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# SPINNOVATION



THE MAGAZINE FOR  
SPINNING MILLS

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## Bräcker:

- BERKOL® **supergrinder**
  - BERKOL® Aprons
  - Bräcker TRITON Rings
- 

## Graf:

- The Graf Range of Flat Clothings
  - Quality Assurance
- 

## Novibra:

- Most Common Applications of Spindles
- 

## Suessen:

- HP-GX 4010: An Interim Review
  - EliTe® Spinning: Raw Material Saving
  - Compact Spinning: 3-roller vs. 4-roller solution
  - Plate Spring Design
- 

Mill Report:  
Noman Group/Bangladesh

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**Front Cover:**

Graf Quality Assurance



Dear Reader,

This issue of SPINNOVATION, which you hold in your hands, is a special issue for the ITMA Asia 2012 exhibition. The combined show of ITMA Asia and CITME, which takes place every two years, will start on June 12<sup>th</sup> and will last till June 16<sup>th</sup>.

The ITMA Asia has become the most important textile machinery exhibition (together with the ITMA). In 2012 the organizers expect 100,000 visitors from China and from all over the world. Approx. 1,300 exhibitors will show their products on an exhibition area of 130,000 square metres.

Considering the importance of such an exhibition for our business group, we have issued this magazine also in Chinese language in addition to our standard English version.

The Rieter Business Group "Premium Textile Components" with the member companies Bräcker, Graf, Novibra and Suessen, will show their new products on a common booth of 260 sqm in Shanghai. Our booth C01 is located in hall W2. You are kindly invited to visit us.

One of the highlights on our booth will be the new BERKOL® **supergrinder**. This is a new overall improved grinding concept for top rollers. The advantage is a reduced grinding time which leads to a much higher grinding capacity and at the same time reduces the energy consumption. Special attention has been paid to a user-friendly machine operation. The new grinding machine is based on a modular system that can be adapted

according to the customer's requirements. An article on page 4 describes the main features and advantages of the new BERKOL® grinding machine.

Bräcker introduce the new TRITON surface coating for T flange spinning rings, especially designed for the spinning of wet flax fibres, over the full yarn count range.

Graf introduce their complete range of flat clothings and give a clear overview of what types of flat clothing are available and for which application.

Novibra show in an interesting article the various fields and ranges of application of their spindles and spindle bearings based on customer experiences.

Suessen describe in a very interesting article the ways our customers in India use the EliTe® Compact Spinning System to save raw material costs by perfect fibre substance utilization and higher spinning stability which only the EliTe® System can offer. Several practical examples on various yarn counts and various cotton qualities are described.

Suessen also report about their biggest customer in Bangladesh, the Noman Group of Companies. Out of the 400,000 spindles installed in the group, approx. 250,000 spindles have already been converted into EliTe® Compact Spindles in the last three years. Further plans for investment are finalized for 2012 and 2013 and are being implemented.

Last but not least, I would like to draw your attention to our new websites. All four companies, Bräcker, Graf, Novibra and Suessen, have

redesigned their homepages. A clear design and an easy site navigation are the characteristics of the new internet presence. It helps the customer to easily find the necessary information and get updated about the latest innovations and product developments of all four units. For the convenience of our customers a link to each business unit is placed on the websites of each of the sister companies. Please also visit our joint website : [www.premium-textile-components.com](http://www.premium-textile-components.com).

I hope that you will enjoy this issue of Spinnovation and I invite you to give us your comments and suggestions for further improvements.

See you in Shanghai!

Ioannis Spiridopoulos

# New BERKOL® supergrinder

– Continuation of a success story

by J. Herger, Product Manager and Customer Service Berkol, Bräcker AG



## Bräcker

### History of BERKOL® Auto grinders

#### 1978 - BWA

First automatic grinder with top roller storage magazine and manual diameter setting

#### 1995 - BSS

First automatic grinder with large storage magazine, automatic diameter measuring and integrated UV treatment (Berkolizer) → **world debut**

#### 2004 - BGS

BERKOL® Grinding System - new machine concept, based on modular design according customer's requirements. *Over 400 machines of these various type's have been sold so far*

#### 2012 - SG supergrinder

A totally re-engineered concept, based on experience with the very

successful BGS machines and incorporating the latest electronics technology, as well as adapting to the latest requirements of today's spinning technology.

To accommodate ever-larger spinning frames and to keep maintenance costs as low as possible, it requires corresponding adaptations in the roll-shop equipment. Without doing so, time spent for maintaining the spinning frames would become too long. Idle spinning frames mean cost increase. Working with increased numbers of spare top rollers instead of investing in higher grinding capacity, would have the same effect: it would increase cost.

BERKOL® has now given a timely response with the newly developed automatic grinding system, called "supergrinder".

Based on know-how in grinding technology and the successful preceding machine models, we have been able to optimize already proven components to develop an overall improved concept of a grinding machine:

- The **supergrinder** concept is a modular system that can be adapted to the customers' specific requirements. Starting out with the basic grinding machine, the customer has the option to add any modules at a later date, depending on his future requirements.
- Due to latest technology the grinding time has been reduced by over 50%, leading to a grinding capacity of over 350 top rollers/hour. Depending on top roller quality requirements of the individual spinning mill, the optimal capacity can of course vary.
- The increased output requires high storage capacity due to economical reasons. These large magazines fulfil the highest ergonomic demands! A storage capacity of up to 450 top rollers with 32 mm

Fig.1 - BERKOL® SG LM supergrinder





diameter allows for a minimal autonomous operation of at least 1.5 hours.

- 10% less electrical power consumption is one more reason why to make the BERKOL® **SG supergrinder** the roll-shop equipment of your choice!
- Machine operation by user-friendly touch-screen panel
- Multi-language operation guidance in German, English, Chinese, Italian, Spanish, Portuguese, Russian and Turkish. Other languages possible according to CE directives
- Continuous, fully automated top roller and grinding wheel cleaning by compressed air during grinding process
- PLC controlled and step motor driven coordinate table, allowing constant top roller quality in size as well as surface roughness.
- Integrated surface treatment by means of UV radiation available as additional module (Berkolizing)
- All presently known top roller dimensions between 19 mm and 43 mm outer diameter can be buffed

The maintenance intervals of top rollers have increased substantially since the introduction of the air-jet and various compact spinning systems. Soft cots are recommended for production of high quality yarns today. It is well known and apparent that the drafting process of the compacting systems is wearing out cots of the front line top rollers faster than the conventional ring spinning.

Only regular and efficient grinding of top rollers guarantees production of high quality yarns. Perfectly buffed and maintained top rollers reduce yarn breaks, minimize lap formation and as a result reduce downtime, resulting in higher productivity and thus profitability. Using the best method of maintaining cots influences directly their performance and the expense associated with their maintenance and replacement.

### **Grinding and maintenance of EliTops of the Suessen EliTe®Compact Spinning System**

Experience has shown that the quality of the maintenance of the EliTop

front top roller and EliTe®Roller is influencing the performance of the EliTops and subsequently the yarn quality produced.

Especially the important outside diameter relation of the 2 top rollers needs to be kept constant and precise in order to achieve the required tension draft.

Grinding complete EliTops, i.e. without disassembling the 2 rollers, is not recommended by BERKOL®, as the required parallelism and concentricity of the 2 rollers in such a procedure cannot be achieved. Spinning mills having a larger amount of spindles equipped with Suessen EliTe®Compact Spinning System confirm this fact.

As the gears of the EliTop rollers have to be maintained in regular intervals, it is recommended to grind the 2 top rollers individually on the fully automatic BERKOL® **SG supergrinder** equipped with measuring module.

Both cots of the top roller are being measured simultaneously before grinding, thus ensuring that indeed both cots are being buffed and that a minimal amount of rubber is being removed. In case a cot diameter falls short of the minimal amount of 0.15 mm to be removed, the top roller is being rejected and sorted out, so that only perfectly and correctly buffed top rollers are being fed to the magazine; ready to use!

Maintaining your EliTops with the BERKOL® **SG supergrinder** offers you substantial cost savings due to automated grinding and assures best performance thanks to its control functions!

Fig.2 - Measuring/ Grinding



Fig.3 - Touch-screen control panel



# 5 Years of HP-GX 4010 Top Weighting Arm

An interim review



by Gerd Wollinger, PM RS China, Spindelfabrik Suessen GmbH

## **Suessen**

At the Munich ITMA in 2007, the HP-GX 4010 top weighting arm for cotton roving frames, replacing the HP-A 410, was presented to the public. Time for an interim review.

After the successful introduction of the HP-GX 3010 top weighting arm for cotton ring spinning frames in 2006, expectations for the HP-GX 4010 were high. As you are aware, the HP-GX 3010 aced all demands.

This raises the question if the HP-GX 4010 top weighting arm for roving frames is just as successful. Before we can reply to this question, it is necessary to take a closer look at the demands.



### **Modular design and variants**

Depending on the drafting system design of the roving frame model, the appropriate top weighting arm must be available. This means as a variant for a 3- or 4-roller system, and for the latter with the top apron cradle in the second or third position.

In addition, different spindle gauges must be offered, i.e. 90, 100, 110 or 130 mm, in combination with top roller cot diameters of 28, 31 or 35 mm.

At first sight, this should not be too difficult, but this impression is deceptive. Because as a result of the modular design, the HP-GX 4010 required for a certain application must still be produced as effectively as possible, so that it is an attractive product after all.

The HP-GX 4010 meets this important criterion.

### **Replicability and availability**

The best product is worthless, if it cannot be produced with the required quantity.

As if that were not enough, in our current fast moving industrialized society, a competitive product must be available at short term with exactly the quantity needed by the customer.

### **High quality standard**

It would be quite easy to say that the HP-GX 4010 must meet a high quality standard. This feature in our list is the first concrete criterion for our customers, and therefore it should be defined more precisely.

First of all, it is most important to achieve good yarn parameters in spinning, hence a good CV% value.

Second, and this is just as important, the deviations from one spindle to

the other, or on the roving frame from one bobbin to the other, should be as small as possible, what is represented by a low CVb% value.

This demand can be fulfilled by precision and close manufacturing tolerances.

But both values, i.e. good CV% and CVb%, are of importance not only during a specific batch, but during the whole service life of a top weighting arm. Parameters influencing the service life are numerous. The decisive factor, however, is the material used, so to speak the "intrinsic value". The quality of the used material is not or hardly visible at the surface. Nor can it be felt in function in most cases, as long as a product is at the beginning of its life cycle.

