

combing



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The true way to your yarn quality

On the way to yarn quality and economic efficiency, spinning mills are facing increasing challenges: shortage of specialists, high flexibility in production, optimal application of resources, etc.

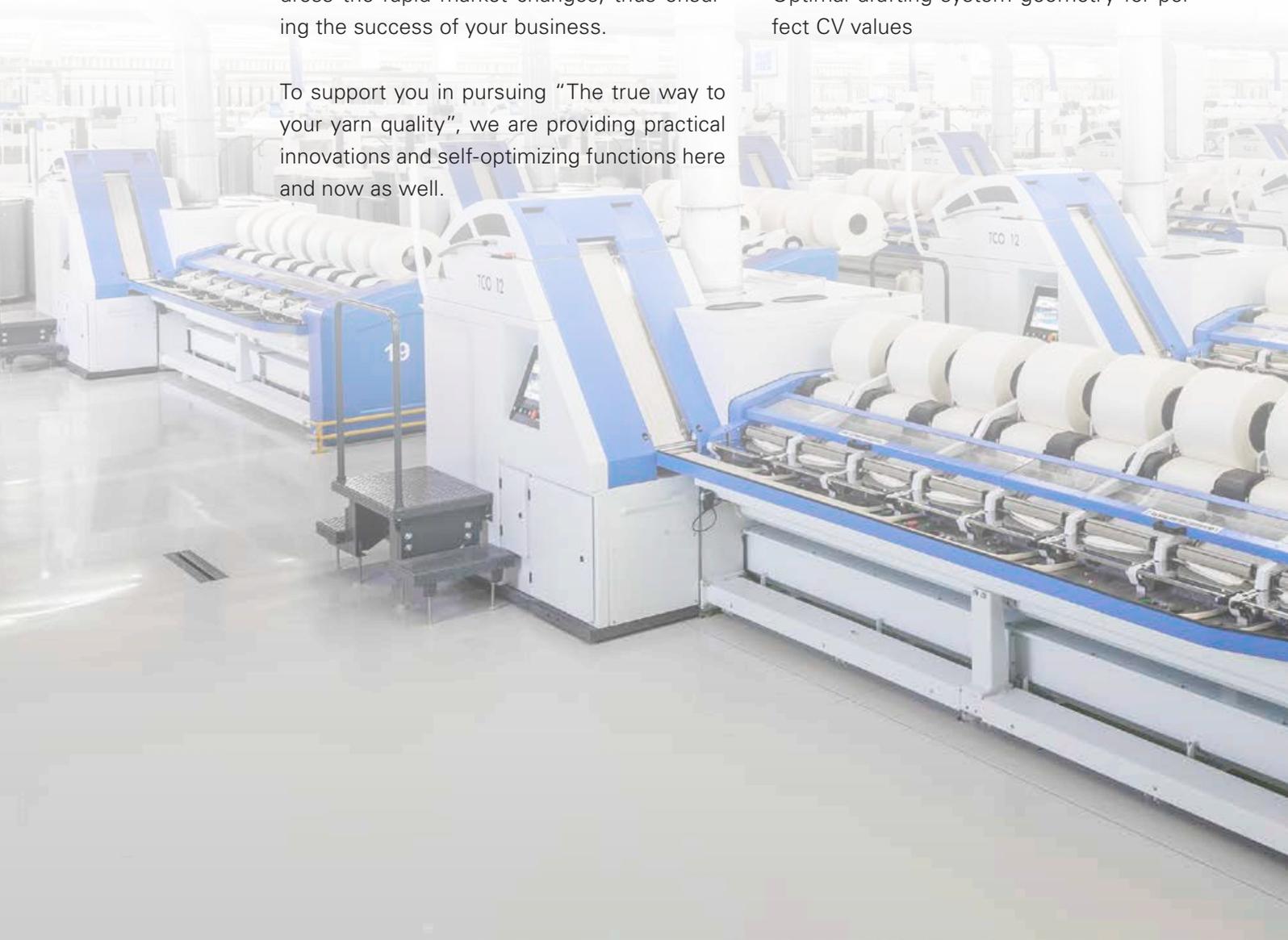
Since the foundation of our company we have been using our values to offer you what is of importance: „The true way to your yarn quality“. We are continuously developing new technological solutions that allow you to address the rapid market changes, thus ensuring the success of your business.

To support you in pursuing “The true way to your yarn quality”, we are providing practical innovations and self-optimizing functions here and now as well.



The creation of true yarn quality involves the entire process

- 54 % less deviations between combing heads for more consistent combing quality due to DUAL DRIVE and 2 TWIN DRIVE
- COUNT CONTROL – higher sliver quality through automatic quality control
- Optimal drafting system geometry for perfect CV values





Key positions where resources are conserved:

- Higher efficiency on the TSL 12 by lap change in 20 seconds.
- Lap transport automation for resource-saving combing organisation
- Energy-efficient suction and compressed air system with savings of 34 % compared to the competition
- Optimal temperature control of the top roll bearings, gentle to coatings and long service life



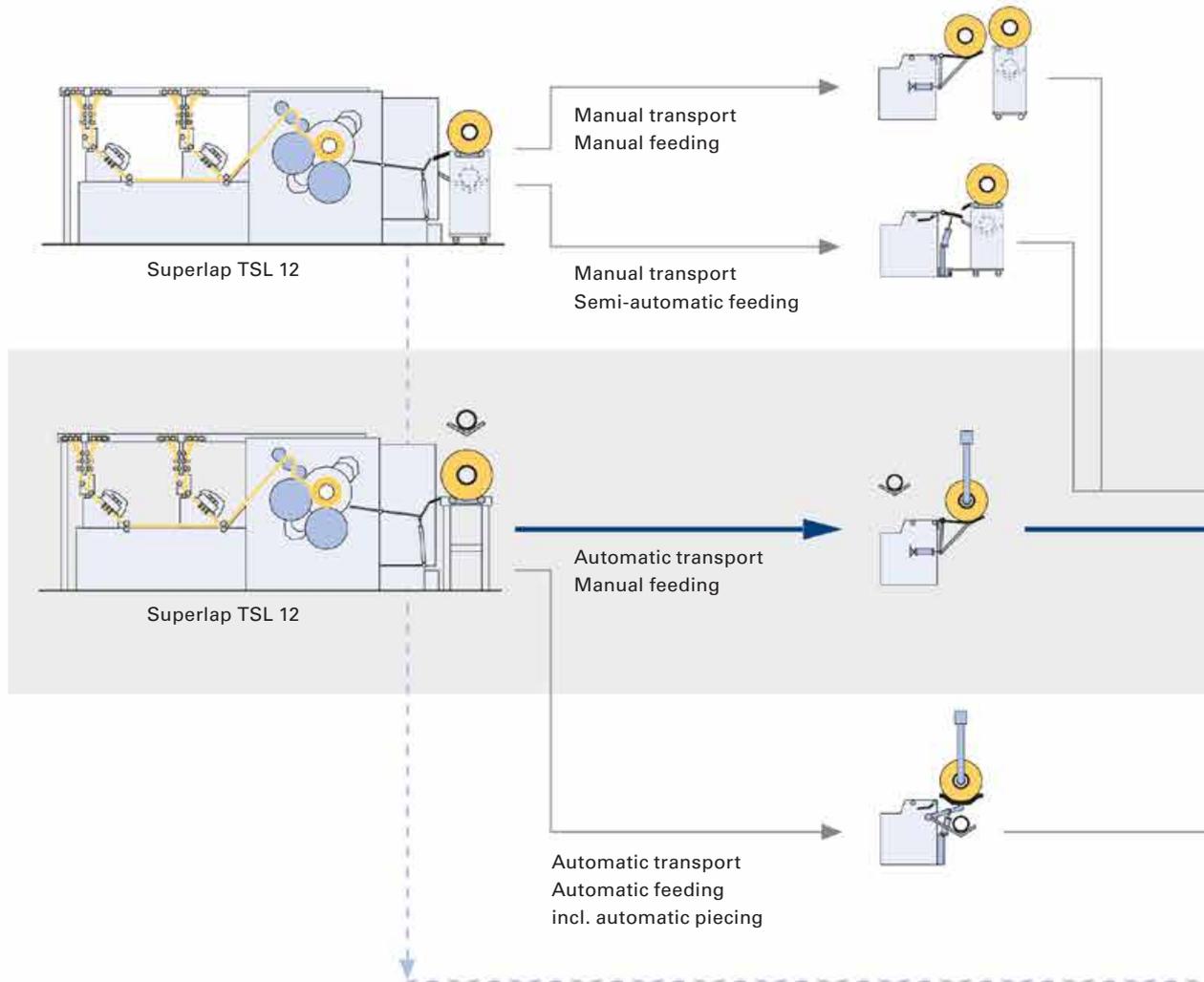
Innovative, self-optimizing technology

- Timing function for optimal piecing time without complex laboratory tests
- Curve function for the optimal detaching curve
- Self-adjusting lap monitoring of top rolls for reliable detection of fiber laps



Perfectly coordinated

In the Truetzschler combing mill, all components interact perfectly. Or in other words: Redefine your individual expectations on quality and economic efficiency.



Superlap

The Truetzschler Superlap can be equipped with different creels according to requirements in order to meet the different needs with feed can diameters of 600 mm, 1000 mm and JUMBO CANS.

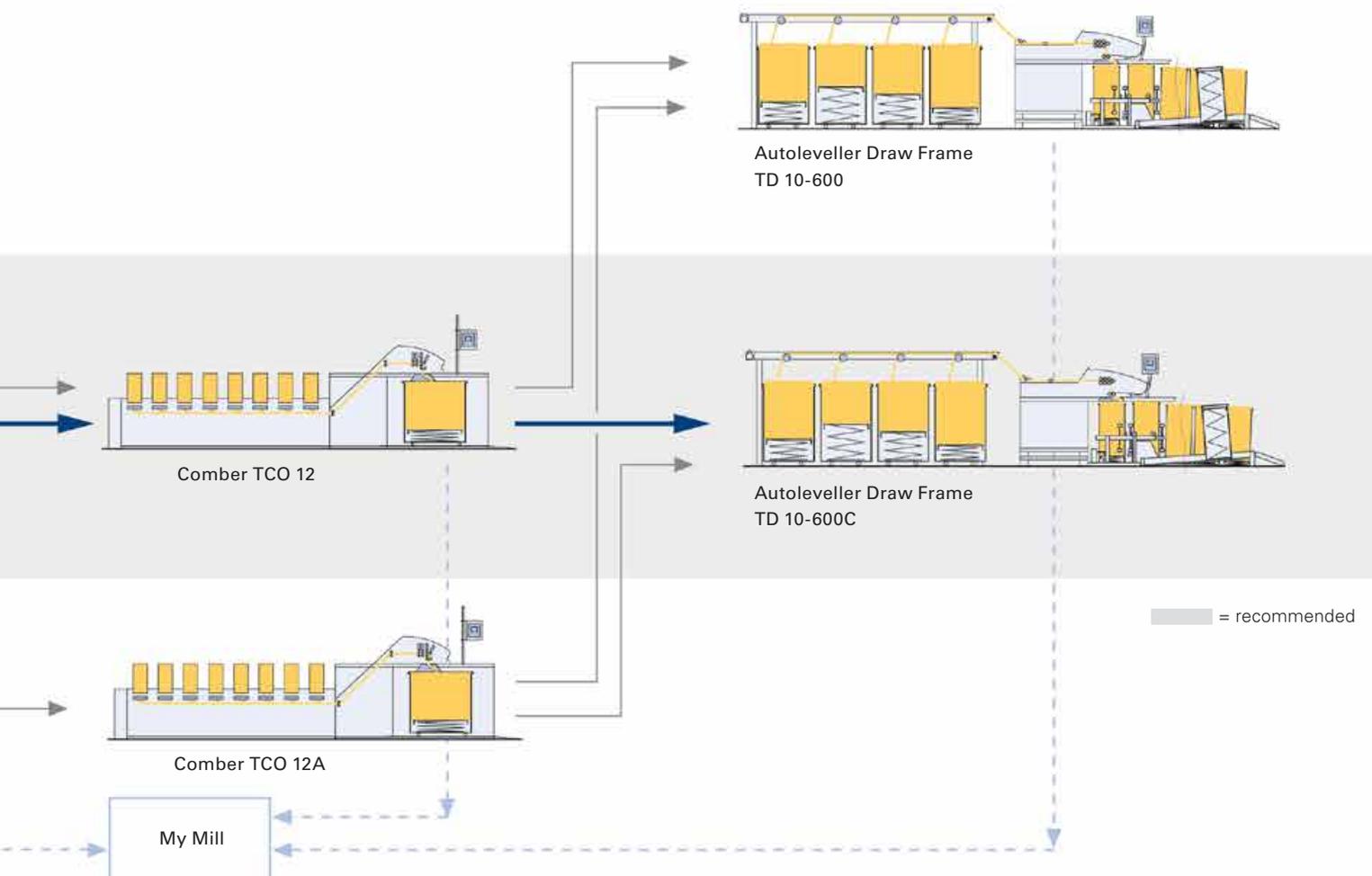
The TSL 12 can feed the laps to transport carriages or an automatic lap transport system.

Comber

The TCO 12 with modern drive technology is the heart of the Truetzschler combing mill.

It can be equipped with different lap handling systems, depending on the desired degree of automation.

The highly economical JUMBO CANS can also be used in the Truetzschler combing mill. In addition to reduced yarn defects due to fewer piecings, they also lead to significantly higher efficiency.



Real-time online monitoring

Always keep the overview with the My Mill all-in-one platform for the spinning mill – the new real-time monitoring system from Truetzschler.

Autoleveller draw frames

The TD 10-600C autoleveller draw frame in compact configuration is ideal for use downstream from the combing mill.

It is characterised by minimum centre distance. Any number of machines can be combined with full utilisation of the efficiency of the individual machines.



Meaningful automation

The automatic lap transport system for the Truetzschler combing mill

Developed in cooperation with Neunhauser, the specialist for automated spinning mill transport systems, the automated lap transport in combing is one of the most meaningful investments. In addition to personnel cost savings compared to manual lap transport, even more benefits become apparent in practice:

Clarity

Since the entire transport is performed overhead, the aisles remain unobstructed. There are no empty lap tubes or transport carriages in the way. The floors are easy to clean.

