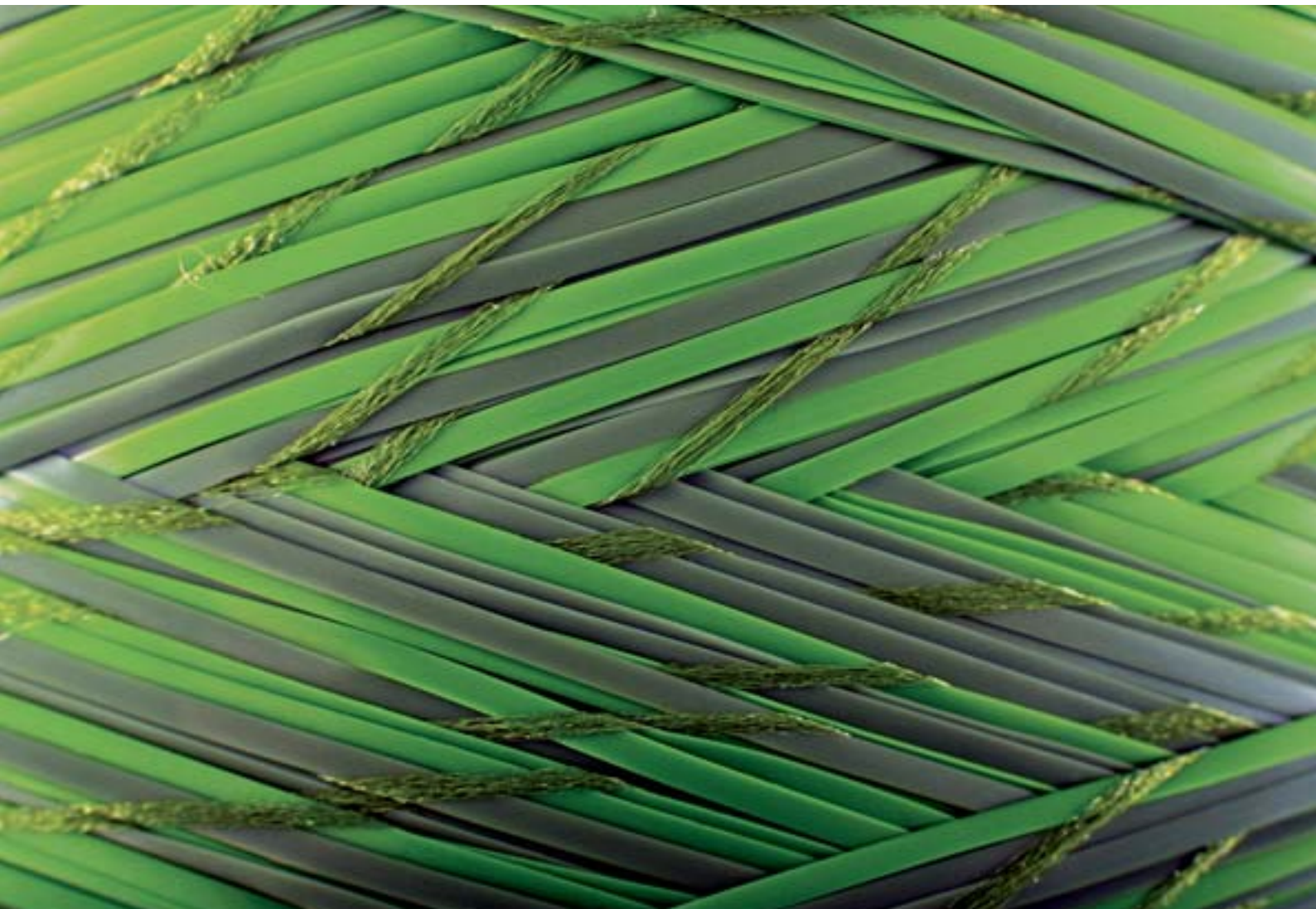


oerlikon
barmag

Solutions for the production of monofilament

MARY-LINE





Artificial turf

Possible line configurations for artificial turf

Optional/configurations

- Bicolor, tricolor
- Product specific metering units
- Number of filaments
2x80, 160, 240, round up to 300
- Temperature control system
for fine tuning of cooling godet
- Special, customized screw geometries
- EMV net filter
- Speed synchronization
of 2 or more lines
- Yarn lubrication unit
- Co-extrusion
- Systems for stretching
in hot air or hot water.*
We also offer one stretching unit
with both options built in**
- Waste winders for reduced
start-up time
- Air-cooling unit for electrical
components

