and combing performance.
- The CROCOdoff developed by Novibra sets new standards in spindle technology for spinning without underwinding.
- The Elite®CompactSet compacting system from Suessen is the leader of all compacting systems for ring spinning machines, with over six million running spinning positions worldwide.

The offering goes far beyond the above mentioned products.

- High-performance ring/traveller systems for ring spinning machines
- Traveller inserting tools
- BERKOL spinning cots
- BERKOL grinding machines
- Clothings for flat cards and roller cards
- Combs for combing machines
- High-performance HPS design spindles
- Complete spinning units, spinning components and upgrade concepts for ring, rotor and air-jet spinning machines

Customers benefit from quick and direct access to a worldwide distribution, support and service network and can rely on qualified contact persons. The representatives belong to their respective region and are in continuous communication with the parent company. The knowledge gained in practice flows directly into the innovation of products and services.

As global companies with distribution partners throughout the entire world, we are proud of our roots.

We live by our premium values – in all areas – worldwide – guaranteed.



Adrian Muedespacher, Product Manager

Graf Group of Companies

Graf is a manufacturer of technologically advanced consumption articles for the short- and long-staple spinning industry as well as for nonwoven application.



Edwin Graf founded the company in Rapperswil, Switzerland, in 1917. Rapperswil is located at the upper end of Lake Zurich in the canton of St. Gall. Originally flexible card clothings were manufactured exclusively. Metallic card clothings, for use on licker-ins, were first produced in the thirties. In 1962, the firm was converted into a limited company. Business has steadily grown ever since and new affiliated companies were set up, e.g. Graf Holland. In 1977 the third generation, represented by Georg and Ralph Graf, took over the company from Werner Graf, the son of the founder. In 1988 Ralph Graf acquired full ownership of all shares and in the same year founded a holding company. In 2005, Ralph Graf decided to sell the entire group to Rieter Maschinenfabrik AG in Winterthur, Switzerland.

Currently Graf has got approx. 450 employees worldwide, the largest share of these work in Switzerland and Holland. Today's range of products is manufactured in four different locations, i.e. Switzerland, Holland, Belgium and Brazil. A further three affiliated companies, namely in the USA, Germany and Hong Kong, are sales- and service-oriented. To assure the necessary proximity to the customers, close ties with competent agents are maintained in all textile markets. Numerous of the repre-

sentatives provide professional service and run their own service centres. The technical specialists of Graf assure that all service personnel around the world undergo continuing and advanced training.

The current range of products of Graf comprises:

- Metallic card clothings of all types for flat cards, roller cards, blow-room beaters and OE combing rollers
- Flat clothings for all types of flat cards
- Stationary flats for different systems and with a variety of densities
- Circular combs and top combs for combers from various manufacturers
- Service equipment for the mounting of metallic card clothings and flat clothings
- Grinding and resharpening equipment in different executions for various working widths
- Cleaning and stripping devices for metallic card clothings and flat clothings
- Cleaning and stripping fillets
- C-Cleaner systems
- Hand-stripping cards and hand grinding stones
- Mote knives
- Gauges

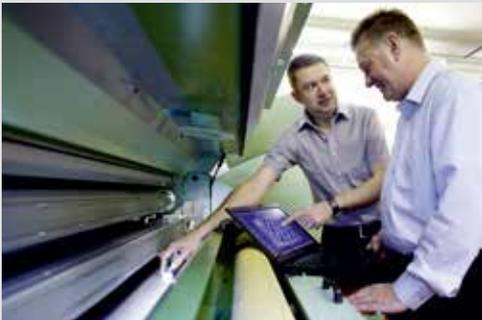
Graf is a System Supplier, with the technical consultation of our technical sales as a first step, followed by the product itself, including service equipment, and finally the actual service. All these factors are contributors to an immaculate, high-quality product, properly applied, meeting customers' expectations.

To achieve the maximum life time of the card clothings, impeccable maintenance is inevitable; this is supported by a sound service schedule which can be established with the support of our specialists. Since each type of material reacts differently, the individual cycles need to be timed correctly. We usually hand out a recommendation for the card clothing management, based on average values which however need to be adjusted depending on the application.

It is a matter of great importance to us that our customers achieve the best possible results with our card clothing throughout its entire life time. More than with any other product in the spinning mill, the purchase of card clothings is a matter of trust and confidence in the entire package comprising technical advice, the product itself as well as correct service.

Graf strives to provide the customer with the best possible solution to meet the desired expectations.

Technical Sales

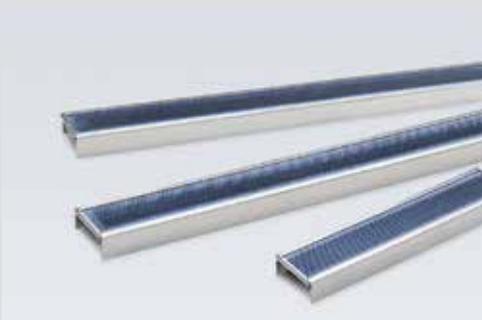


Service Machines



System
Supplier

Products



Service





Felix Hasler, Head Product Management

Hipro

The development of card clothings has been greatly pushed in the past ten years. On one hand this is due to the ever-increasing demands of the textile- and nonwoven-industry, on the other hand it can also be attributed to the new possibilities in the manufacturing of the production tools required.

The challenge is to economically produce highly complex tooth geometries. This requires peak performances in the construction of tooth shapes and punching tools, but also in the actual production of the clothings.

In the past, straight-forward tooth geometries were the norm. It soon became evident that various parameters – such as blade width, base width, tooth pitch, cut depth of tooth, breast angle and back angle – are major influencing factors. In order to improve the adhesion of the fibres, serrations were rolled into the profile, leading to the desired result. This however proved to be only an initial step in the long-term, recent development of card clothings.

Depending on the application of the clothing we began to change the actual tooth shape itself. The so-called beak-shaped tooth (Fig. 1) with its extended tooth surface, leading to a more stable tooth geometry, was a first development. This beak-shaped wire was followed by the arched tooth (Fig. 2), primarily applied for doffer wires. The main purpose of the clothing tooth of the doffer wire is the taking off of the fibres, the slow transfer and subsequent release despite the constant risk of losing fibres by falling off.

Serrated profiles remain part of our current production programme, as the serration still proves to be an established method of improving the adhesion of the fibres. Usually the serration is limited to one side of the tooth flank, in particular the side of the wire base. This serration still is state of the art. In order to further improve the desired effect, Graf has been producing profiles with double-sided serration on the tooth flanks (see Fig. 3) for some years; this innovation is protected by patent.

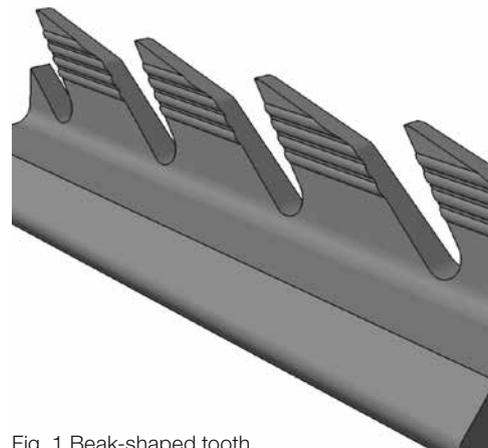


Fig. 1 Beak-shaped tooth

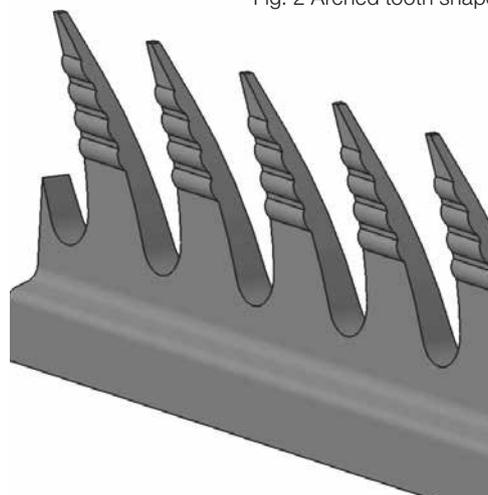


Fig. 2 Arched tooth shape

Fig. 3 Double serration



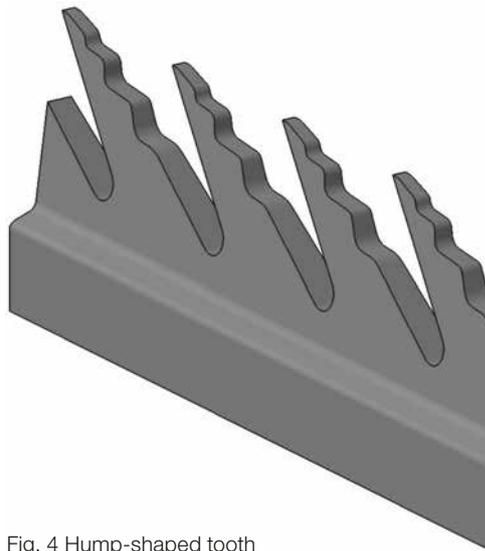


Fig. 4 Hump-shaped tooth

The next stage of development was to compensate the function previously attributed to the serrated profile, with novel tooth shapes. To achieve an improvement in the fibre adhesion we added humps and protuberances to the back of the tooth (see Fig. 4). The geometric adjustment of this edge has resulted in a substantial improvement and we were also able to obtain protection by patent for this particular shape.