Controlled material flow

An automatic lap transport system brings the lap to the exact comber where it is needed next. No comber is down because a lap is missing, even during a night shift with reduced personnel.

Quality gain

Since the laps are not touched by the operators, the outer layer of the batt remains as perfect as when leaving the Superlap. During manual transport, the very sensitive outer layer of the lap can easily be damaged when touched.

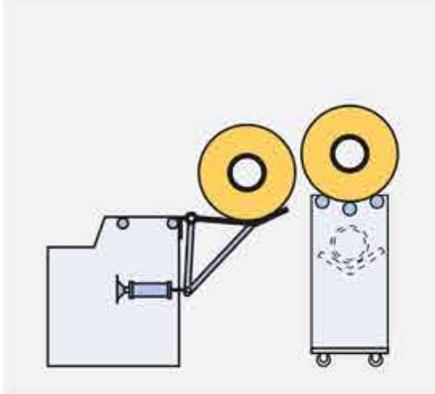


The transport unit forwards the full lap from a conveyor belt on the TSL to the combers. In the process, the empty tubes are also picked up and returned.



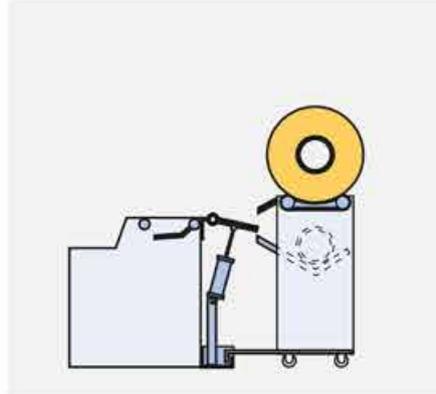
Lap transport and lap feeding

Three versions for maximum individuality



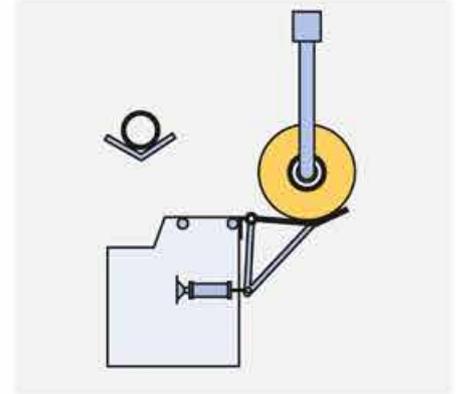
Manual transport Manual feeding

The laps are transported to the comber by means of a lap carriage. There the laps are tilted from the reserve table into the combing positions; the operator pieces the laps manually.



Manual transport Semi-automatic feeding

Instead of the reserve table, the lap transport carriages act as storage space for full laps. First the empty tubes are put in the carriage via a transfer table, then the laps are placed in the combing positions. There they are manually pieced.



Automatic transport Manual feeding

An automatic lap transport system brings the laps from the lap winder to the comber. There the laps are fed to the combing positions via the reserve table and manually pieced. The empty tubes are automatically transported back to the TSL by the transport system.



The picture shows the lap transport unit of the lap transport automation (LTS).

Truetzschler Comber TCO 12A

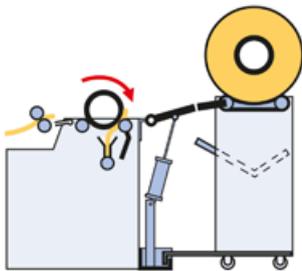
Automatic lap change

This Truetzschler development reflects the bundled competence of our engineers. With an innovative process flow, the TCO 12A sets new standards in economic efficiency: The machine stops as soon as the laps are unwound. The batt is detached on all eight combing heads at a defined point and the waste is removed by a separate suction. Now the empty tubes are transferred to the lap carriage, and the full laps taken from this carriage.

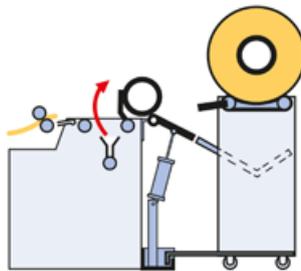
Following the subsequent preparation of the lap end, it is precisely positioned at the end of the delivered batt, and the comber starts up again.

The difference lies in the piecing quality

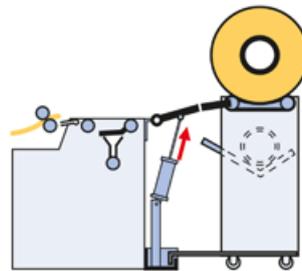
The automatically controlled piecings are clearly superior to the manual piecings in terms of quality.



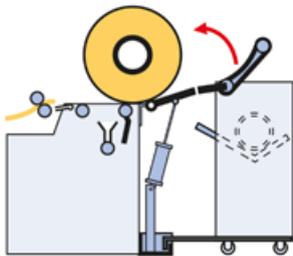
1. The laps are worked off.
The tubes are empty. Last lap remnants are extracted.



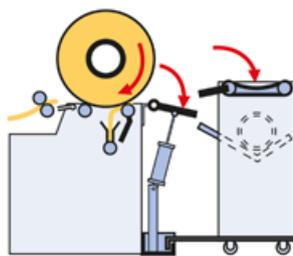
2. The empty tubes are ejected.



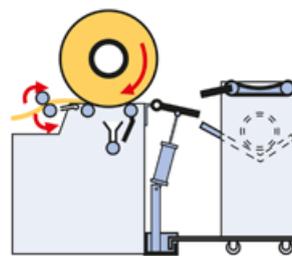
3. The transfer device folds up.
The transfer table folds up.



4. The full lap is rolled into the work-off position.



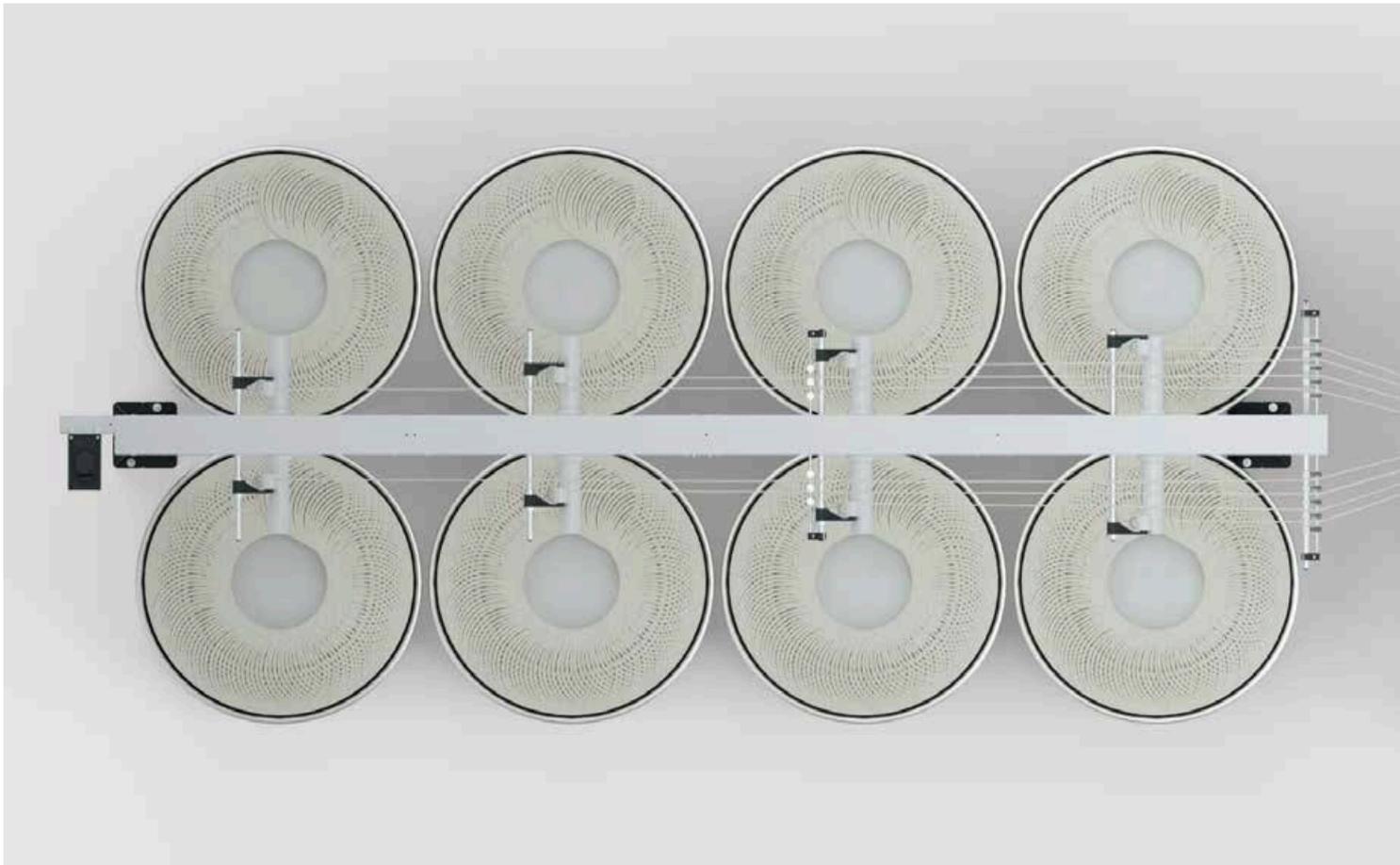
5. The lap start is drawn in and prepared.



6. The lap start is placed on the end of the previous lap.
The comber continues with production.

The new draw frame generation: Truetzschler TD 10-600

A draw frame especially for combed yarns



As quality filter of the spinning mill, the autoleveller draw frame has an important function: preventing errors in the draw frame sliver which inevitably lead to yarn defects. Because quality can no longer be improved after the autoleveller draw frame.

The new compactness

The new TD10 is 14 % shorter, because length matters. Compared to the competition, the space savings – averaged over all can heights – are therefore more than 20 %.

This means that a spinning mill with a production of 1000 kg/hour can achieve savings of up to \$ 14,500.

20% space savings

averaged over all can heights



SMART CREEL – intelligent individual sliver detection

The SMART CREEL detects the presence as well as movement of a sliver. This makes a faultless detection of sliver breaks possible. In contrast to contact switches, the optical sensors protect against operating errors, as they function even when the pressure roll is not in use. The desired doubling is simply entered via the software.



Individual sliver sensor in SMART CREEL

Truetzschler Autoleveller Draw Frame TD 10-600

The world's most energy-efficient suction system

Whether central suction or filter box, the TD 10-600 offers enormous savings potentials thanks to the flow-optimized suction ducts.

It requires only 840 m³/h at a pressure of only -450 Pa. This results in energy savings of 53 % at the central filter compared to the competition.*

*1000kg/h per draw frame set, energy costs 0.13\$/kWh



6 times larger filter surface than the competition means 24 h without dedusting.

SERVO DRAFT: improved levelling dynamics, improved sliver quality

High-precision draw frame sliver levelling in the last passage is the decisive factor for yarn uniformity and count variations, especially with combed slivers for high-quality yarns. This is why Truetzschler engineers have developed a cutting-edge autoleveller draw

frame with state-of-the-art digital levelling technology.

The groove and sensing roll unit DISC LEVELLER ensures an optimal sliver quality at highest levelling dynamics. In combination with the SERVO DRAFT, it represents the heart of the draw frame.

The optimized DISC LEVELLER with new quick release fastener and the drive technology SERVO DRAFT are the heart of the autoleveller draw frame.





A% sliver count variation

If the focus is on the display of sliver count variations A%, T-LED can also show this aspect at a glance.

TD 10 – a building block in the Smart Factory

Self-optimizing functions are the key to tomorrow's spinning mill, where a high turnover of personnel and the resulting lack of important quality know-how is already a reality today.

Self-optimization functions on the TD 10

- AUTO DRAFT – automatic calculation of the perfect break draft
- OPTI SET – optimal main drafting point due to self-optimization
- Self-adjusting lap monitoring for reliable detection of fiber laps

T-LED – the Truetzschler remote display

An intuitive and effective way of operating the machine via touch screen and T-LED. The LEDs, visible from afar, show the machine states in the entire spinning mill.

With the multicoloured LEDs it is possible to display various machine states.

Optimal sliver quality

Thanks to high-precision levelling of the draw frame sliver with the dynamic Truetzschler electronics



Lap change time in 20 seconds

This means 15% higher productivity with
the same settings

Truetzschler Superlap TSL 12

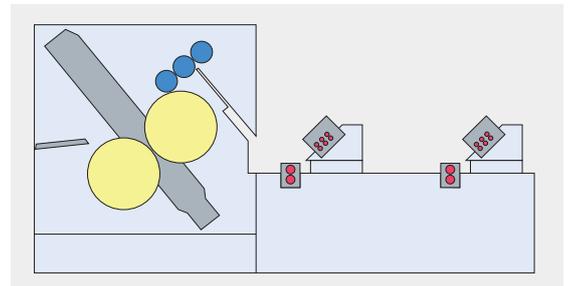
Multi-drive technology

The Superlap produces premium quality laps with its multi-drive technology, consisting of four individually controllable and maintenance-free direct drives.

Thanks to this technology, important process parameters such as drafts, tensions and lap pressure can be adjusted during lap build-up. Thus, the lap separation can be implemented directly by the drives; there is no need for complex mechanisms prone to failure. This results in premium quality laps due to uniform lap hardness and thus in specifically good unwinding properties.

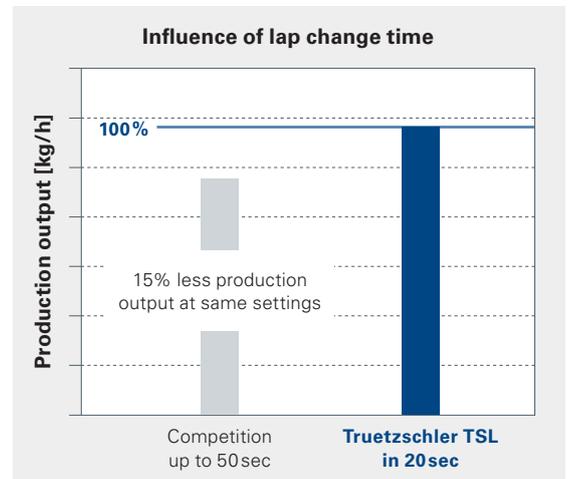
Fastest lap change time – Increased productivity

Lap changes in 20 seconds are only possible due to the individual drive technology and a clever tube change system. The empty tube on the TSL is inserted laterally at the same position where it is also wound shortly after. With 400 lap changes per day, this results in a 15% increase in production. This means 60 more rolls produced per day.