Example options



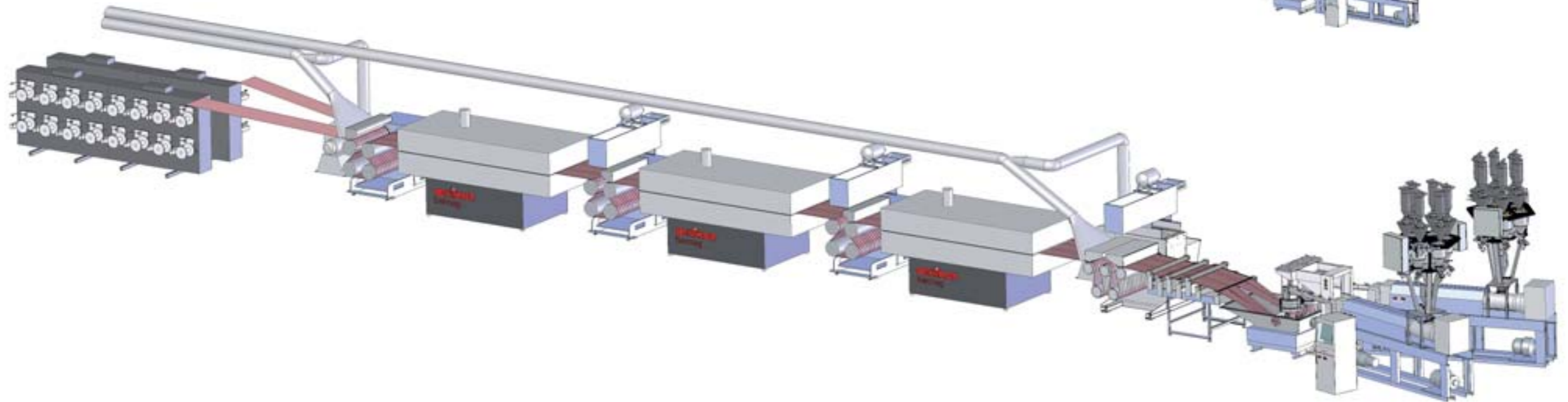
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