

OPTIMA

Focused on your success

At Trützschler, true customer orientation means: We use our expertise, our in part decade-old contacts and our market-leading technologies to help you achieve your personal goals. These can be best quality, maximum economy or first-class efficiency.

Either way, we keep our promise to do everything in our power to give you a competitive edge in your market and to permanently expand it.

it's true
it's truetzschler

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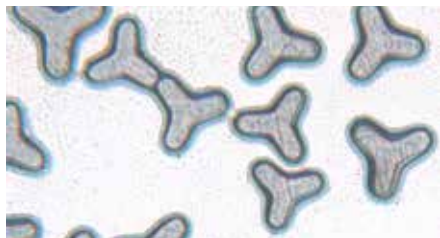
The experts of Trützschler Man-Made Fibers look back on experiences gained from thousands of spinning positions delivered. Our solutions for extruding carpet or industrial yarns are valued throughout the world.

Decent machinery is one ingredient for successful filament production - therefore major producers rely on our customer-made solutions. For newcomers to the field we also provide thorough technological support.

TRÜTZSCHLER
MAN-MADE FIBERS

The quality of multi-filaments and bobbins is decided by your raw material, your process settings and manufacturing conditions – and our design choices for the OPTIMA platform. With 4-end OPTIMA you go for unrivalled productivity in combination with assured permanent high yarn quality and long-term reliability.

We do not know what the future holds, but the best way to predict the future is to shape it yourself. If you are always searching for new ways, join us on the true way to successful products.



~ 4,000

ends of BCF
spinning
delivered

98

Customers
worldwide

30

Countries
served

true innovation

Because we are heading in the right direction,
you have continuous tailwinds.

For many people, technological progress is the further development of an existing solution or a revolutionary design. Trützschler's aspiration is to open up new competitive advantages for you. We achieve this time and again by being the first to cross technological horizons.

The resulting solutions help you to produce your quality yarns more efficiently and of higher quality – and that is what counts.

1931

Rieter starts business in the man-made fiber spinning sector with winding machinery. Over the decades thousands of spinning positions for textile filament, carpet and industrial yarn were delivered all over the world.

2012

Trützschler takes over the know-how and the employees of Swisstex, Switzerland, and creates the Trützschler Man-Made Fibers brand. The Winterthur location develops extrusion systems for carpet (BCF) and industrial yarns (IDY).

2019

MO40 – a powerful 4-end BCF concept with unrivalled productivity, reliable processes and proven components makes its entrance.



2021

The 4-end OPTIMA platform for BCF is completed by MO40-E for high-count and TO40 for tri-colour BCF yarns. Furthermore TEC-O40, based on the OPTIMA platform, is introduced for manufacturing industrial yarns.



4-end OPTIMA concept

There is no magic involved in manufacturing top-class carpet yarns (BCF) or industrial/technical yarns (IDY). Two parties have to work in unison to accomplish the task. You, the producer, arrange for a constant supply of homogeneous polymer. Not all PA6, PA66, PET, PP, PTT chips come in the required quality. The other point is proper maintenance – keeping the plant in good condition assures long term reliability. The rest is taken care of by us. We developed the OPTIMA platform with the only purpose in mind to give you the perfect tool for your success.



The staggered arrangement of rolls and components minimizes angles in the yarn path.