Individual drives make an optimization of the lap build-up possible.

- Pressure calender
- Lap calender
- Draw frame heads with table calendars



The unique lap tube feeding device allows quick lap change



The empty tubes are fed from the side through an opening in the panel. This Truetzschler development reduces the time required for lap change, which has a significant influence on efficiency.

Perfect calendering

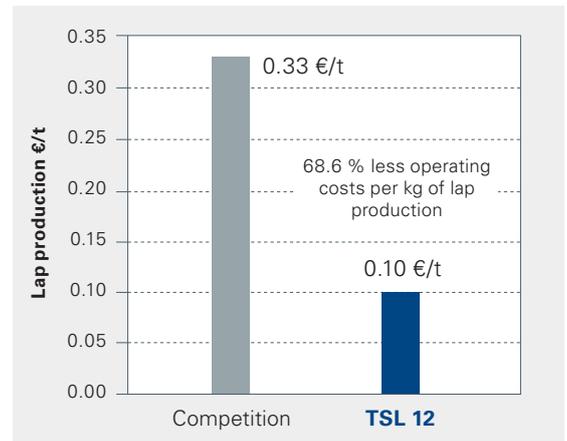
Consistently high lap quality guaranteed

Laps must have the same properties from the first to the last metre.

On the one hand, this requires a uniform batt weight and on the other hand a perfect unwinding behaviour on the comb.

In order to meet both requirements, the multi-drive technology enables variable drafts during the winding process. Only with the TSL 12 is it possible to significantly influence the appearance of the laps via the tension between the two lap calenders.

Operating costs for suction and compressed air



The table calender units prepare the batt after each drafting system.



Independent guidance of new batt

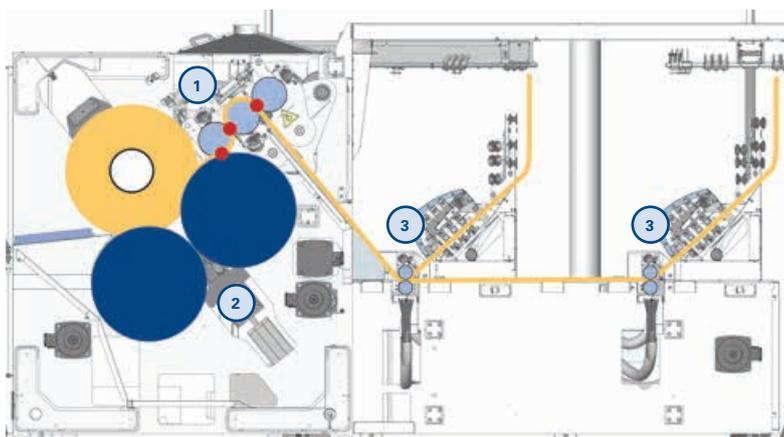
The concept with only 3 pressure calenders also makes piecing of the new batt after cleaning the machine super easy. Complex threading tools are no longer necessary, as the batt finds its way by itself.

Energy-efficient compressed air system

The lap calender technology leads to considerable reductions in compressed air consumption and thus offers attractive savings in running costs. This is clearly reflected in the price/kg: 0.33 €/kg at the competition compared to 0.10 €/kg at Truetzschler.



- 1 Pressure calender module:
Preparation of the batt by removal of air pockets
- 2 Lap calender module:
Winding of the batt onto the empty tube
- 3 Table calender units



Perfect calendering to ensure a good lap unwinding behaviour on the comb

The calender unit uses three pressure points (●). In addition to the pressure points between the pressure calender rolls, there is also a calendering point to a lap calender roll.



Electronics/Drive technology

State-of-the-art control and convenient operation:

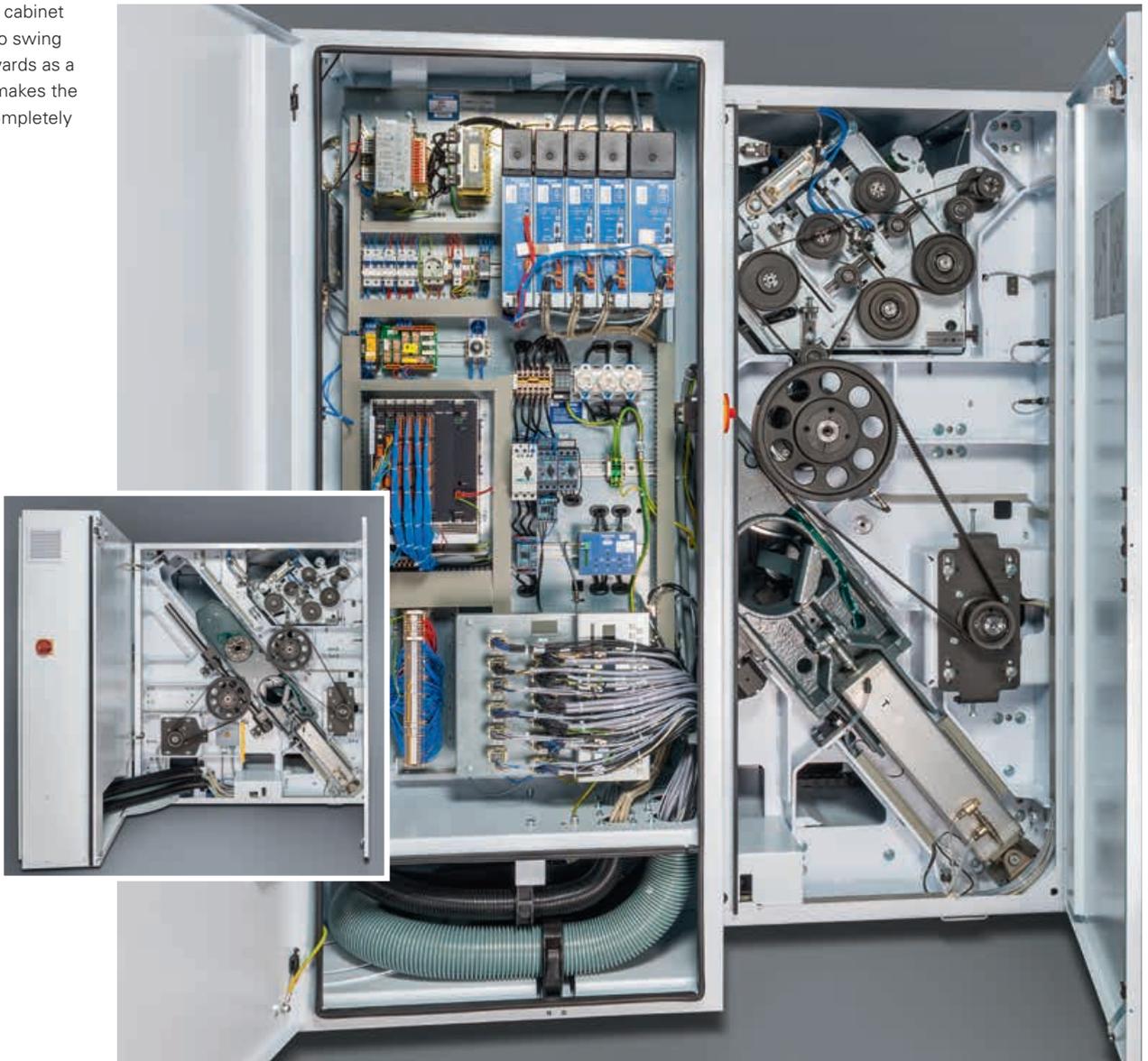
As a pioneer in the use of state-of-the-art drive technology in spinning preparation machines, it is our aim to ensure optimum quality and optimum handling with new innovative solutions at the lowest possible energy consumption.

Applying our own control electronics allows customized solutions for use in the field of spinning.

The control of the TSL is of course also based on the Truetzschler Computing Unit, the heart of the machine.

Thanks to the Truetzschler energy measuring device, the energy consumption can easily be called up via My Mill. This way you always have the energy in sight when something is out of the ordinary.

The control cabinet is as easy to swing open sideways as a door. This makes the machine completely accessible.



SMART sensors also for the Superlap

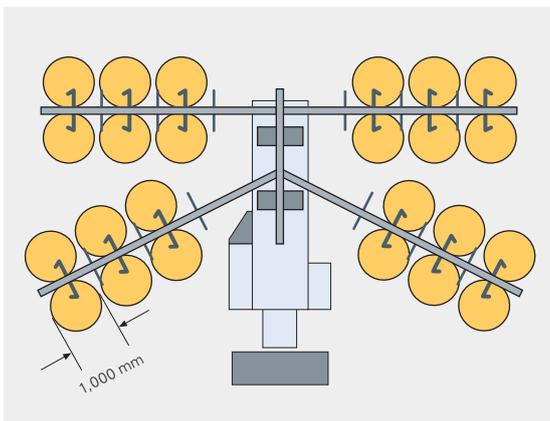
The new intelligent individual sliver sensors distinguish between

- Sliver is moving
- Sliver is available, but not moving
- Sliver is not available

This allows reliable detection of sliver breaks at every delivery position and eliminates errors in the batt weight due to missing slivers.



Individual sliver sensor in SMART CREEL



The butterfly shape of the creel allows good accessibility and requires only little space even when using large cans.



The top rolls of the 3-over-3 drafting system are opened with the upper part of the drafting system and can easily be removed.



User-friendly handles facilitate the transport of the lap carriage.

Equipment and options

Truetzschler Superlap TSL 12

General	Good access to all maintenance and cleaning points	•
	Safety panels with central safety system	•
	Central, flow-optimised suction with negative pressure monitoring (above and below floor)	•
	Individual adjustment of the lap pressure via the lap build-up	•
	3 pressure calender with individually adjustable pneumatic load	•
	Large-area filter TD-FB with negative pressure monitoring	○
Drives	Modern, energy-saving drives with robust Truetzschler electronics	•
	Individual drives for infinitely variable adjustment of lap count, main draft and lap tensions	•
Electronics	Colour touchscreen for efficient operation, maintenance and service	•
	USB port	•
	Use of dynamic Truetzschler Computing Unit, only one update for all machine components	•
	Maintenance management via touchscreen	•
	Energy measuring device for online energy monitoring	•
	Interface for data transmission to data acquisition systems My Mill and My Production	•
Creel	Two-row feed creel with intelligent individual sliver monitoring via SMART sensors (600 mm cans)	•
	Creel version for 1000 mm cans or JUMBO CANS	○
Drafting system	3-over-3 drafting system with monitoring device and sliver guide elements	•
	Self-adjusting lap monitoring of top rolls	•
	Durable cleaning bar for gentle cleaning of the top rolls	•
	Integrated, flow-optimized suction of the drafting system at top and bottom rolls	•
	Quick relief during standstill or lap formation	•
	Lifetime lubricated top roll bearing for low heat generation and reduced lap formation	•
	2 table calender units for preparation of the batt	•
Pneumatic load of top rolls individually, infinitely variable	•	

• = Series ○ = Option

Technical data

Truetzschler Superlap TSL 12

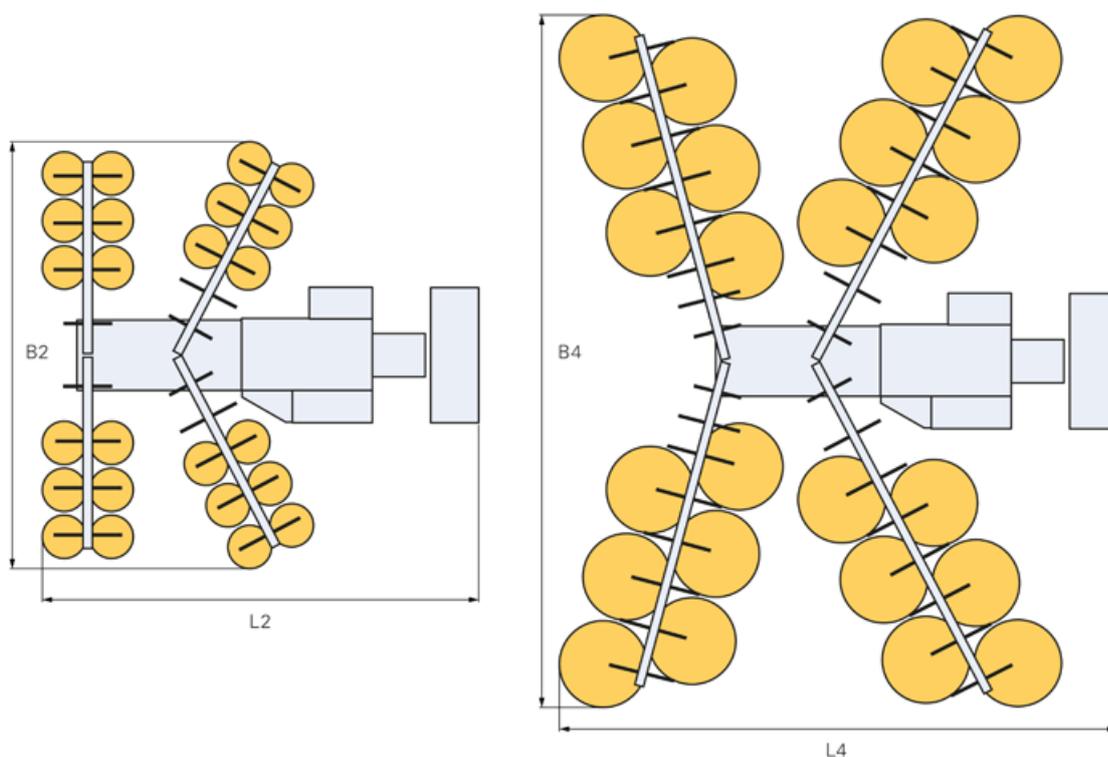
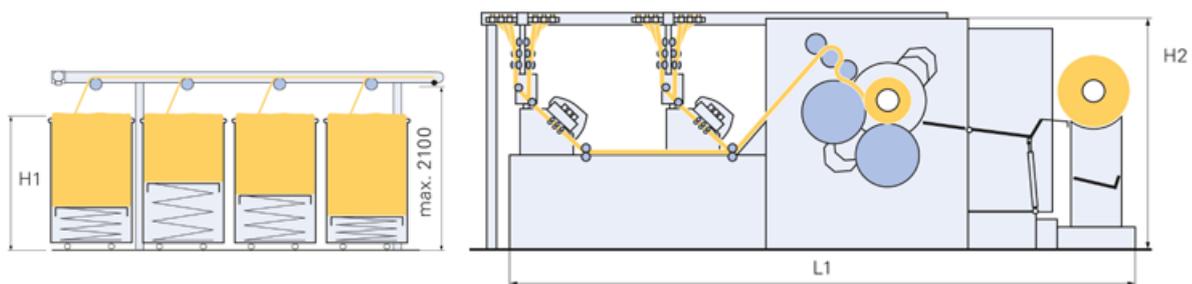
Sliver coiling system	Maximum delivery speed	m/min	180
	Can diameter	mm	600/1,000/1,200
	Can height	mm	1,075 - 1525
	Continuous production	kg/h	518
Energy	Air volume of suction	m ³ /h	2,800
	Negative pressure of suction	-Pa	-800
	Installed power of drafting system table	kW	3.45
	Installed power of lap head	kW	16.05
	Installed power of filter box	kW	2.5
	Average continuous electric power consumption	kW	7.3
	Compressed air requirement	NI/h at 7 bar	4,200
General	Material: Fibers	mm	max. 60
	Draft	fold	1.2 – 3
Calender / Drafting system	Lap weight	kg/unit	25 (net)
	Material feed / lap count	ktex	60 – 80
	Sliver weight	ktex	4 - 5
	Lap width	mm	300
	Lap tube diameter	mm	200
	Lap length	m	300