Thus, since consistently good yarn parameters can be achieved during the whole lifetime of the HP-GX 4010, the best of material is being used.

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## Easy installation and handling

Installation is easy both as original equipment and for retrofit, so that it only requires a small amount of time in the customer's spinning mill.

We should also clearly keep in mind that the handling of the HP-GX 4010 top weighting arm should be as simple as possible for the staff. This not only refers to the operation of the top weighting arm itself, but also to the maintenance, and this is dealt with in our next item.

## Low maintenance and operating costs

As already mentioned above, only high-quality material is used for producing the HP-GX 4010.

This also accounts for the top weighting arm being practically free from wear and therefore only requires a minimum of maintenance.

The HP-GX 4010 is a mechanically operated top weighting arm. Thus there are no leakages of pneumatic connections and no need for providing compressed air to the top arm, which is energy consuming and therefore cost-intensive.

So the cost for maintaining and operating the HP-GX 4010 is negligible.

## Wide scope of applications

Apart from various spindle gauges and diameters of the top roller cots, another criterion must be met to make the top weighting arm almost universally applicable.

This prerequisite is fulfilled by the top apron cradles for short, medium and long-staple fibres. They enable the HP-GX 4010 to be used for almost any application up to a fibre length of 65 mm.

## Technological superiority

Any decision for or against a product mainly depends on the fact if its technological features can keep up with the competitive product or even outclass it.

In the case of a top weighting arm, the following features are the crucial factors:

- Position of the top rollers completely parallel to the bottom roller axles
- Precise guidance of top rollers and top apron cradles parallel to the drafting plane

- Consistent load transmission without friction to the top rollers

To enable the top rollers being positioned exactly above the bottom rollers, a special setting feature must be provided. Not all top weighting arms offer such a feature - but the HP-GX 4010 does.

In addition, the top rollers and the top apron cradle must be completely parallel to the drafting plane to avoid drafting defects. In combination with the positioning of the top rollers this poses indeed a challenge. An optimum solution has been found for the HP-GX 4010 by machining the top roller retainers, i.e. the weighting units, after assembly of the top weighting arms to ensure an optimum alignment.

Various solutions have been found to transmit the load to the top rollers.





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On the one hand, there is the pneumatical transmission, which bears the disadvantage of leakages and energy costs as already described above.

Considering on the other hand a mechanical solution, you quickly come across the approach of accommodating forces by means of retainers supported by spiral springs. Everyone having already taken a closer look at such a solution, immediately becomes aware of the problem of this “would-be” technique:

Due to the friction between the spiral spring and its housing, load is lost. Friction also makes the load values vary between one spinning position and the other. Another disadvantage is that this solution is prone to accumulate dirt, and this even aggravates the problem of frictional forces.

On the HP-GX 4010 top weighting arm load transmission has been solved by means of weighting units



allowing direct and friction-free weighting of the top rollers by means of a plate spring. The advantage is

self-evident: This solution eliminates frictional forces and the problem of dirt accumulation.



## Summary

The HP-GX 4010 aces all demands and the design itself is consistent. This is substantiated by the feedback of many customers describing the HP-GX 4010 top weighting arm as a reliable product and – what is more – as leading in technology.



# The Graf Range of Flat Clothings



by Felix Hasler, Head Product Management, Graf + Cie AG

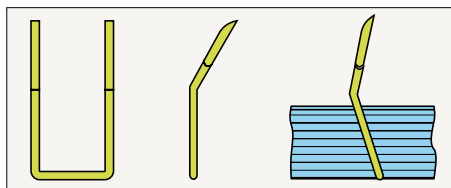


The card, known as the most important machine in the spinning mill is often referred to as the heart of the spinning process.

The main task of this machine is the carding, i.e. the opening, cleaning and parallelizing of the fibres. Beside all other elements required for the process, such as lickerin, cylinder and doffer it is the flat clothings that mostly contribute to an excellent carding result.

At this stage of the carding process it is the main task of the flat clothings, in combination with the cylinder wire, to open the fibre tufts to the individual fibre, to eliminate the remaining impurities and short fibres, to open or eliminate neps, to remove dust from the material and to position the fibres lengthwise. Therefore the selection of a premium flat clothing, suitable for the intended application is of great importance.

Fig.1 Construction of a flat clothing



There is a multitude of requirements which a suitable flat clothing has got to meet, amongst these are:

- sturdy, even at high production rates
- continuous quality parameters throughout the entire life time
- adapted to the cylinder clothing
- strictly within the manufacturing tolerances
- best possible performance, generating a minimum of waste

The construction of flat clothings is always similar, consisting of a carrier material, also known as foundation, which can be made from glued layers of cotton fabrics or from PVC and the actual teeth, made from alloyed, hardened steel. The foundation is an important indicator of the quality and life time that can be expected.

The more flexible the foundation is, the better the quality that can be obtained, however the shorter the life time that can be achieved.

The teeth are inserted into the foundation material at a certain angle on the so-called setting machines and bent to an angle which varies, depending on the eventual application.

This angle, referred to as 'knee' is smaller on flat clothings used for pro-

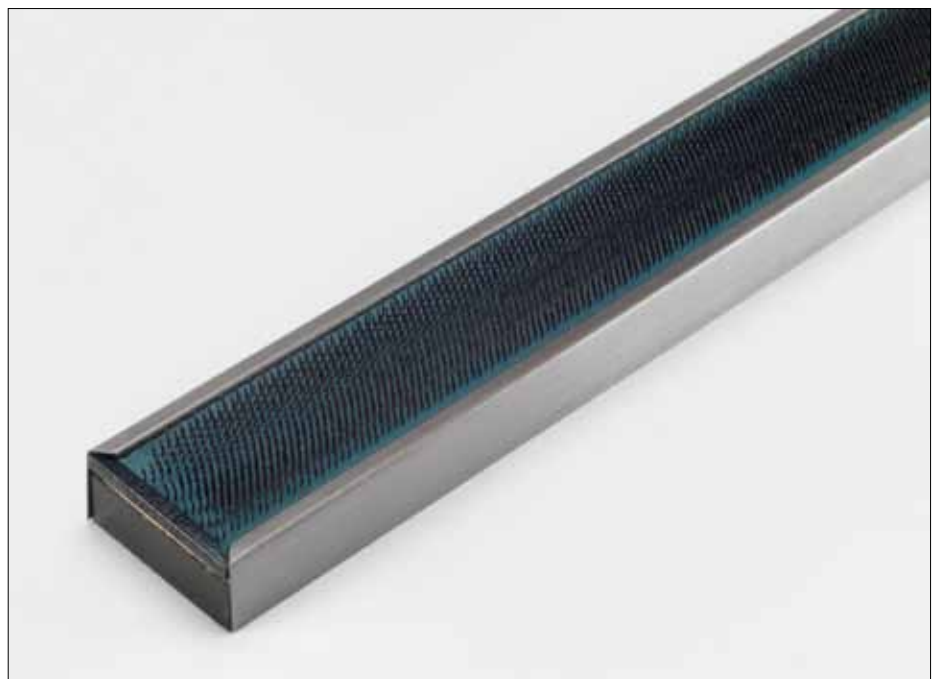
cessing synthetic fibres compared to flats applied for cotton fibres.

The subsequent process is the grinding of the flat clothings; the ideal tooth shape is obtained by the correct side- and back grinding. Usually the tooth points then undergo an additional hardening process.

The subsequent extra hardness provides protection against the possible adverse effect of seed coat fragments or other foreign matter in the raw material.

The final process these clothings undergo is the individual confectioning which is defined by the card type on which the clothings will be installed; card-specific demands comprise the number of flats per set, the measurements and the type of attachment.

Fig. 2 PRIMATOP series



## 1. PRIMATOP series (Fig. 2)

This is a very stable and reliable generation of flat clothings, mostly used on conventional cards for the processing of cotton and synthetic fibres. The setting density is progressive. In the direction of fibre flow the entry side is more open but the density increases continuously towards the exit side. In addition to the two types of flat clothings for the processing of cotton the series also comprises a flat clothing specially designed for the processing of synthetic fibres – the SUPRATOP.

Depending on the type of flat clothing, the production rate is limited. The PRIMATOP generation consists of the various types listed in Chart 1.

	for processing	specification	ppsi	ppsc	production
PT 43/0	cotton	carded, OE, blends	430	67	max. 80 kg/h
SPACETOP	cotton	combed	520	81	max. 50 kg/h
SUPRATOP ST 35/0	synthetic fibres	carded	350	54	max. 60 kg/h

	for processing	specification	ppsi	ppsc
RSTO C-43/0	cotton	carded, OE, blends	430	67
RSTO C-48/0	cotton	carded, OE, combed, blends	480	75
RSTO C-55/0	cotton	combed	550	85
RSTO C-74/0	cotton	combed, very fine yarns	740	115
RSTO M-35/0	man-made fibre	MMF > 1.7 dtex	350	54
RSTO M-43/0	man-made fibre	MMF 1.2 - 1.7 dtex	430	67
RSTO M-55/0	man-made fibre	MMF 0.8 - 1.2 dtex	550	85
RSTO R-44/0-7	regenerated fibre	all types of sufficiently opened regenerated fibres	440	68

## 2. resist-O-top series (Fig. 3)

This new generation of flat clothings was designed with special attention to the demands of the latest models of high production cards with respect to a safe carding process meeting highest quality requirements.

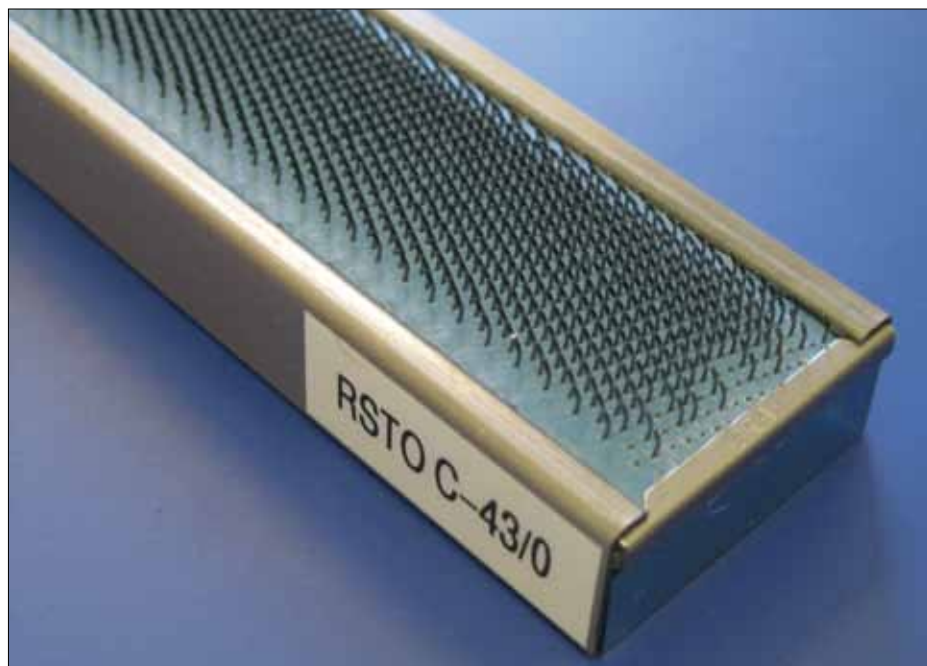
It is a progressively set flat clothing without any straight gaps between the rows of teeth. This innovative setting pattern favours the elimination of short fibres and trash as well as the opening of neps.