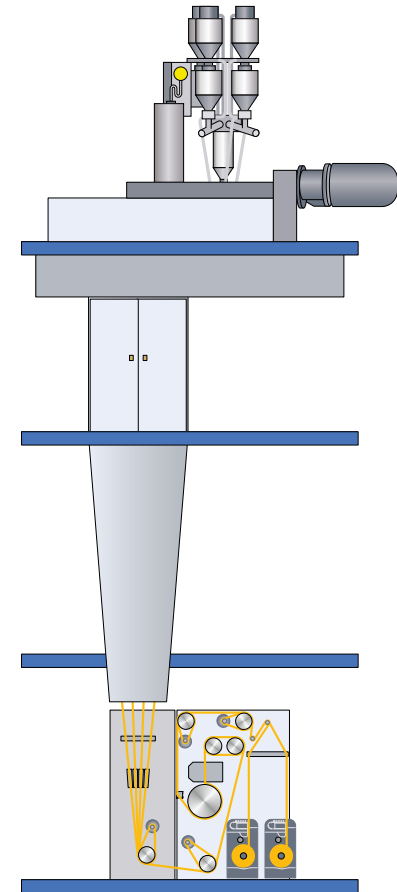
A platform for BCF and IDY

OPTIMA is a platform – and the basis for several 4-end BCF and IDY extrusion systems. It lays the foundation for a successful yarn production by minimizing stress on the yarn.

Layout features:

- A symmetric, straight yarn path: staggered component arrangement minimizes turns and angles in the yarn path
- perfect heat distribution: homogeneous conditions in both the spin beam and in the drawing zone allow for equal filament properties both between spinning positions and over time.
- Gentle yarn treatment by proven components, e.g. lamella-free texturing by HPC technology

Overall advantages are less filament breaks and a constant high yarn and bobbin quality resulting in low conversion costs.



Efficient BCF production

OPTIMA is Trützschler Man-Made Fibers' concept for manufacturing all types of BCF carpet yarns. The market is quite segmented – and manufacturing processes differ. Therefore we decided to offer not one general OPTIMA machine for all needs but to develop three different OPTIMA systems MO40-C, MO40-E and TO40.

Each system is tailored to the requirements of a specific product category.

BCF types and applications targeted by OPTIMA:

- BCF from PA6, PA66, PET, PP, PTT tailored to the requirements of one product category
- Mono-colour yarns for woven and tufted carpets
- Tri-colour BCF yarns
- Fine yarns down to 500 dtex
- Coarse yarns up to 7.000 dtex
- Spun-dyed yarns and qualities for automotive applications



MO40-C

The main feature is the small footprint of just 2 x 2 meters. Thus MO40-C is unrivalled in output delivered per square meter – and energy consumption is one of the lowest per kg of yarn in the entire industry.



MO40-C: 4 ends in a small space

MO40-E

The most flexible OPTIMA system. Bigger spin packs deliver up to 750 single filaments per yarn end. A standard-size spin pack with adapters is perfect for manufacturing standard yarn qualities.



MO40-E: allows for both high-count and standard yarn production

TO40

Our choice for tri-colour BCF. As the name implies, each multi-filament is composed of three different colour strands.

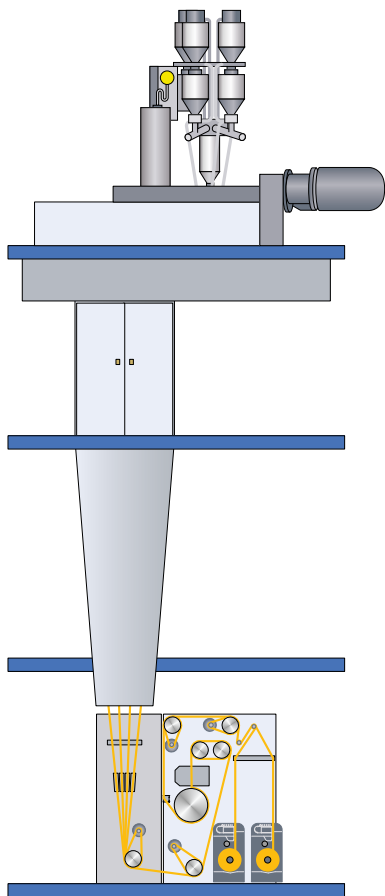


TO40: efficient tri-colour yarn production

MO40-C: unrivaled productivity

4 yarn ends on a footprint of just 4 square meters. The compact 4-end MO40-C for BCF is everything you appreciate about our machines – secure processes, top quality yarns, low conversion costs as well as easy handling and low maintenance.





