Card Clothing

Spinning

TRÜTZSCHLER
CARD CLOTHING

Trützschler Card Clothing GmbH
P.O. Box 1151 · 75386 Neubulach, Germany
Rosenstrasse 7-9 · 75387 Neubulach, Germany
Phone: +49 7053 68-0 · Fax: +49 7053 7359
cardclothing@truetzschler.de
www.cardclothing.de · www.truetzschler.com

www.machines-for-textiles.com/blue-competence

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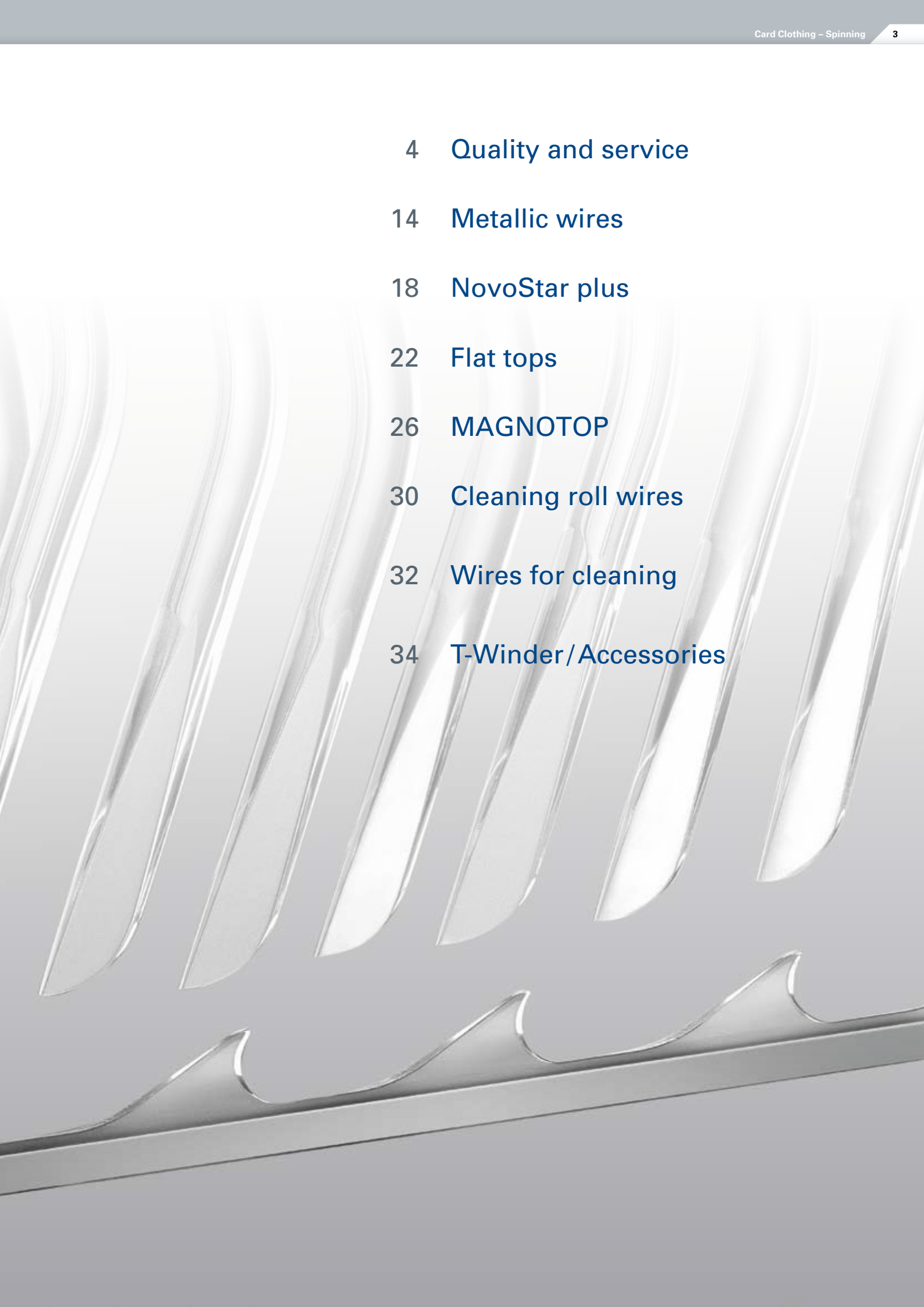


A young company
WITH A LONG TRADITION

In 2003, Trützschler took over the activities of Messrs. J. D. Hollingsworth on Wheels outside the USA and thus also the main plant in Neubulach, Germany, where clothings have been produced for more than 60 years. In parallel, "Trützschler Card Clothing" – short TCC – was founded.

At the end of 2009, Hollingsworth closed down in the USA, too, and terminated its more than 100 years of company history, which was focussed on the production of clothings and on a mobile service network. The know-how about the production of clothings and the organisation of efficient services, however, were not lost, as TCC also took over Hollingsworth's activities in the USA.

Thus TCC indeed is a comparatively young company – but one that benefits from an unequalled and well-founded know-how, which is fully available to our customers worldwide.

TCC clothings are not only produced in our headquarters in Neubulach, but also at our locations in the USA, in Brazil and India.

For more than 60 years, card clothings have been produced here in Neubulach, Germany

Trützschler Card Clothing –
PART OF A POWERFUL NETWORK

TCC is part of the worldwide network of the Trützschler Group. Trützschler itself is the No. 1 in the field of card technology and has about 2,500 employees worldwide.

Within the Trützschler Group it goes without saying that the development teams for cards and card clothings work in close cooperation, because quality improvements and increased performances of high-production cards are only possible when the machine technology and the card clothings are perfectly adapted to each other. The interaction between Trützschler's engineering and design experience and the clothing know-how of TCC ensures that card and card clothing form an unbeatable team.

The Trützschler Technical Centre in Mönchengladbach, Germany, also contributes to this. Here it is possible – more than anywhere else – to determine the influences of card clothings on the carding quality carefully and under controlled conditions. The knowledge gained directly benefits clothing development.

Even today developing the innovations of tomorrow

Today, the product range of Trützschler Card Clothing reaches from basic to high-end for premium products. This not only covers standard applications, but also solutions for rare and very special requirements. The close cooperation with the Trützschler machine manufacturers resulted in a whole range of new products. Thus today nearly all successful TCC products on the market are less than four years old – a clear evidence for the enormous innovative power and the future potential of TCC.

One exemplary TCC innovation is the use of new metal qualities for a longer service life of the clothings. Another example is the new development of so-called foundations (flat tops backing fabrics) for more precise flat tops or the new, revolutionary magnet fastening system MAGNOTOP.

These three cards of identical design in the Trützschler technical centre differ in their clothing.

Part of the quality management system: wire samples are subjected to a hardness test.

MAGNOTOP considerably reduces the time for clothing changes and even allows doing without a flats workshop.

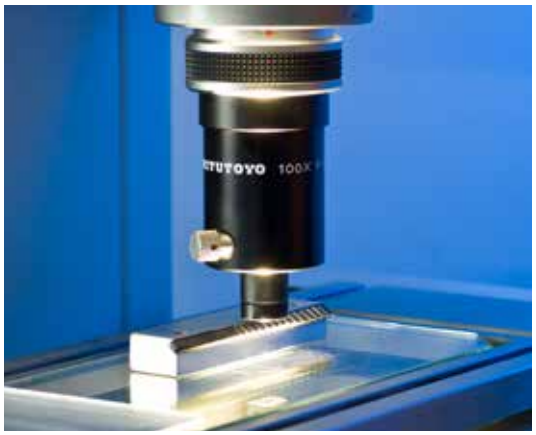
Such a product can only develop from a very close cooperation of card manufacturers and clothing specialists.

TRÜTZSCHLER

SPINNING NONWOVENS MAN-MADE FIBERS CARD CLOTHING

Quality right from the start

Visual inspection of individual flat tops hooks.



Part of the quality assurance system: Permanent online monitoring.

During the last few years, TCC has invested a lot of money in quality assurance measures. Thus the assurance of quality no longer is simply a matter of our employees' "intuition and sensitivity", but the mechanisms of the Trützschler Quality Management System are effective instead. The benefit of these efforts: Our customers attest us a quality consistency which is unrivalled in the industry.

Our basic principle is: Quality must be produced right from the start. It is not sufficient to check the finished product. Therefore, for example, the TCC production lines are subjected to permanent online monitoring from the first through to the last production step.

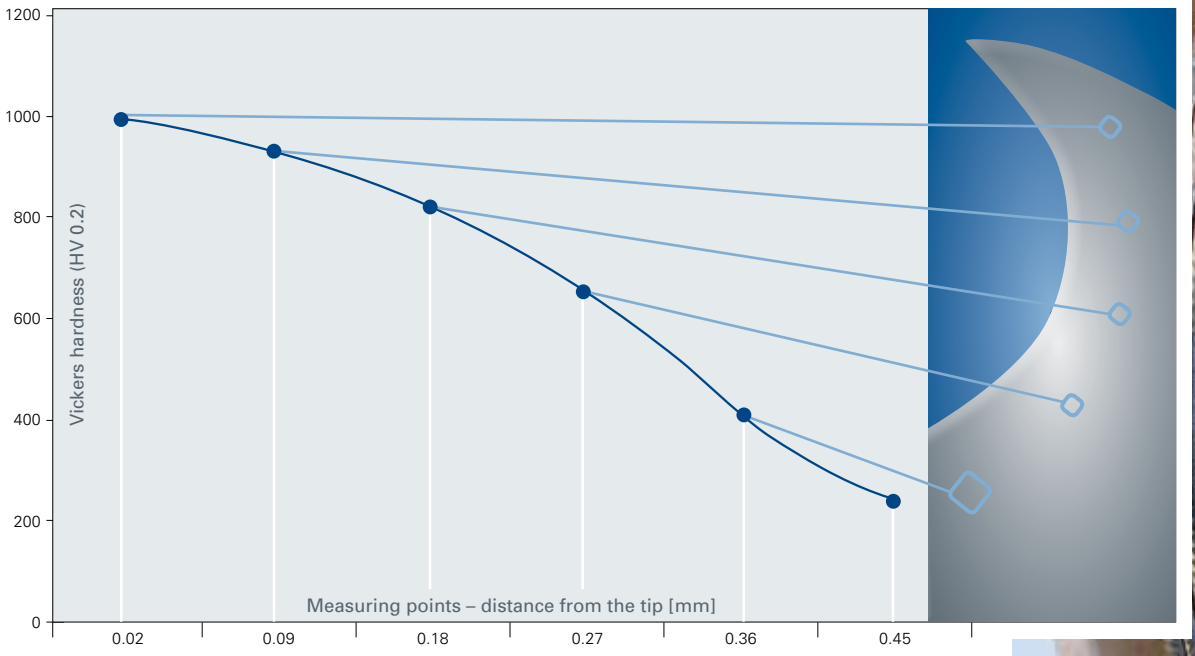
Quality "made by TCC" presents itself e.g. when our metallic wires are hardened: During conventional hardening processes, scales develop on the wire surface; these scales must be mechanically removed in an additional process step. This, however, may result in damage on the surface. The "scale-free" procedure developed by TCC avoids the development of scales directly during the production process and thus also quality losses through reworking. Hardness testing, too, has meanwhile been automated.