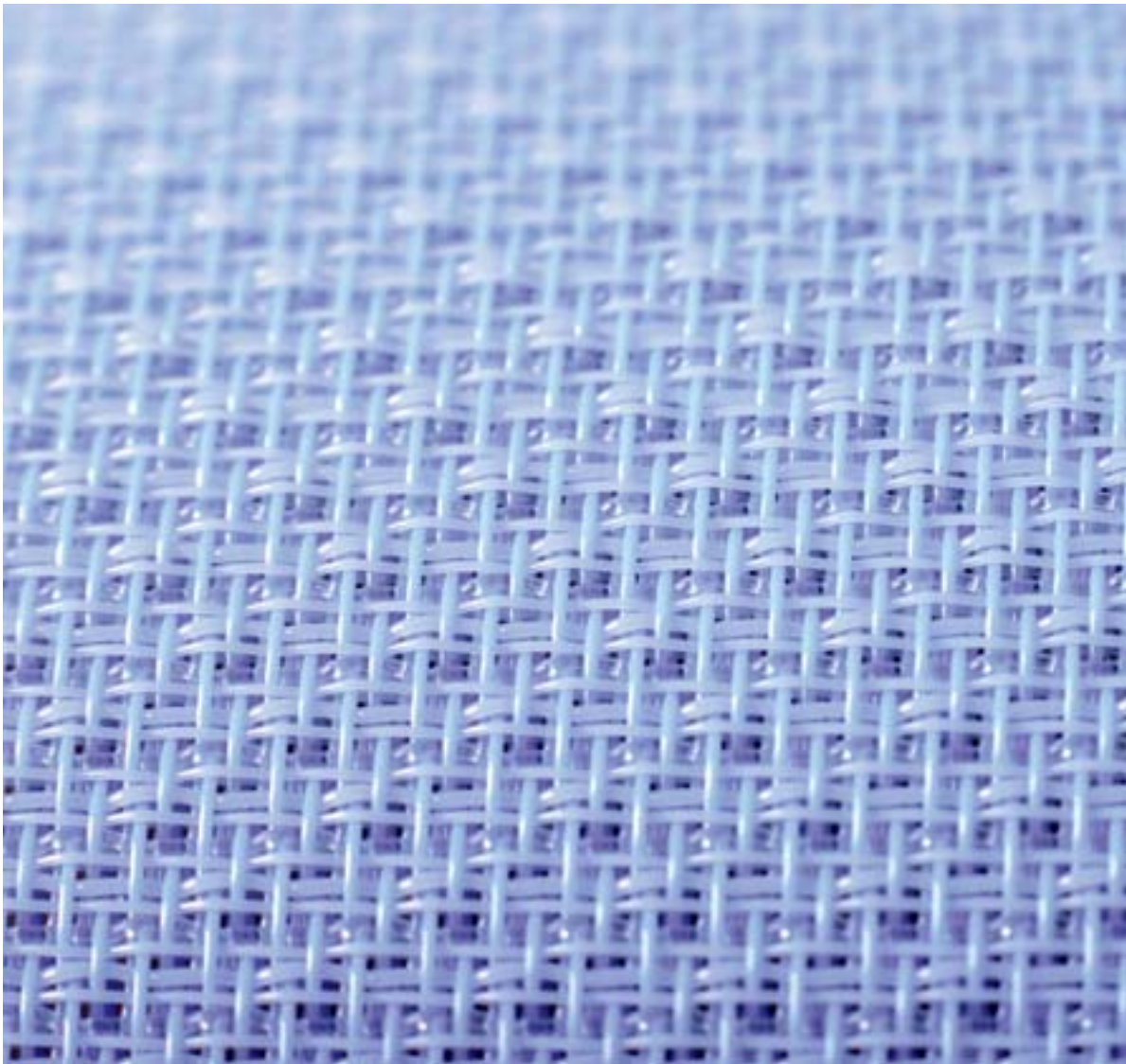
MARY-LINE Trio Relax Bi-color