Technical data

Truetzschler Superlap TSL 12

L1 mm	5,513
H1 mm	1,075 - 1,525
H2 mm	2,070

	Creel cans		
	Ø 600 mm	Ø 1,000 mm	Ø 1,200 mm
L2 / L4 mm	5,994	6,319	7,662
B2 / B4 mm	5,909	9,027	9,586







Truetzschler Comber TCO 12

State-of-the-art machine concept

With the TCO 12 we have successfully introduced a new generation of drive technology to combing. The focus is on the DUAL DRIVE concept and the innovative detaching roll drive 2-TWIN DRIVE.

In addition, the TCO 12 is the first comber on the market that offers self-optimization functions such as COUNT CONTROL and PIECING OPTIMIZER. These functions make the difference in a digitalised spinning mill of the future!

Facts:

- Torsion reduced by 75% and vibration reduced by 25%
- Innovative drive technology for less deviations in combing quality
- 54 % reduction of deviations between the sliver counts of the individual combing heads
- Unique self-optimization function PIECING OPTIMIZER to set piecing time and detaching curve
- Self-optimization function COUNT CONTROL for sliver count stability

Reduction of torsion by 75%

via the Truetzschler 2-TWIN-DRIVE and
DUAL DRIVE drive concept

DUAL DRIVE

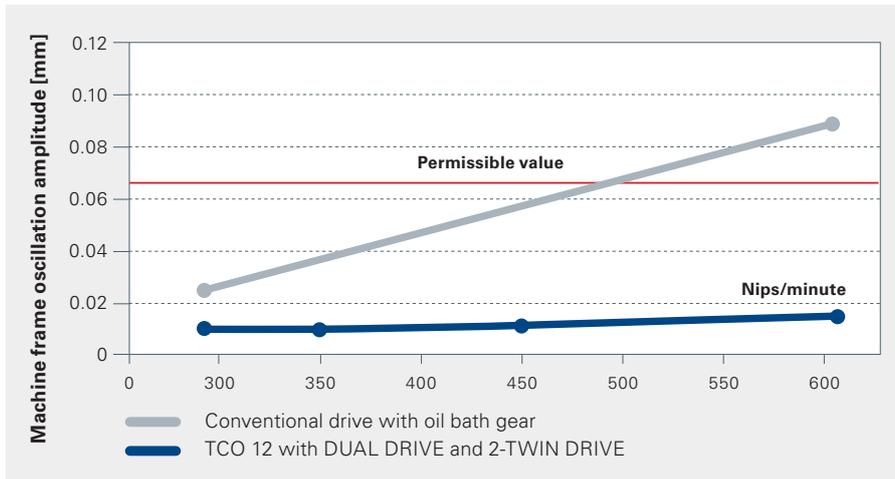
Only Truetzschler has drives on both sides

The conventional drive concept is based on a one-sided gear that drives the more than 4 m long shafts on one side. The control takes place via complex mechanical elements in an oil bath gear.

DUAL DRIVE, a two-sided drive concept, was first realised with the Truetzschler comber. It allows high nip rates because the usual

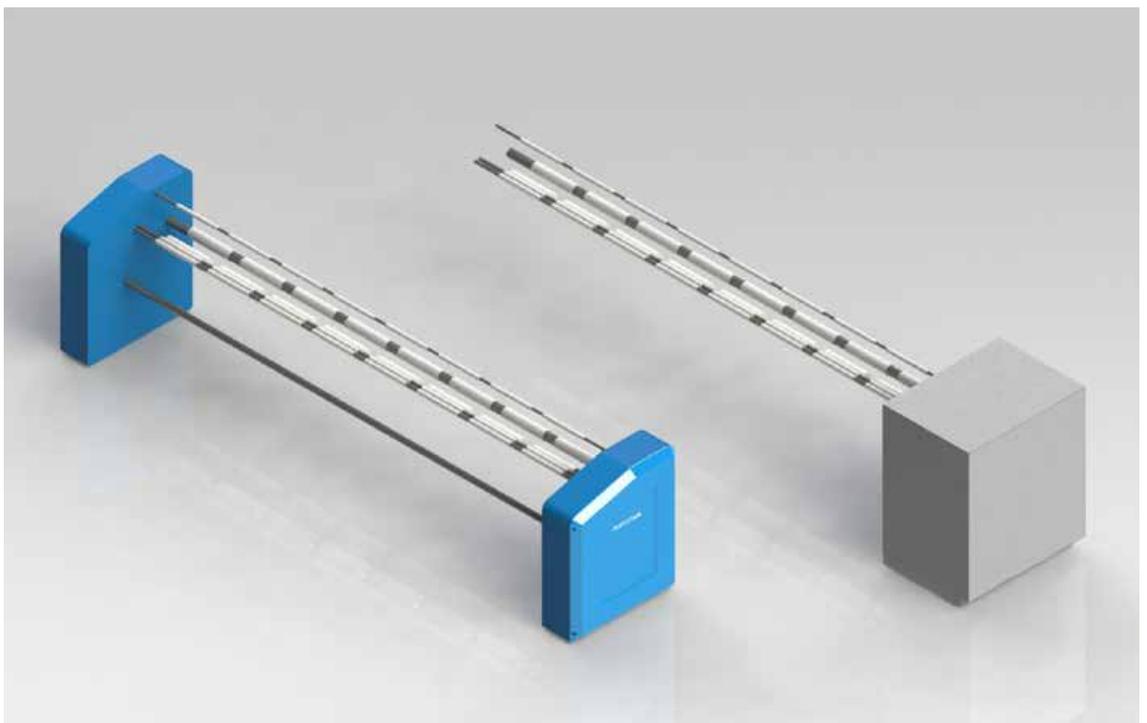
mechanical limitations of a one-sided gear are eliminated by the direct drives.

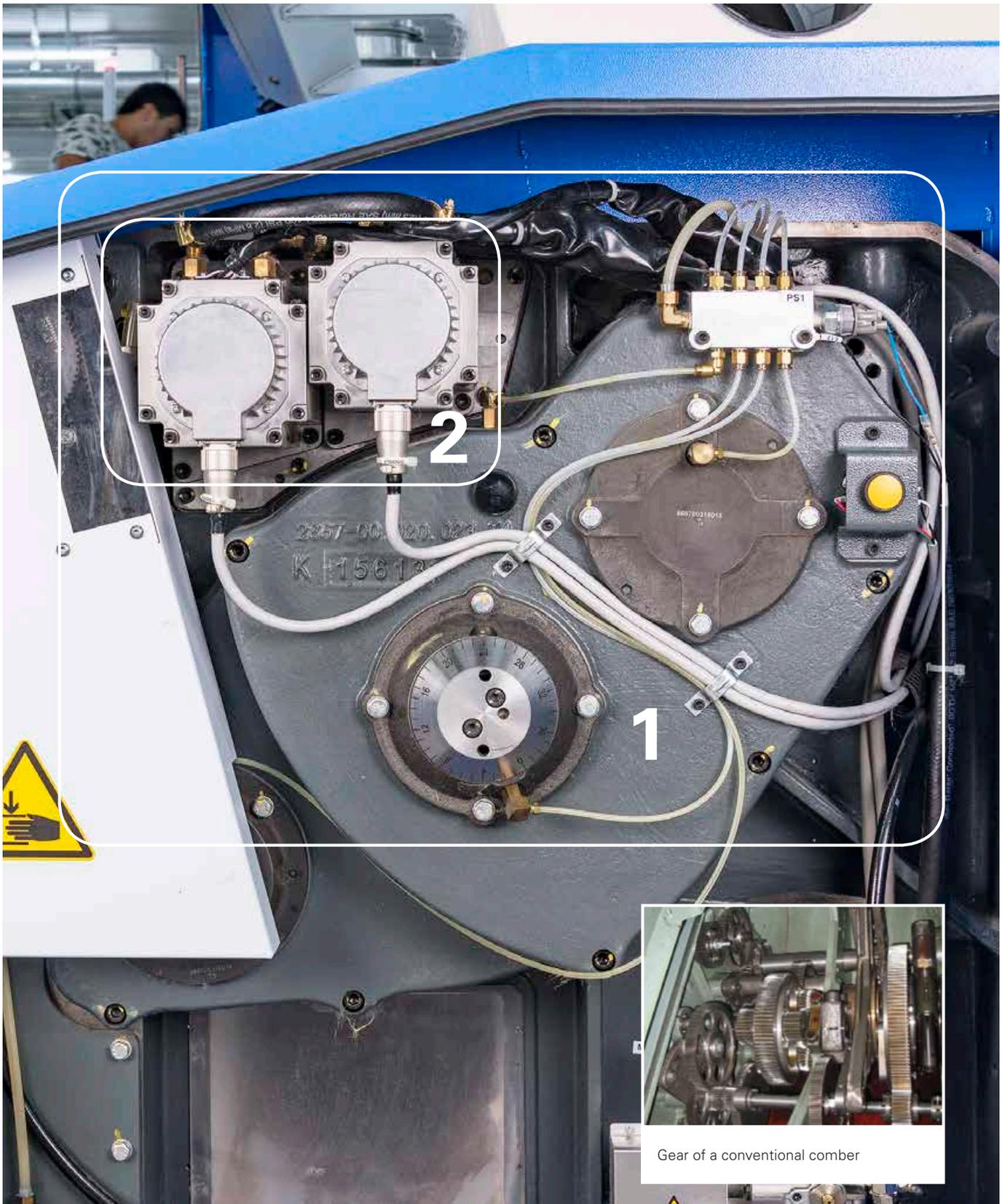
All important elements such as nipper shaft and circular comb are driven from both sides.



Due to the Truetzschler drive concept, the frame vibrations are barely measurable, even at high nip rates.

The picture on the left shows the two-sided Truetzschler drive concept, the one on the right the conventional one-sided variant





Encapsulated, maintenance-free DUAL DRIVE gear unit (1) with decoupled servo drives for the detaching rolls 2-TWIN DRIVE (2)

2-TWIN-DRIVE

Decoupled motion sequences – maintenance-friendly technology

In conventional combers, the one-sided drive of the thin detaching rolls produces strong torsions. These are responsible for deviations in combing quality and noil volume between the combing heads. Due to this, the overall performance of the conventional comber is also limited.

In the concept of the TCO 12, the detaching rolls are driven on both sides by two-times-two highly dynamic servo motors. This ensures completely synchronous running and fully identical movements on all combing heads.



For the first time, this innovative drive technology allows a decoupling of the highly dynamic movement sequence of the detaching rolls from the main shaft that controls the movement of the remaining combing components. This made application-oriented piecing optimization with the PIECING OPTIMIZER possible in the first place. For the first time, fully automated temporal optimization of the motion sequence in relation to other motion sequences is possible. Time-consuming laboratory tests are completely eliminated.