The machines for these new manufacturing processes have been developed and produced in-house by TCC. Here, too, the close cooperation with the Trützschler machine manufacturers proved its worth.

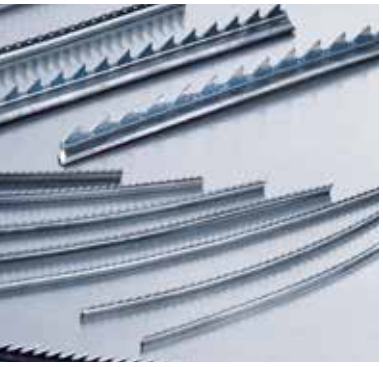
There is a lot of know-how involved in the development, manufacture and operation of the wiring machines for the production of flat tops.

The metallic wires are produced on automated production lines.

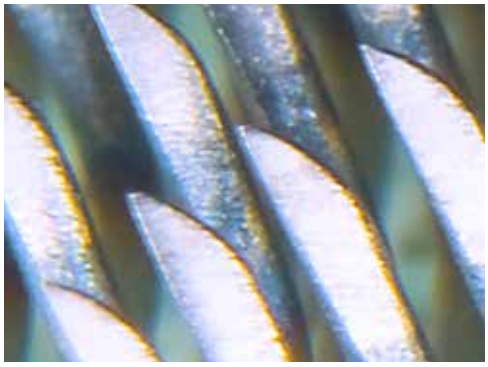
To ensure that the quality produced is also delivered to the customer, TCC has developed new wire coils with optimised unwinding behaviour and new robust packagings. For success is only guaranteed, if and when the entire quality chain from raw material purchases via manufacturing through to the use of the clothing on the card is right. This is exactly the reason why our quality management system makes it possible to retrace every single production step of a wire coil to 100 percent.



Result of a hardness test with typical hardness curve



There are hundreds of different wire geometries for the different applications.



Precisely ground wire tips of flat tops before hardening

Service – professional and everywhere

Mounting an interlinked wire in a service workshop

Fixing the wire end to a doffer roller

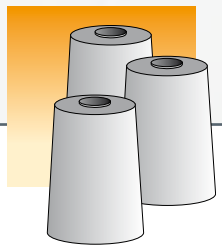
Even more than 100 years ago, J. D. Hollingsworth realized how important a qualified service on site was. Until today, this finding has not lost its truth. Therefore, TCC offers nearly everywhere where cards are run a locally organised service which is extremely close to the customers. This is also manifested by the possibility to contact someone in the local language – independent of working hours in the different time zones.

Our about 200 service employees worldwide have a profound understanding both of cards and of card clothings. This applies for the very latest card technology as well as for machines which are decades old. This store of knowledge is continuously extended by regular further training and the exchange with colleagues worldwide, so that even special knowledge, e.g. about special applications or exotic types of cards, is always retrievable. It also is a matter of course for TCC that the extensive know-how of the service technicians is directly incorporated in the further development of the clothings and the permanent improvement of the service.

Fully utilise your savings potential with TCC clothings

Spinning mill example

To demonstrate the savings potentials that are possible with TCC clothings as close to practice as possible, we have defined a fictional "spinning mill example". It has 25 cards, with each card producing 100 kg/h in 8,000 operating hours per year, corresponding to a raw material input of approx. 20,000 tons. All of the following economic efficiency calculations refer to this "spinning mill example". The spinning mill example is identified on the following pages by this symbol:



First-class mounting for first-class results

Mounting of card clothings

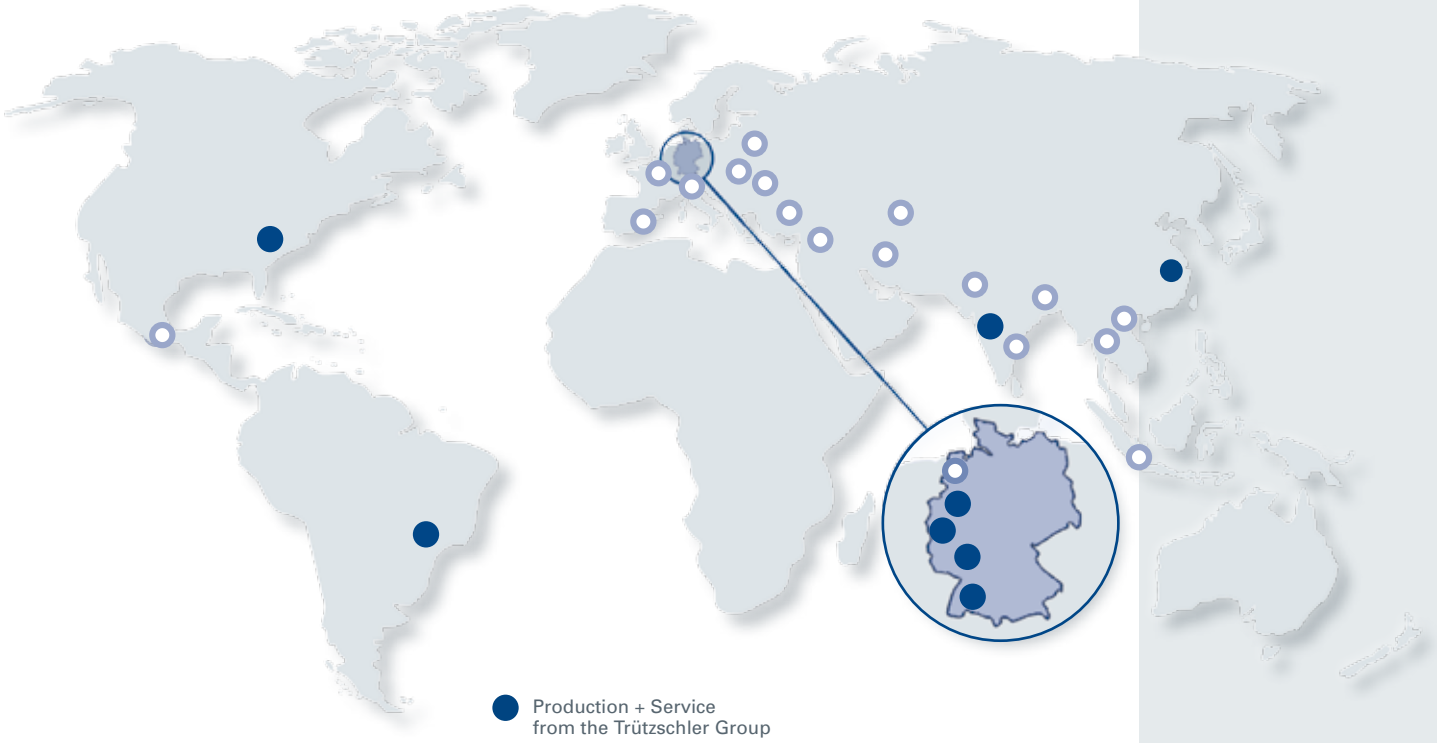
TCC clothings are manufactured with utmost precision. In practice, however, you can only obtain excellent results if the mounting, setting, and commissioning work, too, is done with professional skill.

Our modern service machinery is operated by service technicians who, at the same time, are experienced textile specialists. Their professional competence, which exceeds the pure mounting of the card clothing by far, is a considerable benefit for our customers.

TCC offers you tailor-made service products, from a single visit by a service technician via maintenance contracts through to clothing management. Here, too, the daily cooperation of Trützschler card specialists and TCC clothing specialists has positive effects – worldwide.

Furthermore, the clothing service is supported by the international after-sales service organisation of the Trützschler headquarters and of the subsidiaries in the USA, in Brazil, India, and China.

Bangladesh
Brazil
China
Czech Republic
France
Germany
Hungary
India
Indonesia
Italy
Iran
Mexico
Pakistan
Poland
Spain
Syria
Turkey
USA
Uzbekistan
Thailand
Vietnam

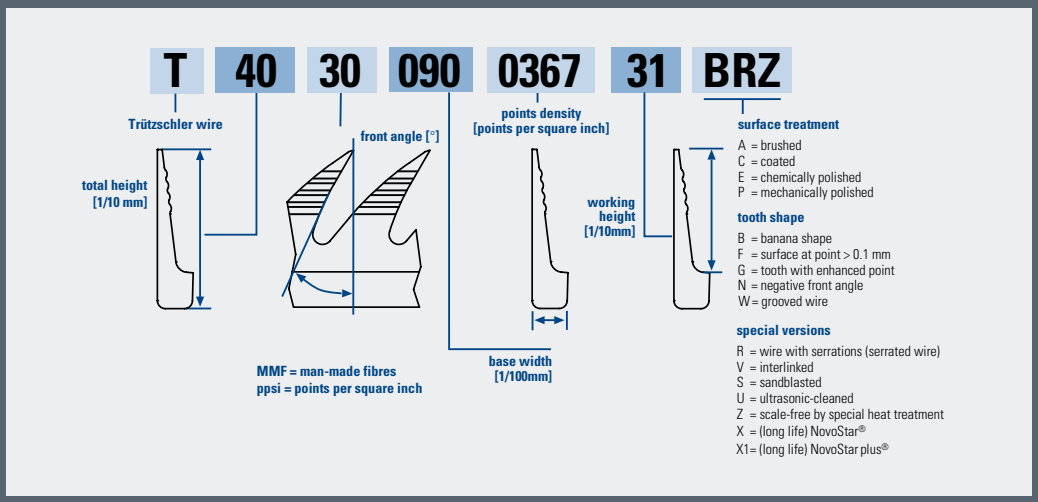


The right solution
FOR ANY REQUIREMENT

Not every spinning mill requires premium-range clothings. The clothing service life requirements, too, are different. At the same time, basic economic conditions have to be taken into account without making compromises regarding quality.

TCC offers both clothings of the "TCC" series and premium clothings of the "Novo" series, which perfectly meet special requirements. Thus high-grade steels are used even for the clothings of the TCC series. The clothing geometry and the technological characteristics are not different from the premium series.

The potential of the premium products is demonstrated e.g. by the NovoStar plus made of high-grade special steel: Its service life is about 50 – 70 % higher than that of conventional card clothings.



Trützschler Wire Identification Code – Every TCC metallic wire is clearly defined by the Trützschler Wire Identification Code.
Here, the user can identify the tooth geometry, special versions or the surface quality immediately.

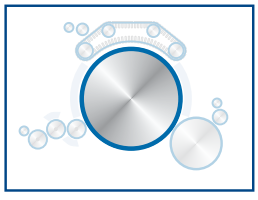
TCC metallic wires – design: perfect, execution: first-class

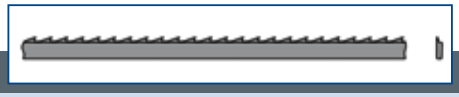
TCC metallic wires stand out on account of optimised tooth geometries, low tolerances and a high surface quality. Ongoing quality checks guarantee a reproducible and consistently high quality.

Cylinder wires TCC-Star

Cylinder clothings play a major role in cotton processing when it comes to optimal reduction of neps and dirt particles. The quality of a cylinder wire itself, in turn, is primarily determined by a high precision during manufacturing and the selection of optimum tooth geometries.