The new setting pattern influences the so-called free passage resulting in an improved distribution of the carding forces and a positive effect on the position of the teeth.

The resist-O-top has got a higher density in its narrow zone compared to conventional flat clothings. There is a difference of 5 numbers in the wire gauge of types C and M; for the R-type the difference is 7 numbers.

In the recent past we have developed flat clothings for the processing of synthetic and regenerated fibres in addition to the types applied for cotton. Subsequently the resist-O-top generation of flat clothings is complete and suitable for all ranges of application (see Chart 2).

Fig. 3 resist-O-top series



### 3. PICCO-DIAMANT semi-rigid flat clothings (Fig. 4)

PICCO-DIAMANT is a semi-rigid type of flat clothings for the processing of synthetic fibres as well as bleached cotton and viscose. As a result of the particular setting of the teeth, these flat clothings generate a minimum of waste.

The teeth do not have any knee, the side-grinding of the tooth points allows higher production rates and increases the life time without the need for service work, e.g. resharpening. It is not realistic to expect the same quality as achieved with flexible flat clothings if the same material is processed.

If an average quality is the objective the PICCO-DIAMANT flat clothing is certainly an option. It is the aim to cover all applications with only one type of PICCO-DIAMANT, the PD 29/0, to be introduced shortly:

- PD 29/0 - 290 ppsi/45 ppsc MMF, bleached cotton, viscose

### 4. M-TOP Metallic top flat clothings (Fig. 5)

The M-TOP is a metallic flat clothing for the processing of synthetic- and regenerated fibres as well as bleached cotton. Compared to conventional flexible flat clothings it is designed to withstand highest loads and is perfectly suitable for high production rates. The construction of the flat clothing is with segments of metallic saw tooth wire, attached to an aluminium profile.

This construction however does not allow any flexibility in the tooth shape. The currently known types are regularly complemented with newly developed versions. The use of this type of flat clothings is of increasing importance on today's generations of high performance cards since considerably more precise setting is possible. The challenge is in the development of a very sturdy flat clothing with which high quality can be achieved. Graf addresses this development with high priority:

- MTB 24/0 - 40 ppsi/37 ppsc bleached cotton
- MTM 31/0 - 310 ppsi/48 ppsc MMF > 1.5 dtex
- MTR 42/0 - 420 ppsi/65 ppsc regenerated fibres

It becomes evident, that there is a multitude of different modes of construction of flat clothings and types of flats. Graf's new concept will provide the customers with the necessary transparency, enabling our clientele to select the most suitable flat clothing, depending on application and requirements. Since the selection of the clothings is of great importance for the carding- and eventually the yarn results it is our endeavour to assist our customers with comprehensive technical support.

Fig. 4  
PICCO-DIAMANT semi-rigid flat clothing

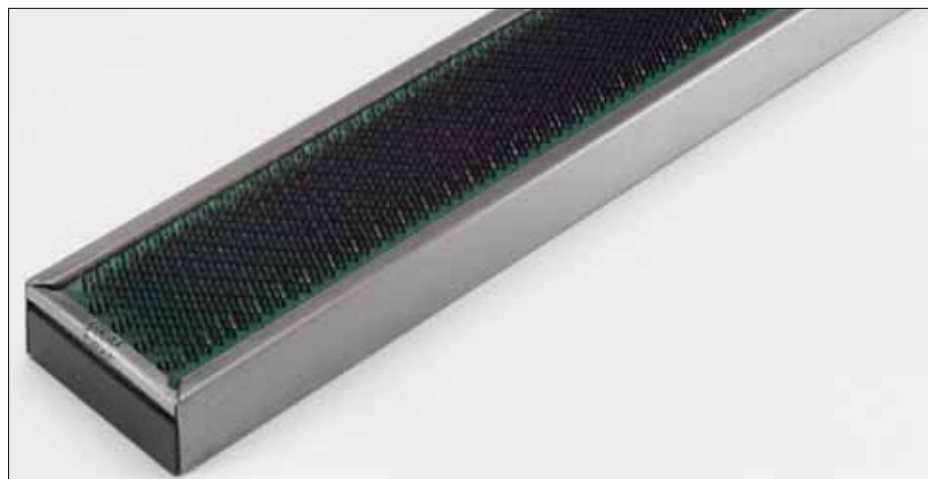


Fig. 5  
M-TOP Metallic top flat clothings



# Quality Assurance for Graf High-Performance Clothings



Urs Diethelm, Head of the Quality Control Laboratory, Graf + Cie GmbH



## Excellent quality standards

As a certified company (DIN EN ISO 9001:2008), we produce clothings in accordance with the highest principles of quality assurance. Customers can rely on the consistently outstanding quality of Graf high-performance clothings anywhere in the world.

The growing demand for performance increase whilst maintaining the same high quality makes great demands on the products with regard to strain, hardness and stability.

These demands mean we are constantly developing and implementing improvements during everyday operations. Permanent quality controls such as monitoring of the goods received, material and execution controls and production monitoring are an integral element of our quality assurance.

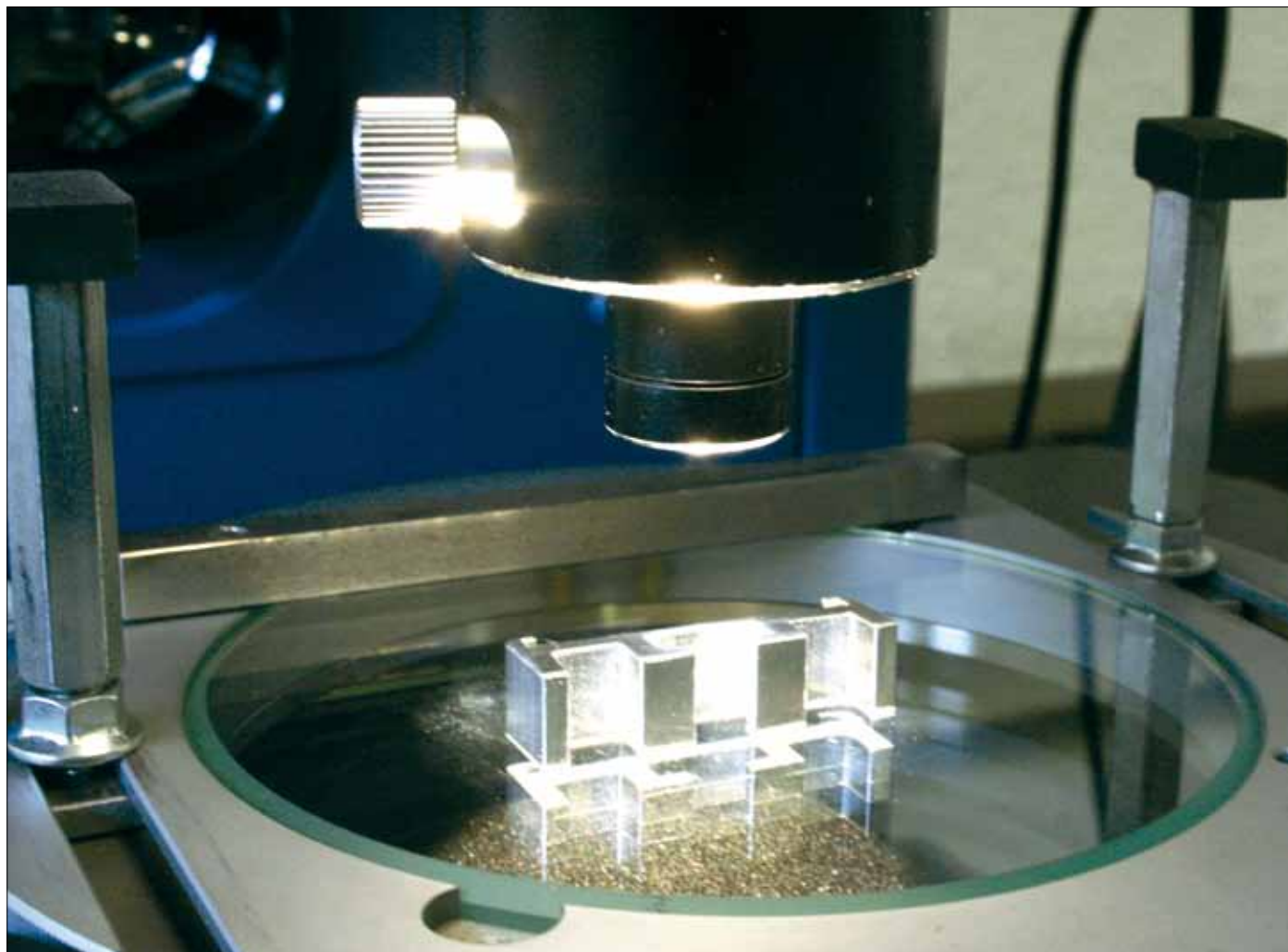
We can maintain 100% control of the entire manufacturing process with our state-of-the-art quality assurance thanks to the high level of vertical integration and automation.

## Control of goods received

In a first step, the received goods are checked. The aim is to avoid disruptions in the subsequent manufacturing processes caused by material faults and to ensure the raw material does not prevent the products from achieving the required quality.

Every single steel delivery is scrupulously examined in the laboratory with regard to its mechanical characteristics (tensile strength, elasticity, breaking strength etc.) as well as

Fig. 1 Optical measurement of cross-section





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its geometrical characteristics such as, for example, profile cross-section and tolerances. In addition, the first chemical analyses are carried out at this stage.