System solutions

**We will prepare you for the future.
How can we be so certain?
Because we listen to you.
Because we make your requirements our own requirements.
Because we plan to revolutionize this market together with our customers over the next 50 years.**

Monofilaments are utilized almost everywhere. In artificial turf for sports or landscaping, in the paper machine or geo-textile sector and many more applications. As such, the demands made on the monofilament properties are correspondingly diverse. However, what is decisive for a top-quality end product – regardless of the area of application – is the homogeneity and customized microstructure of the monofilaments.



Paper machine clothing

MARY-LINE





Good, better, MARY-LINE

Product quality is decisive. For your customers' trust in you, for your trust in us. Oerlikon Barmag's monofilament system deserves your trust.

Coupled with a spinning pump, the round die provides high-precision, uniform distribution of polymer melt. This, together with excellent temperature distribution during all process stages, establishes the basis for achieving extremely uniform monofilament quality. This combination also enables you to achieve very quick formulation changes.

Customized solutions for customized monofilament manufacturers

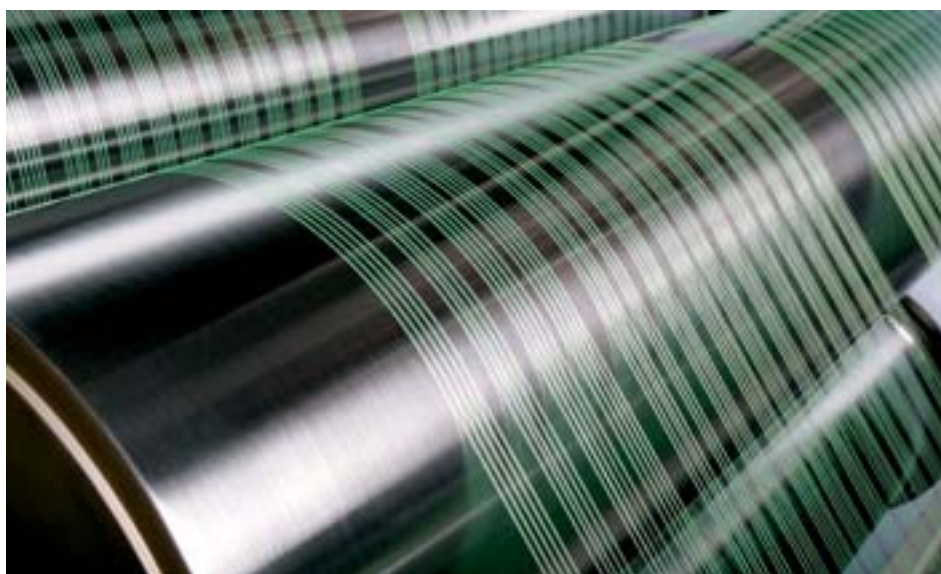
The MARY-LINE is adaptable – both to you and to your requirements. We create the perfect system in accordance with your specific requirements. This is possible as a result of the proven modular system and numerous components available in the Oerlikon Barmag product portfolio.

Correspondingly, the MARYLINE can be combined with either direct winding, online spiral wrapping, or online texturizing. To this end, you can be certain that your system is unique – with components perfectly tailored to each other.

Extruders such as

- the 6E 27D (up to 90 kg/h PET),
- the 9E 27D (up to 350 kg/h LLDPE, 500 kg/h PP)

are available.



Artificial turf solutions for contact sports

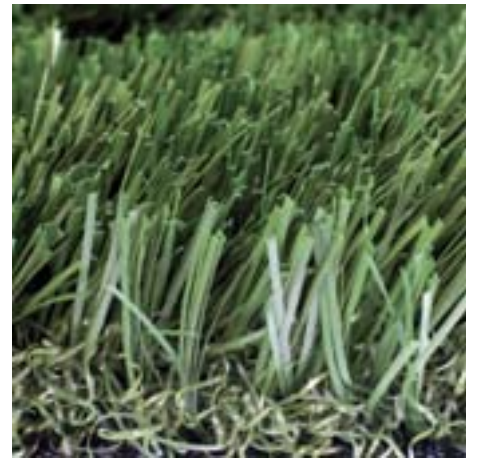
For artificial turf for contact sports (football, American football, rugby), LLDPE in a count range of up to 2,000 dtex (4 ... 8 ply) is used. The material can be wrapped or twisted.



Monocolor wrapped



Bi-color



Monocolor with texturized infill



4-8 end flanged package



Twisted yarn



Wrapped bi-color yarn

Artificial turf solutions for landscaping and non-contact sports

For landscaping (backyards, gardens, terraces, balconies, traffic/road islands) LLDPE, PP or Polyamide is used, mostly texturized.

Artificial turf for non-contact sports (hockey, tennis, golf) made from LLDPE, HDPE, PP using flat or texturized monofilaments, which can be additionally wrapped.



Texturized landscaping



Texturized wrapped landscaping



Hockey



Polyamide texturized wrapped



LLDPE-texturized wrapped



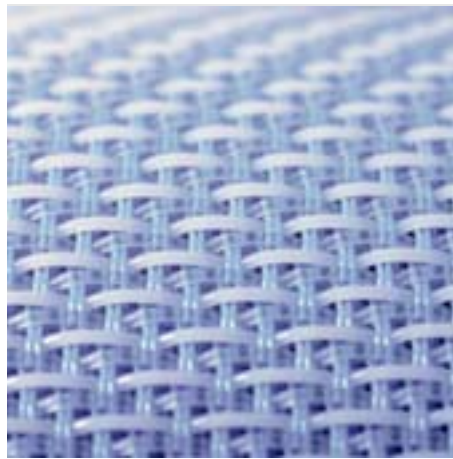
LLDPE-texturized wrapped multifunctional