TCC uses high-quality, micro-alloyed steel grades, which guarantee a long service life and high economic efficiency.





Cylinder wires TCC-Star

application			wire identification code	ppsi	∡	base width
cotton	ring	carded	T17.30.040.0950.05	950	30°	0.40 mm
			T17.40.040.0950.05	950	40°	0.40 mm
		combed	T17.30.040.0950.05	950	30°	0.40 mm
			T17.35.040.0950.05	950	35°	0.40 mm
			T17.40.040.0950.05	950	40°	0.40 mm
	OE-Rotor		T17.40.040.0950.05	950	40°	0.40 mm
			T17.40.050.0860.05	860	40°	0.50 mm
	Air-Jet		T17.35.040.0950.05	950	35°	0.40 mm
			T17.40.040.0950.05	950	40°	0.40 mm
	bleached cotton		T25.15.080.0448.12	448	15°	0.80 mm
			T32.15.094.0380.19	380	15°	0.94 mm
man-made fibres	< 1.3 dtex		T20.25.050.0806.07	806	25°	0.50 mm
	1.3 dtex … 1.7 dtex		T25.20.070.0636.12	636	20°	0.70 mm
			T25.20.060.0742.12	742	20°	0.60 mm
	1.7 dtex … 2.2 dtex		T25.20.070.0636.12	636	20°	0.70 mm
	> 2.2 dtex		T25.20.070.0556.12	556	20°	0.70 mm
blends	1.3 dtex … 1.7 dtex		T17.30.050.0860.05	860	30°	0.50 mm
			T20.25.050.0806.07	806	25°	0.50 mm
			T25.25.060.0727.13	727	25°	0.60 mm
	recycled		T25.25.060.0727.13	727	25°	0.60 mm
flex cards regenerates	100 % cotton or 100 % synthetics		T17.30.050.0860.05	860	30°	0.50 mm
			T25.15.080.0448.12	448	15°	0.80 mm

FG/FGX1* The first maintenance-free cylinder clothing

The cylinder wires of the FG series are a new development, which has already proven itself during extensive practical tests in cotton carding – especially in the field of combed cotton.
The most remarkable characteristic of this wire is the straight tooth back. The most important features of the wire are owed to this tooth back:

- The tooth back keeps the fibres on the surface and thus ensures an intensive interaction with the flat tops. There is enough space, however, between the rows of teeth for the fibres to get out of the way, thus gentle carding is guaranteed. Feedback from the spinning mills confirms IPI values that are about 15 % better.
- The quality over longer periods of time is more constant compared to conventional wires.
- The long tooth back forms a robust carding edge. Wear is considerably lower than with filigree-shaped teeth. In practice, resharpening of FG clothings is eliminated, which means no maintenance.

The FGX1 wires are available in four different finenesses, depending on the application:

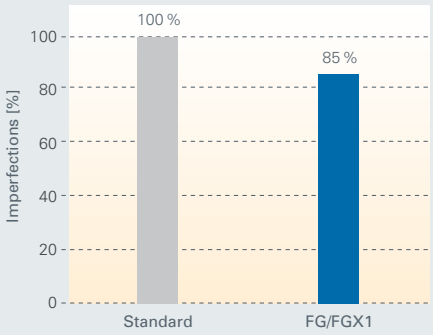
- 662 ppsi
- 760 ppsi
- 827 ppsi
- 949 ppsi

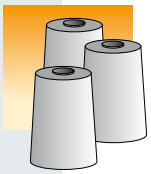
*) Geometry FG is also available in TCC Star (FG) quality and in NovoStar plus (FGX1) quality (also refer to pages 20-21).

The long straight tooth back is the most remarkable characteristic of the new FGX1 cylinder wires.

Quality benefit

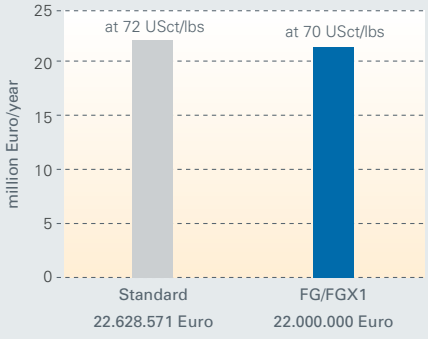
When the raw material input is not changed, a clear quality benefit can be seen in many applications. In addition, there are savings in service expenditure.

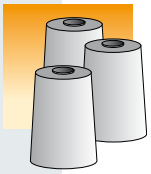


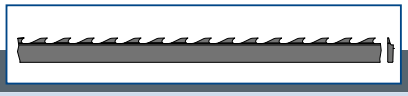


Economic efficiency calculation

The higher quality potential can e.g. also be turned into using cheaper raw materials. Only 2 USct/lbs less result in savings of 628,571 Euro per year:

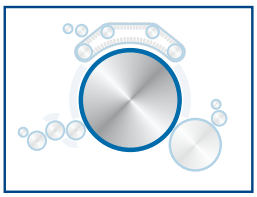






NovoStar plus® cylinder wires with FGX1 geometric

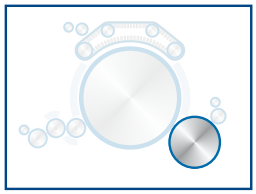
application		wire identification code	ppsi	∡	base width
cotton	Ring, Air-Jet	T17.40.040.0949.05/FGX1	949	40°	0.40 mm
	OE-Rotor	T17.40.040.0827.05/FGX1	827	40°	0.40 mm
recycled cotton blends		T17.40.050.0760.05/FGX1	760	40°	0.50 mm
viscose miscellaneous		T17.40.050.0662.05/FGX1	662	40°	0.50 mm



TCC doffer wires

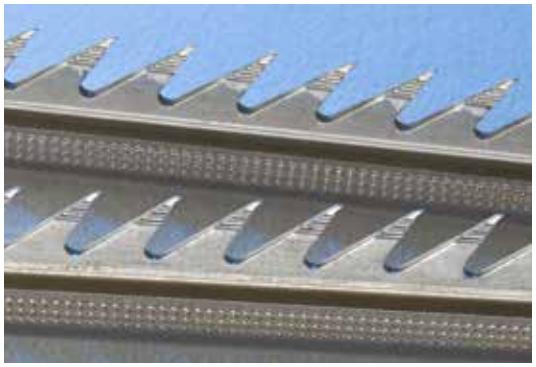
TCC doffer wires excel particularly in safe running properties with a high level of production. Their special surface quality (scale free) prevents the accumulation of foreign particles as well as fibre damage.

Side grooves on the teeth ensure safe web guiding. The risk of damage thus is lower.

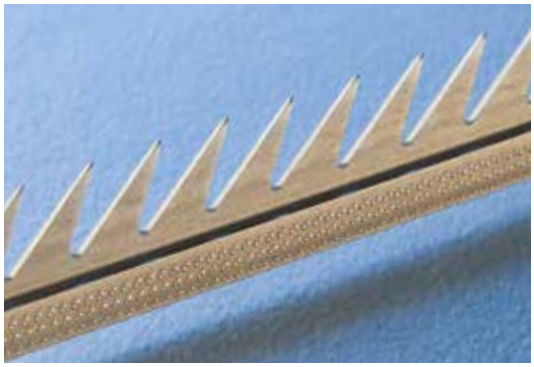


TCC doffer wires

application	wire identification code	base width	∡	ppsi
MMF, blends	T40.30.090.0367.31/BRZ	0.9 mm	30°	367
100 % MMF	Novodoff 30	-	-	-
100 % cotton	T40.30.090.0367.31/BZ	0.9 mm	30°	367
100 % cotton	T40.30.100.0280.28/BZ	1.0 mm	30°	280
others	T50.30.100.0304.37/Z	1.0 mm	30°	304
bleached cotton	T40.34.090.0282.28	0.9 mm	34°	282
bleached cotton	T40.34.090.0282.28/X	0.9 mm	34°	282
bleached cotton	T40.30.100.0280.28/BZ	1.0 mm	30°	280

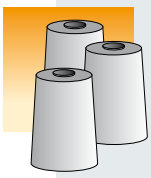


The TCC doffer wires are a standard design, the one below is of TCC scale-free quality.

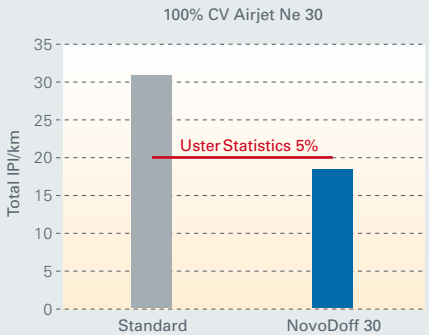


Doffer clothings NovoDoff reduce imperfections.

Your success factors



Using doffer clothings type NovoDoff 30 results in a significantly lowered IPI values. Spinning mills confirm a reduction of up to 30 %.

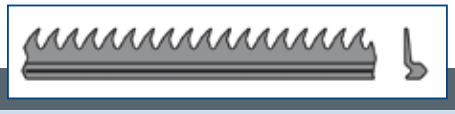


Doffer wire NovoDoff 30

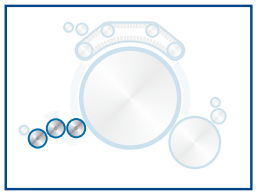
The special doffer wire NovoDoff 30 has particularly been developed for the use with man-made fibres. It takes into account the specific problem of the relatively stiff man-made fibres when they are transferred from the cylinder to the doffer. Feedback from spinning mills confirms a reduction of IPI values of up to 30 %.

TCC lickerin wires

The use of special steel grades imparts long service life to our lickerin wires. Depending on the application, TCC, here too, uses the particularly high-quality NovoStar steel grade.
Based upon this, optimised tooth geometries adapted to the raw material, to the lickerin arrangement, and to the lickerin diameter ensure a gentle pre-opening of the fibre material.
TCC lickerin wires are available as interlinked wires and as wires for mounting in grooves.