In further developments initial trials were carried out with a modified breast edge. Various shapes and arrangements were tested on different carding organs and with different fibres. While significant improvements could be achieved, the results were still not quite up to the expectations.

While the serration proved ideal for the adhesion of the fibres, it soon became evident, that it also attracts the accumulation of spinning agent and other impurities. Serrated profiles tend to be more prone to soiling in comparison to standard types. This phenomenon is further enhanced in case of profiles with double serration which is the reason why such profiles are only rarely applied these days.

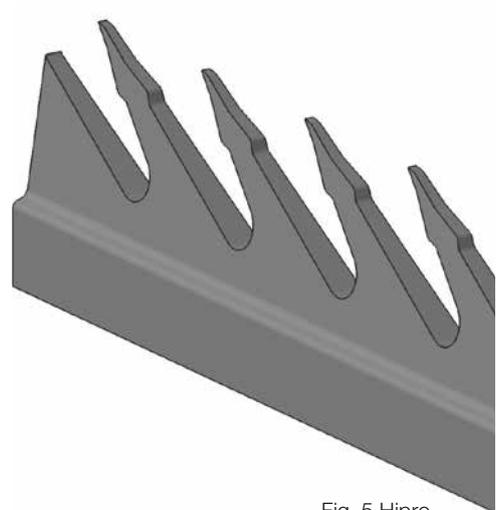


Fig. 5 Hipro

Fig. 6 Hipro

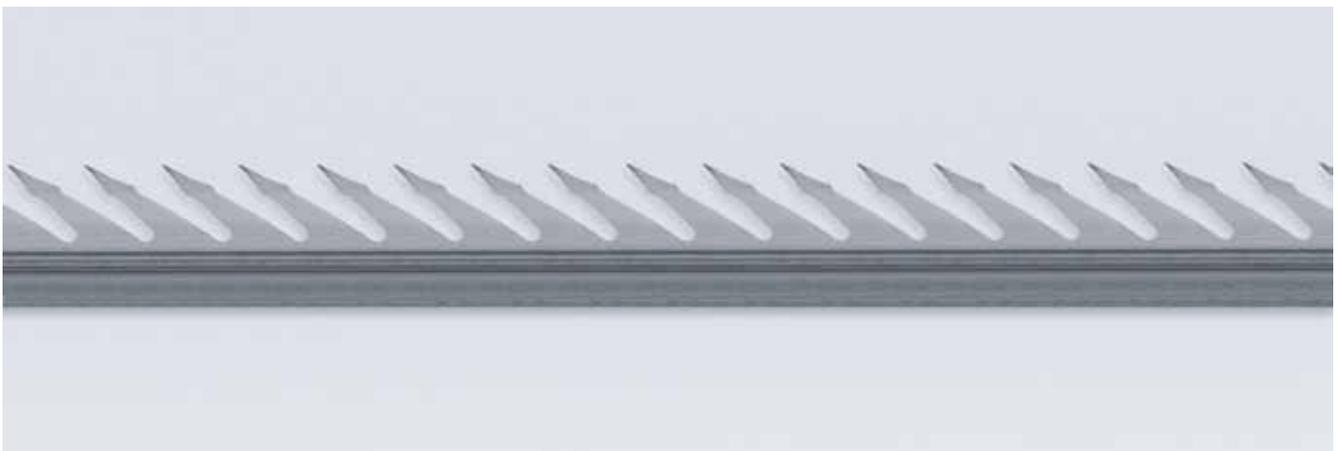




Fig. 7 Adhesion of fibres with Hipro. Bottom worker roller clothed with Hipro, top worker roller clothed with standard metallic wire.

Subsequently these different tooth shapes were combined, leading to a wire shape with new geometric forms on the breast edge as well as on the back of the tooth. This was the foundation of the Hipro specification (see Figs. 5 and 6). In the course of the development of the Hipro wire several new shapes were created. Special features of the Hipro wire are the concave humps on the breast edge as well as on the back of the tooth.

This novel shape is outstandingly suitable for clothings applied on roller cards for doffers, worker and stripper rollers as well as condensers. Depending on the position of application on the roller card, the shapes can vary and have on the breast edge between one and three elevations. The development of these forms is based on arithmetical and geometrical principles including field trials. To date it remains unrealistic to just develop and design such clothings on the drawing board, the variety of fibres and machine types requires an increasing number of practical trials.

The Hipro type metallic card clothing has got a positive influence on the following properties (Fig. 7) of the processes on roller cards:

- Reduction of fibre fly:
The tooth shape contributes to retaining even fibres difficult to process at high speeds
- Improvement of the transfer factor:
Doffer or worker remove the fibres from the cylinder more efficiently and safely which can lead to markedly improved production rates
- Reduced contamination:
The Hipro's innovative form no longer requires any serration in the profile to obtain better adhesion of the fibres which has a positive effect on the accumulation of spinning agent on the clothing teeth.

Reduced contamination in turn leads to a decrease in maintenance requirements.

As mentioned before, we were able to obtain protection by patent for this newly developed tooth shape. What good would it be to design a new, highly promising type of metallic card clothing on the drawing board if it was not possible to manufacture it? Therefore the development took place in close co-operation with our production department.

The new shapes cannot be manufactured easily, various adjustments and modifications to the production equipment were necessary, but just as important is the top performance provided by the production department.

The Hipro clothings are available either in black execution (surface not descaled) or else in blank h version (scale-free surface). The advantage of the somewhat more expensive blank execution is the full performance from the very beginning following the reclothing, i.e. no particular running-in time is required.

Graf is aiming to continuously develop new and novel clothings for the nonwoven and textile industry in order to meet the growing demands of machines and products.

Selection of Hipro specifications	
Hipro wire standard profile	
H-5045-X1.2	1 st or 2 nd condenser / workers siliconized fibres
H-50451X0.9	Workers on main cylinder 1.5 - 3.3 dtex
H-50451X1.0	Doffer 1 st section 1.3 - 6.7 dtex / doffer 2 nd section 3.3 - 17 dtex
H-50451X1.2	Doffer 1 st section 6.7 - 17 dtex / 1 st condenser / 1 st worker 2 nd section
H-50451X1.4	2 nd condenser / 1 st worker 2 nd section
K-40453X0.9	Workers 2 nd section 1.3 - 2.2 dtex / doffer 1.3 - 2.2 dtex (light web weights)
K-5045-X1.0	Doffer 1 st section 1.3 - 6.7 dtex / Doffer 2 nd section, bottom doffer
K-50451X1.0	Workers siliconized fibres
K-50452X0.9	Workers
M-40405X0.9	Doffers 1.3 - 3.3 dtex light web weights / workers
M-40406X0.9	Doffers 1.3 - 3.3 dtex light web weights / workers
M-4045-X0.9	Doffers 1.3 - 3.3 dtex light web weights / workers
Hipro wire interlinked profile	
V.F-5035--14	Transfer rollers
V.F-5045--16	Workers breast section
V.H-5035--20	Transfer rollers
V.H-5045--16	Workers breast section
V.H-5045--24	Workers main section 1.7 - 15 dtex
V.K-50401-24	Workers – doffers, also for siliconized fibres 3.3 - 15 dtex
V.K-5045--20	Workers 6.7 - 15 dtex / doffers
V.K-5045--24	Doffers 2.2 - 6.7 dtex
V.M-40402-28	Workers – doffers 1.3 - 3.3 dtex