The results are documented and compared in a further step in order to test the compliance with specified parameters. This procedure applies of course also to other deliveries, such as the materials which serve as starting material for the flexible flats clothings.

### **Production monitoring**

Production and quality can only be maintained at a high level with 100% quality control. Before our clothings are released for standardised manufacturing, all the setting parameters as well as the first tests are carefully examined.

After approval for production, our quality experts continue to test different quality parameters on the production line and in the laboratory during the entire production process, right through to the end of the batch. Where tolerances are being exceeded, the system informs the person responsible of the measures to be taken. State-of-the-art analysis devices make detailed examinations and automated reports, enabling a systematic optimisation of the processes and fine adjustments to all the relevant parameters.

Each Graf clothing has a batch number and is documented. Traceability is ensured for 10 years. All the high-performance clothings which leave our works have impeccable geometry and mechanical characteristics.

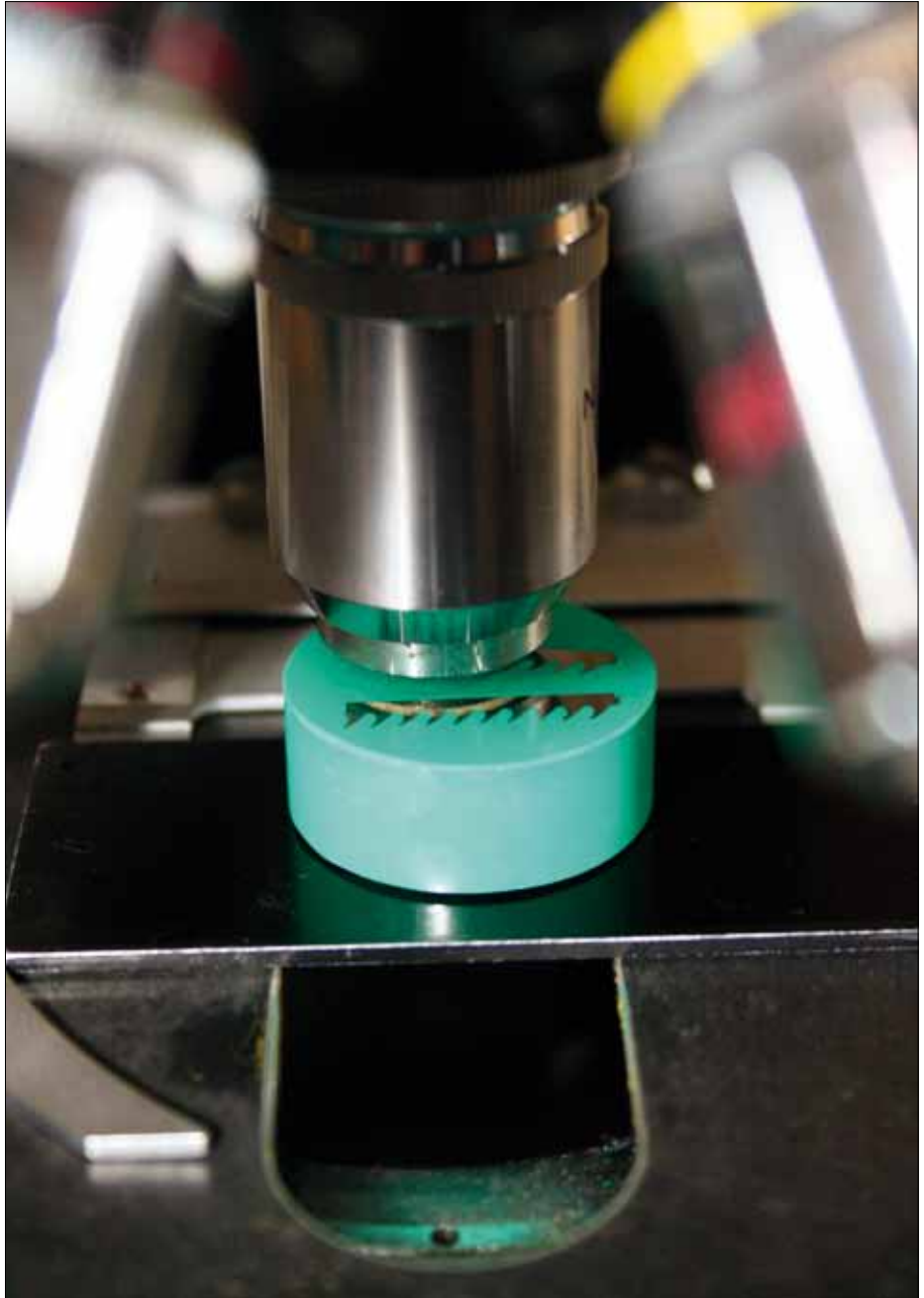


Fig. 2 Evaluation of structure

# EliTe® Compact Spinning:

Raw material saving – A review of Indian situation



By Mathew Jose, Venus Textile System, Coimbatore, India

Indian innovative customers were involved in Suessen EliTe® Compact Spinning nearly from the very beginning. This gave them a unique opportunity to fully exploit this new technology in ways the manufacturer of the equipment (Suessen) could not have dreamed about! They immediately understood what was meant by Mr. Peter Stahlecker, JMD of Suessen, when he stated: Suessen IS merely the builder of the piano. The Piano players and the creators of new and previously unknown symphonies are the customers only!

The successful installations of around 35 Lakhs EliTe® Compact Spindles in India have opened up numerous avenues of utilising the EliTe® Compact Spinning System. High quality spinners make Premium EliTe® Yarn like

- Ne 100s - 30 RKM, 80 IPI,
- Ne 70s - 31 RKM, 35 IPI,
- Ne 50s - 33 RKM, below 30 IPI.

Some others manufacture products with higher RKM, lower IPI, low hairiness to meet demands of corporate buyers for shirting and bed linen.

Many of our customers take advantage of EliTe® for higher RKM, lower hairiness along with saving in raw materials.

Many knitting yarn producers achieve higher spinning productivity up to 15% using EliTe® Compact Spinning System with less pneumafil waste and saving in raw material.

Our composite customers achieve more value for money by making yarn suiting their weaving and knitting with increased efficiency in down stream processes. They have also ad-

Type of yarn manufacturing	Conventional ring spun yarn	EliTe® Yarn	EliTe® Yarn	EliTe® Yarn
<b>Mixing</b>	DCH – 60% MCU5 – 40%	DCH – 20% MCU5 – 80%	DCH – 10% MCU 5 – 90%	MCU 5 – 100%
<b>Noil %</b>	20%	15%	15%	18%
<b>Quality Results:</b>	Ne 100/1	Ne 100/1	Ne 100/1	Ne 100/1
<b>I) Linear density</b>				
<b>Actual count (Ne)</b>	98.82	99.9	99.81	98.64
<b>Count CV%</b>	1.76	1.72	1.64	1.9
<b>Mean CSP</b>	2582	2669	2557	2655
<b>II) Uster Tester 4</b>				
<b>U %</b>	13.47	12.45	12.54	12.86
<b>Thin place (-50%)</b>	151	56	69	96
<b>Thick place (+50%)</b>	260	158	155	152
<b>Neps (+280%)</b>	346	219	225	170
<b>Total</b>	<b>757</b>	<b>433</b>	<b>449</b>	<b>418</b>
<b>Hairiness</b>	3.42	2.46	2.80	2.53

Chart 1

Type of yarn manufacturing	Conventional ring spun yarn	EliTe® Yarn	EliTe® Yarn	EliTe® Yarn
<b>Article Name 40s</b>	<b>Ne 40/1</b>	<b>Ne 40/1</b>	<b>Ne 50/1</b>	<b>Ne 60/1</b>
<b>Mixing</b>	<b>combed weaving</b>	<b>combed weaving</b>	<b>combed weaving</b>	<b>combed weaving</b>
Count	40.3	40.1	50.2	60.2
U%	10	9.8	10.5	11
Total IPI	75	60	100	150
RKM	18	20.2	19.3	18.8
Elongation%	5	5.4	4.53	4.34
Hairiness (H)	5.2	3.8	3.43	3.14

Chart 2

ditional benefits like higher strength of the fabric, less pilling, better luster, clearer print, better feel & appearance, endurance of the fabric etc.,

Our customers with knitting confirmed that some products are replaced with single EliTe® Yarn construction in place of normal double.

Less spirality, lower fly, and dust liberation in knitting, lower shrinkage of the fabric are some other benefits being experienced by them.

Some special products manufacturers take advantages of savings in singeing operation apart from developing new final products.

The success of EliTwist® is also being made use of by our customers with focused marketing efforts. Of course EliTwist® gives the quickest pay back.

EliTe® and EliTwist® Technology with the new ACP NT package (Active Cradle with PINSpacer NT) has evolved new standards of quality as



far as RKM, Uniformity, IPI values, hairiness etc., are concerned.

We have also come across some customers taking advantages of the hairiness reduction alone by substituting normal yarn parameters with EliTe®Yarn and saving the raw material to the maximum extend. The reduction in hairiness alone allows substantial advantages in subsequent processes like warping, weaving and processing. This production may not be meant for the top notch customers but the spinners are able to have a faster return on investment by taking this route also.

Below are several examples of what Suessen EliTe® customers are doing everyday!

#### **Ne 120/140s:**

Some of our customers make Ne 120/1 and Ne 140/1 CW from 50% PIMA and 50% either 33 mm MCU 5 or DCH. The saving in mixing is to

the tune of Rs.15000 to Rs.20000 per candy. This is around Rs.70/Kg. They are achieving production of 20 gms per spindle shift. According to them around Rs.5040 savings per machine of 1200 spindle per day.

#### **Ne 100's:**

Until a decade back, it was never thought that Ne 100/1 could be spun from 100% MCU5 or by replacing DCH substantially. Chart 1 shows, what is being done today by some Indian spinning mills.

The third column of this table shows that mixing with 10% DCH / 90% MCU5 along with 15% comber noil has produced EliTe®Yarn which is superior in hairiness by 20% and imperfections by 40% in comparison to normal yarn from 60% DCH / 40% MCU5 with 20% noil. Our customers indicated that in this case the raw material saving due to 50% DCH and 5% comber noil is up to Rs.50/ Kg for 100s which is around Rs.6000 saving per machine (1200 Spindles) per day. This means the payback of EliTe®CompactSet is less than 2 years from raw material saving alone after adjusting the cost of EliTe®Yarn.