	MO40 Compact
Polymer	PP/PA6/PA66/ PET/R-PET/PTT
Process	mono-color
Position gauge	2000 mm
N° of ends / pos	4
N° of extruders / line	1
N° of pos / line	1 / 2
Capacity / line	up to 7.5 to/d
Spin pack type	top loading
Spinneret size	240 x 109 mm
N° of ends / pack	1
Max. filaments	500
Titer range	500 – 3600 (*6000) dtex
Dpf range	1.5 – 40 dpf

Polyamide BCF (PA6 and PA66)

TSAG's started designing PA BCF systems 4 decades ago. Especially the DSR heated double-shell rolls and the texturing system reflect the high demands on absolute yarn homogeneity – a prerequisite for premium residential, contract and automotive applications.

Polyester BCF (PET and R-PET)

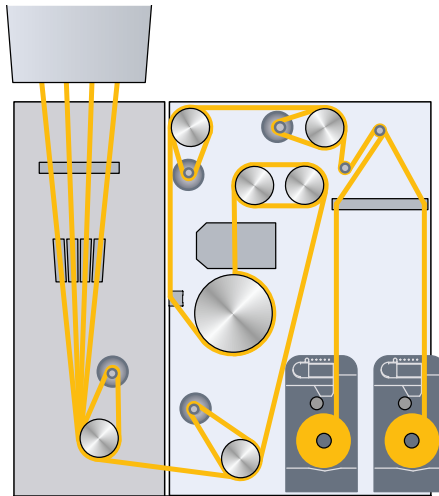
MO40 delivers homogeneous conditions from chips processing down to winding. All components can be adjusted to meet the high requirements of polyester processing. TSAG also offers comprehensive inline recycling and spinning solutions for post-industrial and post-consumer R-PET BCF.

Polypropylene BCF (PP)

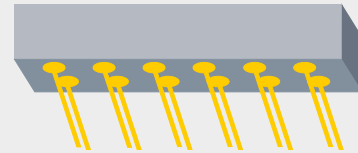
This cost-effective, easy to process raw material does not take up colour in later processing steps. Our latest generation dosing system offers high accuracy as well as an unbeaten flexibility in adding pigments or masterbatches to the extruder.

MO40-E: more filaments, lower dpf

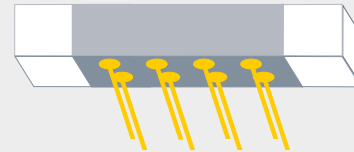
The flexible system is suited for manufacturing standard, high-count and low-dpf BCF yarns with up to 750 single filaments per yarn end. MO40-E is an extended, flexible system. The spin beam is designed to either house large spin packs for high-count yarns or a combination of adapters and the smaller MO40-C spin pack for spinning standard BCF qualities.



MO40 extended version: A bit more space but higher functionality



With long spin pack: 4 ends with up to 750 single filaments



With adapter: 4 ends with up to 500 single filaments

	MO40 Extended
Polymer	PP/PA6/PA66/ PET/R-PET/PTT
Process	mono-color
Position gauge	2500 mm
N° of ends / pos	4
N° of extruders / line	1
N° of pos / line	1 / 2
Capacity / line	up to 7.5 to/d
Spin pack type	top loading
Spinneret size	401 x 109 mm
N° of ends / pack	1
Max. filaments	750
Titer range	750 – 3600 (*7000) dtex
Dpf range	1.5 – 40 dpf

Fine dpf yarns for velvety carpets

The soft, velvet-like touch is generated by extremely fine single filaments. To produce these delicate yarns, Trützschler relies on the excellent melt distribution in the spin packs, the homogenous cooling of each single filament and the lamella-free HPC texturing which is gentle on the yarn and ensures excellent crimp and crimp stability. Our fine dpf spinning process is stable and efficient for all types of polymers (PP, PA6, PA66 and PET).