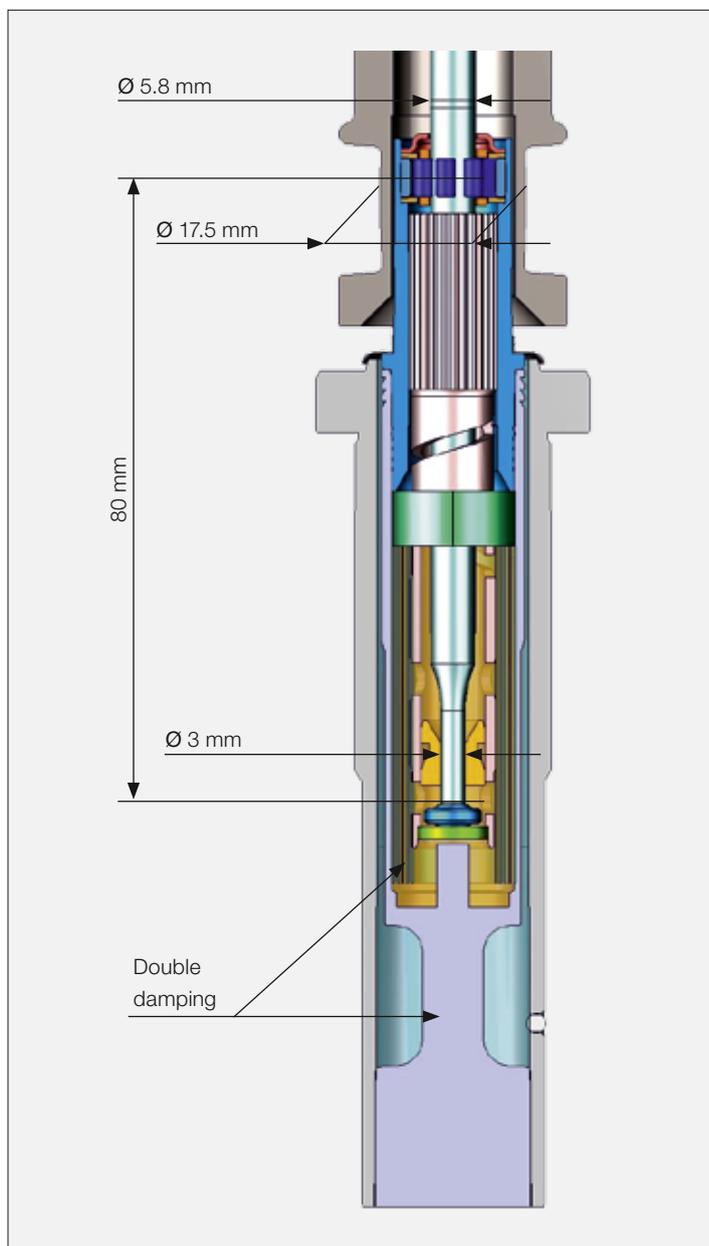


LENA

Energy saving is mentioned by everyone day by day. Novibra is introducing new **LOW ENERGY NOISE ABSORBING Spindle – LENA**

Decrease of energy costs is a long term worldwide goal and everyone who wants to stay competitive has to react correspondingly. Since Novibra Boskovice is not falling behind we are glad to introduce you a new member of our family of energy saving spindles called LENA.

Fig. 1 Double damping design of LENA



Concept of the Design

LENA spindle (Fig. 1) combines well known and successful design concepts of Novibra spindles together with some new features as well.

The neck bearing diameter was reduced to 5.8 mm while its load carrying capacity still ensures achievement of a long-term lifetime at the highest running speeds. Thanks to smaller bearing, the wharve diameter can be reduced to 17.5 mm. This size of diameter ensures an effective torque transmission from the machine to the spindle without an excessive slippage of the spindle tape.

Since LENA installation requires only a small change in machine setting the spindle commissioning is fast and easy. From the power transmission perspective, the reduction of the wharve diameter allows machine to run at lower speed compared to the spindle with standard wharve diameter. For above mentioned reason, the desired energy saving can be achieved.

The foot-step bearing unit consists of a radial and an axial bearing. The radial bearing is designed as a hydrodynamic plain bearing with the internal diameter of 3 mm. That small diameter of the shaft's tip brings another energy saving as the power consumption of the radial bearing is, beside many other factors, directly influenced by its own diameter. This correlation has been already confirmed by a low energy consumption of spindles HPS68/3.

In axial direction the top part is supported by a plain disc through the sphero-point tip of the shaft. This is the best solution regarding low friction of parts in touch contact as energy losses are negligible.

Target application for LENA spindle is spinning with tube sizes up to 210 mm at high speeds up to 25.000 rpm. For such spinning conditions and smaller bearing diameter it was necessary to optimize the hydraulic spindle

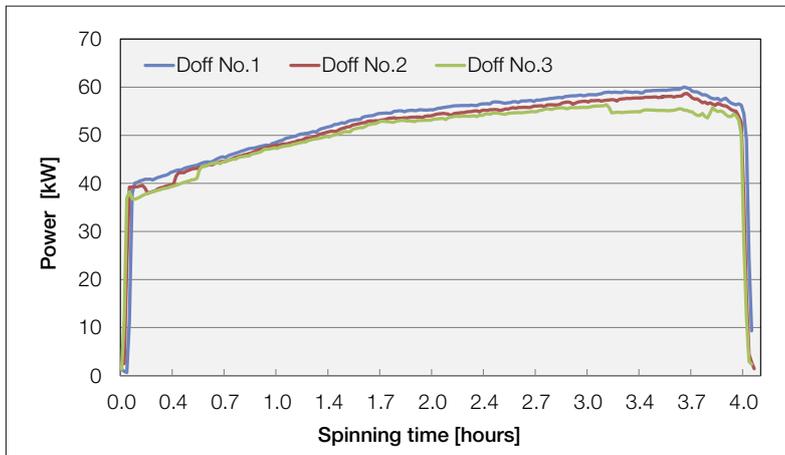


Fig. 2 Variation in the power measurement

Fig. 3 Power consumption decomposition

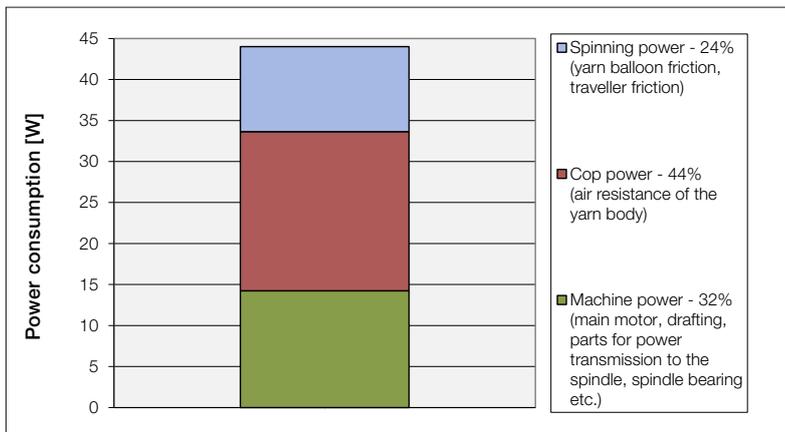
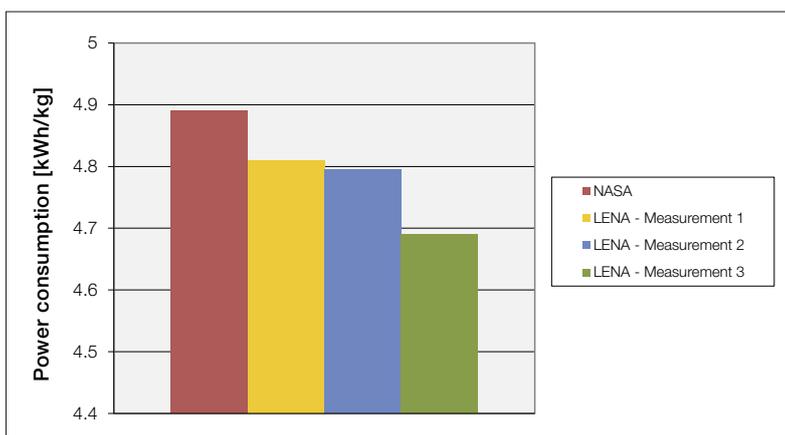


Fig. 4 LENA results



damping. The distance between bearings was shortened and all internal parts were designed in a way that smooth and controlled spindle running behaviour was achieved through the whole range of operational speeds.

Despite of the fact that each part was carefully optimized and it is produced at an outstanding quality level it is necessary to take into account that the neck bearing load raises significantly under high spindle speeds. This phenomenon is varying with the spindle design, however, it is possible to say that for conventional single damped spindles the bearing load increases significantly at speeds above 20,000 rpm.

Therefore we decided to adopt the best features of double damped spindle NASA for LENA to be sure that all dynamic forces acting during running are well balanced and the neck bearing load is within required limits. Low neck bearing load decreases vibration level and therefore significantly reduces emitted noise as well.

It is well known that the energy consumption of ring frames represents the biggest part of the total consumption of the whole spinning mill. Various theoretical estimations of the energy consumption during spinning were introduced and the trend is a continual monitoring of the current consumption by a direct measurement on the machine. However, a correct analysis of energy consumption of each part of the machine is not an easy job as the consumption is influenced by many factors.

In the Fig. 2 you can see record of power consumption of three successive doffs (cotton Ne 62, spindle speed up to 22,000 rpm, tube length 180 mm, ring dia. 38 mm, machine Rieter K44, 1200 spindles). Having close look at the records you can see accidental jumps in measured power consumption caused by variation of power electricity. Therefore it is necessary to collect a large amount of data in order to obtain relevant statistical basis for correct comparison.