Certain other customers make Ne 100/1 EliTe®Yarn using 80% MCU5 and 20% DCH with same comber noil and managing premium. Depending upon the strength and imperfection requirement the mixing can be varied and the maximum saving is possible when the strength of the normal yarn is the target.

#### **Ne 80/1:**

Those who are with Ne 80/1, switched over to 100% MCU5 in place of 100% DCH saving around Rs.11000 to Rs.12000 per candy. In addition to

this there is a saving of 1% comber noil is possible means saving of Rs.37 per kg by raw material which is Rs. 5300 saving per machine.

#### **Ne 60/1:**

For Ne 60/1 a combination of Mech + Sankar 6 replaces MCU5 with additional benefit of comber noil 1% to 2%, then the difference in mixing cost comes around Rs.15 per Kg. In place of Shankar – 6 Karnataka Bunny is used by some mills. The yarn produced out of this mixing is superior in terms of all properties and further raw material saving has not been observed. But mills prefer higher production and better price along with the above raw material saving. Most of our 60s yarn spinners are catering to weavers demanding higher RKM. They have not attempted to save raw material to the tune of equalising yarn strength with normal yarn as the pay back is comfortable in the above combination.

Some of our customer save 25% Giza 86 by using 75% MCU5 and 25% Giza 86 for 60s EliTe® mixing in place of normal yarn mixing of 50% Giza 86 and 50% MCU 5. They have stated that this will result in a saving of Rs. 15/- Kg apart from the Rs. 15/- premium possible due to better yarn strength and quality thus making around Rs. 30/- per Kg.

#### **Ne 40/1:**

For Ne 40/1 count up to 4% higher yarn realization is achieved which includes comber noil saving up to 3% along with this 10% production increase is commonly achieved. The tendency of increased Imperfections due to comber noil reduction is overcome by using Suessen ACP package. The combination of savings in Raw





Material alone Rs.4000 per machine per day and 2 years pay back.

In the case of Ne 40/1 combed hosiery 15% more productivity and upto 3% more yarn realization% is being achieved.

**Ne 30/1:**

In case of Ne 30/1 combed hosiery 3% yarn realization and 15% additional productivity is the most commonly employed method.

In all the above practical cases the payback varies between 18 months to 24 months by employing different combinations of mixing, comber noil saving, pneumafil waste saving along with additional productivity. In majority of the cases a marginal premium is also possible for the better hairiness,

imperfections even if the yarn is supplied with strength matching normal yarn.

A look at the brochures of the manufacturers of compact equipment will show that they added these advantages only AFTER they learned about them from their customers! This is really a new and previously impossible symphony!

It goes without saying that “Some pianos are better than others” and surely the one from Suessen is the best: no other supplier can claim that his customers have achieved such impossible feasts, only EliTe® can do this full range!

Of course, there are other “novel symphonies” created by our custom-

ers, which are not in the core of this article, and be mentioned only in passing.

With the help of EliTwist® and the Suessen PINSpacer NT, customers again managed to create previously impossible yarns, ultimately creating profits for themselves.

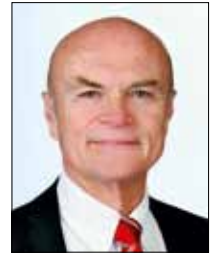
The tools of raw material savings are at hand which will give a cutting edge in competition and better leverage in managing present crisis of spinning mills.

We encourage our Suessen EliTe®Compact customers continue being innovative, for the advantage and the betterment of the whole industry! We encourage them to challenge Suessen to build better pianos!



# BERKOL® Aprons

For spinning and roving frames



by Beat Gutzler, Head Product Management, Bräcker AG

## Bräcker

The BERKOL® top performing aprons are capable of processing 100% cotton as well as blends.

As “bottom aprons” they are available in both long and short execution as well as for regular or compact spinning.


With the new I-HX8/U-HP and I-HX8/C-HP aprons, we are able to increase the apron’s lifetime by up to 35%, compared to the well known I-HX8/U and I-HX8/C aprons.

Another benefit for our customers is the fact, that improvements in yarn quality of up to 10% are frequently achieved.



The reasons for these improvements are:

- Improved resistance against wear and tear due to minimal depression. This has a direct influence on the longevity and the quality consistency of these aprons.
- Improved resistance against surface deformation. The quick recovery leads to optimal gripping and better control of the fibres.
- Improved flex and ozon resistance leading to less cracking of the apron surface.
- Improved tensile strength and tear resistance, reducing the risk of “snapping”.

Aprons	Expected lifetime	Colour	Finish	Recommended applications
I-HX8/U-HP Top aprons	23-25 months	Inner layer olive green / Outer layer grey 	Antistatic	Universal high performing top aprons For spinning 100% cotton as well as blends, for regular and for compact spinning
I-HX8/C-HP Short bottom aprons Long bottom aprons	12-14 months 22-24 months	Inner layer dark green / Outer layer grey 	Antistatic	Universal high performing bottom aprons For spinning 100% cotton as well as blends, for regular and for compact spinning
I-HX8/U Top aprons	19-21 months	Inner layer olive green / Outer layer light green 	Antistatic	Universal standard top aprons For processing 100% cotton counts, regular and compact spinning
I-HX8/C Short bottom aprons Long bottom aprons	10-12 months 18-20 months	Inner layer dark green / Outer layer light green 	Antistatic	Universal standard bottom aprons For processing 100% cotton counts, regular and compact spinning
HX-3/S Bottom aprons		Inner layer dark green / Outer layer dark blue 	Antistatic	Bottom aprons For processing synthetics and synthetic blends

# Three- or four-roller compact spinning system?



Peter Blankenhorn, Head Technical Department, WST

## Suessen

The EliTe® Compact Spinning System by Suessen was presented first at the 1999 ITMA and took off for its triumphal course through spinning mills all over the world.

Meanwhile, about 5.5 million EliTe® Spindles installed are producing high-quality yarns. So EliTe® Compact has become the most successful compact spinning system on the market.

The original Suessen system has found a lot of followers. On the one hand, these are more or less good copies of the EliTe® Compact Spinning System with 3 bottom rollers (therefore 3-roller condensing system), on the other hand these are derivatives with a fourth bottom roller in the drafting system (therefore 4-roller condensing system).

The 4-roller systems, in turn, can have different designs, which – according to the date of their market introduction – can be traced back to three designs: the compact spinning systems by Zinser, Toyota and Pinter. Since most Asian followers such as e.g. DeChang, H-Fang, JiJu, Shanghai

Fig. 1: Suessen 3-roller system



Erfangji, Statex, Tonghe or Rifa either took the Suessen or the Toyota system as an example, these two systems are going to be compared in this article.

## System comparison

In 3-roller systems (Fig. 1), the lattice aprons are driven by an encapsulated gear transferring the moment of the front bottom roller via three toothed wheels to the rubber-coated drive roller of the lattice aprons. Thus, the power transmission is realized by means of the top rollers.

The 4-roller systems (Fig. 2) have a gearing on the front bottom roller. By means of an open or covered intermediate gear the auxiliary shaft is driven, which in turn drives the lattice aprons and is therefore called the fourth bottom roller. Thus, the power transmission is realized by means of the bottom rollers.

## Drive Safety

In view of the fourth bottom roller, the companies offering 4-roller sys-

Fig. 2: 4-roller system



tems often call their drive concept a “positive drive”. As described above, however, this characterization applies to both systems. In one system the drive is effected by the top rollers - in the other system by the bottom rollers. In case of the first option, a rubber cot drives the lattice aprons. The high friction of the cot in combination with micro-toothing makes the drive very reliable.

If the bottom roller drives the lattice aprons, this is more critical. Since the bottom roller is a smooth or structured steel cylinder, the low frictional coefficient impairs the reliability of the drive. The consequences of this theoretical observation can be easily checked in practice if you try to stop the lattice apron of the compacting device with your finger. What is almost impossible in the 3-roller system can be achieved in the 4-roller system without much force.

## Tension Draft

In the 4-roller system the speed of the auxiliary shaft is invariable due to the gear transmission. The top roller diameter is of no importance for the drive of the lattice aprons.

In the 3-roller system the diameter relation of the top rollers concerned determines the lattice apron speed and consequently the tension draft. When the cots are buffed, the diameter relation must be maintained, and buffing therefore requires an appropriate accuracy.

This supposed disadvantage of the 3-roller system, however, turns into an advantage when different kinds of fibre material are processed. The ideal tension draft depends on the

fibre material. Cotton requires another tension draft than blends or man-made fibres. Fibre length also has an influence. While in the 4-roller system the tension draft is a compromise for a variety of applications, the tension draft can be optimized and quickly adapted to the corresponding application in the 3-roller system by buffing the cots.

### Compacting Effect

In consequence of the drive principle, the effective suction slot length in the 4-roller systems is limited in contrast to the 3-roller systems. To condense the fibres ideally from the beginning of the condensing zone up to the clamping point, which means up to the twist insertion, the distance “y” between suction slot end and clamping line of the delivery roller pair should be as short as possible (Figs. 3 and 4). Depending on fibre quality and fibre material, yarn quality is affected adversely in the 4-roller systems due to the missing compacting zone.

### Fluff Accumulation

While the gears required for speed transmission in the 3-roller system

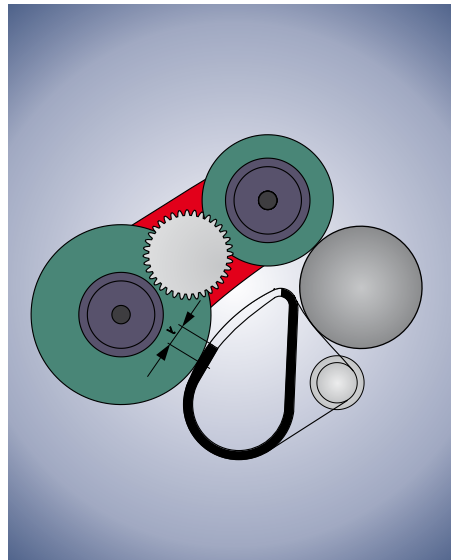


Fig. 3: 3-roller system

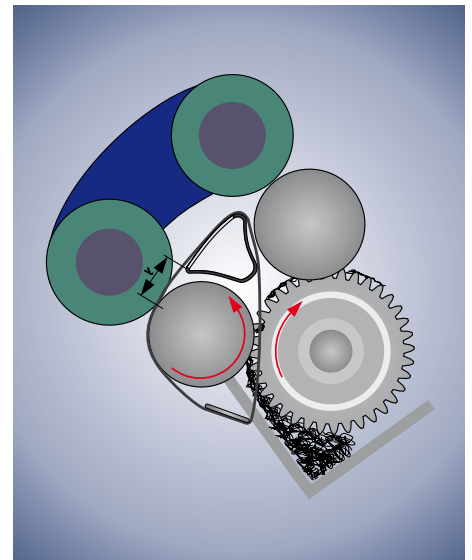


Fig. 4: 4-roller system

can be easily encapsulated in a plastic housing (Fig. 5), this is not possible in the 4-roller system, because the compacting unit must be easily removable for cleaning at regular intervals.

