TRÜTZSCHLER MAN-MADE FIBERS

OPTIMA

for industrial yarn


TRÜTZSCHLER
MAN-MADE FIBERS

Content

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Industrial and technical yarns around you

Besides the direct use of industrial and technical yarns (IDY) in ropes and nets, it is often used to enhance strength, durability, performance and other high-value properties of an end product.

Polypropylene (PP)






Polyester (PET)




Raw materials and applications

Each of the polymers suited for extruding and spinning industrial yarns – Polypropylene (PP), Polyamide (PA6 and PA66) and Polyester (PET) – deliver specific properties which define the application area of the yarns.

Polyamide (PA)







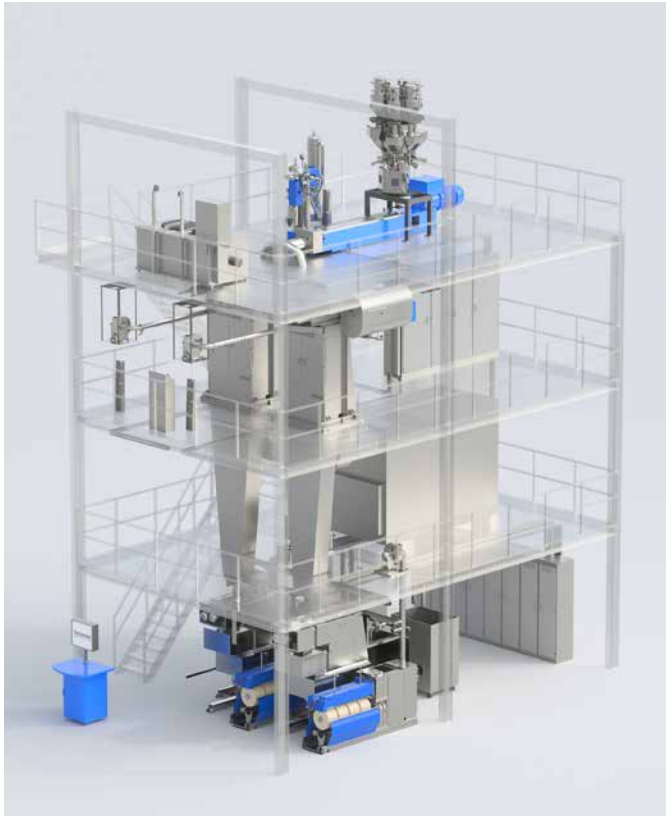

OPTIMA concept

There are reasons to make good things even better – you and your success in the market.

A single platform for both IDY and BCF
OPTIMA is the basis for several 4-end and 8-end industrial yarn and 4- or 6-end BCF extrusion systems. It lays the foundation for a top-quality bobbin by minimizing stress on the yarn.

Layout features:
- A symmetric, straight yarn path.
- Perfect heat distribution in both the spin beam and in the drawing zone allow for equal filament properties.
- Gentle yarn treatment by proven components.

Overall advantages are less filament breaks and associated low vonversion costs.



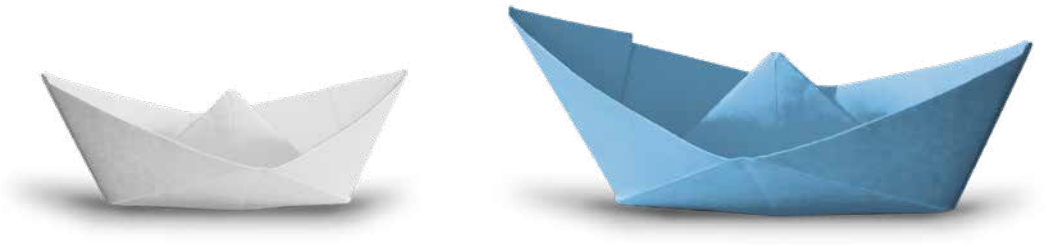
OPTIMA for IDY: unlimited possibilities

Characteristics:

- A concept as powerful as its predecessor
- Multi-end machines to suit exactly your needs
- A productivity and flexibility unreached in the market

The ultimate goal of our TEC-Ox systems is to ensure infinite flexibility for you. Our OPTIMA solution provides you with a wide range of yarn counts and applications that can be produced on the same system. Moreover, multiple possibilities for component arrangement gives you the opportunity to make efficient use of the available space in your production hall.