TO40: exciting colour effects

TO40 implements the proven smartFLEX tri-colour process. smartFLEX BCF yarns are the basis for a broad range of reproducible colour effects in carpets. With TO40, every trend from classy *mélange* to contemporary sprinkled can be met.

smartFLEX technology

Besides the standard tri-colour process Trützschler Man-Made Fibers offers the patented smartFLEX technology for sprinkled carpets. It is easy to handle and can be retrofitted on existing T20 systems.



classy *mélange*



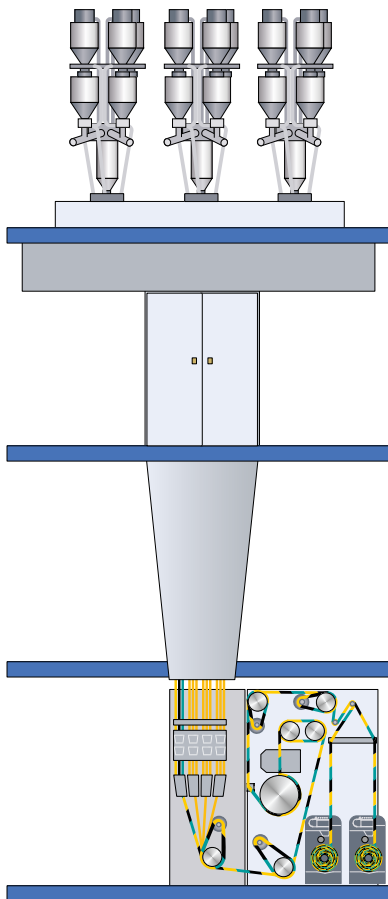
smartFLEX – option 1



mélange



smartFLEX – option 2



	TO40 Tri-colour
Polymer	PP, PA6, PET
Process	tri-colour
Position gauge	2500 mm
N° of ends / pos	4
N° of extruders / line	3
N° of pos / line	2
Capacity / line	up to 7.5 to/d
Spin pack type	top loading
Spinneret size	3 x Ø 120 mm
N° of ends / pack	3
Max. filaments	3 x 140
Titer range	1000 – 3600 (*5500) dtex
Dpf range	2.5 – 28 dpf







Extrusion and melt treatment

Extruding and spinning

At Trützschler there is no compromise on quality – all parts and processes are designed for highest yarn qualities, efficiency and smooth running behaviour.

Homogeneous melt

OPTIMA's extruders ensure optimal mixing conditions. The special barrier screw processes all common polymers such as PP, PA, PET, or PTT. All systems feature short melt pipes to minimize melt cooling and polymer degradation. Additionally, waste is kept low due to quick product or colour changes.



Extruder
with dosing
system

Excellent filament forming

The OPTIMA spinning system serves every requirement of the individual polymer, the spinning process and the conditions in the plant. The modular design allows for small (4-ends) and large (up to 16-ends) production units. Excellent filtration, high throughput and ideal flow properties – our spin packs deliver absolutely identical heating conditions and mechanical treatment of the polymer melt. Thus, the variation of the single filament diameter is minimized. Top loading of the rectangular packs ensures easy and secure handling.



Rectangular spin pack

Perfect cooling

The cross-flow quenching units are pulsation-free. The cooling air temperature, relative humidity, air velocity and profile are adjusted according to product requirements. The sturdy design eases assembly and disassembly and ensures optimal service and maintenance conditions.



Open quenching cabinet

Spinning

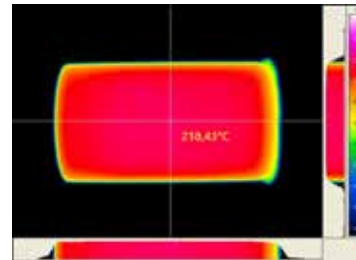
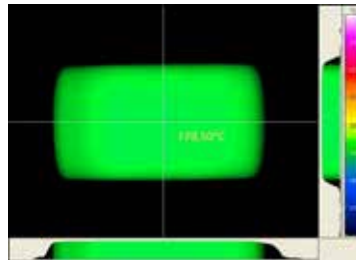
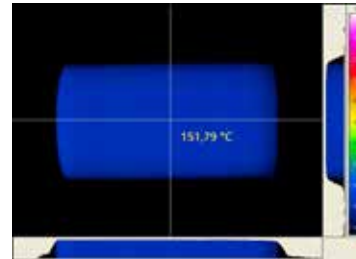
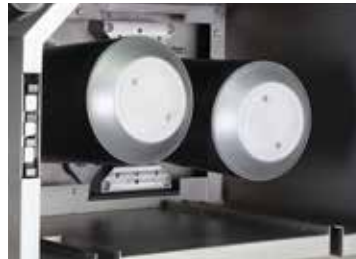
Quenching