Fig. 3 shows a basic power decomposition of the measurement for one spinning unit. A significant part of the energy is consumed by



an air friction. The air friction of the cop surface together with the spinning balloon is influenced by its length, diameter, type of the yarn (count, hairiness) etc. If we add the friction of the traveler then we can see that a substantial part of the energy consumption is connected with the technology of the spinning itself. These losses cannot be reduced on conventional spinning machines. Since the aero-dynamical friction increases with the running speed and with large cop, the energy consumption is rising during the spinning.

Residual part of the power consumption (indicated as machine power in Fig. 3) is directly influenced by all components of the machine. Motor drive with its frequency inverter, drafting system, gear boxes, tape tension pulleys, tapes and spindles are the major contributors. It is clear that maintaining low energy consumption can be achieved by paying close attention to all these major contributors not only to the spindles.

Concerning smooth and efficient spindle operation, it is very important to follow the recommendations related to maintenance; namely lubrication intervals and required quality and quantity of the oil (viscosity, level, additives etc.).

LENA results

Fig. 4 presents a comparison of a long-term observation of energy consumption between NASA spindle (wharve dia. 18.5 mm) and LENA spindle (wharve dia. 17.5 mm) running under the same spinning conditions on the same machine. Measurements were repeated several times in time periods of three months and average values are presented.

The results vary between 2-4 % energy saving in favour of LENA spindles. Taking into account the fact that comparison in Fig. 4 was done with a low energy consuming NASA spindles, this 4 % saving of newly developed spindles shows a great potential for future.



New EliGear 5star®

The Suessen EliTop for EliTe®CompactSet can be fitted with the new intermediate gear EliGear 5star® for an even longer service life.

Products of the **5star®** family are part of the Suessen EliTe®Compact Spinning philosophy, which means that newly designed parts must be suitable to be installed in previous series of delivered EliTe®CompactSets, thus guaranteeing that all our customers may benefit from our developments.

Other recently developed **5star®** family products were EliTubes, lattice aprons and low friction inserts.

The EliGear **5star®** (10636208) can be applied to all closed Suessen EliTops in short staple and worsted EliTe®Compact Spinning and EliTwist®Spinning Systems. Existing intermediate gears are substituted one-to-one without any restrictions. Just for older EliTops of the first generation ("open" EliTops) the new EliGear **5star®** cannot be used.

The manufacture of the former intermediate gear was discontinued.

The EliGear **5star®** is made of a special compound. The product was thoroughly tested



in R&D and in spinning mills processing the whole range of materials and yarn counts. Throughout the trial period we achieved an excellent wear resistance and almost doubled the life cycle of the former intermediate gear.



The tests certainly showed no technical or technological restrictions in respect of operational reliability.

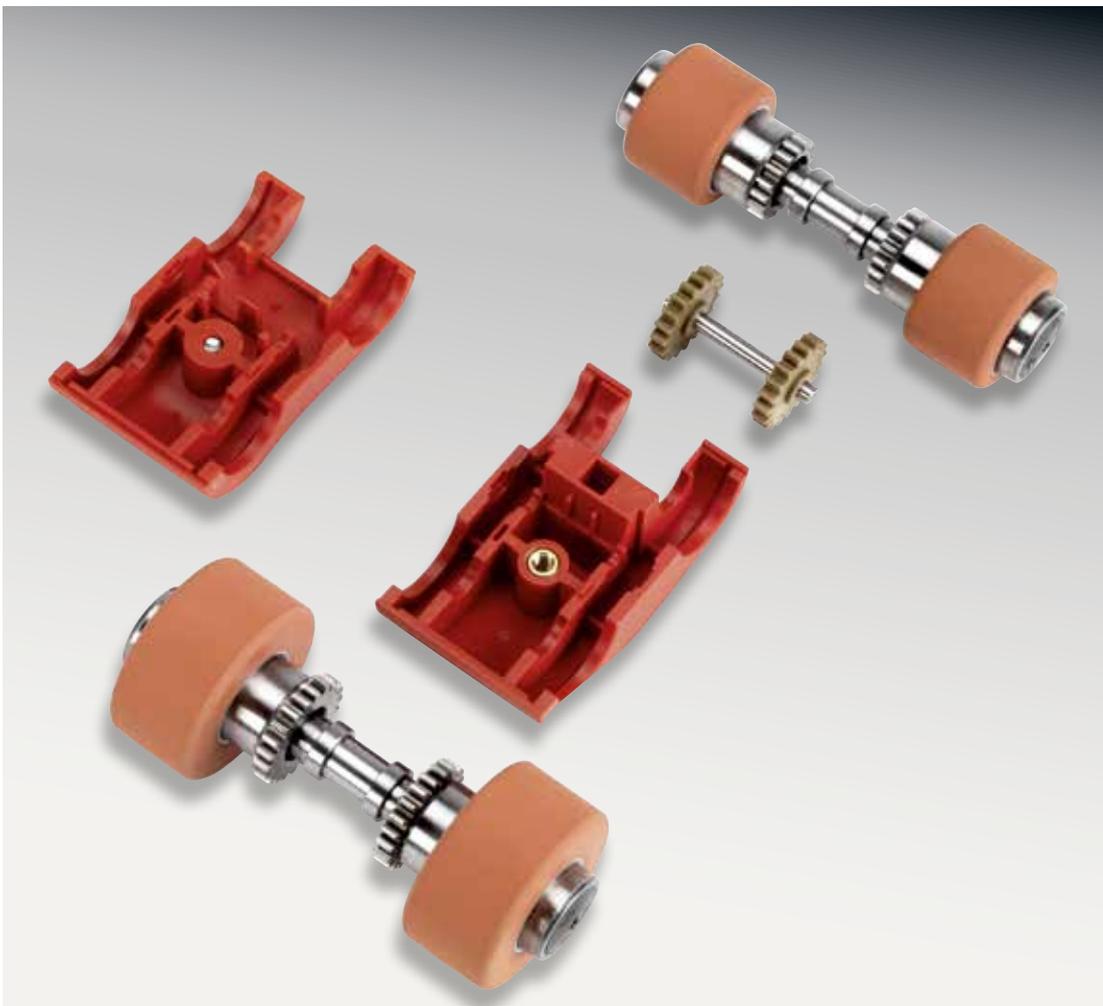
Our customers now benefit from a much longer lifetime – the warranty increases from 12 months to now 18 months! The service life is expected to be over 24 months (depending on material throughput, cleaning cycles, frequency of lap-ups, use of the original Suessen inserts and lattice aprons). This results in reduced maintenance and service costs.

It is strongly recommended to always change both intermediate gears of one EliTop together with the pin as a set! The scope of delivery per packaging unit therefore comprises two versions: single gears or a set with 2 gears plus one pin per EliTop.

Excessive microdust and/or an insufficiently or inadequately set overhead cleaner can cause dirt accumulation in the EliTop housing. If such invaded dirt deposits get in touch with the intermediate gear, its premature wear is inevitable.

The intermediate gear must be replaced, as soon as the tooth tip is pointed.

When the EliTop is dismantled for regular cleaning purposes, the bearing seats on the pin must not be cleaned. The intermediate gears have a specially coated bush which is in contact with the axle. Therefore, the lubricant is distributed very quickly on the pin and must not be removed. Without this special coating, the pin might suffer from premature wear.





Technological advance as a result of uncompromising quality

Graf has evolved to become the leading global supplier of card clothings and combing articles as a result of the first-class products. To stay ahead, we keep on investing into research and development.

Technology, innovation as well as years of experience are the driving forces behind our high-performance products. Our highly qualified workforce continuously evaluates our products, new materials and ideas as well as services with view to technologies and feasibility. This allows us to develop tailor-made solutions for highest demands on performance for our customers.

As a certified enterprise (DIN EN ISO 9001:2008) we manufacture our product range according to the latest standards of quality assurance. Customers world-wide can rely on the evenly high standard of quality of the Graf products. The growing requirements for increased production rates at consistent quality levels put high demands on our products with respect to resistance to wear, hardness and stability.

These requirements oblige us to continuously carry out quality controls, e.g. inspection of goods received, material and process controls and production monitoring as permanent fixtures of our quality assurance in the course of the daily operations.

Due to the high vertical integration and the automated production processes for our products, the state-of-the-art quality assurance allows 100 % control throughout the entire production operation.