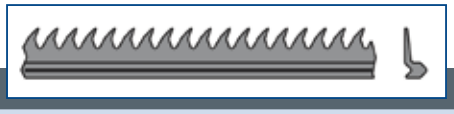


TCC lickerin wires for 3-lickerin cards

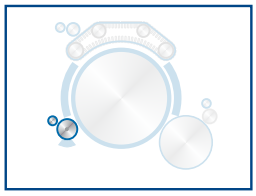


raw material	application	designation	wire identification code	base width	∡	ppsi
100 % cotton	Trützschler cards	1st roller, pinned	-	-	-	-
100 % cotton	Trützschler cards	1st roller	T50.10.210.066.35/V	12 rows/"	10°	66
blends; MMF, recycled flex cards	Trützschler cards	1st roller	T50.00.315.0034.34/V	8 rows/"	0°	34
cotton combed, long staple	Trützschler cards	1st roller	T50.00.315.0034.34/V	8 rows/"	0°	34
all	Trützschler cards	2nd roller	T50.20.160.0164.35/V	16 rows/"	20°	164
all	Trützschler cards	3rd roller	T50.20.160.0210.35/VB	16 rows/"	20°	210
cotton	Rieter C 60	1st lickerin	T50.10.210.0122.34/V	12 rows/"	10°	122
blends, MMF	Rieter C 60	1st lickerin	T50.05.180.0131.34/V	14 rows/"	05°	131
any	Rieter C 60	2nd lickerin	T50.20.210.0122.42/V	12 rows/"	20°	122
any	Rieter C 60	3rd lickerin	T50.20.160.0210.35/V	16 rows/"	20°	210

Lickerin wires also available in NovoStar® quality

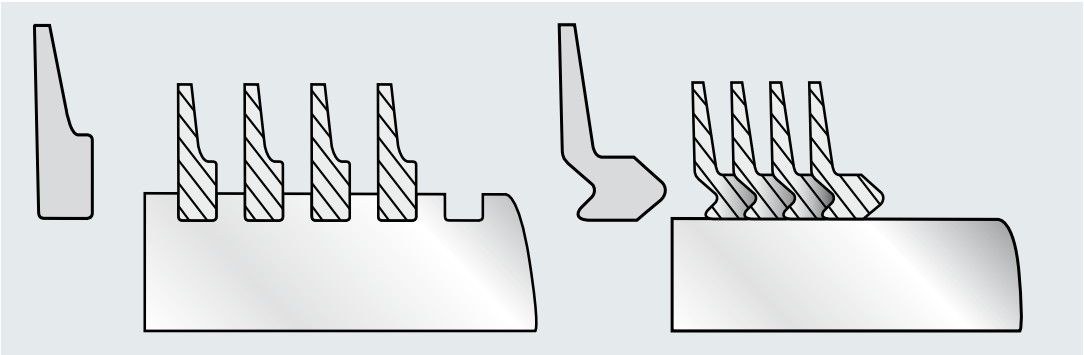


TCC lickerin wires for 1-lickerin cards

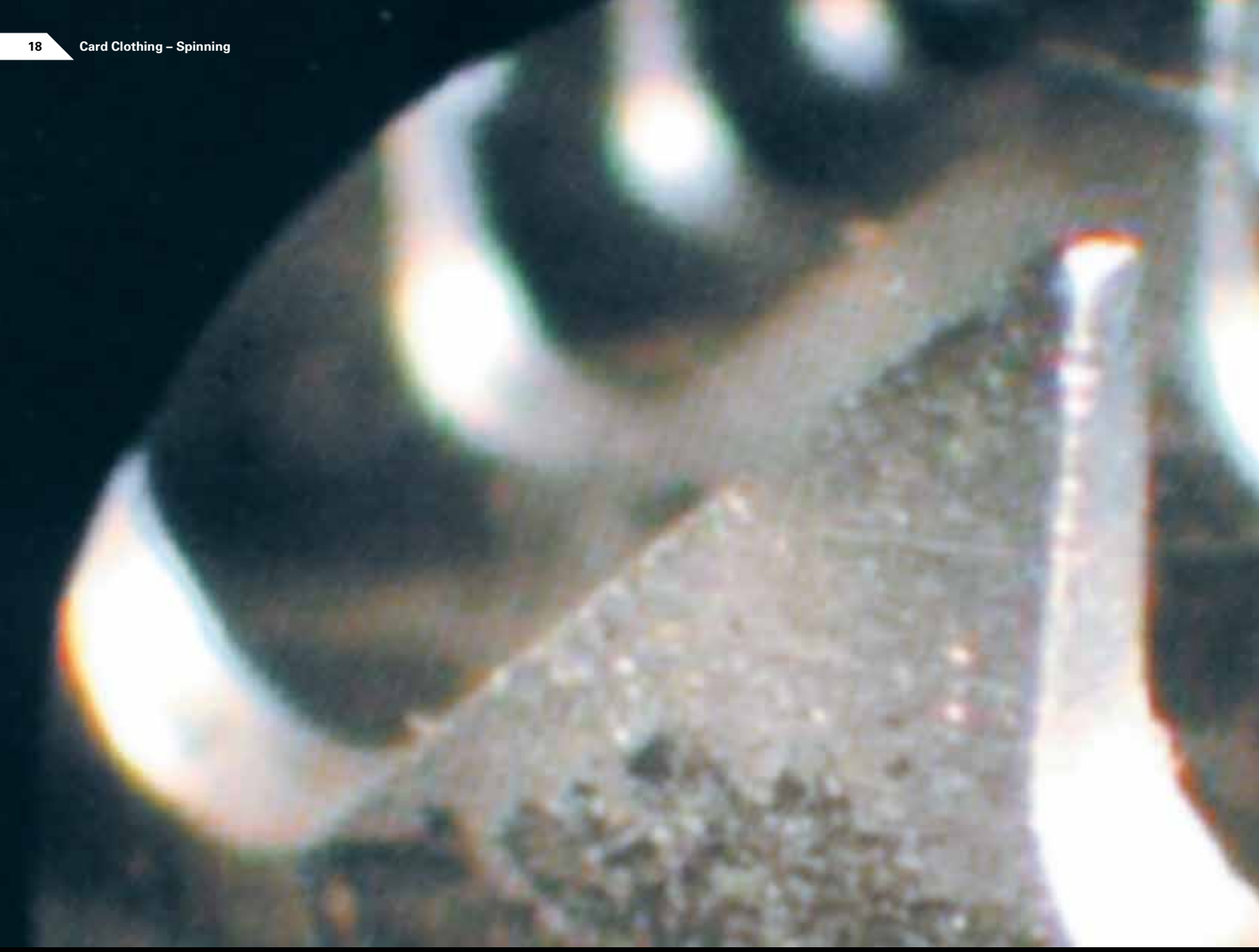


raw material	application	wire identification code	base width	∡	ppsi
MMF, blends	Trützschler cards	T50.05.315.0041.34/V	8 rows/"	5°	41
cotton, flex. cards	Trützschler cards	T50.10.315.0044.34/V	8 rows/"	10°	44
bleached cotton	Trützschler cards	T50.00.315.0034.34/V	8 rows/"	0°	34
cotton	Rieter C50/C51 Hypercard	T50.10.160.0203.35/V	16 rows/"	10°	203
cotton	universal	T50.10.315.0044.34/V	8 rows/"	10°	44
cotton	Rieter C50/C51, C60	T50.10.210.0122.34/V	12 rows/"	10°	122
cotton	universal, grooved lickerin	T55.10.110.0115.42/W	1.10 mm	10°	115
synthetics	Rieter C50/C51	T50.05.180.0131.34/V	14 rows/"	5°	131
synthetics	universal, grooved lickerin	T55.00.110.0081.42	1.10 mm	0°	81
any	Rieter C50/C51	T50.05.180.0131.34/V	14 rows/"	5°	131
any	Rieter C50/C51 Hypercard	T50.10.160.0203.35/V	16 rows/"	10°	203
any	universal, grooved lickerin	T55.05.110.0093.42/W	1.10 mm	5°	93

Grooved wire available with 1.10 mm, 1.15 m, 1.20 mm, 1.25 mm, 1.30 mm, 1.40 mm, 1.50 mm
Lickerin wires also available in NovoStar® quality



Lickerin wires can be mounted in grooves or interlinked



Quality to the very point:
NOVOSTAR PLUS

The production efficiency of cards has grown continuously – particularly during the last ten years. The other side of the coin is disproportionate wear of the lickerin and cylinder wires as well as of the carding segments.

In parallel to the product development of the cards, TCC has developed the corresponding wires for high production cards. These wires are calle d NovoStar plus. They guarantee excellent quality with longer service life even in case of very high carding performances.

The photograph shows a TCC NovoStar lickerin wire after a throughput of 500 tons of cotton. There is hardly any wear visible.

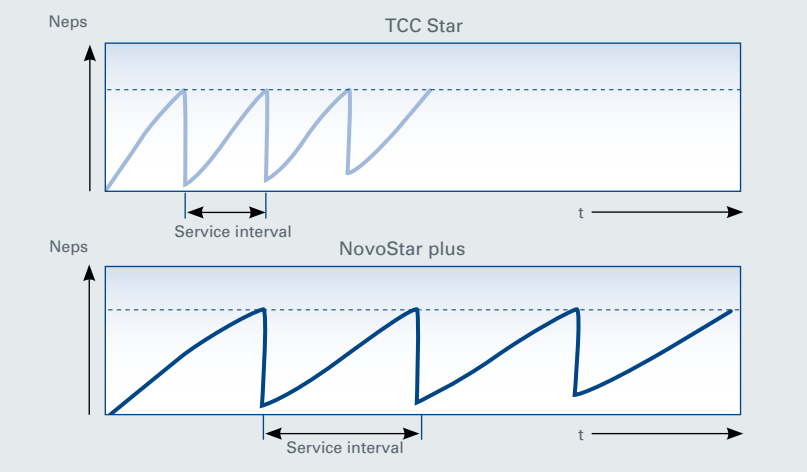
Metallic wire NovoStar plus

The steel grade makes the difference

Metallic wires NovoStar plus are the premium product among metallic wires. They come with the same tooth geometry as the TCC cylinder wires, but are made of a special raw material. This material is an alloyed special steel which meets the highest possible requirements regarding wear and manufacturing precision. Another quality feature is that the portions of the individual alloy components lie within very close tolerance limits.

Metallic wires NovoStar plus stand for:

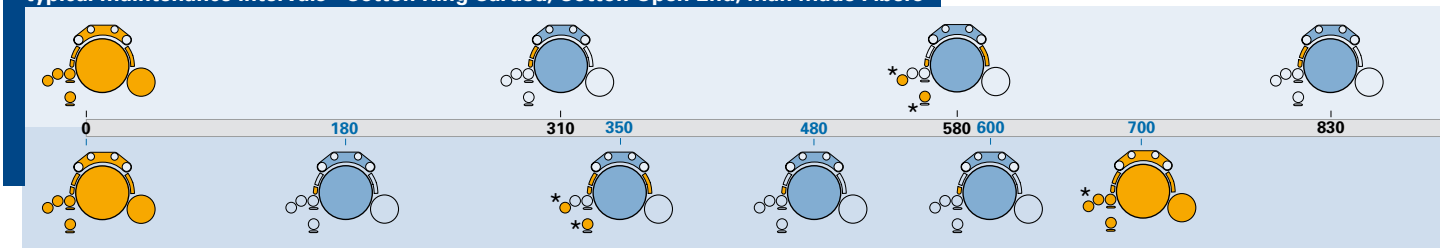
- Service life up to more than 1,200 tons
- Considerably reduced maintenance effort
- Higher value added
- Improved yarn quality
- Shorter running-in times
- Optimum nep reduction without fibre length losses



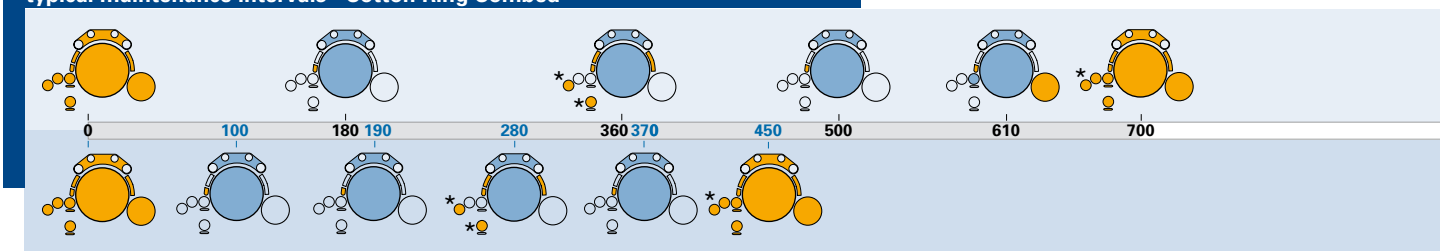
The wires in NovoStar plus quality lead to extended maintenance intervals and a considerably longer total service life.