Drawing

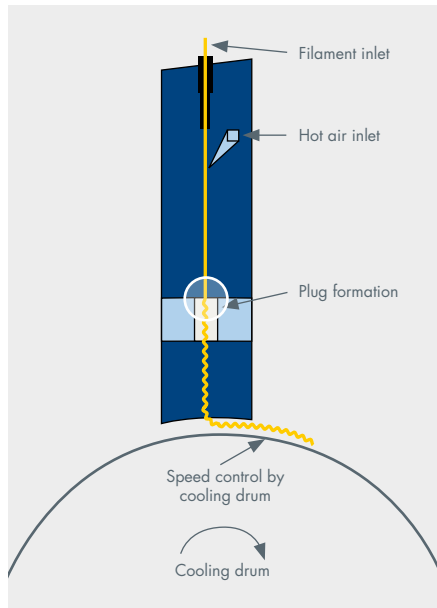
Drawing and texturing

Accurate drawing to the point

More than 28,000 double-shell rolls (DSR) have been delivered worldwide up to now. They are evidence of the high performance standard. Our double shell rolls implement the heat pipe technology which delivers the most accurate heating profile. Moreover, DSR rolls are robust and reliable.



Fast and reliable:
absolute even roll heating by heat pipe technology – even when not placed into an insulated box.



Better and long lasting crimp

OPTIMA's texturing system consists of our unique HPC texturing unit and the succeeding cooling drum. A straight yarn path from the second duo onwards through the texturing jet reduces stress on the yarn. The optimum cooling drum diameter guarantees excellent crimp fixation. HPC textured multi-filament yarns are bulky and distinctively even. An extremely stable plug leads to better crimp retention, higher uniformity and better coverage in the carpet. Yarn quality is both reproducible and very consistent from position to position.

Lamella-free texturing minimizes friction on single filaments and thus produces BCF yarns with high and unique crimp characteristics. Plug formation in the HPC texturing unit is coupled with filament cooling to compensate inhomogeneities and to keep yarn quality at a constant level. Moreover, the design reduces maintenance costs due to considerably less wear and tear on parts in contact with the yarn.

Texturing

Winding

Winding perfect bobbins

There is one characteristic marking a perfect bobbin: it can be smoothly processed by the downstream equipment. OPTIMA relies on the proven FW11 2-end winders to fulfill this task. The compact winder fully automatic and features optional step precision winding to ensure perfect bobbins for uncomplicated downstream processes. A further advantage is the high transfer efficiency when using plastic or paper tubes – even when paper tubes are used multiple times.





Control and more

The Trützschler Central Monitoring Unit (CMU) system combines all functionalities to control the extrusion line. It's a simple, self-guiding, graphical user interface for easy selection and manipulation of all process parameters. It includes language selection as well as recipe management, sophisticated alarm functions, free selection and combination of trends including operating data recording.



Everything in view and under control with CMU

OPTIMeye – optional available

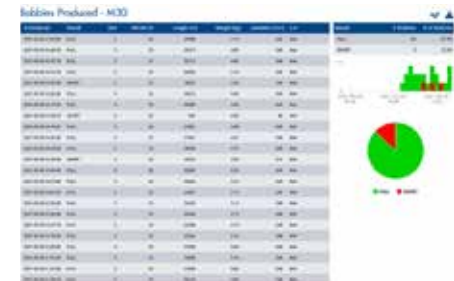
The new Industry 4.0 package by Trützschler Man-Made Fibers collects and archives data from all your Trützschler BCF and IDY lines across multiple production facilities. OPTIMeye delivers all information you need for analyzing and optimizing your production. You always have an overview of the performance of your Trützschler plants without leaving your office. The OPTIMeye package is optionally available for new as well as older machines, delivered as early as 2006.