For this purpose, the set of gears must be separated. Since no encapsulating is possible in the 4-roller systems, the risk of fluff accumulation is correspondingly high and this affects the operational reliability (Fig. 6).

### Suitability for Conversions

As the front bottom roller of the 4-roller system must be provided with a gearing, as a result of which the front bottom roller must be replaced, retrofitting of existing machines with a 4-roller compact spinning system is more expensive and time-consuming.

### Summary

Weighing the pros and cons of the two compact spinning systems, universal applicability and flexibility clearly speak in favour of the 3-roller system.

Suessen therefore decided for the 3-roller system at a very early stage. The yarn quality and productivity achieved with this system, the incomparable reliability and customer satisfaction provide evidence of the success of this decision.

Fig. 5: Suessen EliTop

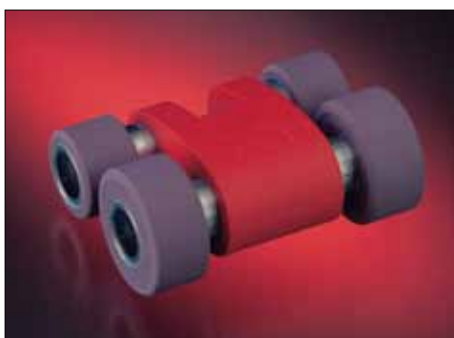


Fig. 6



# Bräcker TRITON Rings

Spinning rings for wet flax / linen spinning



by Victor Miuzzo, Product Manager, Bräcker AG

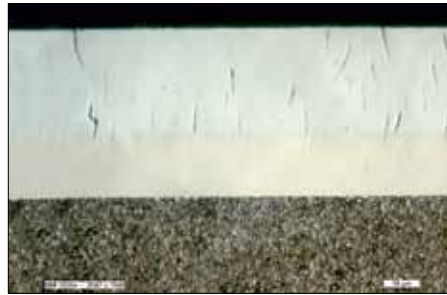
## Bräcker

### TRITON – the F-series T-flange spinning ring for processing wet flax fibres

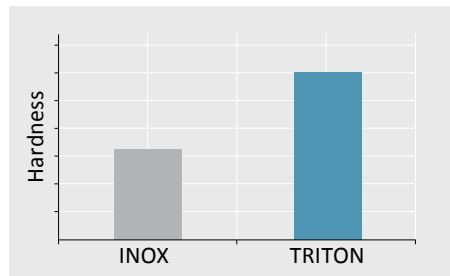
The TRITON surface coating combines abrasion and chemical wear resistance. TRITON rings are specially designed for the wet spinning of flax fibres over the full yarn count range. The TRITON coating features the following advantages:

- Smooth and even surface properties thus low end down rate, long traveller life and excellent yarn quality
- High wear resistance against abrasion
- Long ring service life
- Favourable price/performance ratio

The TRITON ring replaces the conventional stainless steel (INOX) rings and can be supplied in the most used dimensions.



High resistant TRITON layer

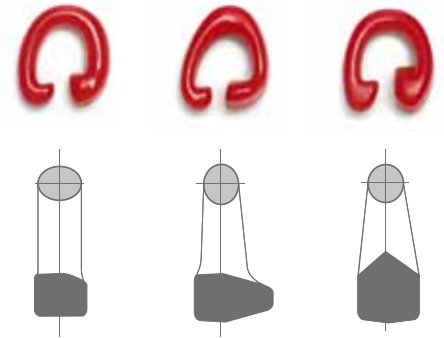


Hardness comparison INOX vs. TRITON

### NYLTEX travellers F-series

Wet flax spinning requires non corrosive travellers. Bräcker NYLTEX F-series travellers with special design are the solution for this special application.

NYLTEX travellers are produced in the ISO number range from 63 to 800. Other numbers on request.

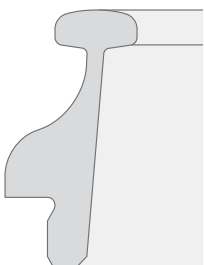


**Fi2 -**  
Wet flax spinning for S and Z twist

**FZ -**  
Wet flax spinning for Z twist only, dry spinning is also possible

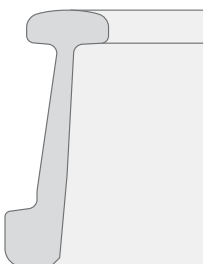
**FU -**  
Wet flax spinning for S and Z twist, dry possible

### TRITON rings with flange 4.4 mm



Shape A (Standard)

Shape B (on request)



Tex	Nm	NeL	Traveller No ISO	
			Wet	Dry
280	3,6	6		710 - 800
200	5	8		560 - 630
170	6	10		450 - 560
140	7	12		355 - 400
125	8	13	560 - 630	250 - 315
100	10	16	450 - 500	200 - 250
84	12	20	355 - 400	180 - 200
72	14	23	280 - 315	160 - 180
64	16	27	250 - 280	140 - 160
50	20	33	200 - 224	112 - 125
42	24	40	160 - 180	90 - 100
33	30	50	140 - 160	80 - 90
30	34	57	125 - 140	71 - 80
25	40	67	112 - 125	
20	50	83	100 - 112	
17	60	100	80 - 90	
12,5	80	135	63 - 71	



# Suessen Plate Spring Design



Peter Blankenhorn, Head Technical Department, WST

## Suessen

An important advantage of the Suessen top weighting arms is the friction-free guidance and loading of the top rollers by weighting springs in the form of plate springs. The benefits of the weighting principle applied by Suessen are described in detail in Mr. Wollinger's article (see page 6).

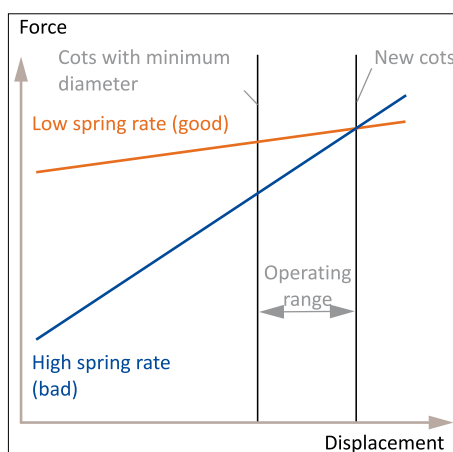
At first sight, plate springs are simple components. However, in order to ensure a continuous and consistent loading force, highest demands are made to the design and manufacture of plate springs, which are going to be analyzed in this article.

### Spring rate

As a result of the buffing of cots, the height position of the top roller axle changes, and so does the pretension of the weighting spring. The height setting of the top weighting arm also has an influence, as it is subjected to tolerances.

The loading force of all top weighting arms of a machine must be as constant as possible in every situation. Hence, the weighting springs must have the smallest spring rate possible. Fig. 1 shows a comparison

Fig. 1: Diagram spring rate



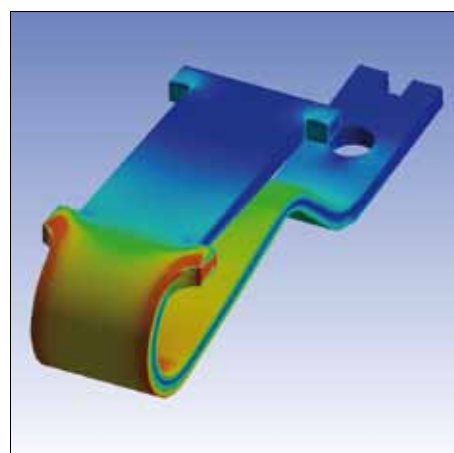
of two springs with a low and a high spring rate, as well as the relationship between spring rate and cot diameter. The smaller the material cross-section, the smaller is the spring rate. Unfortunately, when the material cross-section decreases, the material stress of the spring will increase. The design engineer therefore tries to reduce the material cross-section of the spring to such a level that the smallest spring rate possible is achieved, but that the fatigue strength is not exceeded.

This prerequisite applies to all mechanically loaded top weighting arms, i.e. to top weighting arms with plate springs just as to top weighting arms with helical springs.

### Spring Calculation

To eliminate any possibility of overloading the springs, it is necessary to know the expected stress in all sections of the spring. While the stress is below the limit in a large part of the spring, a local stress concentration can result in a failure of the spring. Minor details like the value of a radius can be of decisive importance in this respect. The Suessen plate

Fig. 2a: FEM calculation



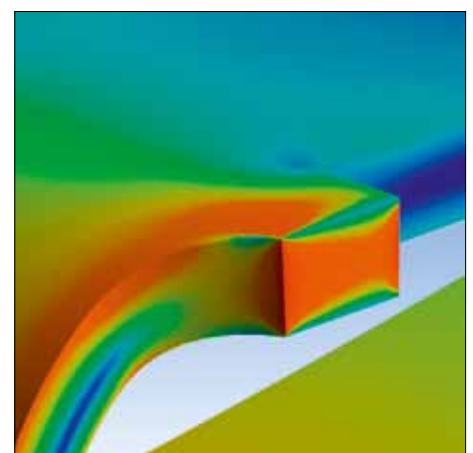
springs are therefore designed using modern methods of calculation. Figs. 2a and 2b show the result of a calculation applying the method of finite elements. High stress is marked in red and low stress in blue.

### Steel Quality

Even if two springs from different manufacture have exactly the same geometry, the difference can be large with regard to the admissible tension. The structural constitution, grain size and structural purity of the steel have a great influence on the fatigue strength of the spring material. Foreign inclusions in particular can drastically reduce the material strength. Fig. 3a shows foreign inclusions in a polished section of low-quality steel. For comparison, Fig. 3b shows the same view of high-quality steel. Both figures show an area of 0.3 mm to 0.3 mm.

Suessen therefore only use premium steel made in Germany. Furthermore, a sophisticated hardening process is responsible for an optimum and fine-grained structure. Weighting springs made by Suessen therefore guarantee highest load capacity and

Fig. 2b: FEM calculation, detail of Fig. 2a



long service life, even under adverse conditions.