TCC Star
Novo Star plus

typical maintenance intervals - Cotton Ring Carded, Cotton Open End, Man Made Fibers



typical maintenance intervals - Cotton Ring Combed



Exchange of wires

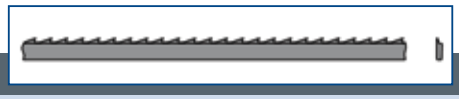
Grinding service/resharpening service (does not apply to maintenance-free FG clothings)

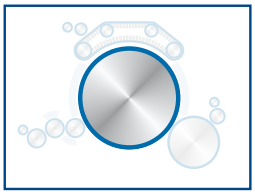
* Precondition: Lickerin with wire

Less maintenance, longer service life

The special steel of NovoStar plus wires considerably improves the economic efficiency: Newly mounted wires must not be ground and the maintenance intervals are clearly extended.

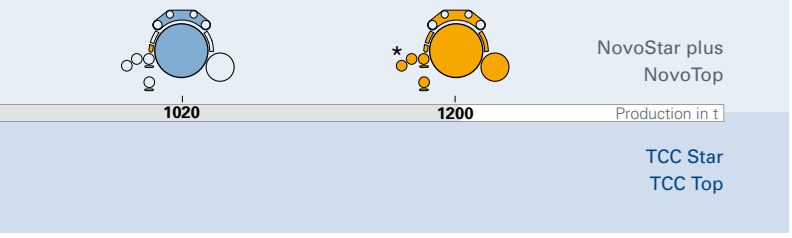
In addition the service life of the wire is extended by approx. 50 – 70 %, depending on the application.





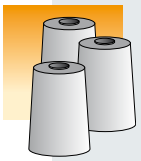
Metallic wire NovoStar plus

application			wire identification code	ppsi	∡	base width
cotton	ring	carded	T17.30.040.0950.05/X1	950	30°	0.40 mm
			T17.40.040.0950.05/X1	950	40°	0.40 mm
		combed	T17.30.040.0950.05/X1	950	30°	0.40 mm
			T17.35.040.0950.05/X1	950	35°	0.40 mm
			T17.40.040.0950.05/X1	950	40°	0.40 mm
	OE-Rotor		T17.40.040.0950.05/X1	950	40°	0.40 mm
			T17.40.050.0860.05/X1	860	40°	0.50 mm
	Air-Jet		T17.35.040.0950.05/X1	950	35°	0.40 mm
			T17.40.040.0950.05/X1	950	40°	0.40 mm
	bleached cotton		T25.15.080.0448.12/X1	448	15°	0.80 mm
			T32.15.094.0380.19/X1	380	15°	0.94 mm
MMF	< 1.3 dtex		T20.25.050.0806.07/X1	806	25°	0.50 mm
	1.3 dtex … 1.7 dtex		T25.20.070.0636.12/X1	636	20°	0.70 mm
			T25.20.060.0742.12/X1	742	20°	0.60 mm
	1.7 dtex … 2.2 dtex		T25.20.070.0636.12/X1	636	20°	0.70 mm
	> 2.2 dtex		T25.20.070.0556.12/X1	556	20°	0.70 mm
blends	1.3 dtex … 1.7 dtex		T17.30.050.0860.05/X1	860	30°	0.50 mm
			T20.25.050.0806.07/X1	806	25°	0.50 mm
			T25.25.060.0727.13/X1	727	25°	0.60 mm
	recycled		T25.25.060.0727.13/X1	727	25°	0.60 mm
flex cards	100 % cotton or 100 % synthetics		T17.30.050.0860.05/X1	860	30°	0.50 mm
regenerates			T25.15.080.0448.12/X1	448	15°	0.80 mm

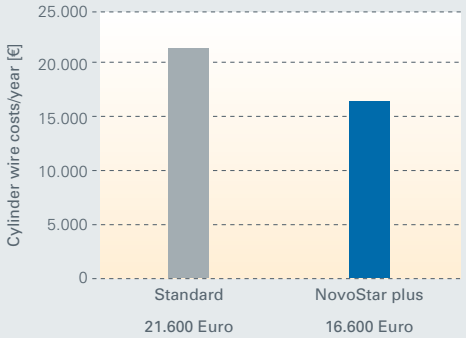


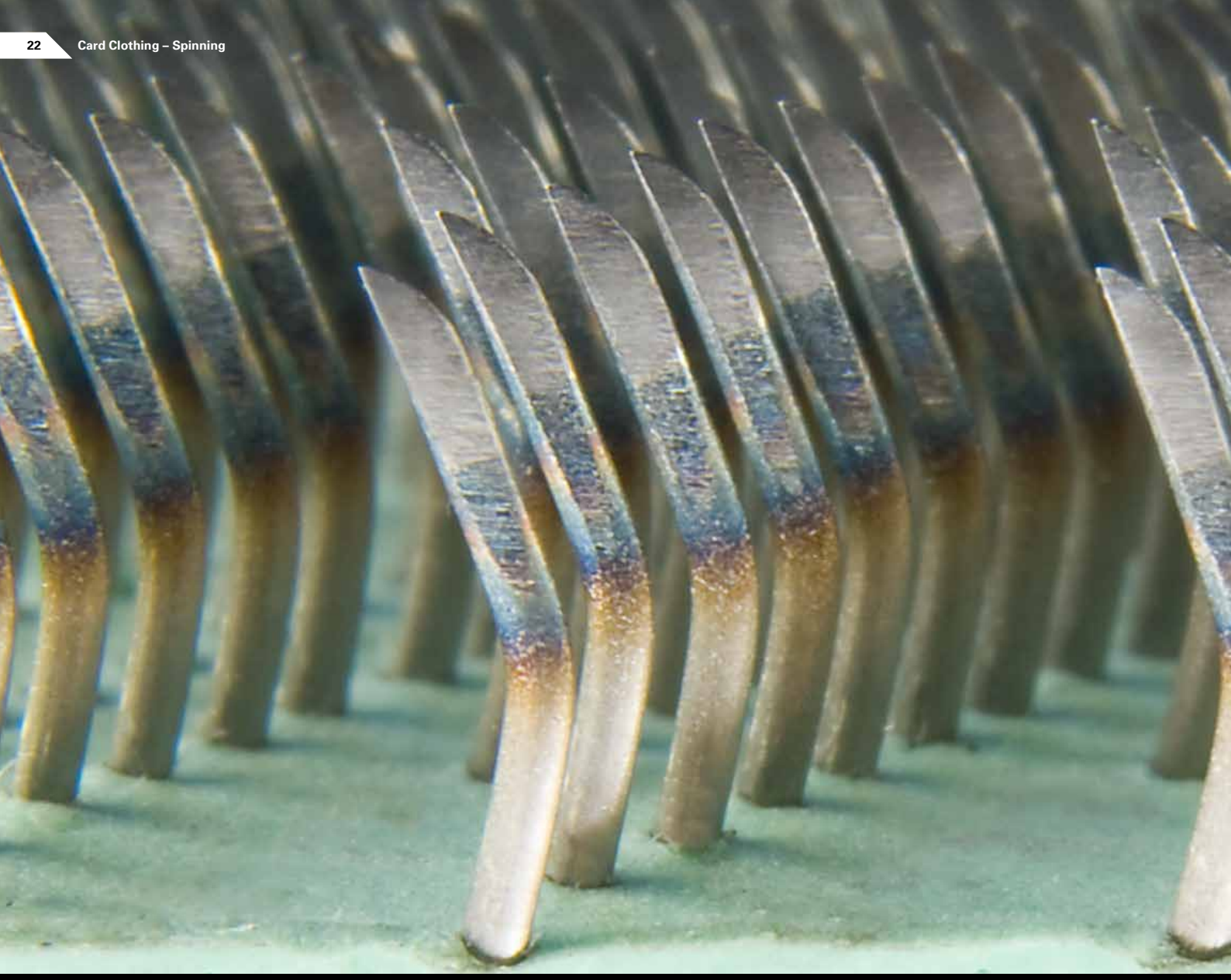
Note: The service intervals represent an average value from the experiences on the world market. The actual service life and the time of the service intervals highly depend on the raw material quality and on the quality requirements to be met by the end product.

Economic efficiency calculation



Due to the significantly longer service life of the NovoStar plus wires, the costs in our spinning mill example are considerably reduced – in spite of the higher price of the NovoStar plus wires. In addition there are reductions of the costs for re-clothing and for service work.