Sustainable guarantee for high-class products:

- Certification according to DIN EN ISO 9001:2008
- Integrated quality control in the process, production and laboratory
- Standardized production processes
- Tight range of tolerances
- Process stability due to high vertical integration

- Permanent quality control before, during and after the production process

Our scope of delivery comprises a wide, as well as a deep selection of conventional, but also custom-made card clothings in various alloys and geometries. The card clothings are suitable for application on flat and roller cards of various manufacturers and technologies and feature the following characteristics:

- Innovative clothing geometries and properties
- Products for all demands on performance
- Long life expectancy
- Consistently high quality
- Premium end products
- Comprehensive advice by our experts

In order for metallic card clothings to reach optimum lifetime on flat cards as well as roller cards, it is imperative that the tooth points are hard and subsequently resistant to wear. This can be achieved by means of an additional hardening process which may vary in terms of temperature and intensity, depending on the quality of the steel. The process of hardening steel invariably leads to the formation of a layer of scales. While such scales have certain advantages, there are also considerable disadvantages. Advantages worth mentioning are the rust protective properties as well as the lubrication of the friction plates at the time of installation. A disadvantage is the possibility of newly reclothed flat or roller card not starting up satisfactorily. Metallic card clothings tainted with scales can cause loading of fibres as well as lapping on carding organs.

To meet the specific requirements of some customers, Graf offers three different types of surface treatments in addition to the conventional "black" metallic card clothings.

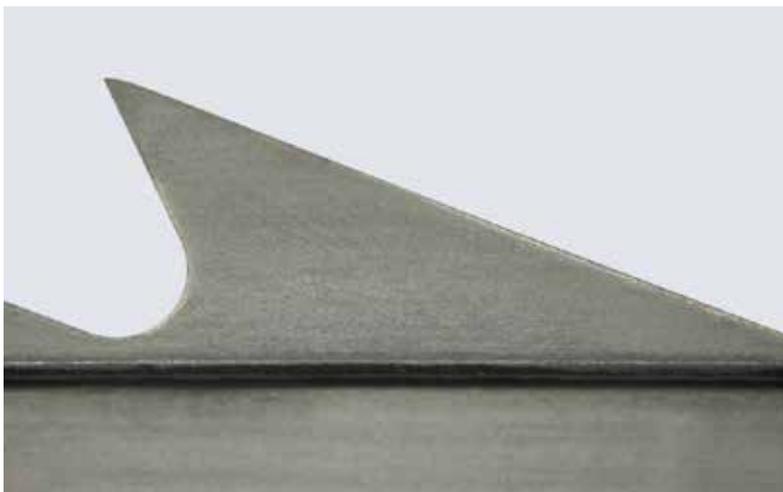


Blank hardened

1. Blank hardened

Graf has developed a special production process to harden the metallic card clothings during manufacturing resulting in scale-free clothings. The advantages of blank hardened clothings are the clean mounting without any flaking off of scale particles inside the friction plates of the mounting arm as well as the quick and trouble-free starting-up of flat and roller cards.

Application: all types of raw material / cylinder wires, doffer wires, clothings for workers, strippers and condensing rollers



Polidur

2. Polidur

This innovative surface treatment was developed specially for applications with demanding raw materials. The electrochemical polishing distinctly improves the surface by removing scales. In addition this process leads to the complete deburring of the tooth flanks. The danger of loading in the carding process, particularly on take-off rollers, is thus substantially reduced. Furthermore the increased process stability in the yarn manufacturing considerably reduces the risk of undesired machine stoppages.

Application: all types of raw materials / particularly suitable for take-off rollers

Needle finish



3. Needle Finish

The basic process of needle finish and of the Polidur surface treatment is similar. The metallic card clothings then undergo an additional special and gentle post-treatment. This process leads to the rounding of all edges on the clothing teeth.

Application: all types of raw material / take-off rollers, clothings for OE combing rollers



Bräcker RAPID Traveller Inserting Tool

For efficient and time-saving insertion of travellers

History

When automation started in European spinning mills, the staff was continuously reduced and so the changing of travellers caused increasing problems in the mills. There was not enough personnel to handle frequent traveller changes within a reasonable period of time.

Already then, about 30 years ago, Bräcker was concerned with the customers' demand for a faster changing of travellers. So the appliances developed in the course of years became more and more elaborate and finally resulted in the RAPID Traveller Inserting Unit.

Extended automation

Today, just a few spinning mills are still located in Europe. They outsourced the majority of their former spinning capacity to Asia. The technical design of ring spinning frames was continuously and rapidly improved. Modern machines are often equipped with up to 1800 spindles. Most ring spinning machines have automatic doffers. When it is necessary to change the travellers, the machines are idling until this work is completed. This idle period is a substantial expense factor for machines with many spinning positions.

Asia also facing technological change

This fact and more and more difficulties in recruiting qualified personnel, has helped to increase the percentage of automation in Asian spinning mills. As a result, the mills are continuously downsizing their staff. Asia now undergoes the same development as Europe some years ago. There is an increasing need world-wide for finding solutions for a rapid and efficient changing of travellers. !

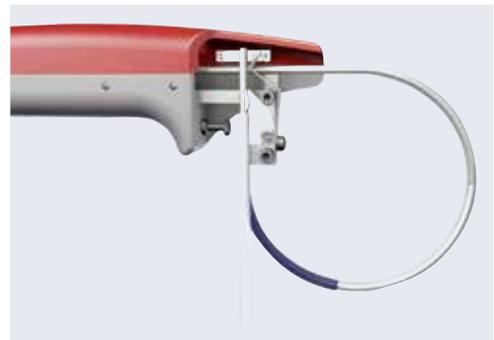
The Bräcker RAPID, in combination with magazined travellers, is the ideal solution enabling an efficient, time and cost-saving change of ring travellers.

For inserting the travellers with the RAPID tool, the travellers are stored in magazines. Bräcker offers two systems for this purpose:

a) Bräcker AP System (**A**utomatic **P**acking)



Travellers are wrapped in heatshrink hoses and supplied in form of rods with 130 to 400 travellers each.



b) Bräcker STRAP System



The travellers are lined up on a profile strap (up to 10,000 pcs per spool) The STRAP System is applied for SU travellers for ORBIT spinning rings and for C-shaped travellers with „fr“ profile.



With this QR Code you can download films and technical documentation concerning the RAPID to your smart-phone or Tablet PC.



Characteristics

The characteristics of the RAPID tool summed up:

- Slender tool, easy to use
- Specially suited to small gauges or when ring data systems are installed
- When installing the traveller, simultaneous threading of yarn is possible
- Simple setting of the tool using a traveller as gauge
- Ergonomical and easy inserting of new travellers

Advantages

- Fast and easy inserting
- Shorter idle periods of the ring spinning machine
- Reduced labor costs
- No traveller loss
- Minimal traveller deformation
- Combined inserting and threading
- Higher productivity
- Easy tool adjustment
- Also suitable for smallest ring diameters and reduced spindle gauges





Comparison of SAPHIR and PYRIT Traveller Finish

Traveller finish has an influence on service life, running properties and yarn quality

1. Introduction

In spite of alternative spinning methods like air-jet or rotor spinning, ring spinning is still the most widely spread yarn production method with an approximate market share of 80 % world-wide.

One of the reasons certainly is the simplicity and flexibility of the ring spinning process which allows to spin almost all types of fibre material into any yarn count desired. Another reason for the predominance of ring spinning is the high productivity of today's ring spinning frames.

Bräcker AG, by developing the TITAN spinning ring, had its share in further increasing the spindle speed and consequently the machine efficiency in the last years. Under optimum conditions, the mills can achieve spindle speeds of up to 23,000 rpm.

It is a well-known fact that apart from the spinning ring, the traveller also has a considerable influence on the maximum spindle speed and yarn quality. In the last analysis it is the traveller wear that affects the yarn quality parameters like hairiness and the running properties and so restricts the spindle speed in the mill.

Choosing suitable ring and traveller shapes, ideally with optimum surface properties of the spinning ring, you can control the build-up and destruction of the natural lubrication film. This is a decisive factor for the life expectancy of the travellers (also see SPINNOVATION No. 27 "Comparison of Flange Profiles").

The traveller finish or coating can improve its wear resistance, thus enabling longer operating cycles at continually good yarn quality.

2. Purpose of the study

In the spinning laboratory of the ITV Denkerdorf the traveller finish types SAPHIR and PYRIT were compared. The trial aimed at analyzing the influence of the traveller operating life on yarn quality and ends-down rate.

They spun 100 % combed cotton into Ne 40, with 980 T/m at a spindle speed of 18,000 rpm, using Bräcker TITAN ring 42 mm and traveller C1 UL udr 6/0 with PYRIT and SAPHIR coating. The trial took 240 hours.

3. Result of the research

3.1 Yarn tension

Measuring the yarn tension provides a good survey over the performance of the ring/traveller combination. This measurement considers practically all sources of excitation in the ring spinning process. High medium yarn tension values and high yarn tension peaks put considerable stress on the ring/traveller system.

The forces can create an unsteady balloon and so add to the wear of the traveller. The difference between the average yarn tension and the extent of the standard deviation allows conclusions to the uniformity of the yarn tension. To obtain good running properties, the yarn tension should be as steady as possible.