### Spring Relaxation

In the daily routine of a spinning mill, an overload of the weighting springs can frequently occur. Usually, it is due to lapping around the top rollers. As a result of this, the top roller diameter is increased and the pre-tension of the spring is higher than in normal operation.

To ensure the operational reliability of the weighting springs even in such critical situations, Suessen weighting springs are subjected to a spring relaxation test developed by Suessen. A selected number of springs of each production lot is deliberately submitted to overload in a special test bench. The resulting modification of the spring force is documented. Such a test confirms the superiority of the steel and of the hardening process applied by Suessen.

Fig. 4 shows the spring relaxation diagram of an original Suessen spring compared with a follower's spring. For the daily routine of a spinning mill, the behaviour presented in the diagram has the following meaning: In the beginning there is no difference between the Suessen and the follower's spring. An overload causes a small spring relaxation for both springs. The effect decreases for the Suessen spring after some cycles and finally stops. Any additional overstraining no longer affects the spring force. A long-term reliability is ensured.

The spring relaxation does not stop for the follower's spring. Due to the spring relaxation a dangerous creeping loss

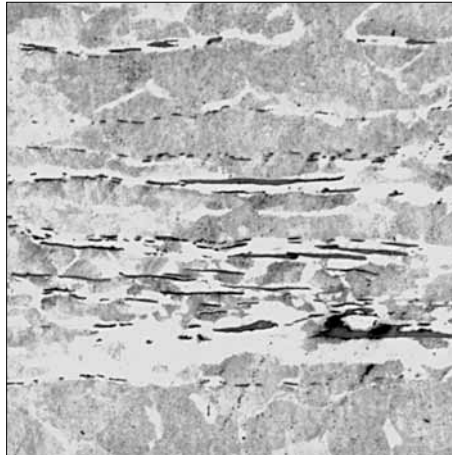


Fig. 3a: Low-quality steel



Fig. 3b: High-quality steel

of weighting force is to be feared. A long-term reliability is not given.

### Summary

Design and manufacture of plate springs require a vast amount of experience, which Suessen has acquired to a sufficient degree by having manufactured top weighting arms with plate springs since the year 1956.

Apart from the correct calculation of the springs, high demands are made to the steel used. The German high-quality steel used for the production of the Suessen springs in combination with a sophisticated hardening procedure guarantees constant and stable load on the top rollers and therefore a constant yarn quality for more than 10 years even under the worst conditions.

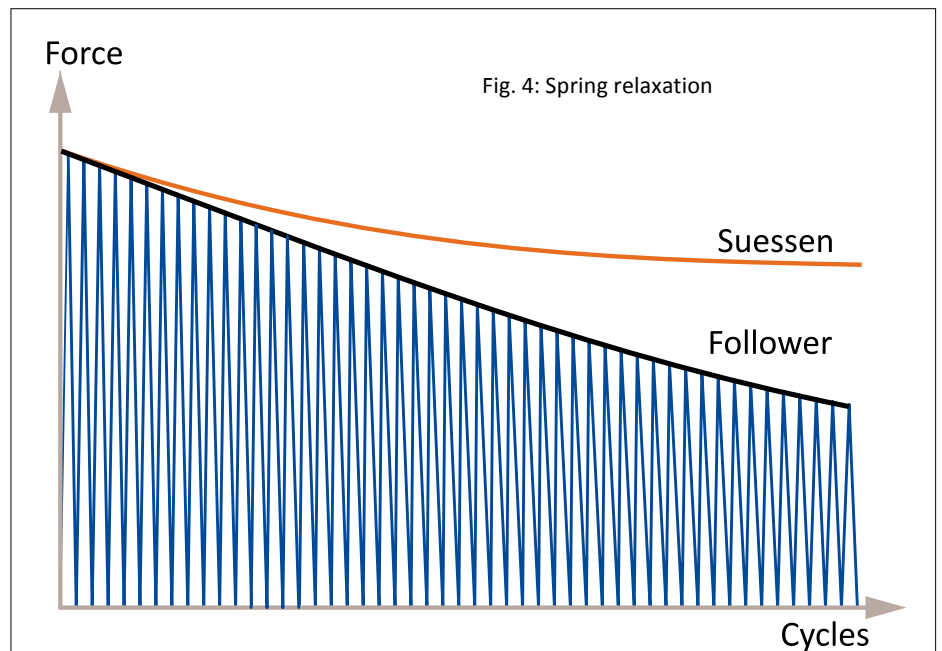


Fig. 4: Spring relaxation

# The Noman Group of Companies:

“Quality comes first, rests are consequences”



By Peter Stahlecker, Managing Director SUESSEN

This is not only a slogan, but the company policy and the philosophy of the Noman Group, Bangladesh.

The Noman Group of Companies has over 250,000 compact spindles, all SUESSEN EliTe® CompactSet. This makes Noman by far the largest compact spinner in Bangladesh – and one of the largest in the world!

I had the good fortune to meet Mr. Md. Nurul Islam, the founder and Chairman of the Noman Group for the first time on April 10, 2010 in his city office in Dhaka.

Mr. Islam is a very polite, soft spoken person, but you find out quickly that he has a very clear entrepreneurial vision – and the iron will and determination to make his vision a reality! You also better be prepared to know the technical details of your product, he has – understandably! – no much patience for salespeople who do not know their products very well.

The story of the Noman Group is worth to be told, it shows what determination and hard work can achieve.

The Noman Group was established in 1968 by starting a trading company in Dhaka as its first venture of business. Beginning in 1975, the company turned into manufacturing textile products by the present Chairman, producing mosquito nets for domestic sale and for exports. Apparently, his product was better than competing nets, the company flourished and grew larger..

Today the group operates six spinning mills (among some other mills in

weaving, printing and dyeing, garmenting):

- Yasmin Spinning Mills Ltd. - Spinning unit with 77,376 spindles
- Sufia Cotton Mills Ltd. - Spinning unit with 42,504 spindles
- Talha Spinning Mills Ltd. - Spinning unit with 54,888 spindles
- Zaber Spinning Mills Ltd. - Spinning unit with 78,608 spindles
- Zubair Spinning Mills Ltd. - Spinning unit with 72,576 spindles
- Ismail Spinning Mills Ltd. - Spinning unit with 70,848 spindles

In 2002, the first weaving mill, Saad-Saan Textile Mill, was started, more spinning and weaving mills followed year by year.

Today, the Noman Group can proudly present these figures:

- Ring Spinning: 396,800 spindles, producing around 135,000kg/day
- Rotor Spinning: 6,344 rotors, producing around 35,000 kg/day
- Weaving: 3,269 looms (Airjet, Rapier, Projectile, Jaquard) producing 500,000 meter/day
- Total employment: 40,000+ employees

The count ranges from 12's to 100's in ring, and 7's to 30's in rotor. They use CIS, Shankar 6, MCU-5, DCH-32, also US cotton, cotton from Pakistan and from Australia.

Other than 100% combed and carded yarns, they also produce P/C, T/C and CVC blends. About 90% of the yarn production is consumed internally, 10% sold in the market.

On 15<sup>th</sup> July, 2009 Mr. Islam ordered a very large number – in fact the largest single order for EliTe® CompactSet SUESSEN had ever received so far! – of SUESSEN EliTe® Compact conversion, after having thoroughly tried EliTe® as well as competing systems before.

Within this project SUESSEN installed the 3,000,000<sup>th</sup> EliTe® Compact Spindle in 2009 – this happening was paid tribute with a small event and a little present on the premises of our customer.

The installation went on smoothly, as the mills are very well organized and were highly supportive of our technicians.

	EliTe®	Regular	EliTe®	Regular	EliTe®	Regular
<b>yarn count in Ne</b>	30		30		30	
<b>code</b>	KC		KC		KC	
<b>TPI</b>	20	23.6	20	19.76	20	22.7
<b>CSP</b>	2524	2853	2852	2274	2835	2691
<b>U%</b>	10.8	10.91	9.54	9.96	9.82	11.13
<b>-50%</b>	5.5	1	0.3	0.8	0.54	4
<b>50%</b>	164	181	39	57	57	78
<b>200%</b>	394	371	122	122	173	171
<b>E%</b>	3.69	4.5	3.87	3.48	3.93	-
<b>H</b>	-	6.61	4.01	5.74	4.47	4.65
<b>gr per shift</b>	197.6	150.0	197.6	186.1	194.2	156.0
<b>increase in production through EliTe®</b>	31.70%		6.16%		24.48%	

**Contact:**

**Noman Group, Bangladesh**

**Phone: (+88 0 2) 7176207-8 / Fax: (+88 0 2) 9564336**

**nomangr@bangla.net /www.nomangroup.com**



All of the EliTe® Yarn is used for their own weaving, where an increase in efficiency of over 5% could be achieved, according to the Chairman himself.

In a figurative sense, SUESSEN's EliTe® CompactSet is merely the "piano", our customers are the piano players.

They soon learned to get the maximum out of their investment in EliTe®, as the data below, provided by Noman prove. (See chart below)

Never to be content with what has been achieved, always trying to find new products is a hallmark of the Noman Group, guided by its Chairman.

Consequently, they tried elastic core yarn with EliCoreTwist® – and soon over 20 machines will be producing just than.

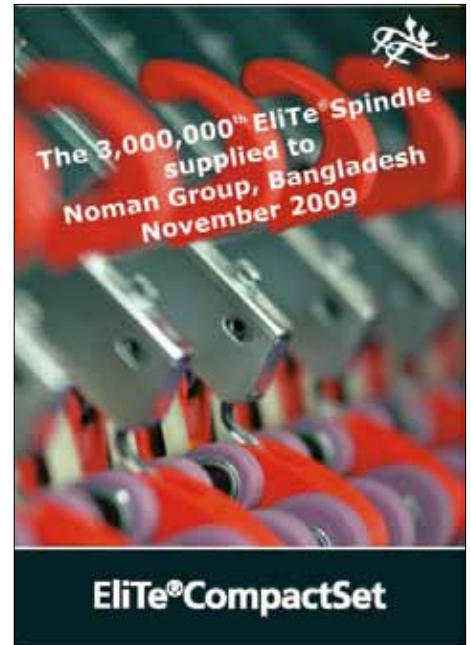
The plans for 2012 and 2013 have been finalized and are being implemented:



Md. Nurul Islam, Chairman and Founder of the Noman Group

- a terry towel plant
- a denim plant
- more spinning and more weaving capacity
- a knitting mill.