	TEC-O80	TEC-O40
Polymer	PP – LDI/PET – LDI/ PA–LDI	PP – HDI/PET–HDI/ PA–HDI
Denier range	210 – 820	1000 – 1680
N° of Duos	1+3 / 1+4 / 1+5	
Tenacity (g/den)	3.0 – 8.5	3.0 – 9.5
Elongation (%)	14 – 35	12 – 35
Shrinkage (%) 180°C / 15 min	2.5 – 3.5	
N° of ends/pos	8	8* / 4
N° of winders/pos	1 or 2	
Package dimensions	Ø 420/120 mm or Ø 420/250 mm	Ø 420/250 mm or Ø 300/250 mm



Extrusion, spinning and quenching

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

Extruder with dosing system

Homogeneous melt

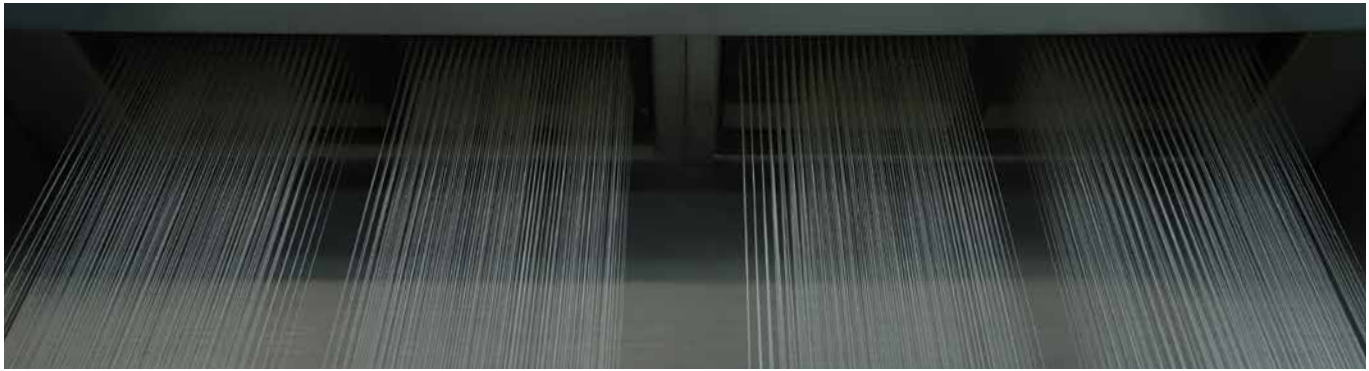
OPTIMA's extruders ensure optimal mixing conditions. The special barrier screw processes all common polymers such as PP, PA6, PA66, or PET. All systems feature short melt pipes to minimize melt cooling and polymer degradation. Additionally, waste is kept low due to quick product or colour changes. The direct polymer flow also ensures low maintenance needs.

Excellent filament formation

The OPTIMA spinning system allows for small (4-ends) and large (up to 16-ends) production units. Excellent filtration, high throughput and ideal flow properties – the OPTIMA 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. The annealer between the spinnerets and the quench cabinet allows for a high drawing potential.

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.



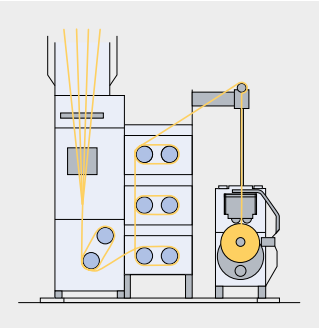
Drawing – Modularity as a premiere design principle

Each member of the TEC system family features a modular built draw frame with several duos of heated godets. The end product's requirements on yarn tenacity determine the number of duos implemented.

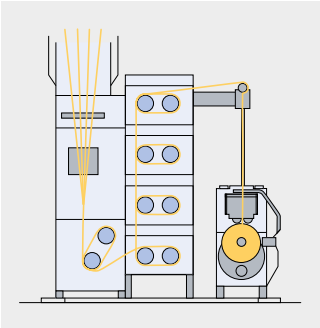
Semi-industrial yarns are produced on a 3-duo system. They are used in end products that require durability but not the highest tenacity.

The system concept with 4 duos per position delivers high and super high tenacity yarns for belts, nets and ropes.

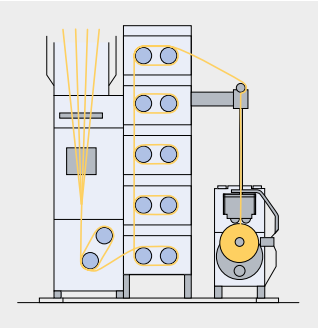
5 duos are needed when producing low and super-low shrinkage yarns. Typical applications are coated broad woven fabrics or tire cords.