By means of a high-frequency yarn tension sensor, installed between the yarn guide and the front top roller of the drafting system, the yarn tension of each spindle was determined.

Yarn tension was measured when the trial began, after the traveller running-in, and at the end of the trial.

Figs. 1 and 2 show the influence of the traveller finish on yarn tension and its standard deviation.

The PYRIT traveller permits to achieve a lower and more uniform yarn tension.

3.2 Ends-down

During the trials, the balloon size and spinning behaviour of both variants were observed. The ends-down were documented.

After a running period of about 120 hours, the first ends-down were noted for SAPHIR and PYRIT travellers.

After about 200 hours, the ends-down on spinning positions with SAPHIR travellers were almost double.

With PYRIT travellers, the ends-down rate was always clearly lower than for SAPHIR travellers, even after a running period of 240 hours.

Although the ends-down rate of this spinning trial is not statistically firm, the results allow to draw the conclusion that the ends-down rate is positively influenced by the uniform yarn tension created by the PYRIT traveller.

3.3 Yarn quality

Throughout the duration of the trial all relevant yarn quality parameters, like hairiness, irregularity, imperfections and dynamometrical values, were measured at regular intervals.

Owing to the steady spinning conditions, tendencies resulting from the traveller wear can be visualized.

While irregularity, imperfections, tensile strength and elongation remained almost constant during the whole trial, the hairiness values, measured with Zweigle, show the correlation between hairiness and traveller operating life.

With PYRIT travellers the hairiness tends to be lower.

When new travellers are used, the hairiness values achieved with both qualities are slightly higher during the running-in period. This is due to the lack of a “contact area”, which is responsible for its stable position. The traveller builds up this contact area during the running-in period.

To reduce the traveller wear during the running-in period, Bräcker recommends to use the running-in program for travellers of modern ring spinning frames, which under normal conditions reduces the spindle speed by about 5 % over 2 to 5 hours.

Fig. 1

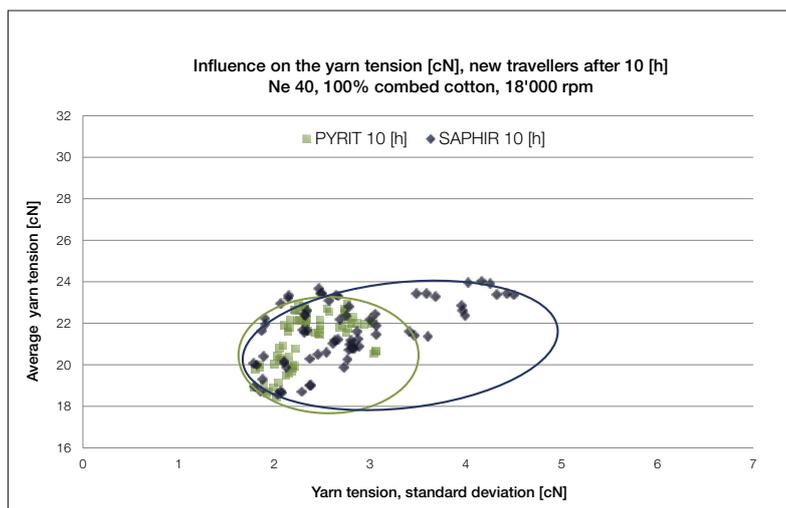


Fig. 2

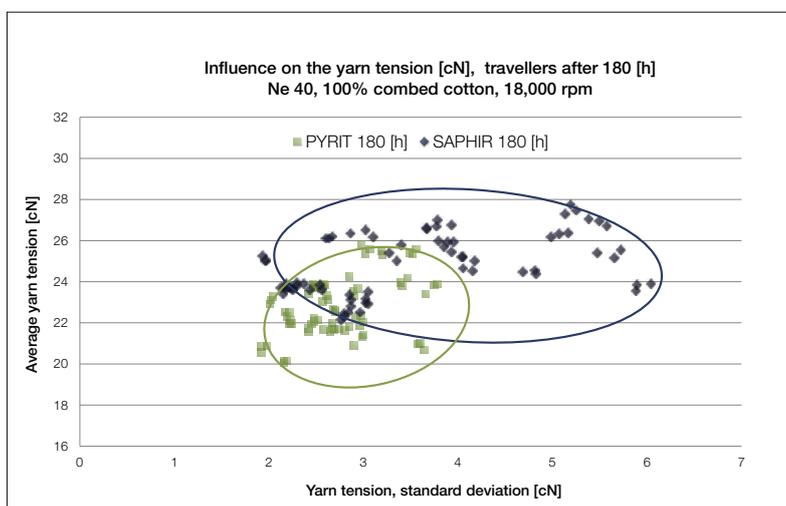


Fig. 3

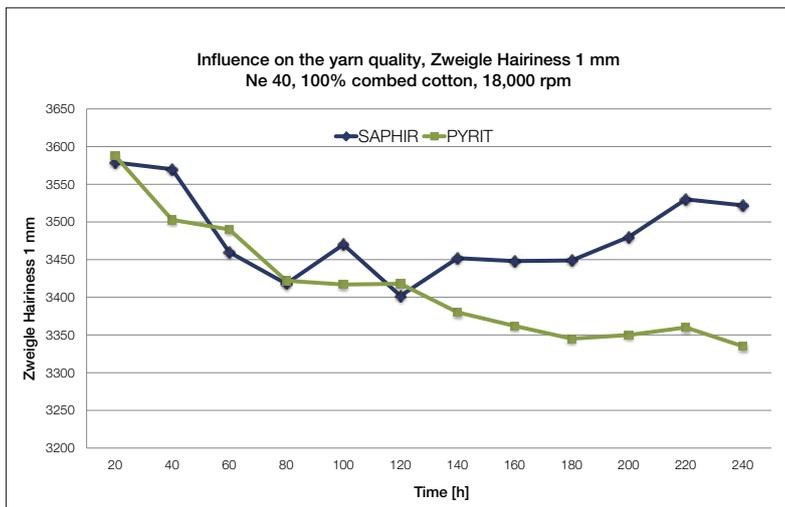
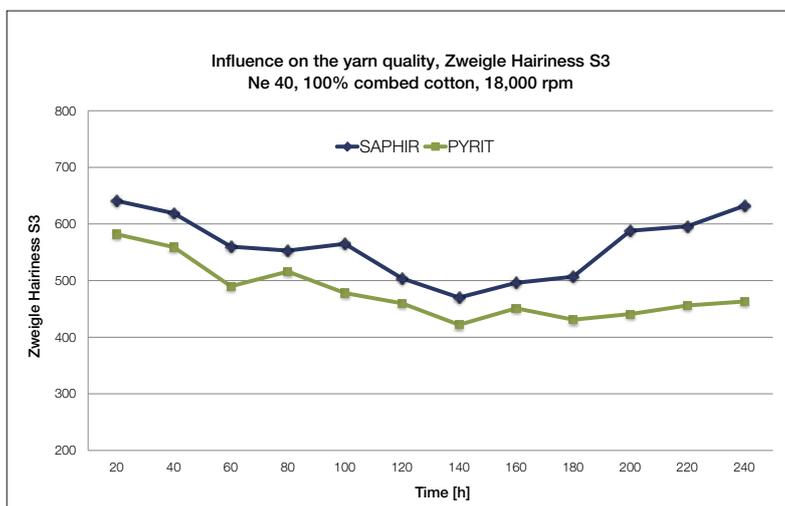


Fig. 4



As soon as the contact area between traveller and spinning ring is perfectly formed, yarn hairiness will decrease. The extraordinarily smooth running of the traveller and the resulting constant yarn tension keep hairiness values at an equally low level during a long period.

The better hairiness values achieved with the PYRIT traveller over a long period are owing to the wear process being slowed down by this traveller finish. Up to the end of the study, i.e. after 240 hours, hairiness values remained constant, this means that the traveller did not suffer from any wear that would have disturbed its smooth running.

Even if the 1 mm hairiness (Zweigle) is of minor importance in the daily routine of a spinning mill, it is a good indicator for the behaviour of the ring/traveller system in such a trial. (Also see Fig. 3 hairiness 1 mm, Fig. 4 hairiness S3)

3.4 Traveller wear, visual determination

The traveller wear was evaluated visually. The degree of wear is indicated by a scale from 0 to 6, "0" meaning "no visible wear" and "6" corresponding to "extreme wear".

Visual evaluation is more accurate than gravimetric measurement, because it also allows to judge the surface and to describe the distribution of wear areas. In addition, the position of the yarn path in relation to the contact area "ring – traveller" permits to analyze the position of the traveller on the ring (Fig. 5).

Fig. 5



Fig. 6 shows the correlation between traveller wear and yarn hairiness. The yarn hairiness (Zweigle) of each spinning position was measured and contrasted with the traveller wear. A higher traveller wear tends to result in increased yarn hairiness. The PYRIT travellers, after an operating period of 180 hours, show less wear and a tendency towards lower hairiness values.