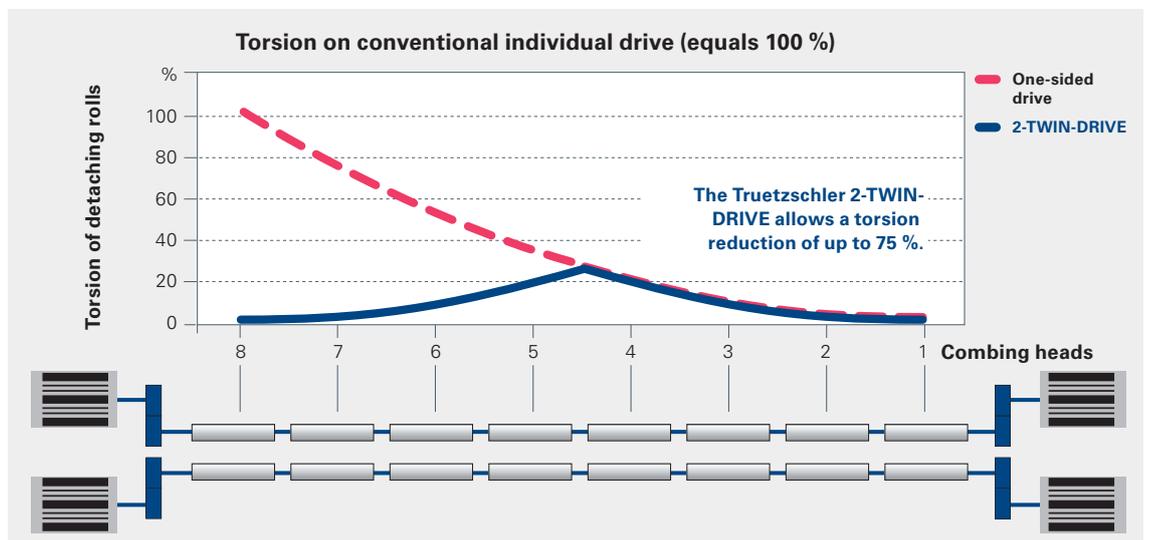


2-TWIN-DRIVE motors

Advantages of the 2-TWIN-DRIVE at a glance

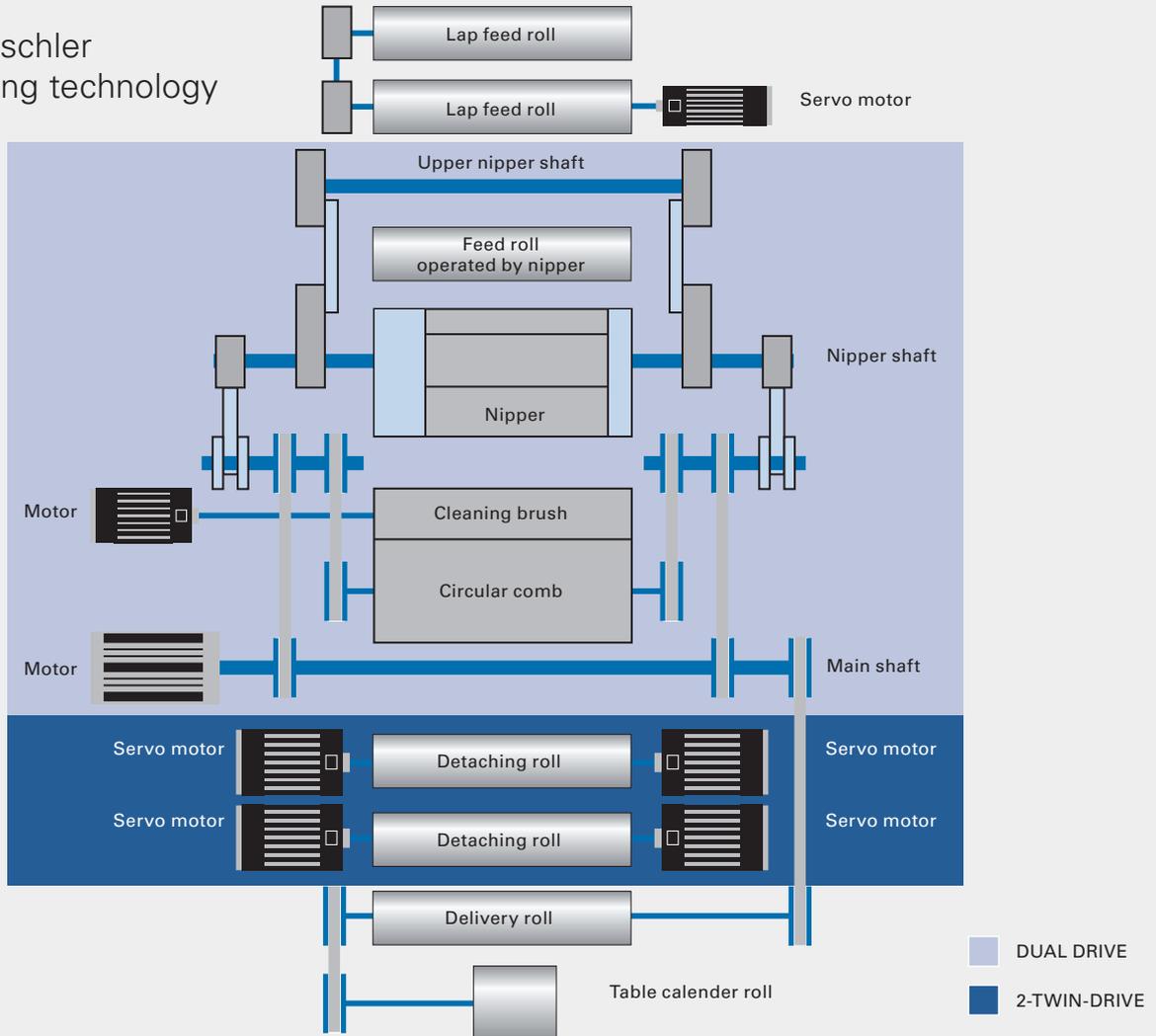
- Torsion reduction by 75 %
- Vibration reduction down to less than 25 %
- 54 % reduction of deviations between the sliver counts of the individual combing heads
- PIECING OPTIMIZER with timing and curve function

Comparison of detaching roll torsion of a conventional comber with Truetzschler 2-TWIN DRIVE drive concept

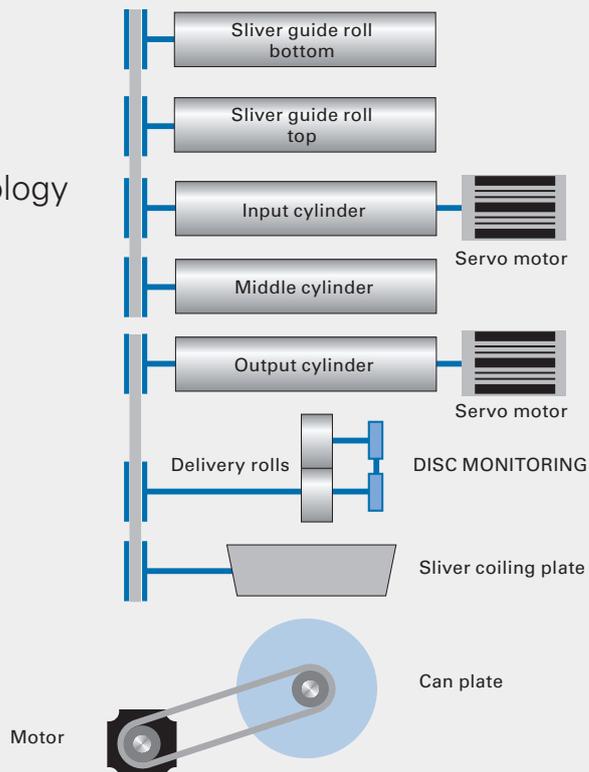


Truetzschler TCO 12 gearing diagram

Truetzschler
combing technology



Truetzschler
Draw frame technology



Reduced vibration and smoother running

This is achieved by the new DUAL DRIVE and 2-TWIN-DRIVE drive concept. In combination with the solid machine frame, these aspects result in more uniform quality at a higher level.

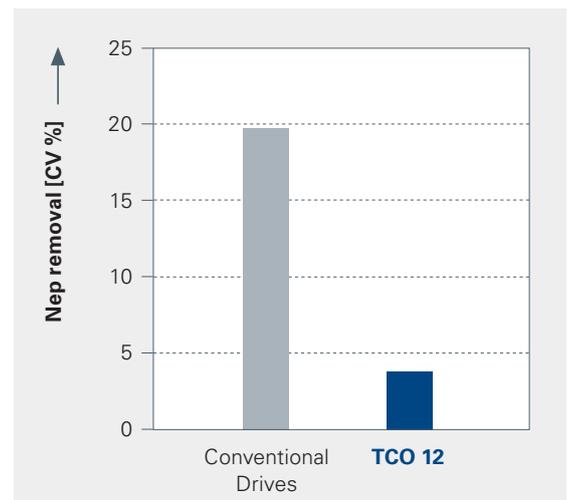
New servo motor technology

On the Comber TCO 12, specially designed servo motors perform the task of conventional gears. These highly dynamic motors for highly frequent reversal of rotation have proven themselves thousandfold in the application of Toyota weaving machines. The double-sided drive minimises deformations and opens up new perspectives in terms of economic efficiency and quality.

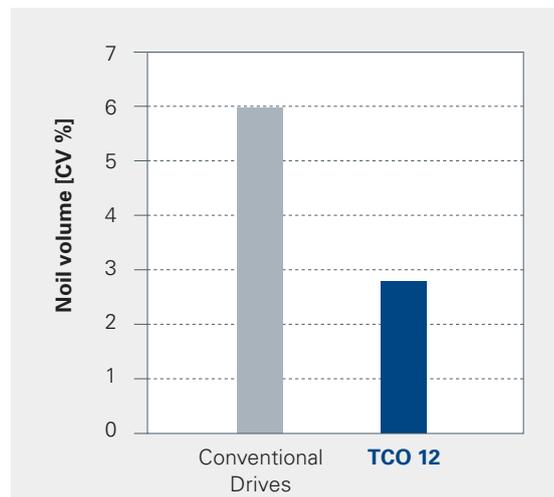
Now there are only slight variations of combing quality between the eight combing heads

With a conventional one-sided drive, the detaching rolls do not follow the optimal motion sequence during each reversal of rotation due to the strong torsion. This results in different combing quality between the eight combing heads. The double-sided drive ensures

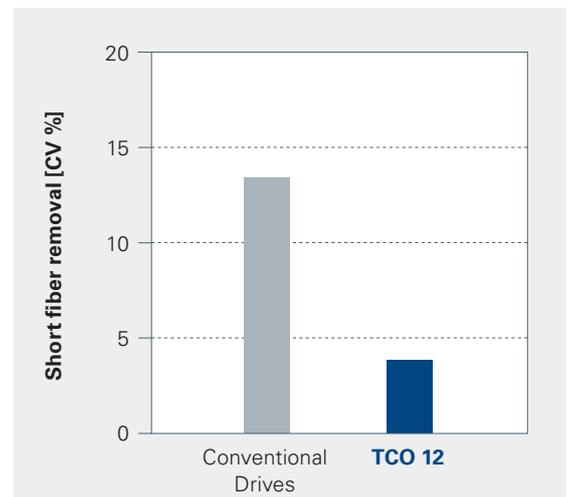
uniform motion of the detaching rolls at all eight combing points. This reduces the process-related irregularities.



Up to 80% reduced variation coefficient during nep separation between the combing heads.



The variation coefficient of the noil volume between the combing heads is cut in half.

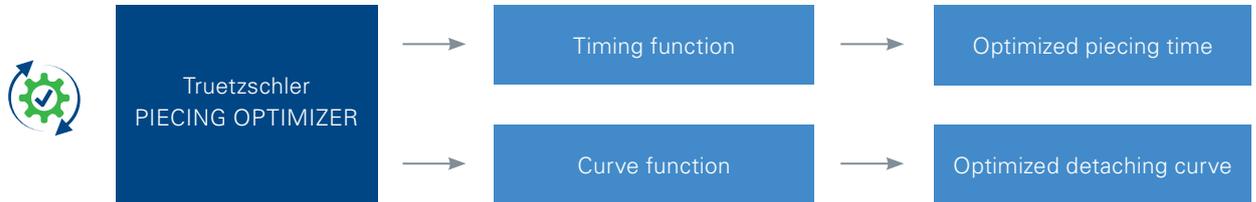


Up to 70% reduced variation coefficient during short fiber separation between the combing heads.



PIECING OPTIMIZER

Increased sliver quality due to automatic quality control



PIECING OPTIMIZER

Easy input of piecing optimization on the screen is only possible with the Truetzschler 2-TWIN-DRIVE.

Two methods are used to carry out optimization. Firstly by adjusting the piecing time in the combing cycle (timing function). And secondly by changing the detaching curve shape (curve function).

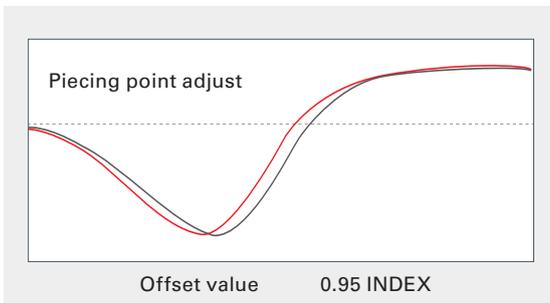
On a comber with conventional drive technology, the resetting of the detaching point (piecing time) is a very time-consuming task. This requires a large amount of trials with subsequent laboratory tests. On the TCO 12, resetting takes only a few minutes and is performed fully automatically at the push of a button. On a conventional comber it is not possible to change the detaching curve.



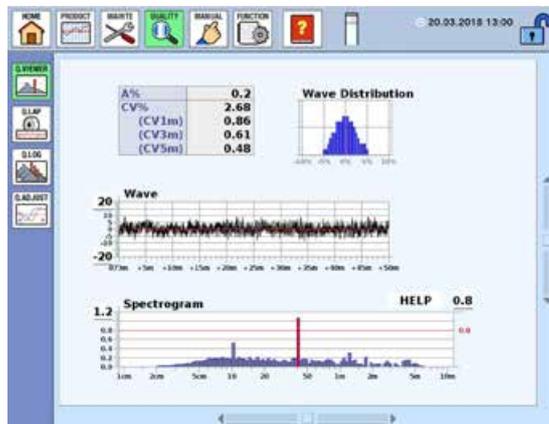
Timing function

The timing function describes the possibility to shift the reversal point at which the actual piecing takes place to a later time. This is illustrated by the lateral offset of the curve. This ensures that the fiber fringes are optimally pieced together. An interference of the

fiber sliver due to recurring piecings is avoided. The piecing time can be checked online using the spectrogram which is displayed on the screen. →



Timing function of the PIECING OPTIMIZER to shift the piecing time of the detaching rolls.



Before optimization by the timing function. Until now, the incorrect piecing time could only be determined in the laboratory. At Truetzschler, the spectrogram is monitored online on the machine with self-selected quality limits.



After optimization by the timing function

PIECING OPTIMIZER

Curve function

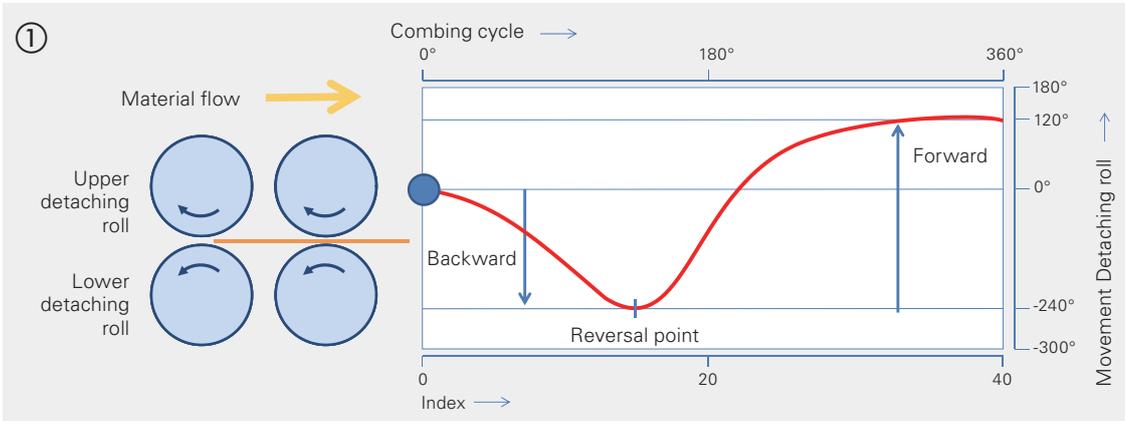
For high nip rates, a detaching curve that is optimized for high performances can be selected on the TCO 12 via the machine control. This optimized curve stabilises the piecing process at high nip rates and thus improves the running properties of the comber. This curve also makes for reduced energy consumption.