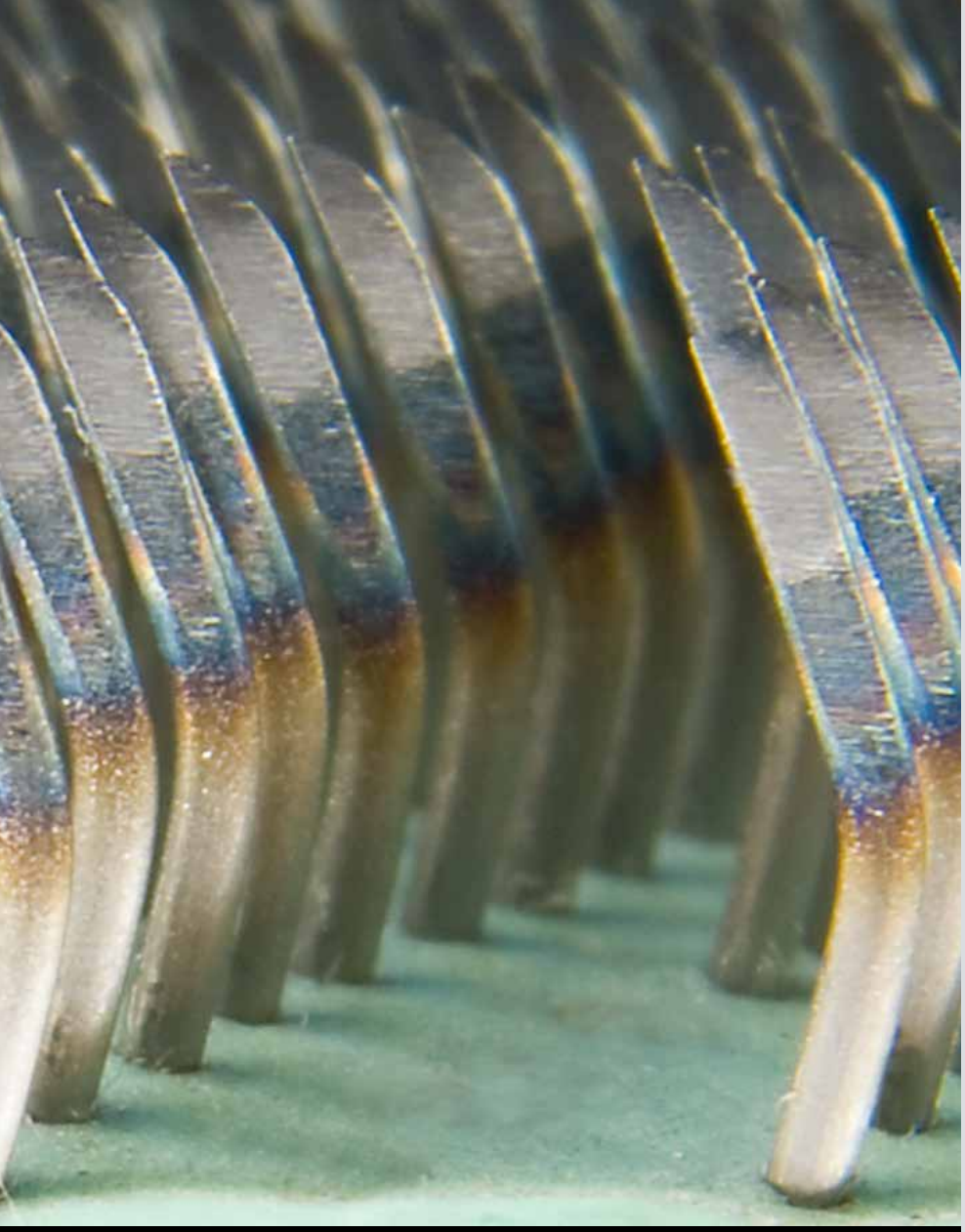




Perfect symbiosis
OF STEEL AND FABRIC

Flat tops assume delicate tasks: They must retain the fibres so that the cylinder wire can fully develop its carding effect. In the process, they must absorb high forces, but at the same time be flexible in order to avoid fibre damage. Therefore, the hooks are embedded in a flexible material.

This basis, the so-called foundation, offers a firm support for the hooks, but also sufficient flexibility. This flexibility allows a certain evasion of the hooks without permanent deformations. The hook must always return into its initial position.



Since grinding to ensure evenness is no longer necessary after replacement of flats clothing, the perfect points of a new flats clothing are preserved.

The bluish discolouration shows that the tips have been hardened after grinding.

An exact geometry of the setting pattern on the back of a flat tops clothing strip.

Flat tops TCC-TOP

Flats fabric and hooks – simply a clever design

Flat tops mainly consist of the flats fabric and of the hooks. Both of them have an enormous influence on carding quality. TCC uses a "multi-layer foundation" in the web construction, with the covering layer always consisting of a permanently elastic natural rubber. A flats fabric consists of up to seven single layers that are constructed like a sandwich.

The wires used are made of micro-alloyed steel and are always additionally hardened by TCC. Computer-optimised, biconvex wire cross-sections and the special geometry of the tips (only half as wide as a cylinder wire) reduce wire movement during the carding process. Thus the so-called excessive breaking is reliably avoided.

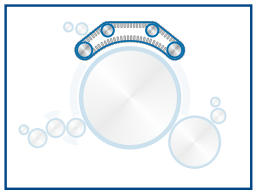
Setting pattern – optimally adapted to the application

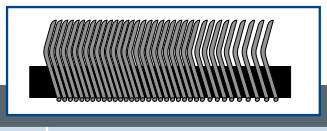
TCC flat tops considerably differ in the setting pattern – which can be easily seen on the clothing back. The multitude of setting patterns allows an optimum adaptation to different applications.

In the example shown, two different setting patterns are arranged on one clothing strip. In the front area the fibres are pre-oriented, in the finer area they are smoothly parallelised, cleaned, and neps are separated.

Flats hooks of a NovoTop wire with perfectly ground and hardened tips

This is what a perfectly ground and hardened tip of a flats hook looks like.





Flat tops TCC-TOP

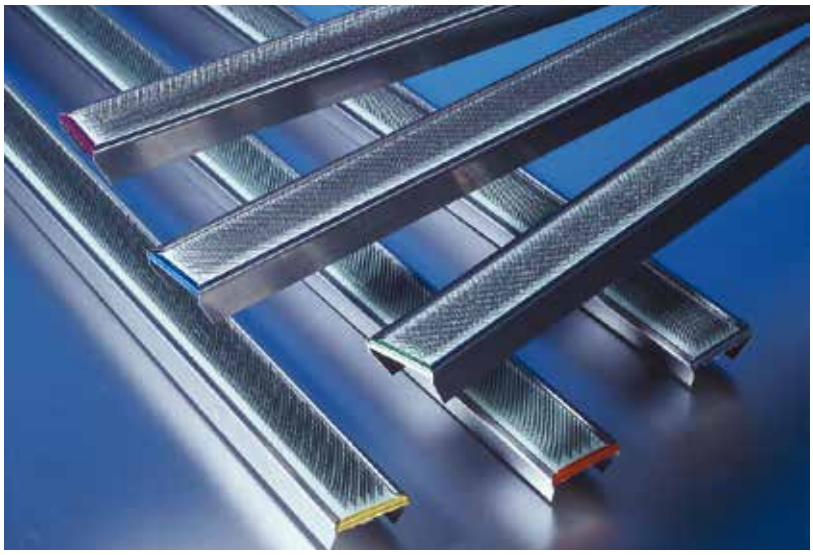
application			TCC-Top for low production
cotton	ring	carded	TCC-Top 55
		combed	TCC-Top 60 TCC-Top 55
	OE-Rotor		TCC-Top 45
	Air-Jet		TCC-Top 55
	bleached cotton		TCC-Top 35S
man-made fibres	< 1.3 dtex		TCC-Top 40
	1.3 dtex … 1.7 dtex		
	1.7 dtex … 2.2 dtex		
	> 2.2 dtex		
blends	1.3 dtex … 1.7 dtex		TCC-Top 45
	recycled		
flex cards	100 % cotton or 100 % synthetics		TCC- Top 45
viscose			
viscose regenerates			
man-made fibres regenerates			TCC-Top® 35S

Flat tops NovoTop

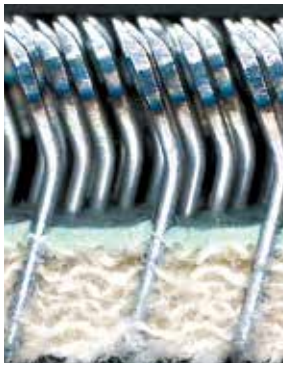
NovoTop – the sum of perfect details

Flat tops NovoTop are the premium product among the flat tops. Their systematic development is the result of decades of experience. With these semi-flexible clothings in particular, different requirements have to be met precisely. On the one hand, a high level of carding performance calls for more resistibility with lower flexibility. On the other hand, the single hooks must be flexible enough not to do any harm to the fibres.

Based upon these considerations and experiences, the NovoTop range has been developed – in six different executions, suitable for any application.



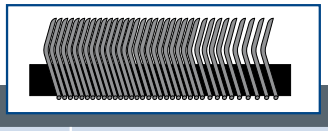
The different NovoTop types can be easily recognised by their flats clips in different colours.

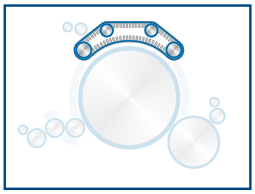


The cross section shows the embedding of the hooks in the foundation.

Flat tops NovoTop stand for:

- High carding performances
- Improvement of the yarn quality
- Longer service life
- Reduced maintenance expenditure
- Higher economic efficiency through better raw material utilisation





Flat tops NovoTop

application			flat top type NovoTop for high production
cotton	ring	carded	NovoTop® 55 NovoTop® 45
		combed	NovoTop® 60 NovoTop® 55
	OE-Rotor		NovoTop® 45 NovoTop® 40
	Air-Jet		NovoTop® 55
	bleached cotton		NovoTop® 33S
man-made fibres	< 1.3 dtex		NovoTop® 40S
	1.3 dtex … 1.7 dtex		NovoTop® 40S NovoTop® 40S
	1.7 dtex … 2.2 dtex		NovoTop® 40S NovoTop® 33S
	> 2.2 dtex		NovoTop® 33S
blends	1.3 dtex … 1.7 dtex		NovoTop® 45
	recycled		NovoTop® 45
flex cards	100 % cotton or 100 % synthetics		NovoTop® 45
viscose			NovoTop® 45
viscose regenerates			NovoTop® 40S
man-made fibres regenerates			NovoTop® 33S

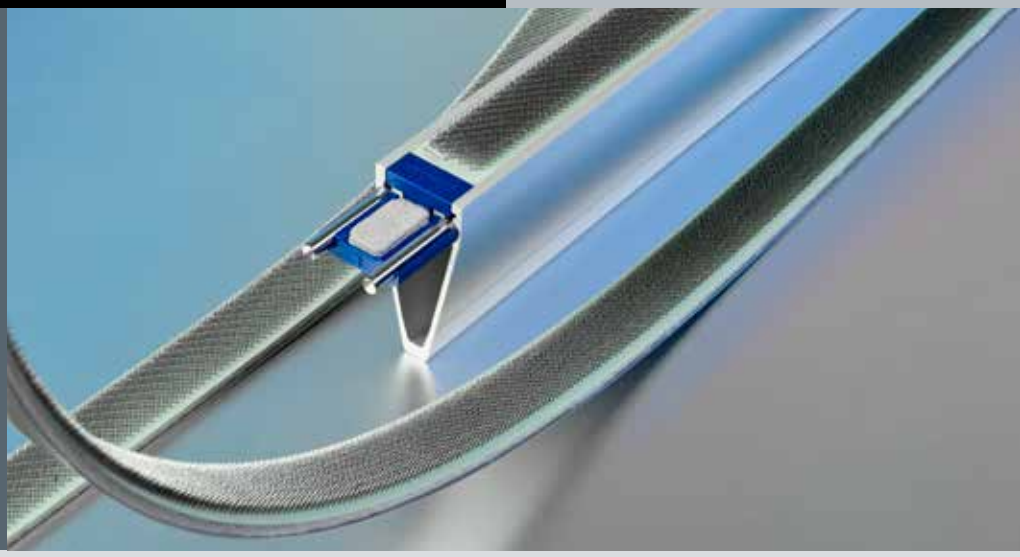
Exclusively for Trützschler cards:

MAGNOTOP – INNOVATIVE TECHNOLOGY FOR OPTIMUM QUALITY

The MAGNOTOP flat system is the result of an intensive cooperation between Trützschler and TCC. The new Trützschler aluminium flat bars are designed so that the card clothing can be magnetically fixed by extra-strong neodymium magnets.

Furthermore, MAGNOTOP reduces the tolerances between the single flat bars. This is ensured by adhesive and compensation layers on the flat bars and on each individual clothing strip. The result is an increased yarn quality.

The clothing strips can be replaced easily and without tools.



The MAGNOTOP system is a joint development of the clothing specialists of Trützschler Card Clothing and the Trützschler card development engineers.