1+3 duos for manufacturing semi-industrial yarns



1+4 duos for a broad range of high-tenacity and low-shrinkage yarns



1+5 duos deliver super low-shrinkage yarns

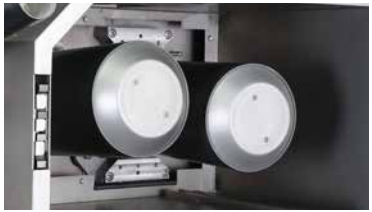
Accurate drawing to the point

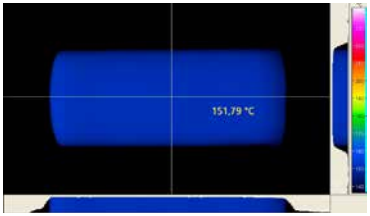
The robust and reliable double shell rolls (DSR) implement the heat pipe technology which delivers the most accurate heating profile. More than 28,000 DSR have been delivered worldwide up to now. They are evidence of the high performance standard.

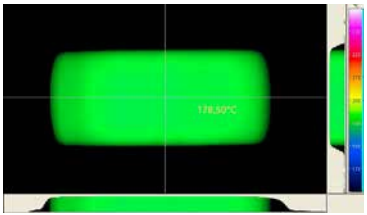
Moreover, it is not necessary to disassemble the whole DSR for maintenance. For this reason the downtime and waste of the machine are minimized, while the efficiency and, therefore, output are increased.

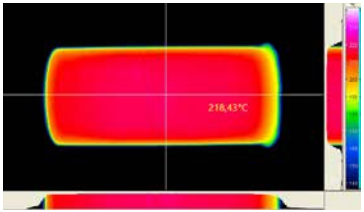
Fast and reliable

Absolute even roll heating by heat pipe technology – even when not placed into an insulated box.







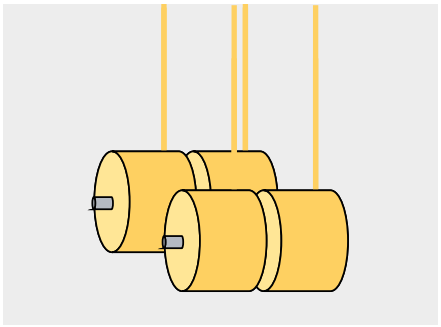


Winding the perfect bobbin

There is one characteristic marking a perfect bobbin: it can be smoothly processed by the downstream equipment. OPTIMA relies on the proven FW51 2-end and the newly innovated FW81 4- or 8-end winders to fulfil this task.

Winding perfect bobbins: the proven FW51

Trützschler Man-Made Fibers' fully automatic, compact FW51 2-end winder ensures perfect bobbins and uncomplicated downstream processes. A special advantage is the high transfer efficiency when using plastic or paper tubes – even when paper tubes are used multiple times.