Movement sequence of the detaching rolls

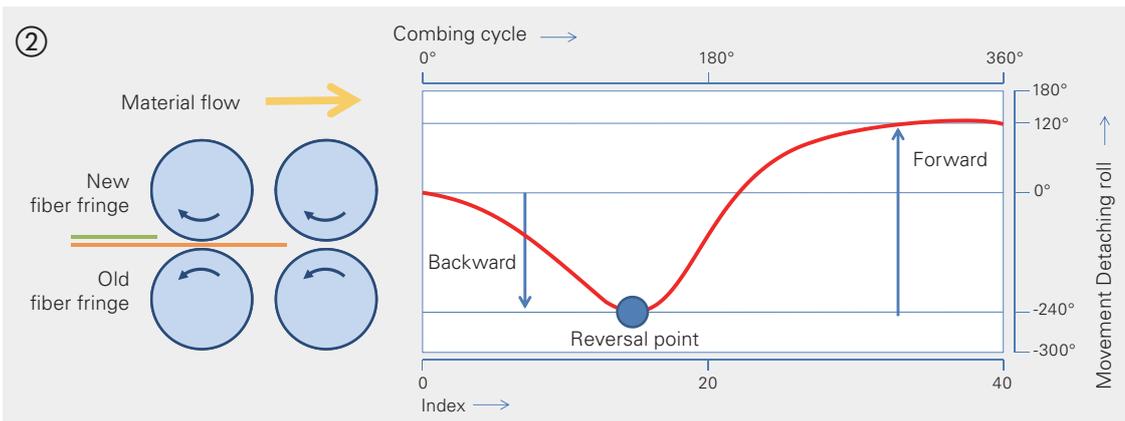
The movement sequence of the detaching rolls is a complicated pilgering process, which enables the joining of the new and old fiber fringe.

The movement sequence followed by the detaching rolls during the pilgering process in the diagram is called detaching curve.

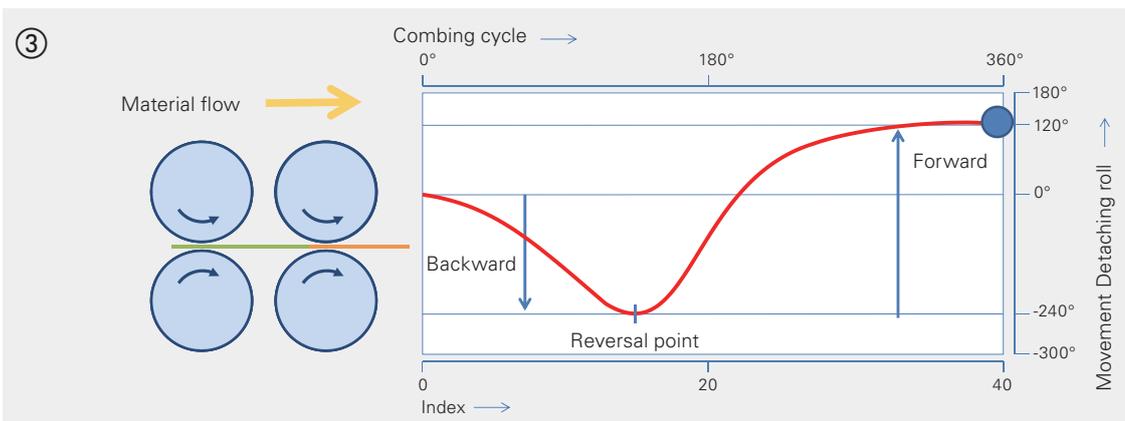




Before the actual piecing, the detaching rolls return the old fiber fringe (orange).



In this way, they create the possibility to piece the new fiber fringe (green) onto the old one.



Now the fiber fringes adhering to each other must be conveyed in production direction.

Then a new piecing process begins.

COUNT CONTROL

The only comber with levelling

The batt weight of older lap winders can vary over the entire length of the batt. This usually results in sliver count deviations. On the Trutzschler Comber TCO 12, these deviations are compensated by the COUNT CONTROL levelling system. The DISC MONITOR quality sensor determines the sliver count and sends a signal to the control system to adapt the main draft accordingly. The result is a permanently consistent sliver count.



Permanent monitoring of quality data

In addition, DISC MONITOR ensures permanent sliver monitoring. Self-selected quality limits serve to secure your individual quality expectations. The data are shown online on the machine display. No other comber manufacturer offers this convenience.

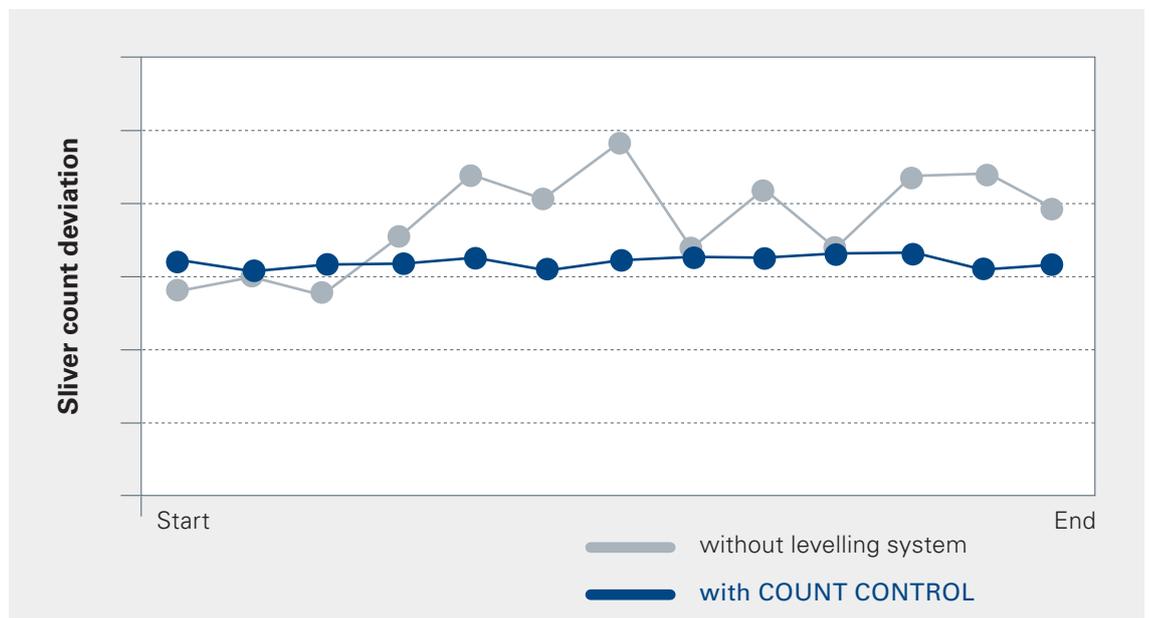
DISC MONITOR: Assurance for consistent sliver count

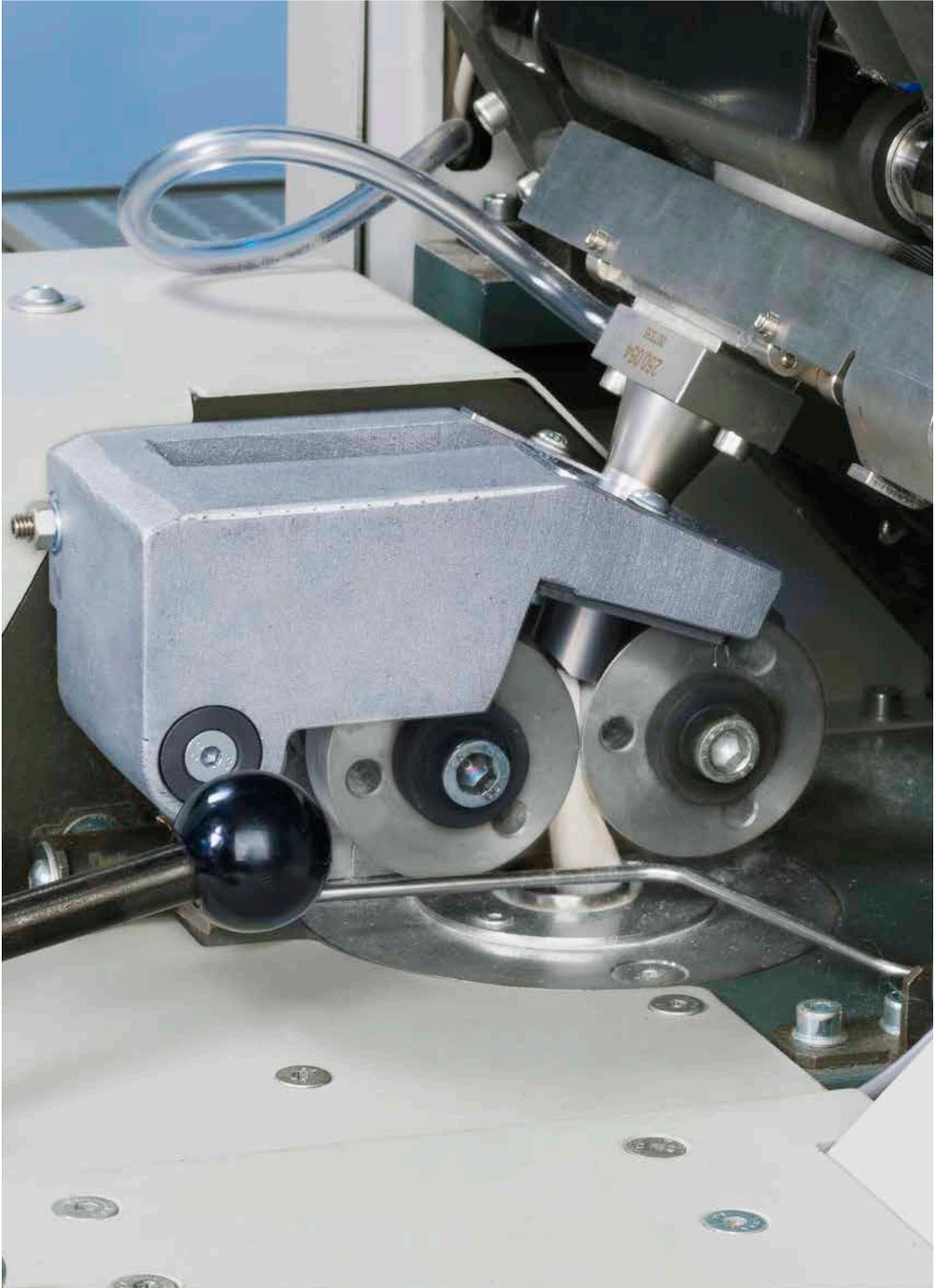
DISC MONITOR is a robust and reliable quality sensor that doesn't miss a thing. It continuously measures every inch of the produced sliver. In the event of irregular or faulty sliver, the DISC MONITOR sends a warning or stops the comber.



Permanent sliver control with DISC MONITOR. The data are shown online on the machine display.

Sliver count deviations measured over length of lap.







The drafting zone width can be simply and quickly adjusted since top rolls, top roll supports and drafting system cylinders form a unit that is automatically adjusted as well.

Drafting system technology

The Comber TCO 12 as well as all Truetzschler draw frame types TD 7, TD 9T and TD 10 are equipped with the same proven 4-over-3 drafting system.



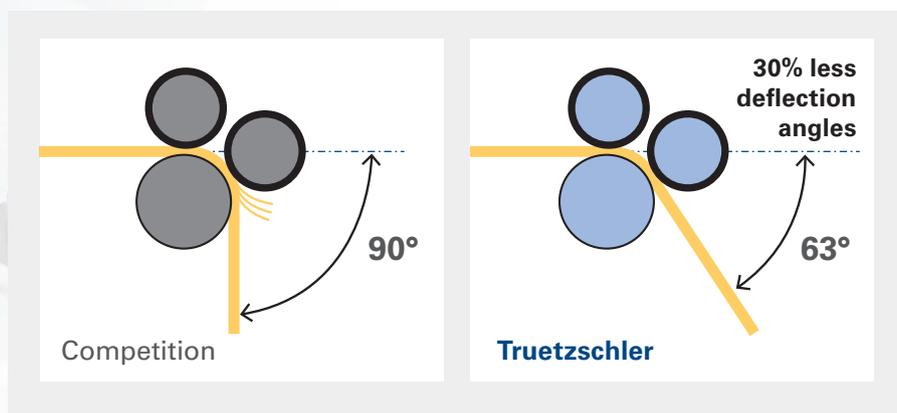
Reliable drafting system components

- 4-over-3 drafting system with reduced deflection angle
- Adjustable pressure bar for controlled guidance of even short fibers
- Pneumatically loadable top rolls
- Self-adjusting lap monitoring
- Patented bearing technology for minimal heat development



The unique arrangement of the drafting system components with a 30 % smaller deflection angle results in optimal running behaviour even with very fine sliver weights and in particular highly parallelised fibers such as combed slivers or slivers for the air jet process.

To allow a complete edge fiber integration in the critical area of sliver formation in the web guide, gentle deflection is of particular importance. Fiber laps on the top rolls can thus be significantly reduced. →



Optimal drafting system geometry for gentle fiber guidance, best CV values and optimal running behaviour

- **Excellent fiber integration**
mainly on the web edges
- **Reliable fiber guidance**
at high speeds
- **Fewer laps on top rolls**
to protect the roll coatings



TCO

Patented top roll bearing system

Our patented top roll bearing systems have been in use successfully for more than a decade.

The picture foreground shows Truetzschler's patented top roll bearing system with only one screw. In contrast to standard fastening (in the picture background), there is no wear of the top roll shafts or top roll bearings during mounting or removing.