Flat tops MAGNOTOP: Simple handling and economic advantages

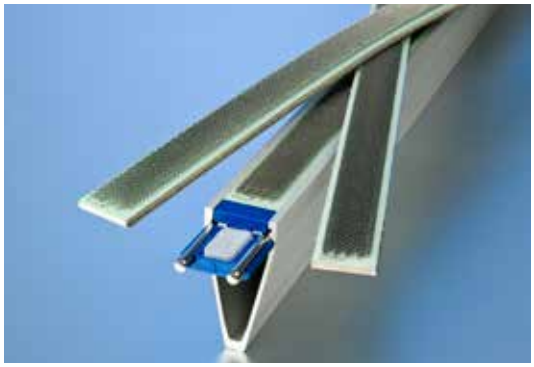
The absolutely straight attachment of the clothing strip on the magnet is another advantage of MAGNOTOP. When mounting conventional flat tops to the flat bars, the clothing strips are inevitably subject to deformation, thus requiring a grinding process to achieve evenness. With the MAGNOTOP System, this levelling can be eliminated.

The replacement of flat tops can be performed directly on the card – an expensively equipped flats workshop is no longer required.

Improved economic efficiency:

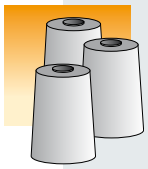
- No investment in the flats workshop
- Reserve flat tops sets are not necessary
- No service costs for re-clothing
- Transport costs eliminated

The clothing strips can be replaced easily.

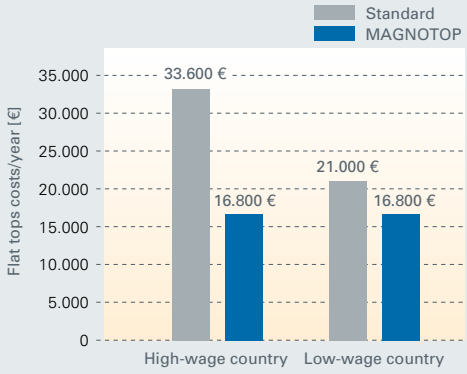


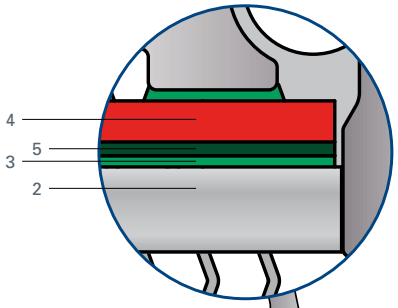
All geometries of the NovoTop series are available for MAGNOTOP flat tops.

Economic efficiency calculation



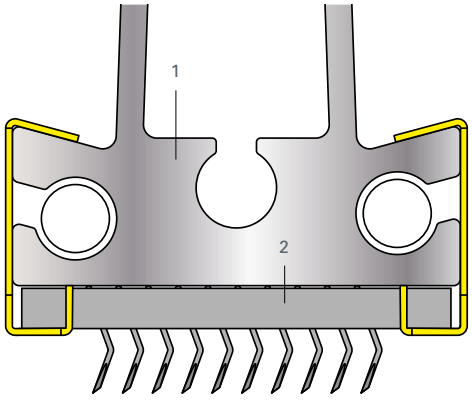
Through the elimination of the flats workshop, the investment is reduced by approx. 100 - 150,000 €. Depending on the wage costs, approx. 200 - 800 € are saved per re-clothing process and card. This adds up to considerable amounts of money in our spinning mill example:



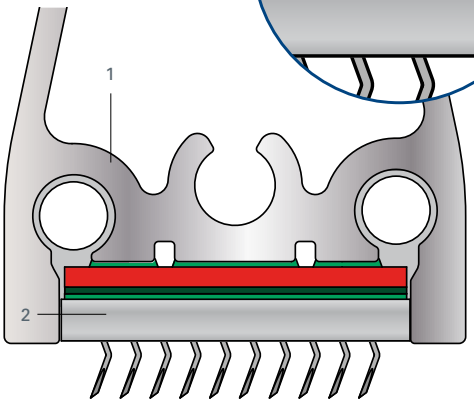


The diagrams show the structure of a classic flat bar and of a MAGNOTOP flat bar with clothings.

1 Aluminium flat bar
2 Flat clips
3 Clothing strips
4 Adhesive and compensation layer
5 Neodymium magnet
6 Thin metal strip



Classic aluminium flat bar



MAGNOTOP flat bar

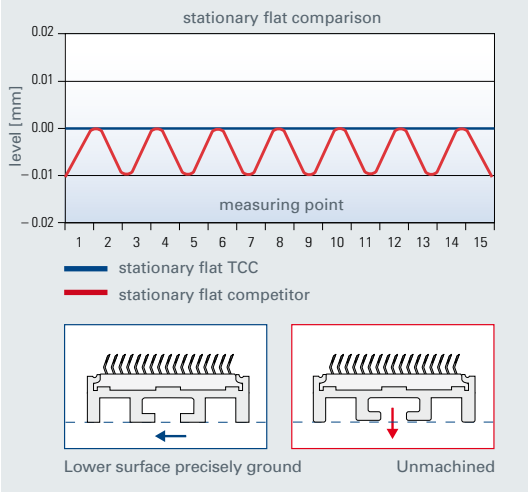
Carding segments NovoFix in uncompromising quality

Carding segments NovoFix – also called stationary flats – are exclusively manufactured from special steel in NovoStar plus quality. For it is at the carding segments, particularly in the pre-carding zone, that the highest carding forces and thus the highest clothing wear occur. For this reason alone it is not possible to use a standard steel grade. TCC focuses on a longer service life, constant quality, and reduced maintenance costs.

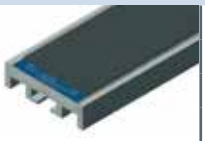
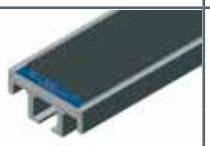
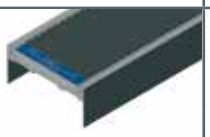
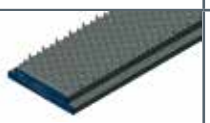
Diversity and longevity

Carding segments are not only used in the pre- and after-carding zones of the main cylinder, but also at the lickerin rolls. In combination with the different types of cards and clothing finenesses, this results in a multitude of variants.

TCC uses a special procedure to obtain maximum service life: Instead of grinding the wire tips off, TCC keeps very narrow tolerances of the carding segments through elaborate machining of the wire carrier backs.



An absolutely even mounting is guaranteed by the precise machining of the wire carriers.

Carding segments NovoFix			
	designation	**height**	
 **R-profile**	TS.640/R TS.550/R TS.420/R TS.320/R TS.240/R TS.140/R TS.090/R	11.0 mm	
 **T-profile**	TS.640/T TS.550/T TS.420/T TS.320/T TS.240/T TS.140/T TS.090/T	16.8 mm	
 **C-profile**	TS.640/C TS.550/C TS.420/C TS.320/C TS.240/C TS.140/C	17.0 mm 19.0 mm 22.2 mm	
 **I-profile**	TS.090/I TS.078/I	**height** 7.5 mm 9.5 mm	**lenght** 993 mm 1004 mm 1012 mm 1050 mm
 **B-profile**	TS.090/B	18.2 mm	

Carding segments NovoFix are available for all common fastening systems.

Identification Code:

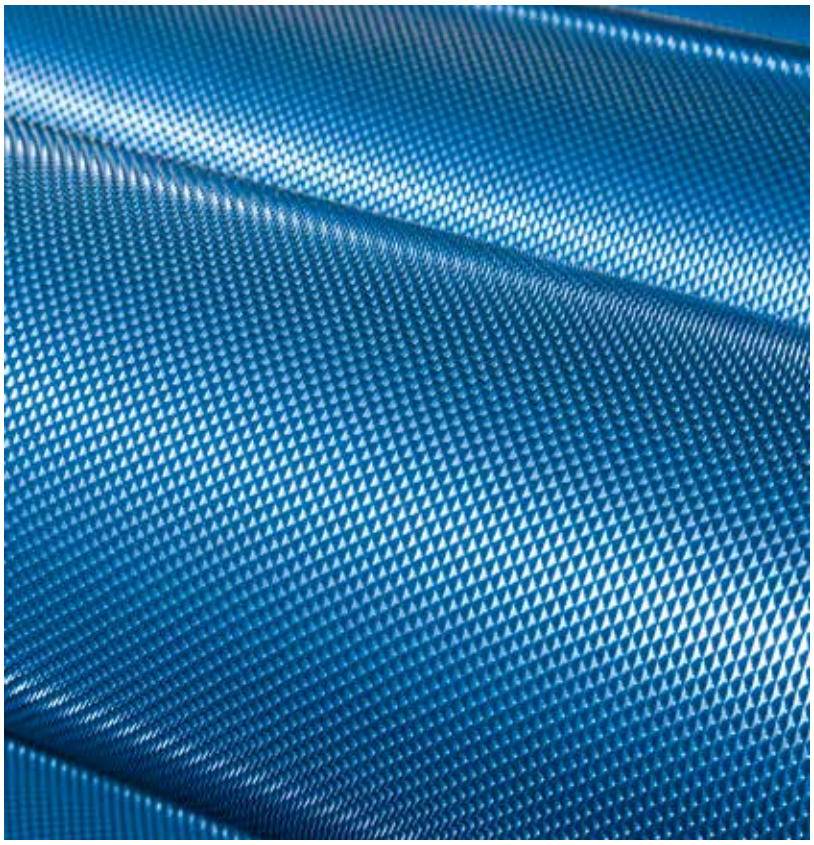
TS.550/R

TS. Trützschler Stationary-Flat

550 ppsi

/R Profile Type

TCC cleaning roll wires (fillets) and special metallic wires



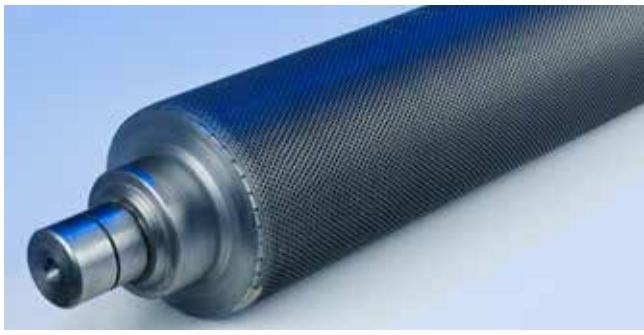
The photograph shows take-off rollers with special, electrolytically treated wires. These special wires need an extremely high-grade surface. Otherwise, even the adherence of single fibres may quickly result in lap formation.

Special wires

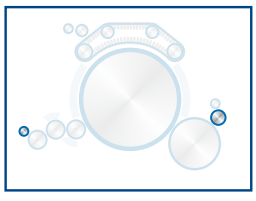
Of course, TCC offers all the necessary flexible fillets for stripping and cleaning rolls, too. Because these so-called standard wires are as important for the smooth running behaviour of a card as are the much discussed cylinder wires and flat tops.

Metallic wires

Very specific metallic wires are used e.g. on the feed rolls or on the take-off rollers. They are optimised by TCC for their respective application.



A feed roll must securely guide the thick web at relatively low speeds and must by no means produce laps.