Paper machine clothing application PET and PA 6 round monofilaments

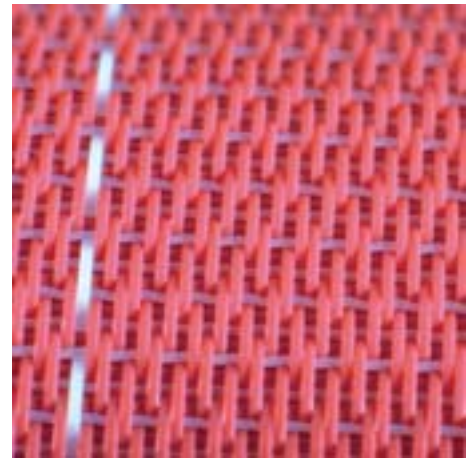
For paper machine clothing (forming, pressing and drying belts), transport belts, medicine, the application range is extensive. The evenness of diameter, roundness and low shrinkage are important. For this reason, an online quality monitoring system is installed.



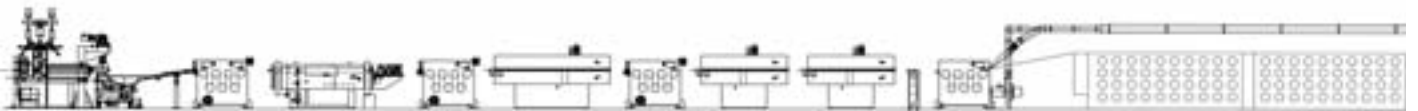
PET paper forming belt



PA6 paper forming backside



PET drying belt



MARY-LINE Quattro

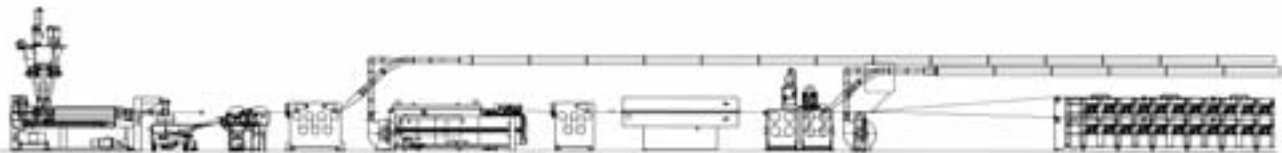
Universal combined monofilament lines

In addition to manufacturing turf (rectangular monofilament LLDPE), the system configuration in the top picture can also be used to produce high-tenacity HDPE monofilaments.

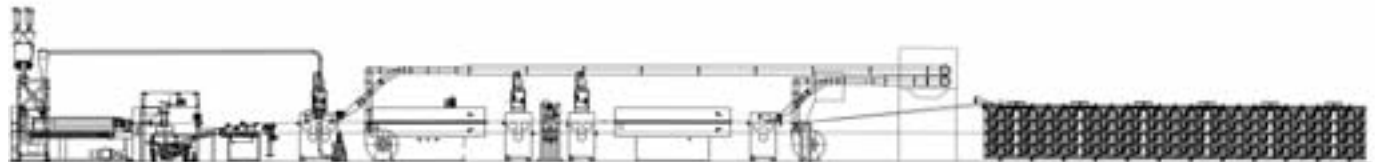
The configuration in the bottom picture is also an ideal supplement to the single application turf line as additionally HDPE monofilaments with medium tenacity and fibrillated tapes made from LLDPE and PP can be produced.

In principle, PP and HDPE can also be manufactured using an LLDPE system if it is not being fully utilized.

We are also your partner for special applications. For turn-key solutions, see our "Complete Projects" brochures or simply contact us.