Trend and alarm archives, production data and energy consumption are made available on a password-protected web server. The machine data is stored on-site and is reachable by any device connected to your company network.

All data can also be accessed via OPC UA or MySQL from your ERP system. The Trützschler Man-Made Fibers systems can easily be integrated into an existing digitized production planning process for scheduling maintenance actions or building up a new smart supply chain to minimize production costs.



No longer a dream: comparing machine performance across lines



Tracking of each yarn bobbin to its origin

Service, maintenance and modernisation

Our extrusion systems are designed for running over decades. Nevertheless, keeping the performance level of the first days requires never-ending efforts. Moreover, technology advances open up new opportunities. We offer comprehensive technical and technological services to keep your systems successfully producing year after year.



Texturing upgrade kit HPC

Even the heart of our machines gets better and better. The latest version of the HPC texturing unit let your system produce yarns with higher uniformity, better crimp characteristics and retention. The upgrade also opens up the operating range for coarse yarns up to 3,600 dtex and more. Moreover, it allows for higher production speeds and energy savings.

A pro-active lifecycle management prevents your extrusion system from losing efficiency over time. Choose the building blocks you need to maintain process stability and yarn quality:

- Original wear and spare parts - our large stock of over 2,000 different parts can be shipped on short notice.
- We also offer secured parts for your electrical systems as well as electrical upgrades and retrofits.
- Repairs for fast rotating parts - heat-pipe and recoating service as well as motor overhaul for DSR draw rolls. Chuck service with replacement of defective and wear parts, oil change and balancing.
- Upgrades - for the texturing system (see left page) as well as for various control systems.
- Winder revamping – exchange of inverters and control system upgrade.
- Maintenance plans tailored to your needs.
- EasyKits - include all parts needed to maintain a specific component
- On site inspections- maintenance on the spot and a detailed report describing site performance and recommended actions.
- Trainings on-site or in Winterthur about basic or advanced handling and maintenance topics.



BCF service hubs are located in Switzerland, Turkey, China and the US.

**Need help? Contact our
Service Hotline:**

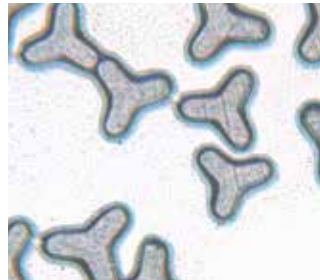
service.hotline@truetzschler.ch

Shape your future!

We are at your side to support you in turning your ideas about optimized processes and innovative products into reality. For trials in BCF and industrial yarn the technical center of Trützschler Man-Made Fibers in Winterthur is at your service. The entire chain of processes from polymer to bobbin can be validated at production scale. A well-equipped laboratory is available to conveniently evaluate yarn produced in the Technical Center or sent-in by you.

Pilot lines

The Winterthur Technical Center hosts both a full scale extrusion system for BCF and a line for industrial yarns. The trial lines are equipped for spinning PP, PA6, PA66, PET and PTT yarns. We will find the optimal arrangement and parameter settings of the system's components in regard to your requirements. Our experts will be pleased to assist you with their profound knowledge and expertise.



Yarn and polymer laboratory

Yarn samples are conditioned in TSAG's laboratory for at least 8 hours at 23 ± 2 °C and 65 ± 5 % of relative humidity. Properties determined later on are yarn count, number of broken filaments and loops, tenacity and elongation at break, thermal fatigue, hot air shrinkage, crimp in boiling water, spin finish pick up and filament cross section.

In respect to polymer quality assessments our facility is quipped with a Karl-Fisher-Titrator to measure the polymer's exact moisture content at the extruder inlet. With our partners it is also possible to conduct more sophisticated analyses.

TRÜTZSCHLER
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