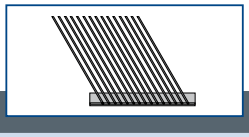
Special metallic wires

application	wire identification code	base width mm	∡	ppsi
stripping roll	T40.30.180.0110.28/ASN	1.8	-30°	110
	T40.30.180.0110.28/AESN	1.8	-30°	110
feed roll	T25.00.200.0122.08/F	2.0	0°	122
feed roll (chute)	T35.00.300.0055.18/F	3.0	0°	55
feed roll (chute)	T55.10.520.0028.23/NV	5.2	-10°	28
feed roll	T50.15.150.0066.30	1.5	15°	66
feed roll, spacer wire	2,5 mm × 3,5 mm			
stripping roll	T40.18.110.0184.27/N	1.1	-18°	184
stripping roll	T40.18.110.0184.27/ASN	1.1	-18°	184
stripping roll	T40.30.180.0110.28/N	1.8	-30°	110
feed roll	T25.00.200.0122.08/F	2.0	0°	122
feed roll (chute)	T55.10.420.0028.33/NV	4.2	-10°	28

Fillets

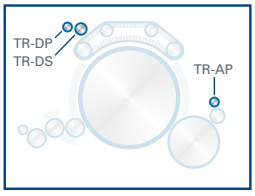
Depending on the type of card, two to three so-called cleaning rolls and cleaning sheets are used. Their task is e.g. to keep the saw-tooth rolls clean. Another typical use is the release of the flat strips from the flat tops.

The flexible fillets, too, must be mounted very carefully on the roll body.



TCC cleaning roll wires

application	designation	wire gauge	fabric layers	dimension
stripping cleaning roll	TR-AP, No. 24, 16 mm	24	3	width = 19.0 mm
flat strips roll	TR-DS, No. 22, 38 mm	22	2	width = 39.3 mm
flat cleaning roll	TR-DP, No. 18, 25 mm	18	4	width = 27.5 mm
Rieter / Marzoli	stripping fillet	No. 10	8	width = 46 mm
Rieter / Marzoli	cleaning fillet	No. 24	3	width = 19 mm
Rieter / Marzoli	flat stripping sheet	No. 14	4	1.037 mm x 47.5 mm
Rieter	flat stripping sheet	No. 6	6	1.012 mm x 33.5 mm
Marzoli	flat stripping fillet	No. 22	3	width = 38 mm
Marzoli	flat stripping fillet	No. 22	3	width = 26 mm
Crosrol	cleaning sheet	No. 10	4	1.028 mm x 33 mm
Crosrol	fillet	No. 26 / 30	8	width = 26 mm
various cards	stripping fillet	No. 18	4	width = 38 mm
various cards	flat stripping fillet	No. 22	3	width = 26 mm



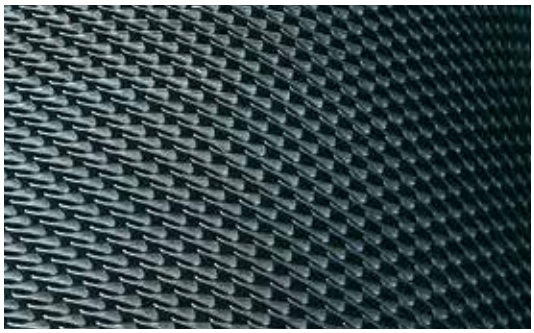
TCC wires for cleaners and openers

Clothed rolls:
indispensable for many applications

Metallic wires are not only used with cards. For cleaners and openers, too, they are standard equipment today. These wires are relatively coarse, because they have to withstand very high forces. For safety reasons, exclusively interlinked wires are mounted.

Of course, TCC also offers all special executions for cleaners and openers. Our large variety of metallic wires ensures that our product range offers the suitable solution for machines of different manufacturers, different machine types, and the entire range of raw materials.

Mounting a cleaning roll



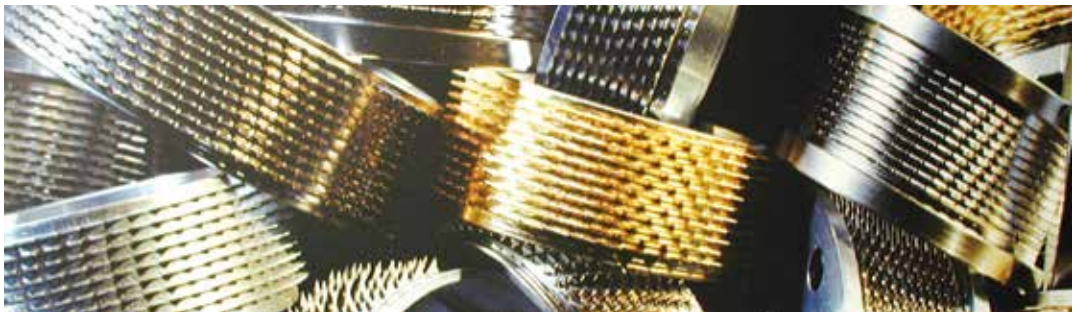
Pre-opening rolls of different finenesses in a cotton cleaner

Wires for cleaners and openers

application	designation	wire identification code	base width	∡	ppsi
Trützschler	TR11	T55.10.420.0028.33/VN	6 rows/"	-10°	28
Trützschler	TR13/14	T75.10.420.0010.53/V	6 rows/"	10°	10
Trützschler		T60.20.420.0020.38/FV	6 rows/"	20°	20
Trützschler		T60.20.315.0031.38/FV	8 rows/"	20°	31
Trützschler	TR10 for Novocotonia	T63.10.420.0018.41/FV	6 rows/"	10°	18
Trützschler	T2 for Novocotonia	T55.20.420.0030.33/V	6 rows/"	20°	30
Marzoli opener		T075.22.420.0015.53/V	6 rows/"	22°	15
Rieter opener		T100.00.250.0025.75	2.50 mm	0°	25
Rieter opener		T100.12.250.0026.75	2.50 mm	12°	26
Rieter opener		T100.00.250.0013.82	2.50 mm	0°	13
Rieter opener		T100.10.250.0014.82	2.50 mm	10°	14

For all openers also stationary flats are available

TCC OE opening roller wires



TCC wires are available for all types of opening rollers and for any application.

Diversity that meets all requirements

There are TCC wires for opening rollers for all machine types and applications. Upon request, they are available with three different surface treatments:

- Standard
- Brushed "B"
- Chemically polished "C"

Foot/groove widths:
- 0.90 mm
- 0.94 mm
- 1.00 mm

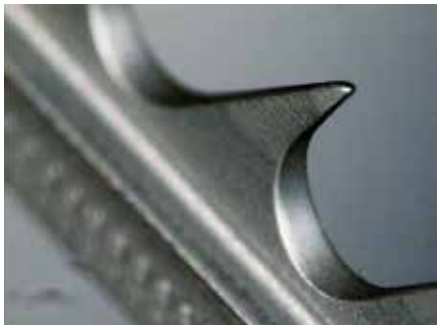
Heights:
- 3.20 mm
- 3.60 mm
- 4.00 mm
- 4.10 mm

Material	**Wire type** (depending on the machine manufacturer)		
Cotton	OK 40	OB 20	OB 174
Polyester	OK 37	OK 61	OS 21
Acrylic	OS 21	OB 20	
Polyester/Cotton	OS 21	OS 21	
Acrylic/Cotton	OK 61	OS 21	OB 20
Polyester/Viscose	OK 61	OS 21	
Modal	OS 21	OK 61	OB 20
Viscose	OS 21	OB 20	
Linen	OK 74	OB 20	OB 174
Flex cards	OW 100	X 6014	

Surface Treatments

Standard

Brushed



Chemically polished

T-Winder

The T-Winder shows the actual winding tension.

More safety during winding

Modern high production cards have a large potential regarding quality consistency and service life. In order to fully utilise this potential with low costs, it is recommended to use a wire-specific mounting tool.

As it is impossible to have a different tool for any type of wire, TCC has developed the T-Winder. Due to its unique and stable design it can be used with all cards.

The specially developed wire guide made of ceramic elements enables the user of the T-Winder to mount any type of wire with any fineness. In combination with the entirely new traveller guide, the decoupling of the wire-guiding elements of the T-Winder guarantees a constant winding tension which is free of external influences.

The T-Winder is the only winding device which shows the real winding force. The special geometry of the front bracket avoids vibrations and the influence of "wrong forces" during winding.

The hinged quick-release fastener of the T-Winder with double tensioning device reduces the maintenance times through quick assembly/ disassembly.

Top wire + top winder = top performance

- Simple working mode
- One device for all cards
- Utmost flexibility
- For all wire types
- Easy assembly
- Short downtimes
- Constant winding tension through special ceramic guide
- Permanent display of the actual winding tension

The T-Winder is a precise but robust tool.

The winding tensions for all common wires are directly indicated on the T-Winder.

Tools and accessories

A complete range
Clothings need regular checking and maintenance. For this, TCC offers machines, tools and aids from the complete flats workshop equipment via special winding units through to setting gauges.

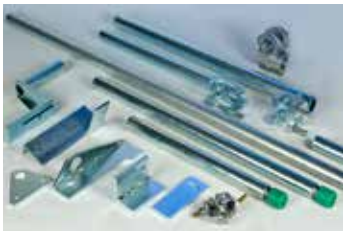

Flat mounting machine


Flat grinding machine


Flat milling machine

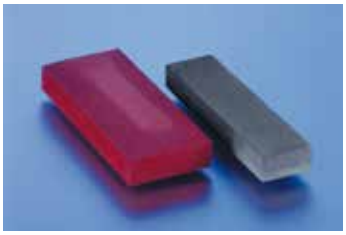

Winding device


Unwinder with coil holder

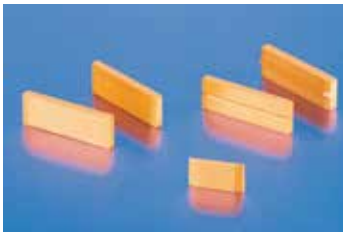

Fastening elements


Butt welding device


Soft-soldering unit


Manual rubber stones


Ceramic braking unit


Ceramic brake shoes


Wire magnifier


USB microscope


Gauges for flats


Gauges for clothings


Manual cleaning card


Brass brushes


Mounting hook

TRÜTZSCHLER

SPINNING

- Fiber preparation
  - Bale opening
  - Blending
  - Cleaning
  - Opening
  - Foreign matter separation
  - Dedusting
  - Tuft blending
  - Waste recycling
- Cards
- Draw frames
- Combing machinery

NONWOVENS

- Opening/Blending
- Card feeding
- Cards/Crosslapping
- Web needling
- Hydro entanglement
- Finishing
- Drying
- Heatsetting
- Chemical bonding
- Thermobonding
- Winding
- Slitting

MAN-MADE FIBERS

- Staple fiber lines
- Filament lines
  - BCF
  - Industrial yarn
- Precursor lines
- Carbon fiber lines

CARD CLOTHING

- Metallic wires
  - Spinning
  - Nonwovens/ Longstaple
  - Open End
- Flat tops
- Fillets
- Carding segments
- Service machines
- Service 24/7

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