MARY-LINE Duo Relax Combi



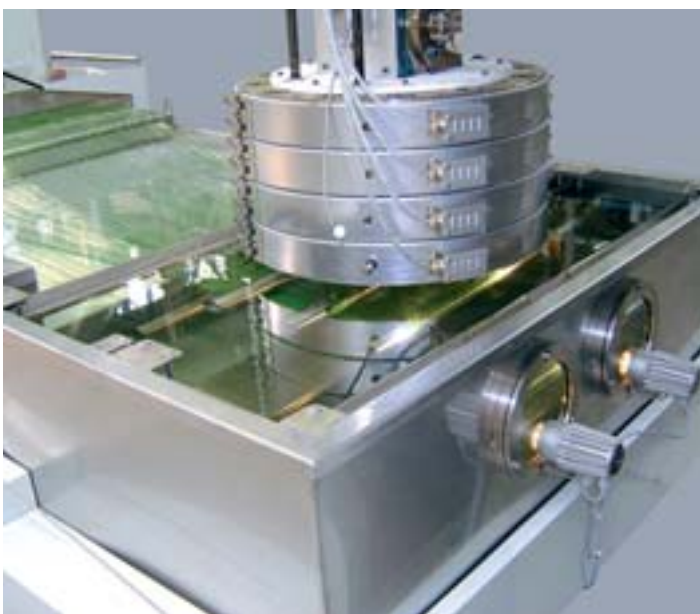
MARY-LINE Duo Combi (monofilament and tape)

Extrusion and metering

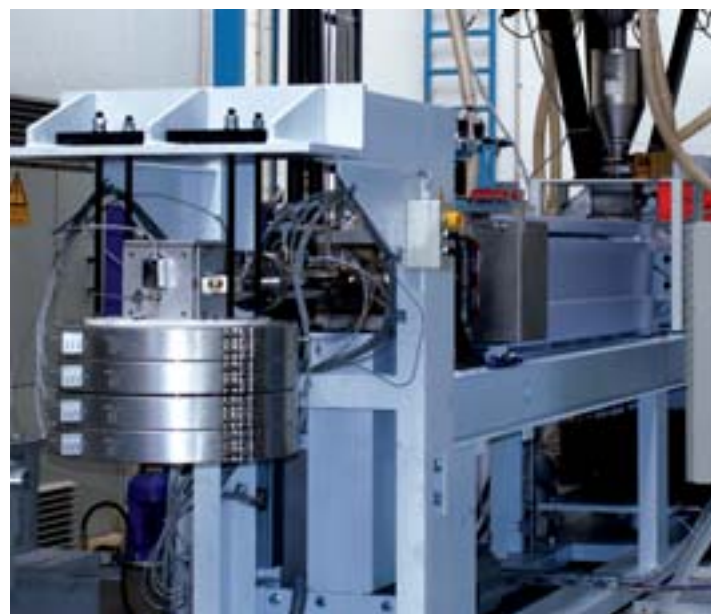
Oerlikon Barmag's extruders provide gentle and homogeneous melt production with high reliability and service life. The utilization of high-quality, low wear materials – in particular for the extruder cylinders and the extruder screw – ensure long-term, trouble-free operation. The screw geometries with special homogenizing components have been determined to ensure excellent homogenization of the polymer melt. Low degradation of polymer caused by low melt temperatures is the basis for excellent, high quality melt and hence first-class monofilament quality.

More than 15,000 spinning extruders sold give evidence of Oerlikon Barmag's expertise in this sector. Based on this experience, the extruders are state-of-the-art. Oerlikon Barmag extruders fulfill the energy saving requirements for e-save. This e-save label is given to systems and components that have energy consumptions significantly lower than standard equivalent systems and components available on the market.

Oerlikon Barmag's booster pump is responsible for pressure increase and metering accuracy for polymer flow through the spinning head. Because of this, the melt pressure in the extruder is kept low. Less wear and degradation of the polymer result and product changes are faster.