A typical Truetzschler development for the heart of every drafting system:

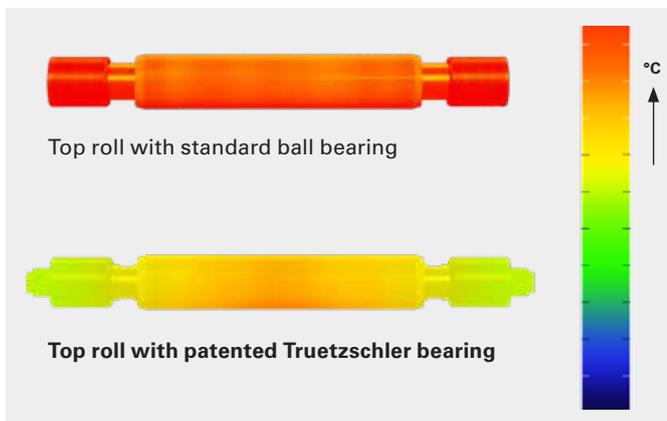
- High accuracy of fit and optimum centering for an error-free drafting process
- High process safety, less downtime
- Simple handling
- Low temperature development and thus gentle to the coatings
- Extremely long service life
- Reliable wear-free connection technology used in toolmaking



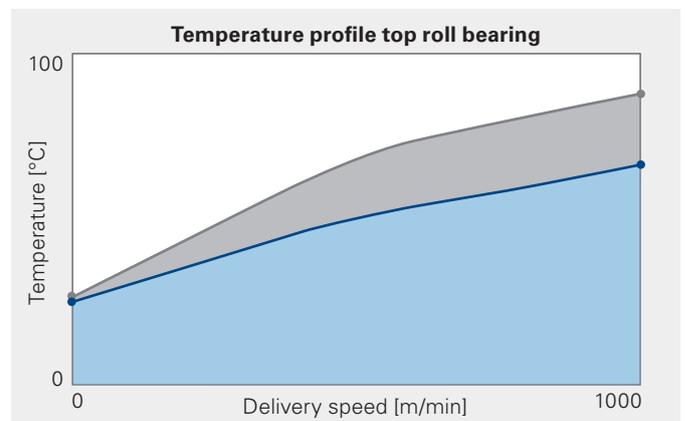
Dissipation of process heat into frame

Thanks to the unique bearing technology, the top roll bearings stay significantly cooler than the work area. Thus, it becomes possible to dissipate the heat generated during the drafting process into the machine frame via the bearings.

This results in clearly reduced roll and bearing temperature with positive effects on service life and wear.



To dissipate heat from the drafting process over the bearings into the machine frame is only possible via these special bearings with minimal heat development.



The significantly reduced process heat on the patented Truetzschler top roll bearing system is clearly noticeable.

— Competition
— Truetzschler

Pneumatic top roll load

Optimal individual and infinitely variable top roll load settings – adapted to various applications – are possible same as before. Software limits prevent incorrect settings and thus improve the lap behaviour.

This, in addition to the automatic relief of the top rolls during standstill, preserves the coatings and extends the service life.



These controllers allow easy and reproducible settings of the top roll loads. A special sensor monitors the pressure.

Sliver coiling system

HYDRO POLISHED TUBE

The flexible coiler plate with optimal surface properties ensures perfect sliver coiling, regardless of the material. The special polish of the tubes results in virtually frictionless sliver coiling and thus reduced sliver load.



Hydro-polished coiler plate with tube



Optimisation of sliver coiling

Thanks to the separate can plate drive, the coiling pattern can be adjusted conveniently and continuously via the display.

The coiling geometry is also designed in such a way that the slivers can be drawn from the can without any problems.

The simple setting by means of the individual can changer drive allows perfect setting of the coiling geometry.

Quality and functionality in sight

The maintenance management of the TCO 12

The regular and careful maintenance of the machines is important to maintain their functionality for a long time. To ensure that you keep the overview, the machine reminds you of upcoming maintenance and repair work.

The screen shots show the maintenance management of the TCO 12. Select the work you would like to be reminded of yourself – recommendations for maintenance can be found in the operating instructions.

The screenshot shows the main menu of the TCO 12. At the top, there is a navigation bar with icons for HOME, PRODUCT, MAINTENANCE, QUALITY, MANUAL, FUNCTION, and a help icon. The date and time are 2019/02/08 09:58. Below the navigation bar, there is a section for 'Lot name' and 'Cotton mix 1'. To the right, there are tables for 'Today' and 'Current shift' showing production and efficiency data. The main area is titled 'Running Now' and features a large image of the machine with various performance metrics: 214 m/min, 66 kg/h, 64% (97 min), 75.00 g/m, 5000 ktex, 10,000 m, 15.29, HI-SPEED, 39%, 3965 m (28 min), 531 1/min, and Index: 32.7. At the bottom right, there is a maintenance icon (wrench and screwdriver) circled in blue.

Press a button on the maintenance symbol in the main menu ...

The screenshot shows the maintenance screen. At the top, there is a navigation bar with icons for HOME, PRODUCT, MAINTENANCE, QUALITY, MANUAL, FUNCTION, and a help icon. The date and time are 2019/02/08 09:58. Below the navigation bar, there is a section for 'Maintenance' with a table showing maintenance tasks, dates, and time elapsed. Below the table, there are 'START' and 'FINISH' buttons. At the bottom, there is a section for 'Auto.grease supply' with a table showing the time elapsed, date, operation, grease supply, and result. A 'BACK' button is located at the bottom right.

	Date	Time elapsed
Grinding draw frame toproller	01.02.2019	178 / 500h
Grinding detacher toproller	01.02.2019	178 / 500h
Bottom roller bearing	13.12.2018	648 / 1000h

	Date	Operation	Grease supply	Result
1	24.09.2018 14:34	Automatic	3 min	OK
2	24.10.2018 11:56	Automatic	3 min	OK
3	23.11.2018 09:25	Automatic	3 min	OK
4	23.12.2018 12:30	Automatic	3 min	OK
5	22.01.2019 16:08	Automatic	3 min	OK

... to go to the screen with the corresponding maintenance information.

Online quality monitoring

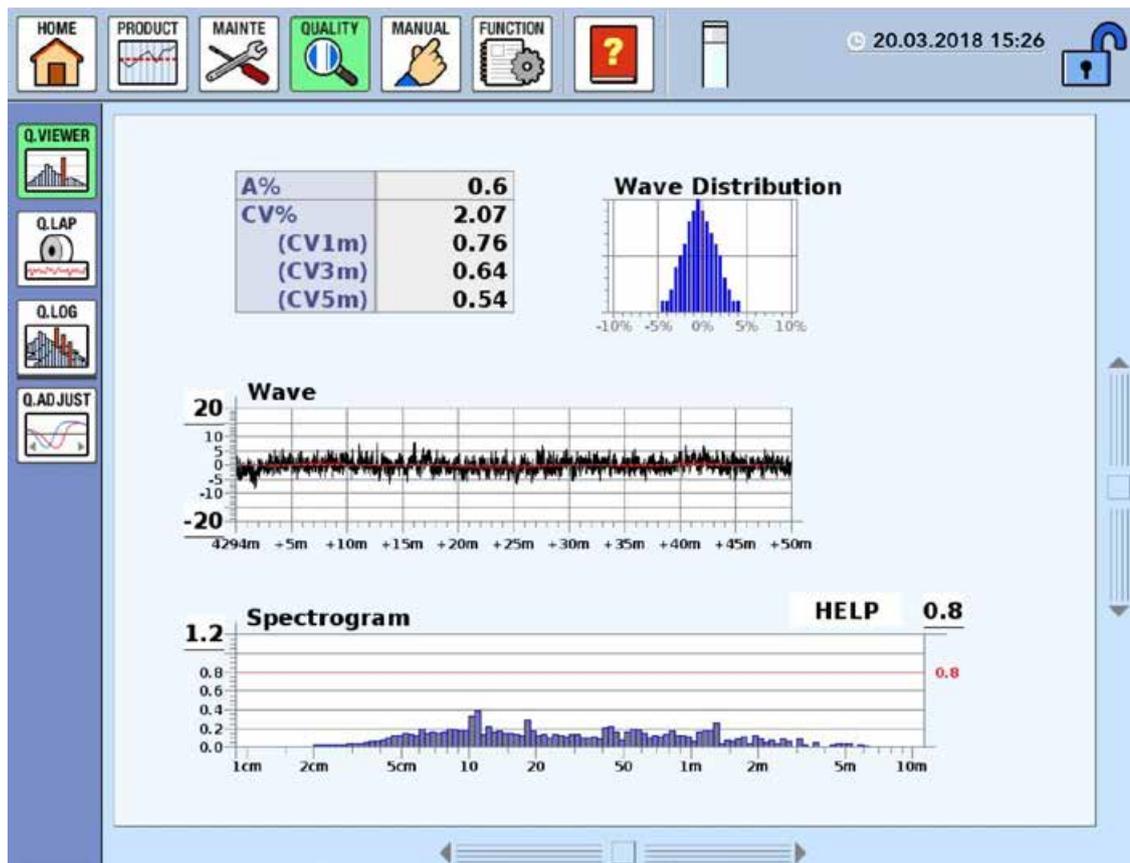
The Truetzschler TCO-DM quality sensors also record important online quality parameters in combing after the drafting system, such as CV value, sliver count variations A%, but also the spectrogram.

For these values, the customer can set his own quality limits, which are automatically monitored by the software.

Here, too, we want to ensure the quality of your end product as early as possible.

My Mill

If you would like to have an even better overview of your combing mill, simply summarise the quality data online. For this purpose, use My Mill, the all-in-one platform for spinning.



With online quality monitoring on the comber, you determine the quality limits for your combed sliver. Limits are monitored by the software and, if necessary, stop the machine before the material is further processed.

Combed cotton for tuft blends

A logical consequence of the annual growth in world fiber volume is the increasing use of blend yarns.

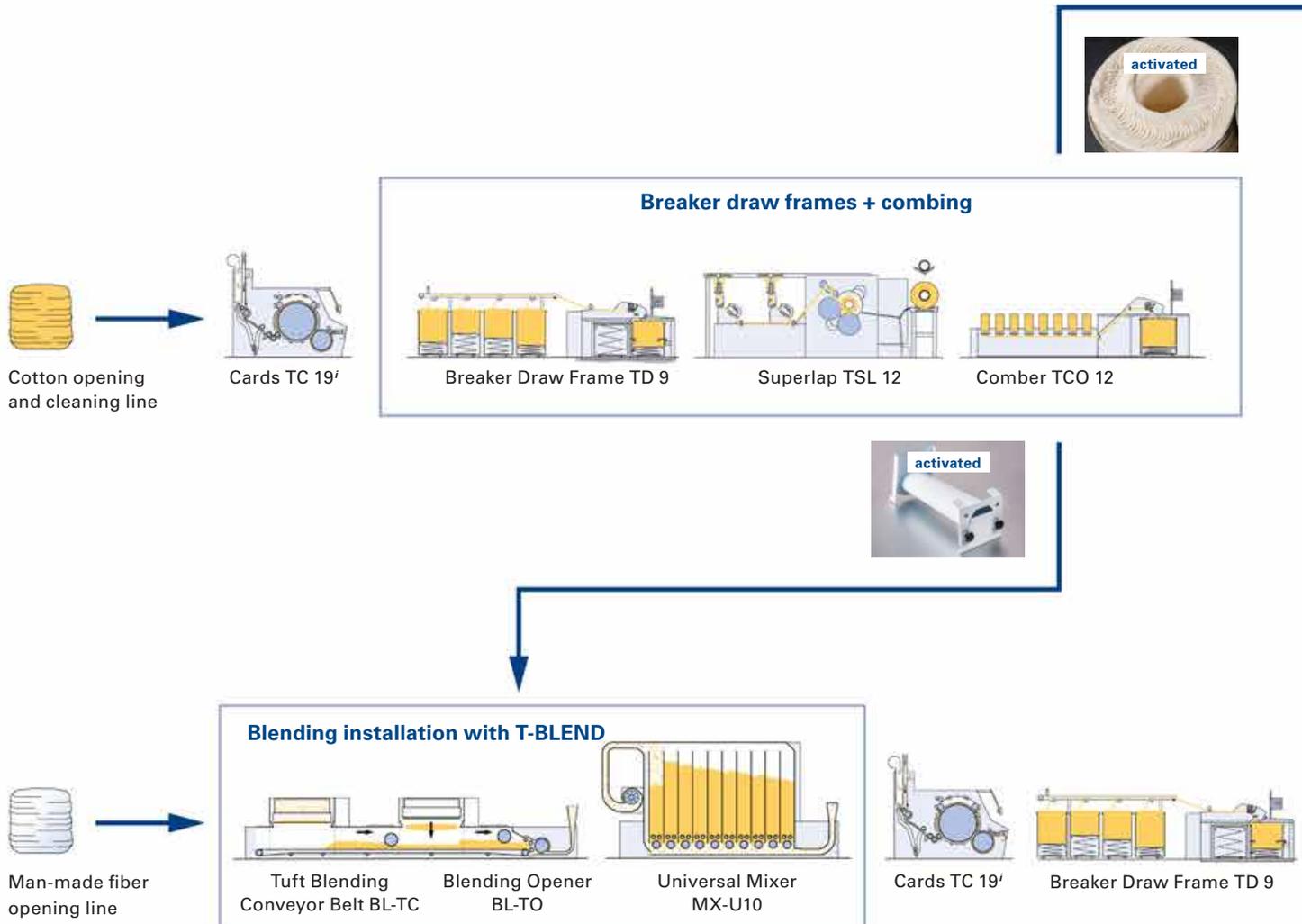
But even when using blends with cotton, the quality improvements of the combing process should not suffer.

With the sliver suction module of the TCO 12 it is possible to extract the combed fibers directly after the drafting system and then blend them on the Tuft Blending Installation T-BLEND.

Since the machines are generally designed to be flexible for normal can delivery and sliver suction, simple handling is a priority.