It has been a great honour for everybody at SUESSEN, and for me personally, to be associated with this highly successful group!



	EliTe®	Regular	EliTe®	Regular	EliTe®	Regular	EliTe®	Regular	EliTe®	Regular
<b>yarn count in Ne</b>	40		40		40		40		40	
<b>code</b>	CW		CW		KC		KC		CW	
<b>TPI</b>	24.44	27.91	24.44	27.91	24.85	27.09	24.85	27.16	24.85	27.09
<b>CSP</b>	3304	2802	3230	2863	3198	2922	2802	2578	3651	3504
<b>U%</b>	8.87	8.98	8.68	8.89	8.77	9.04	10.79	11.85	8.97	8.88
<b>-50%</b>	0.5	0	0	0.8	0.3	0	3.4	16	1	0
<b>50%</b>	7.5	10.5	4.5	9	8	13	98	197	11	11
<b>200%</b>	64	71	65	69	47	47	398	493	58	53
<b>E%</b>	4.02	3.53	3.88	3.61	3.44	3.43	3.92	-	4.29	4.14
<b>H</b>	3.76	4.5	3.29	4.06	3.2	4.27	4.12	-	3.35	3.76
<b>gr per shift</b>	133.2	104.4	133.2	104.4	137.9	111.9	124.1	100.9	137.9	108.2
<b>increase in production through EliTe®</b>	27.63%		27.63%		23.18%		22.96%		27.50%	



# Novibra Spindles in Use

Most common applications of spindles and other components  
– data feedback from Novibra customers



Vladimír Procházka, Product Manager

## Novibra

Ring spinning has a long history and despite occasional predictions of its losing the top position it is still the most common spinning technology in use today.

That ring spinning technology maintains its leading position is thanks to continuous innovations and new inventions which help to increase both productivity and quality.

The spindle, being one of the key components of a ring frame, has also gone through a process of remarkable development from the simple historical model to the current high speed spindle. There is no doubt that the development of the Novibra HPS 68 spindle was the milestone in this process as, thanks to this revolutionary design, spindle speed and lifetime could be substantially increased.

Competition in the textile industry is extremely high and forces spinners to spin at very high speeds, to search for new materials and find new extraordinary applications.

Novibra, as a market leader, is not only following market requirements but is taking the lead in making new developments and providing our customers with a state of the art product portfolio containing various types of high speed spindles. There are three basic models:

**L HPS 68** for spinning coarse yarn counts. This spindle model is suitable for bigger bobbins and its speed limit is maximum 16 000 RPM.

**HPS 68** is the standard Novibra spindle. This model has been designed for speeds up to 25 000 RPM. However, it is recommended to be run at a



speed range up to 18 000 RPM due to noise level and lifetime.

**NASA HPS 68** (usually called just NASA) is a top class spindle where the Novibra insert is equipped with a unique double housing system. Thanks to the excellent noise and vibration absorption of the bolster's double housing design this model can reach 25 000 RPM in practical use. Remarkably lower noise level and vibrations also result in a decreased neck bearing force thus increase lifetime at high speed. This type is used in premium spinning machines as a standard.

Novibra also supplies energy saving versions called HPS 68/3 and NASA HPS 68/3. Number 3 means the diameter of the footstep bearing has been reduced to 3 mm. This leads to a reduction in power consumption. Besides substantial energy saving the other features of HPS 68/3 and NASA HPS 68/3 remain unchanged, so the application is the same as for their basic models. Energy saving models are recommended for ring frames with autodoffer where the danger of mishandling or human error is minimized.

The above mentioned recommendations are meant as basic guidance to spinners. It is strongly recommended to follow them in order to achieve the best spindle performance and maximum lifetime.

Spinning is a very complex process and many factors can influence the final results. Furthermore each and every spinner has his own way and instruments to reach the desired quality and level of production so as to be successful in the market.

In the past there were various general formulas and calculations for selecting the most suitable spinning components and machine settings. Due to the fast progress made in spinning and the implementation of new materials and technologies many of the old formulas have become superseded.

Therefore we submit to you a chart based on feedback collected from our business partners, users of our products. This chart has been prepared in close cooperation with them and is being continuously updated according to the latest information collected from spinners from all around the world.

It shows the most usual applications for spinning 100% cotton, conventional yarn (neither core yarn nor slub yarn).

Besides basic information on most commonly used spindle types, their applications and usual spindle speed, you can also find information on the suitable ring diameters and tube lengths for particular applications.

It is necessary to point out again that the chart from page 25 is just a basic information. Each new project and business case has to be always consulted with Novibra specialists in order to select the most suitable components.

The most important for desired spinning results is the combination of technological components.

Spinning of premium yarn requires premium components.

## Cognetex and Suessen agreed on future cooperation in EliTe® Compact Spinning

Suessen and Cognetex signed a new contract for the cooperation in the field of Compact Spinning.

Cognetex is a well reputed manufacturer of worsted ring spinning machines based in Italy and well known in the field of fine wool applications.

With this agreement Cognetex is now in the position to supply new worsted ring spinning machines, type IDEA, equipped with the well-known and reputed EliTe® Compact Spinning System.

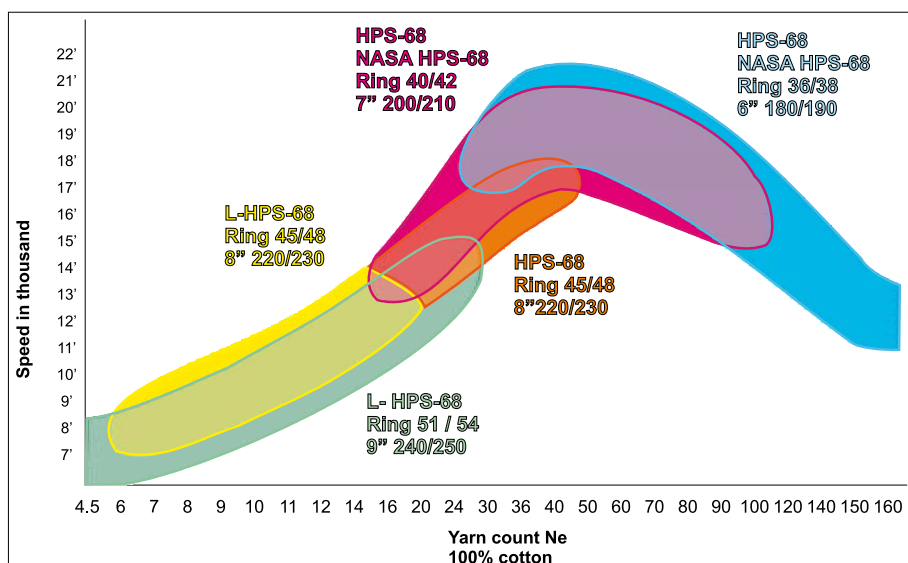
Both companies will cooperate very closely in Sales, Marketing and Development, in order to provide this "state-of-the-art" compact spinning machine to the worsted spinning mills worldwide.

## PTC Seminar days in China

Bräcker, Graf, Novibra and Suessen have organized several customer seminars in China. They took place from April 13 - 20, 2012.

The seminars were held in the cities of Urumqi, Zengzhou, Wuxi and Jinan.

Over 600 customers participated in these seminars and got knowledge of all innovations and developments of the complete product range, explained by the most experienced technical teams of all 4 PTC member companies.



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## New series of Graf circular combs: Ri-Q-Comb for Rieter E80 comber

The latest series of circular combs is exclusively designed for the new combing machine of Rieter type E80. The comb with a design that takes into account latest technological developments and requirements has a much enlarged combing area in excess of 130° and will be available in three executions.

The range of the new combs is as follows: Ri-Q-Comb i400 for short and medium staple, Ri-Q-Comb i500 for medium and long staple and Ri-Q-Comb i700 for very long staple.

The obvious benefit of the new series of combs to the customer in combination with the new Rieter combing machine E80 is the marked improvement in quality and production!

ITMA Asia 2012, Shanghai, P.R. China, June 12 – 16, SNIEC Hall W2 / Booth C 01

The 4 companies

- Bräcker/Switzerland
- Graf/Switzerland
- Novibra/Czech Republic and
- Suessen/Germany

exhibit together in their joint booth C01 in Hall W2 of SNIEC in Shanghai. Their partnership is emphasized by the joint Sales-Organisation of the 4 Companies – “4-in-1 for you”.

The “4” place the ITMA Asia exhibition under the joint slogan:

*Good - Better - Premium,*

demonstrating the collected competence in handling and processing natural and man-made fibres along the whole yarn production line.

## Large Order for SUESSEN EliTe® Compact Spinning

The KPR Group recently commissioned over 100,000 EliTe® Compact Spindles on RIETER G32 ring spinning machines.

After careful comparative studies, KPR opted for the SUESSEN HP-GX 3010 Top Weighting Arm on all G32 (instead of the standard P3-1) because of superior yarn quality values, particularly IPI and evenness.

In this new Customer EliTe® Spinning Unit, there are almost 100 TC5/1 cards, all with GRAF card clothing.

GRAF was also reordered for all their card clothing needs in their group mills.

## TEXFAIR Coimbatore

Bräcker, Graf, Novibra and Suessen all participated in the recent Texfair in Coimbatore, sharing a large common booth. The customer response was excellent, far exceeding even optimistic hopes. On the third day of the exhibition a seminar by these companies was held at the Jenny Club, where over 450 customers attended.

## New Website for the “4”

The 4 Companies Bräcker, Graf, Novibra and Suessen have launched their newly designed websites recently.

The individual sites are addressed as already known:

- [www.bracker.com](http://www.bracker.com)
- [www.graf-companies.com](http://www.graf-companies.com)
- [www.novibra.com](http://www.novibra.com)
- [www.suessen.com](http://www.suessen.com)

For the group of the 4 companies use the web-address

- [www.premium-textile-components.com](http://www.premium-textile-components.com)

With the similar design of all websites and the joint slogan we demonstrate and emphasize the joint Sales-Organization of the 4 Companies – “4-in-1 for you”.

## First EliTe® Order from M/s. Ermenegildo Zegna in Biella, Italy

M/s. Ermenegildo Zegna in Biella (Italy) have just placed their first order for EliTe® Compact Spinning Modernization with SUESSEN.

The Ermenegildo Zegna Group today is one of Italy’s most famous family driven enterprises. 2010 marked the Centennial year of Ermenegildo Zegna. SUESSEN is proud of this success, because ZEGNA is renowned internationally for the world’s finest and exclusive fabrics.