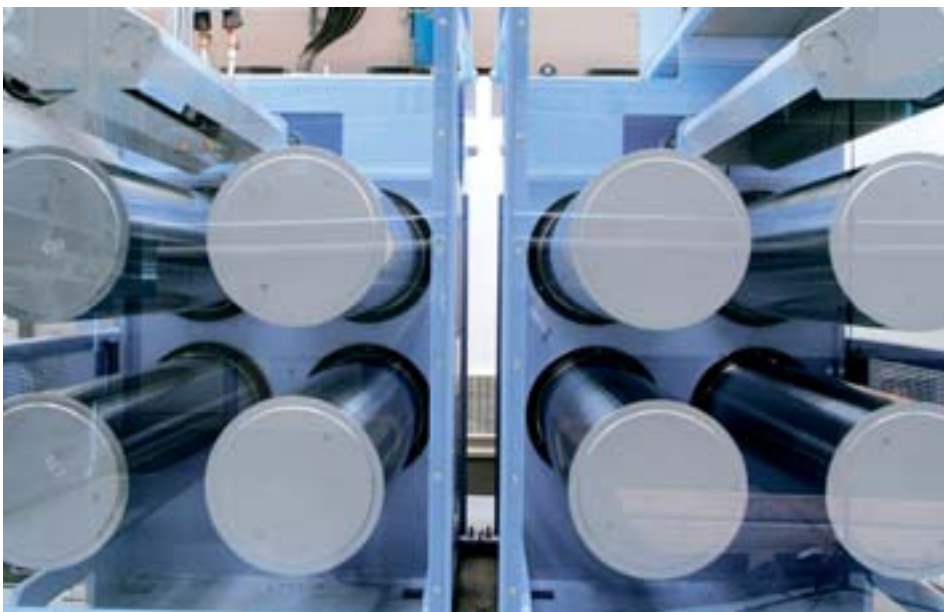
Monofilament die



Extruder

Stretching

The stretching unit is equipped with godets, featuring an equal temperature profile across the working profile. The robust design, especially of the godet bearings, provides a long service life.



Draw stand safety cover

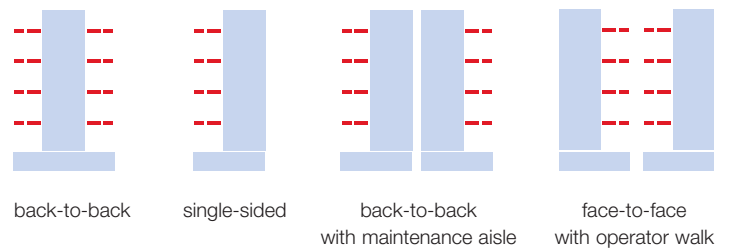


Godet finger protection

Downstream equipment: Winding for artificial turf

The WUFF8 winder is suitable for manufacturing parallel-wound flanged packages. From which, for example, full two-for-one twisted packages can be produced using the DD2000GT.

The WUFF8 winder's core competence is its simple operation. The fine adjustment of the package build is achieved via the adjustable thread pitch and the stroke length. The special construction permits the manufacturing of delicate, easily-expandable monofilaments from various materials and with various cross sections.



WUFF8



ATW-LGT

Downstream equipment: Artificial turf spiral wrapping

The benefit as compared to two-for-one twisting is that the process does not require lubricants.

Either as an automatic inline process or the most flexible high-speed standalone solution powered by automatic package change and multi-step precision winding.

The inline system means less waste, fewer operators and no interim storage of the packages. A self-contained solution is more flexible.



Spiral wrapping equipped with the Chemcat winder

Monofilament 8 x 550 dtex up to 6 x 2,000 dtex

Wrapping yarn PES-DTY (draw textured yarn)

Number of spiral wraps 30 to 55 per meter

Take-up speed 70 – 350 m/min

Maximum values cannot be combined



Downstream equipment: Twisting for artificial turf

High-speed universal twister for two-for-one twisting combined with multi-step precision winding and oil applicator unit. This takes the special requirements of artificial turf monofilaments into account.