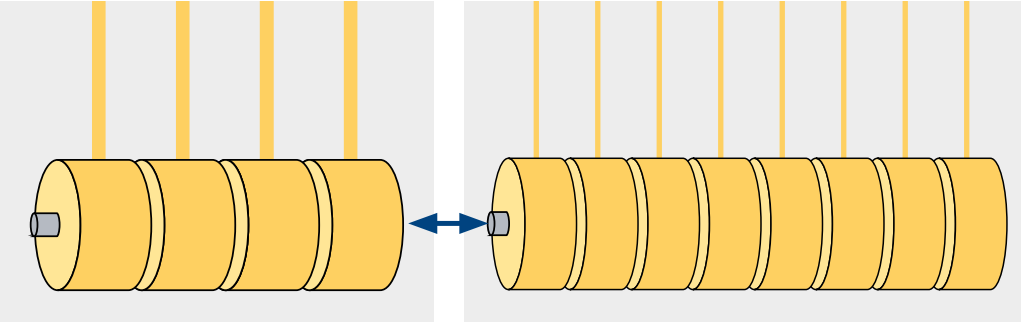


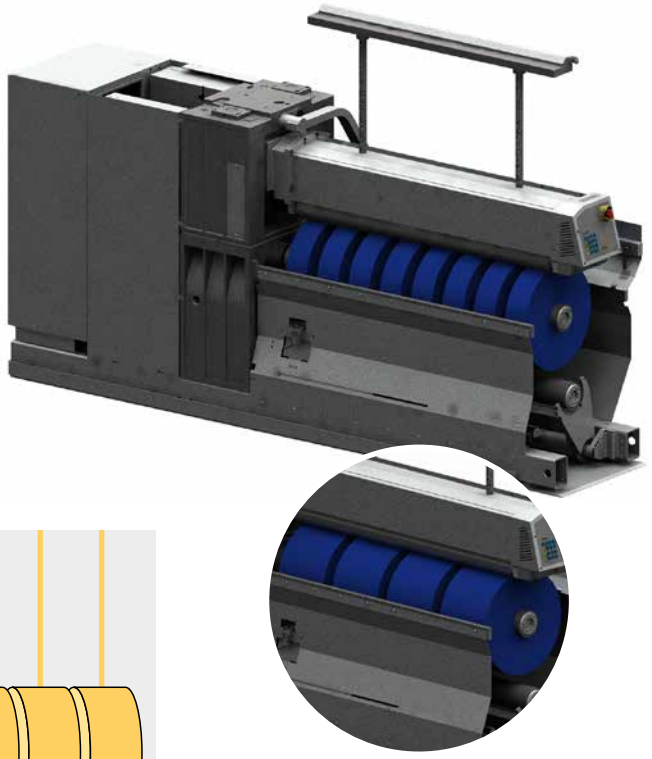
4 yarn ends with FW51 2-end winders for perfect bobbins

Flexibility at its finest: the new FW81

In cooperation with a renowned technology partner Trützschler Man-Made Fibers offers a second winder option to cover the lower-to-medium yarn counts. With its 1,200 mm chuck, the FW81 fully automatic winder is able to operate both in 4-end and/or in 8-end mode, winding bobbins with diameters up to 420 mm.

Furthermore, the FW81 offers the possibility to turn the 4-end winder into an 8-end winder and vice versa with an easy to apply conversion kit.





FW81 winder with the possibility of converting the bobbin count from 4 to 8 and vice versa

TEC-O40 and TEC-O80 configurations

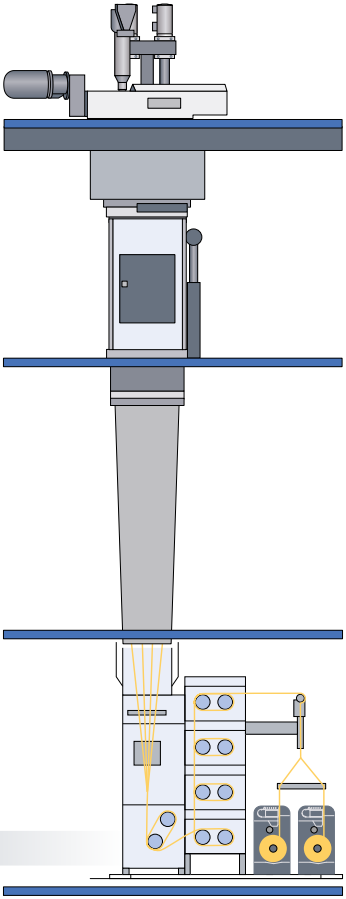
Our extrusion and spinning systems are tailor-made according to your application and local requirements. TEC-Ox systems can be bulding-integrated or with steel frame, with or without operator platform, winder placement beside or below the draw frame.

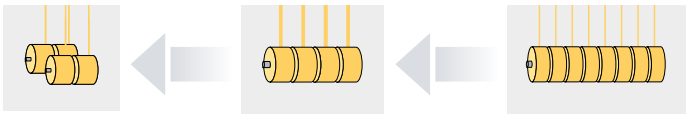
Free-standing systems

The most compact system locates both the draw panel and the winder side-by-side on the ground floor. Just one operator is needed for threading-up and handling.

4 or 8 yarn ends

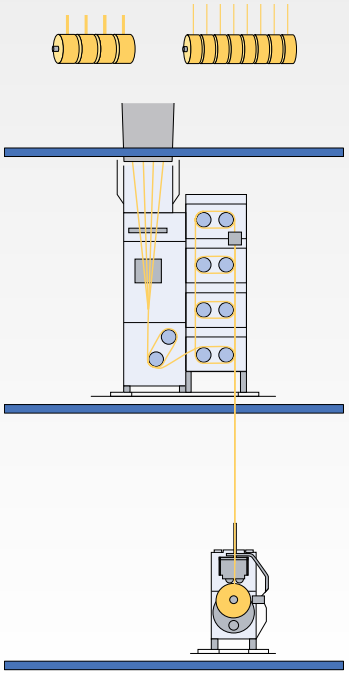
Proven solutions with the 2-end FW51 and the 4- or 8-end FW81 winders.