Summary

After a multitude of tests in quite a number of spinning mills, Bräcker released in 2009 the PYRIT traveller finish for sale world-wide. Owing to the attractive price/performance ratio, the PYRIT traveller is meanwhile part of the standard equipment in our customers' mills.

Travellers with PYRIT finish are particularly recommended for customers with long-running yarn batches, as they permit to substantially reduce idle periods due to traveller changing.

Spinning mills frequently changing fibre material and yarn counts still get along very well with the SAPHIR traveller finish.

The conclusions drawn from this study teach us that using PYRIT travellers permits to achieve a more consistent yarn tension over the entire traveller lifetime. So there is a potential to finally increase spindle speed and consequently production.

The Bräcker "Spinning data base" comprises more than 2000 sets of customer-related data, which is continuously updated. An excerpt from these spinning data (100 % cotton Ne 30 - Ne 50), subdivided into SAPHIR and PYRIT traveller finish, shows the difference in the traveller lifetime achieved (Fig. 7).

Fig. 6

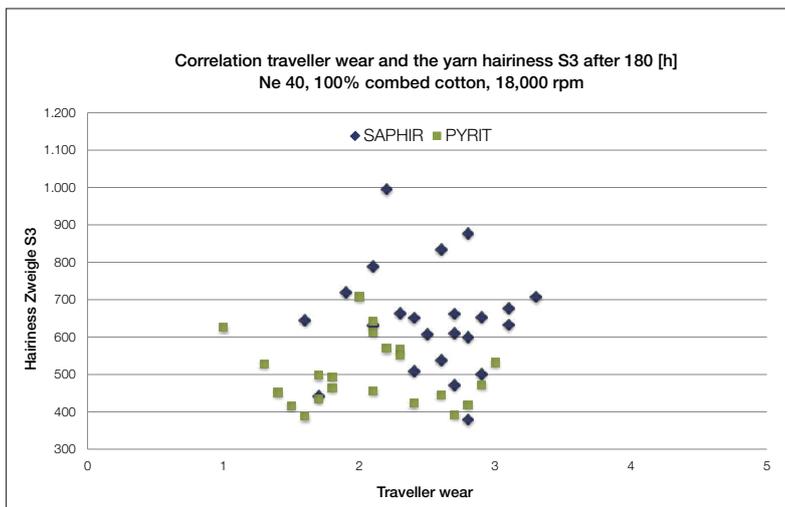
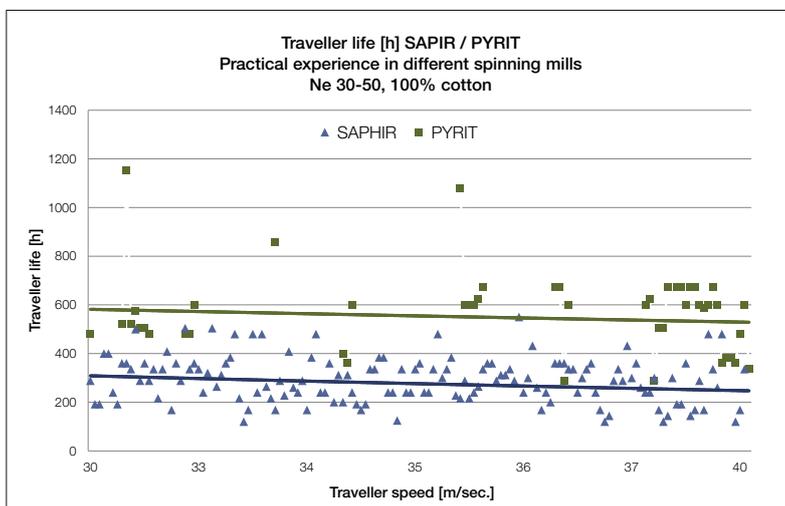


Fig. 7





Peter Stahlecker, Suessen Managing Director

Sri Shanmugavel Mills: A Success Story!



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Shri P.S. Velusamy, B.A. B.L.,
Founder and Chairman
Sri Shanmugavel Group of Mills

During the last 20 years that I have had the privilege to travel in India, I have seen a few success stories!

However, one seems to stand apart: The Story of Shanmugavel Mills and of its Chairman, Mr. P.S. Velusamy, B.A. B.L.

The Sri Shanmugavel Group of Mills was founded by its present Chairman in 1981. From humble beginnings, an empire was forged, whose numbers are impressive:

- 15 manufacturing units
- 500,000 spindles
- 12,500 rotors
- 230 air jet looms
- 246 knitting machines
- 300 wind mills, producing all the power which is needed for the operation
- Over 10,000 dedicated workers, who take pride in being associated with this group
- Over 450,000 kg of yarn is produced every day, and exported to over 60 countries under the trade name SUDHAN

I met Mr. Velusamy the first time in August 2005. He had just ordered the first 12 machines of Suessen EliTe®CompactSet, and there were some technical questions to be

discussed. Of course I had heard about the Chairman. Mr. Mathew, Suessen's energetic representative for South India had told me and briefed me about him – but meeting Mr. Velusamy for the first time.... I met an elegant, soft spoken person, the English term gentleman is the perfectly fitting description. However, two things very soon became obvious: The Chairman had in depth technical knowledge – and there was a will of steel and a clear vision radiating from him.

The issue on hand was solved, and over time, Sri Shanmugavel became the largest customer of Suessen EliTe®CompactSet in the world! One by one, we could convert 100% of his spindles to the EliTe®Compact Spinning System in the below mills, and today, the impressive picture looks as follows:

• Adisankara Spinning Mills	48,288
• Prabhu Spinning Mills	47,712
• Sri Shanmugavel Mills (This is where we started)	48,336
• Sudhan Spinning Mills	57,456
• Sri Matha Spinning Mills	46,704
• Sri Velayudaswamy Unit 1	40,464
• Sri Velayudaswamy Unit 2	79,440
• Vedha Spinning Mills	32,592
• Total EliTe®Spindles	400,992

These spindles produce over 250,000 kg of premium quality elite compact yarn every day, which is exported, under the brand name SUDHAN to over 60 countries on all five continents. Mills recently favored Suessen with an order of 40,000 EliTe® Spindles for their new ring frames added now, which emphasizes the conviction on the EliTe® Compact Spinning System.

Soon it became clear that one of Mr. Velusamy's principles was: "You cannot be the leader by following the pack!" For example, the production figures he wanted to achieve were deemed impossible by conventional standards – yet he pushed us and he pushed his technical team to achieve them. And we did!

No man is an island. Mr. Velusamy was unconditionally supported from the very beginning by his brother, MD Mr. Kandaswamy, who ensured that the right cotton was bought at the right time, at the right price and at the right quantity – no easy task!

Later, his two nephews, Executive Director K. Shanmugavel and Executive Director K. Shivaraj have joined and together with the Chairman and the MD they are in charge of total operations.

No operation of this size could be run without an outstanding team of technical people and capable GMs. I met all of them many times – and I was impressed how always excellent people were picked for the job. They pushed themselves and us too, to the limit and beyond

We were told a few of the advantages the mills and their customers could get by using SUESSEN EliTe® CompactSet:

- Production increase of 10% over normal ring yarn
- EliTe® Yarn is superior in CSP, hairiness and IPI
- No spirality complaints from the knitting customers
- No blockage in the dye vessels
- Reduction of end breakage by 2/100 spindle hours.
- Higher yarn realisation
- Lower end breakage and much less fly and fly in the department results in better work environment and hence higher workers' satisfaction.

Naturally, there is state of the art quality assurance in every step of the production, without this such a success would simply not be possible.

Over the years, Sri Shanmugavel Group of Mills were awarded many prizes and trophies. They are humbly displayed in the Chairman's office, which by the way is on the premises of Sri Shanmugavel Mills, not in some far-away city!

Recently, the group ventured into steel fabrication, when they established Renergy Equipment India, and they also started garmenting under the brand labels of Chennis and Players Club. Needless to say, both ventures are successful under the able leadership of the new generation.

Executive Directors Mr. K. Shivaraj and Mr. K. Shanmugavel



MD Shri C Kandaswamy





SSM Institute of Engineering and Technology

The story of Sri Shanmugavel Group of Mills and of its founder and Chairman would be incomplete without mentioning the philanthropic nature and the social conscience of Mr. Velusamy, B.A. B.L. Besides taking excellent care of his workforce of over 10,000 people, he believes, that the real wealth of any nation is the wisdom of its younger generation. So, he started the SSM Matriculation School, where young people are taught skills not found in any class room, and also the SSM Institute of Engineering and Technology.

Everybody at Suessen, particularly the writer of these lines, is proud to be the exclusive supplier of compact spinning equipment to Sri Shanmugavel Group of Mills! This great honor only makes us work harder to meet and exceed their demands.