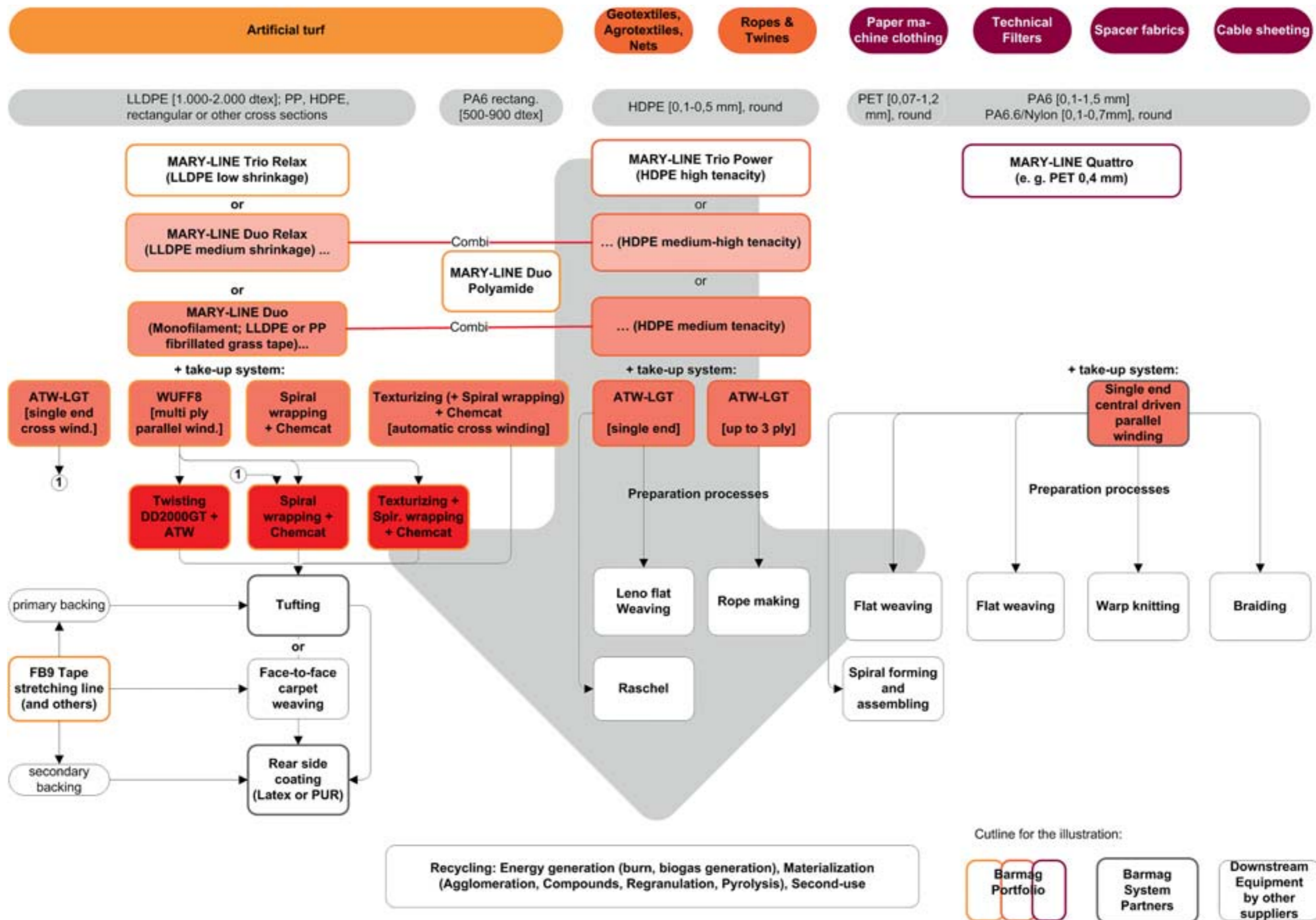
2-step process with perfectly-harmonized equipment from a single source. Very even twist due to yarn tension separation between twisting and winding.

DD2000GT	
Material	LLDPE, PA, PP, HDPE
Titer range	8,000 - 14,000 dtex
Turns per meter	20 - 40 T/m
Take-up speed	70 - 250 m/min
No. of spindles	4 spindles per section, ideal machine with 24 spindles

Maximum values cannot be combined



Monofilament applications: Process design



Downstream equipment: Artificial turf texturing

Inline or standalone combined with automatic winders or combined with spiral wrapping and winding.

Texturing equipped with the Chemcat winder

Material LLDPE, PA, PP, HDPE

Titer range 8 x 550 dtex = 4,400 dtex
6 x 2,000 dtex = 12,000 dtex

Maximum values cannot be combined



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