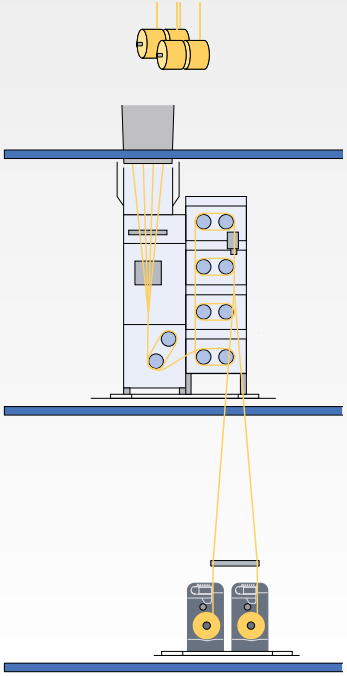


Separating drawing and winding
When the installation is biulding-intergrated, often the godet section has to be separated from the winders to reduce the gauge width. Yarn intrance and godet duos are placed on the platform while the winders are on the ground floor. Such solutions require two operators for threading up.

4 or 8 ends with FW81



4 ends with FW51



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.

Picture shows my OPTIMeye in a BCF carpet yarn plant

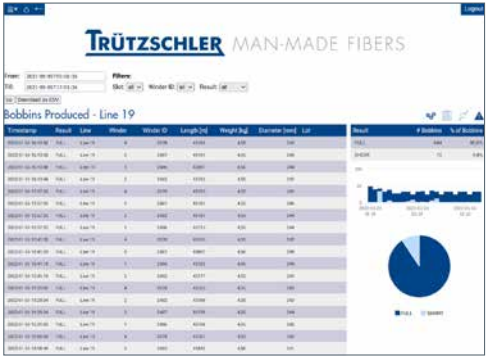
My OPTIMeye – optional available

The new Industry 4.0 package collects and archives data from all your Trützschler BCF and IDY lines across multiple production facilities. My OPTIMeye delivers all information needed for analyzing and optimizing the production process. You always have an overview of the performance of your Trützschler plants without leaving your office. The My 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 REST API from your ERP system. My OPTIMeye 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

Technical Center and yarn laboratory

For trials the Technical Center of Trützschler Man-Made Fibers in Winterthur is at your service. It hosts both a full scale extrusion system for IDY and a line for BCF (PP, PA6, PA66, PET as well as PTT for BCF only) .The entire chain of processes from polymer to bobbin can be validated at production scale. Our experts will be pleased to assist you with their profound knowledge and expertise.

Yarn and polymer laboratory

Yarn samples are conditioned in our 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.

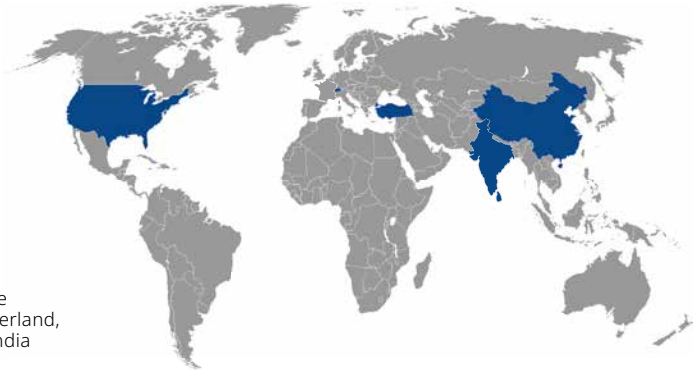
Maintenance and modernisation

A pro-active lifecycle management prevents your extrusion system from losing efficiency over time.

We offer comprehensive technical and technological services to keep the performance level of the first days. Moreover, benefit from technology advances that open up new opportunities.

Choose the building blocks:

- Original wear and spare parts shipped on short notice.
- Electrical upgrades, retrofits and secured parts
- DSR heat-pipe and recoating service; motor overhaul
- Chuck service
- Upgrades for various control systems
- Winder revamping
- Tailored maintenance plans
- EasyKits (all parts needed to maintain a specific component)
- On site inspections with on-spot repairs and a detailed report on performance and recommended actions
- Trainings on-site or in Winterthur



Service hubs are located in Switzerland, Turkey, China, India and the US.

Need help? Contact our Service Hotline:

service.hotline@truetzschler.ch

TRÜTZSCHLER SPINNING

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Cleaners / Openers · Foreign part separators · Dust separators · Tuft blenders
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Digital Solutions

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Wet-laying lines | Hydroentangling, needle-punching, thermo- and
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Digital Solutions

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Carpet yarn systems (BCF) · Industrial yarn systems |
Digital Solutions

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