We wish the group and its leaders all the success!

SSM Matriculation School



Lakshmi LR6 with Suessen EliTe®CompactSet and HP Top Weighting Arm



Growing spectrum of success:

- 1) Sri Shanmugavel Mills (P) Ltd
- 2) Sivaraj Spinning Mills (P) Ltd
- 3) Sudhan Spinning Mills (P) Ltd
- 4) Sri Velayudhaswamy Spinning Mills (P) Ltd
- 5) Sri Velayudhaswamy Spinning Mills (P) Ltd Unit II
- 6) Prabhu Spinning Mills (P) Ltd
- 7) Adisankara Spinning Mills (P) Ltd
- 8) Sri Matha Spinning Mills(P) Ltd (Gots Certified)
- 9) Vedha Spinning Mills (P) Ltd
- 10) Sri Shanmugavel Mills (P) Ltd (Weaving Division) (Gots Certified)
- 11) Prabhu Spinning Mills (P) Ltd
- 12) Adisankara Spinning Mills (P) Ltd (Weaving Division) (Gots Certified)
- 13) Sri Sankari Yarns (P) Ltd
- 14) Shri Siddhi Vinayaga Tex India (P) Ltd
- 15) Prasanna Spinning Mills (P) Ltd



Ahsan Bashir
Board of Directors Suraj Cotton Mills Ltd

Suraj Cotton Mills Ltd.

is a public limited company, incorporated in the year 1984, and listed in both Karachi & Lahore Stock Exchanges.



Contact data.

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Suraj Cotton Mills is engaged in the manufacturing and trading of high quality yarn and woven fabrics. The Company has three operating units located at Nooriabad (Sind) and Shahkot (Punjab).

The Company's success is attributed to quality yarn and fabric and valued relationship with suppliers, ginners and cotton spinners.

We are into 100% cotton yarn business and produce yarns made from cottons of different origins like Pakistani, CIS, Australian, Supima, Egyptian Giza, and Chinese Cottons.

Here is our product range:

- Carded yarn: From 10/s to 52/s (for both weaving and knitting)
- Combed yarn: From 10/s to 120/s (for both weaving and knitting)
- Compact combed yarn: From 40/s to 120/s (for weaving)

The Company has the installation of spinning facilities at Nooriabad Area. The plant comprising 16,320 spindles came into commercial production in 1986. During the first two years of operation, the performance of the company was extremely satisfactory. The management was successful in marketing the cotton yarn produced from these facilities and in fact, we have been generating substantial export business. The operation resulted in the manufacturing of excellent quality of yarn and contributed a lot to the profitability of the company. The company in these years built enough reserves and induced the management to think about the expansion of its existing facilities. The business situation in Sindh Area in those times were not conducive for further investment, the Management, therefore, decided to increase its spindle age capacity to 34,560 by installing another spinning unit in Kotla Kahl-oon on Sheikhpura Road near Shahkot.

In the year 2000, the Company further expanded its existing spinning facilities by the addition of 16,000 spindles at Shahkot. This expansion project was based on high value yarns such as 40/1 – 80/1 combed to cater to the demand of high value weaving industry, which has come up recently in Pakistan.

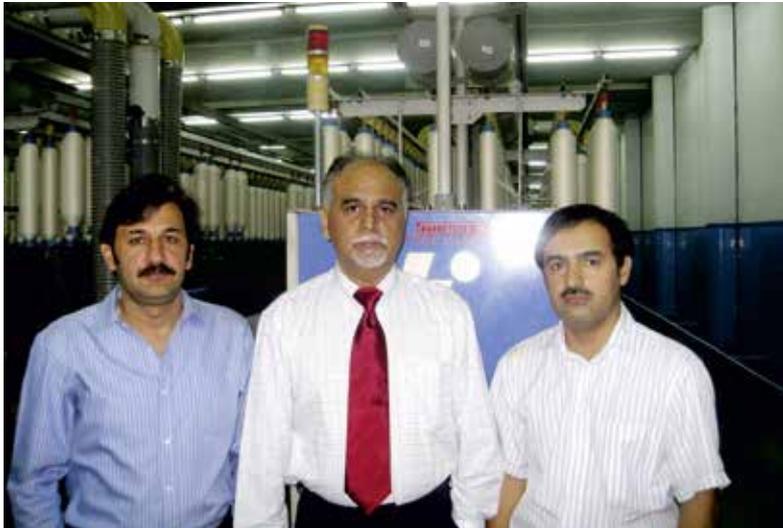
In the year 2002, Suraj Cotton Mills Limited has created a quality standard in higher quality yarns, and looking at the shortage of such products it was quite lucrative to go into expansion in existing unit by the addition of further 8,500 spindles.

In line with its policy of continuous improvement and to keep the pace with technological developments, the company has been investing in further equipments, which will help it to maintain its competitive edge and remain in a position to increase investor value. In this respect, we are making further investment in our spinning division through the installation of 8,256 spindles in Unit-1 located at Nooriabad.

Sharing his experience with Premium Textile Components, Mr. Ahsan Bashir – Board of Directors, Suraj Cotton Mills Ltd and Chairman All Pakistan Textile Mills Association – talked to the Pakistani textile magazine TEXTalks in May 2013:

Question: What are your most used components in your mill?

Mr. Ahsan Bashir: Suraj group stand-alone has over 65,000 Suessen EliTe® Compact Spindles which are equipped with Novibra Spindles as well. We are also using Graf wires for our top sets. Fine count executions are preferably done on machines specifically equipped with Graf wires. We are also continuously consuming Bräcker rings & travellers along with other leading brands.



From left to right: Mr. Anwar Mehmood, Mr. Tanveer Ahmad Khan, Mr. Riaz Ahmad

Question: Your spinning mill is using components from Bräcker, Graf, Novibra and Suesen. What are the advantages in using these products?

Mr. Ahsan Bashir: All these brands are world renowned and famous for their performance and reliability. Suraj group has taken maximum advantage of these brands in terms of production, quality and consistency in yarn results. We feel that usage of these Premium Parts has contributed to a great extent in high brand value of Suraj Group products in contemporary textile market.

From left to right:

Mr. Muhammad Ashraf, Mr. Shakaib Raza Zaidi, Mr. Muhammad Imran



Question: Can you describe in short words the premium benefits

Mr. Ahsan Bashir: As I mentioned earlier, higher productions, excellent product quality, reliability of end product and consistent performance results are salient features in bringing in satisfied customers for the group.

Question: What are the quality improvements achieved since your mill is working with Premium Textile Components?

Mr. Ahsan Bashir: As a spinner, we firmly believe the improvement is yarn quality characteristics, such as improvement in evenness results (better uniformity with low imperfections), high strength values (Single Yarn Strength, RKM, CLSP), low CV values depends largely on high quality spares and parts. Consistent quality parameters, better appearance and feel of fabric, improved better dyeability are also some of the benefits which are due to our investment and reliance on these Premium Components.

Question: What do you suggest to other spinners in order to get successful in the textile market?

Mr. Ahsan Bashir: Always use premium components for their spinning machines. Do not compromise on low quality and low value investment.

EliTe®Compact Spinning System still going strong in India

SUESSEN had another successful year with its EliTe®CompactSet in India. Over 500,000 EliTe®Spindles were sold in 2013, pushing the total number of EliTe® positions sold to India to over 4,500,000.

Besides the product quality, customers seem to appreciate the prompt and reliable service of Suessen's local engineers and technologists.

- Pioneers in compact like Loyal Textiles, Tamilnadu, after more than 10 years of association, favored Suessen with 25,000 EliTe®Spindles order making the total EliTe® capacity of 1 lakh spindles.
- Based on many years experience on 4 lakh spindles at all units, Sri Shanmugavel group again chose EliTe®CompactSet for 40,000 spindles on new LMW ring frames.
- Shri Govindaraja Mills have repeated the order for 40,000 EliTe®Spindles on Rieter G 32 ring frames.
- The Lakshmi Mills Limited, Coimbatore, after many years of compact experience, again favored Suessen with new order for 30,000 spindles.
- With more than 45 lakhs EliTe®Spindles in India, all the leading spinning mills have experienced Suessen EliTe® technology and expressed their satisfaction on the services of Suessen technologists and engineers. Suessen and VTS are rated among the top service providers in the industry.

Filati Drago – Suessen Long-time co-operation confirmed with new order

Filati Drago in Biella (Italy) was one of the first worsted spinners believing in the Suessen EliTe®Technology. In 2007 we started with modifying one Cognetex FTC ring spinning machine, and a few days ago Filati Drago placed a new order for installing EliTe®CompactSet on Cognetex Com4Wool and Cognetex IDEA ring spinning machines. Suessen is proud to contribute with the EliTe®Compact Spinning System to the success story of Filati Drago and thanks Drago for their long-lasting confidence.



Bräcker



Novibra



Suessen



Graf