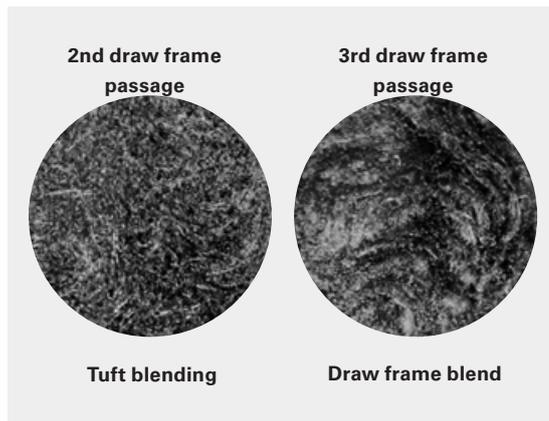
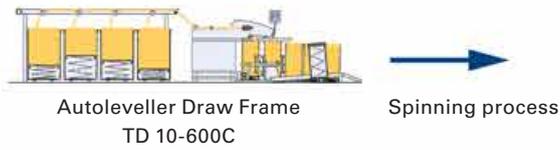
The suction nozzle can be attached underneath the drafting system with just a single movement. The straight combed sliver is then fed to a separate suction unit.

The necessary production of the machine is transmitted to the combing machines via material requirements of the blowroom. If there is no material requirement, the comber stops automatically to prevent problems in the blowroom.





The picture shows the mounted suction nozzle for the sliver suction on the Comber TCO 12.



The machine can easily be switched between sliver suction and can coiling.

The advantages of the tuft blend in comparison to the often common draw frame blend are easy to see.



Equipment and options

Truetzschler Comber TCO 12

Coiling	Coiler plate with HYDRO POLISHED TUBE prevents deposits	•
	Automatic sliver separation unit during can changing	•
	Automatic rotary can changer	•
	Additional empty can position on can changer for 600 mm cans	•
	Above floor and below floor can changer for 1000 mm cans or JUMBO CANS	o
General	Integrated quality monitoring DISC MONITOR (sliver count, sliver evenness, integrated spectrogram analysis)	•
	Technology package standard	Alternative equipment
	Technology package fine count	equipment
	Lap tubes TCO-LT	•
	Good access to all maintenance and cleaning points	•
	Safety panels with central safety system	•
	Central, flow-optimised suction with negative pressure monitoring (above and below floor)	•
Drives	Modern, energy-saving drives with robust Truetzschler electronics	•
	Individual drives for infinitely variable adjustment of sliver count, draft and nips (nips/min)	•
	Individual can plate drive for optimized sliver coiling	•
	Individual drives for feed and delivery roll of the drafting system, adjustment of the draft via control system	•
	DUAL DRIVE – double-sided drive concept for combing elements	•
	2-TWIN DRIVE – low torsion individual drive technology for the detaching rolls	•
Electronics	Large colour touchscreen for efficient operation, maintenance and service	•
	USB port	•
	Use of dynamic Truetzschler Computing Unit, only one update for all machine components	•
	Maintenance management via touchscreen	•
	Energy measuring device for online energy monitoring	•
Interface for data transmission to data acquisition systems My Mill and My Production	•	
Combing station	Reserve table TCO-RT for the lap transport carriage TCO-LC1	•
	Reserve table TCO-RT incl. empty tube storage for automatic lap transport system LTS	o
	Feeding for laps with 200 mm diameter and 300 mm width	•
	Round and fixed combs from Städtler und Uhl	•
	PIECING OPTIMIZER with timing and curve function for optimum tear-off curve and piecing time	•
	Equipment for forward and reverse feeding (feed amounts 4.3 / 4.7 / 5.2 / 5.5 / 5.9 mm)	•
	Semi-automatic lap feeder TCO-LF for the lap transport carriage TCO-LC2	o
	Automatic lubrication system TCO-AGA	o
Round and fixed combs from Graf	o	
Drafting system	4-over-3 drafting system with pressure bar and short sliver guidance in the can	•
	Gentle sliver deflection for process-safe sliver formation and reduced lap formation tendency	•
	Self-adjusting lap monitoring of top rolls	•
	Durable cleaning bar for top rolls for gentle cleaning	•
	Integrated, flow-optimized suction of the drafting system at top and bottom rolls	•
	Quick relief during standstill or lap formation	•
	Process-safe, pneumatic, automatic web threading	•
	Lifetime lubricated top roll bearing for low heat generation and reduced lap formation	•
	Pneumatic load of top rolls individually, infinitely variable	•
	COUNT CONTROL – Levelling system for perfect sliver count consistency	•

• = Series o = Option

Technical data

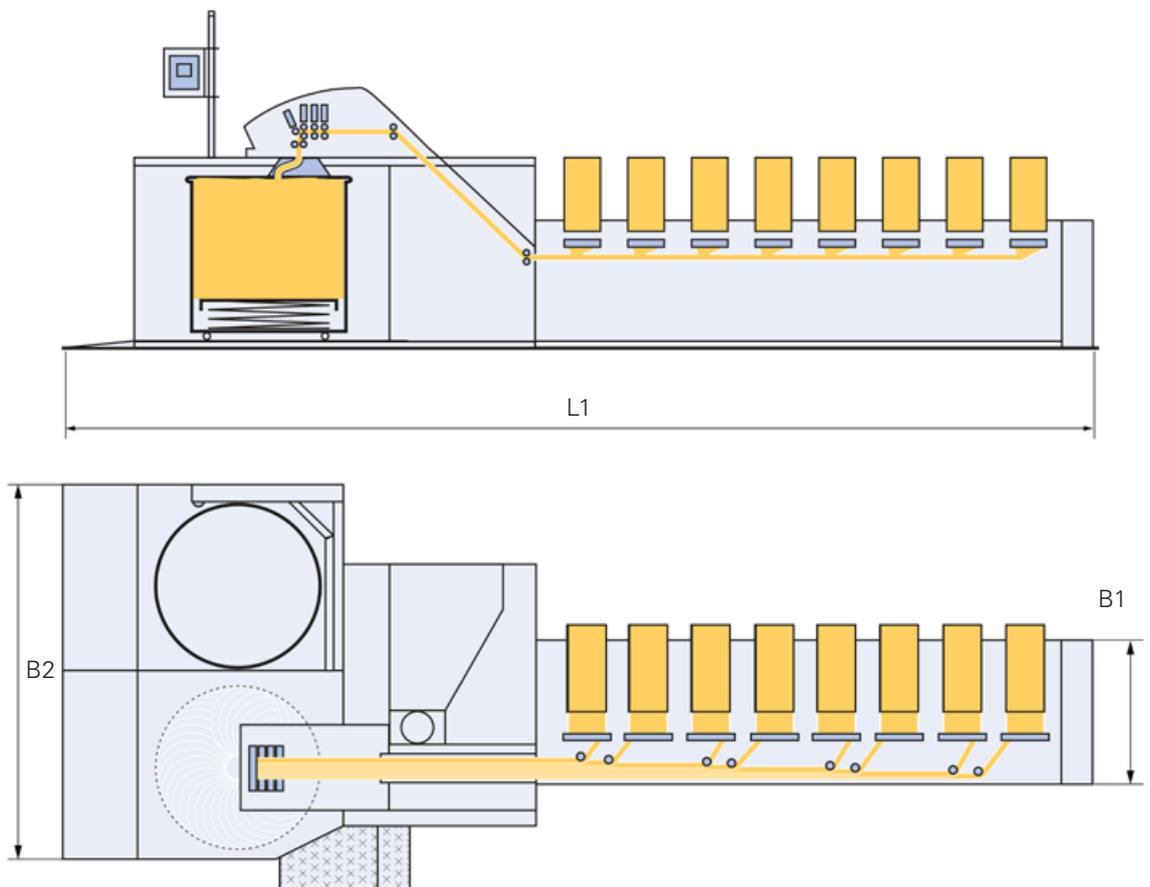
Truetzschler Comber TCO 12

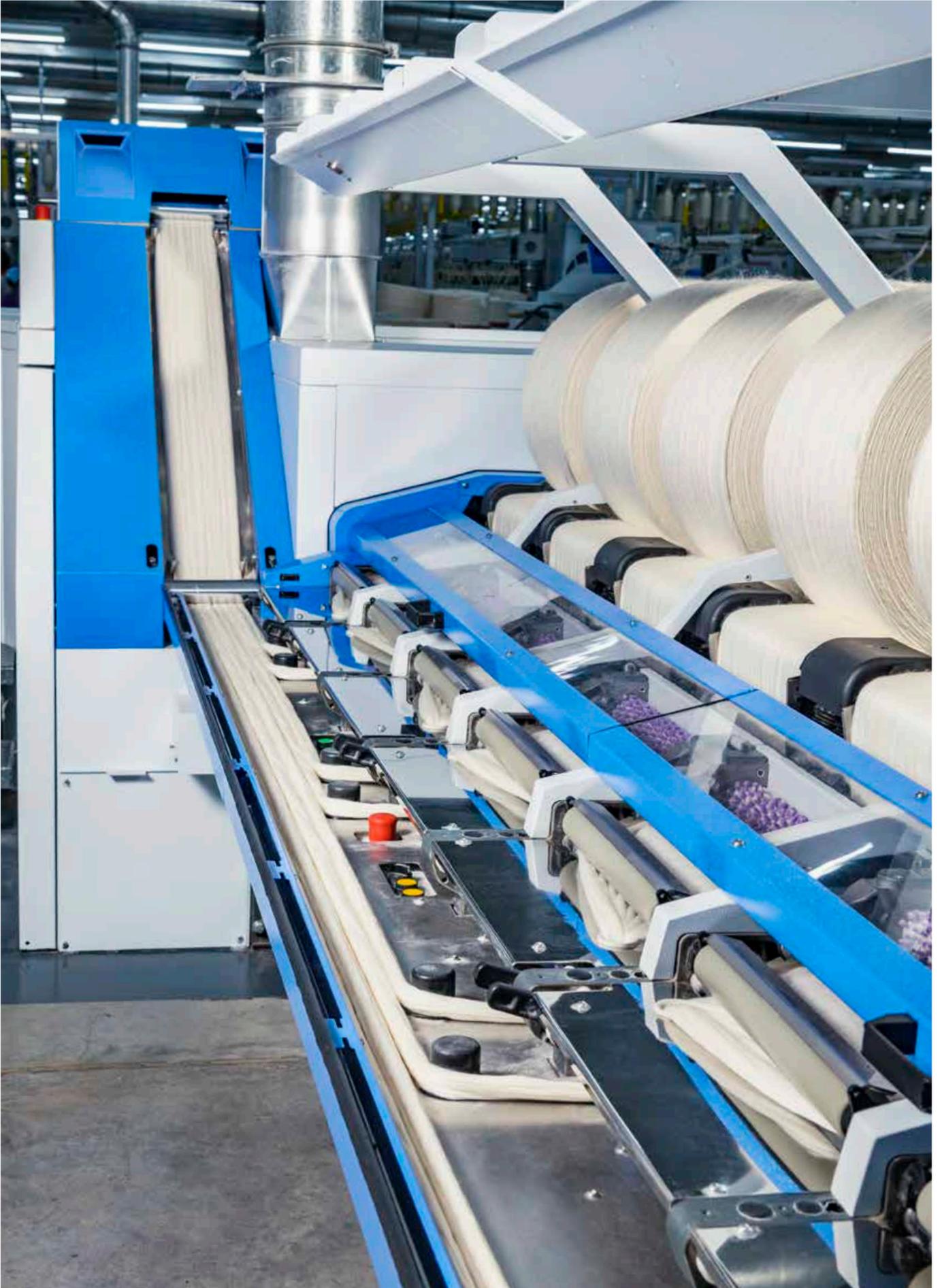
Sliver coiling system	Maximum delivery speed	m/min	350
	Can diameter	mm	600/1,000/1,200
	Can height	mm	1,200
	Continuous production	kg/h	3 – 6 ktex
Energy	Air volume of suction	m ³ /h	2,800
	Negative pressure of suction	-Pa	- 430
	Average continuous electrical power consumption at 500 nips	kW	6 – 6.6
	Compressed air requirement	NI/h at 7 bar	300/360/350
General	Material: Fibers	mm	max. 60
	Draft	fold	9 - 26
Combing station	Maximum nip rate	Nips/min	550
	Production	kg/h	90
	Lap weight	kg/unit	25 (net)
	Material feed / lap count	ktex	60 - 80
	Feeding		Forward/backward
	Ratch-wheel feeding	Teeth	16, 17, 18, 19, 20, 22
	Round combs		Staedler & Uhl: 9103, 9107, 9109, 9121 Graf: 8015, 9015, 9030
	Fixed combs		Staedler & Uhl: 26, 30 Graf: C26, C30
	Noil extraction	%	8 – 25

Technical data

Truetzschler Comber TCO 12

	Output cans		
	Ø 600 mm	Ø 1,000 mm	Ø 1,200 mm
L1 mm	6,149	7,045	7,220
B1 mm	1,075		
B2 mm	1,705	2,440	2,845





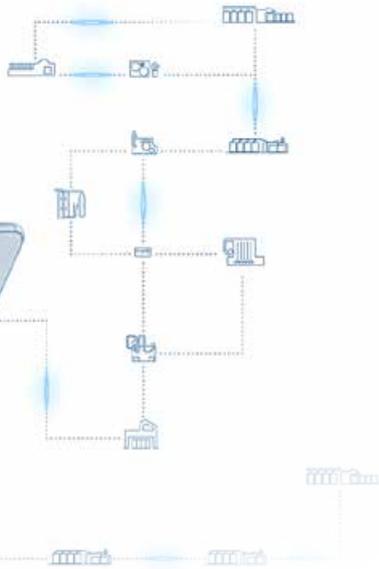


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S P I N N I N G

Fiber preparation installations: Bale openers · Mixers · Cleaners /
Openers · Foreign part separators · Dust separators · Tuft blenders
Waste cleaners | Cards | Draw frames | Combing machines | Digital
Solutions: My Mill · My Production App · My Wires App

TRÜTZSCHLER
N O N W O V E N S

Bale openers/Mixers | Card feeders | Cards/Crosslappers
Wet laying lines | Hydroentangling, needling, thermo- and chemical
bonding lines | Finishing, drying, winding, slitting machinery

TRÜTZSCHLER
M A N - M A D E F I B E R S

Filament lines: Carpet yarns (BCF) · Industrial yarns

TRÜTZSCHLER
C A R D C L O T H I N G

Metallic wires: Cards · Cards long staple · Cards Nonwovens
Rotor spinning | Flat tops | Fillets | Carding segments
Service machines | My Wires App | Service 24/7