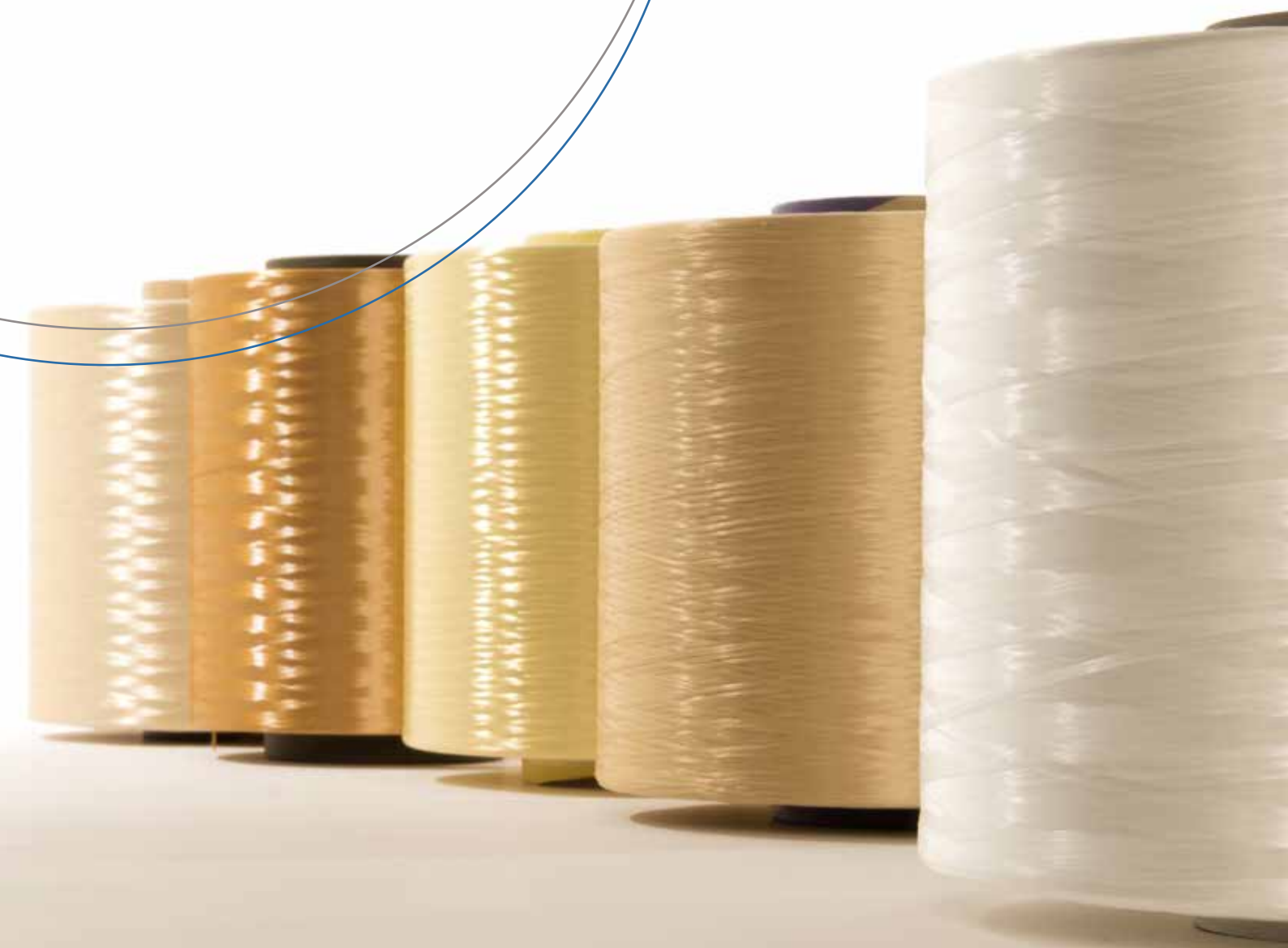


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High  
Performance  
Fibers

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**High Performance Fibers are engineered for extreme uses; whether the requirement is exceptional strength, stiffness, heat resistance and/or chemical resistance. EuroFibers is proud distribution partner of the leading brands in this industry with the ability to tailor these tough fibers to the need of our customers, whether it be coating, twisting, assembling, plying or cutting.**

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## HMPE Fiber

 **Dyneema®**

Ultra high molecular weight polyethylene (UHMWPE), high modulus polyethylene (HMPE) or high performance polyethylene fibers (HPPE) are extremely strong and are the lightest of all ultra-strong fibers. The ultimate strength can exceed 3000 MPa. However, due to its low melting point of about 150°C (295°F) they are not suitable for elevated temperature applications. The fiber is mainly used in protective clothing like ballistic vests, helmets, cut-resistant glove and tension members like ropes, slings and fishing lines.

EuroFibers is the premium distributor of DSM offering the extensive **Dyneema®** and **Trevo®** portfolio to our customer base.

Gel-spun HMPEs have excellent abrasion resistance and good UV resistance. At higher loads and/or temperatures, creep resistance can be a concern. Resistant to most concentrated industrial acids, bases, oxidizers, and organic solvents at room temperature. Resistant to many acids/bases/oxidizers/solvents at elevated temperatures. HMPE (solid state) has good abrasion resistance and good UV resistance. At higher loads and/or temperatures, creep resistance can be a concern. Resistant to most concentrated industrial acids, bases, oxidizers, and organic solvents at room temperature. Resistant to many acids/bases/oxidizers/solvents at elevated temperatures.

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## LCP Fiber

**Vectran™**

Polyarylate fibers are high-performance multifilament yarns spun from liquid crystal polymers (LCP). This superfiber exhibits exceptional strength and rigidity. For example, the fiber is five times stronger than steel and ten times stronger than aluminum. The Vectran® fiber has been chosen for NASA space systems due to its outstanding performance properties.

EuroFibers adopted **Vectran®** in its product portfolio, an LCP fiber created by Celanese Corporation and now manufactured by Kuraray.

LCP has very low creep rates. It also has very good abrasion properties. The UV resistance is low, and it should be protected when exposed to sunlight. Stable to acids <90% concentration and bases <30 % concentration.

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## Para-Aramid Fiber

**Twaron®**   **Technora®**

Para-aramid fibers are a class of heat-resistant and extremely strong synthetic fibers. The ultimate strength of some aramid fibers can exceed 3500 MPa. Aramid has an outstanding strength-to-weight ratio, even better than carbon, and excellent dimensional stability due to the high young's modulus. Para-aramid has a decomposition temperature of ± 500 °C. Technora® is a para-aramid fiber made from copolymers and is produced in the different process from PPTA (poly-paraphenylene terephthalamide).

EuroFibers is the premium distributor of **Teijin®** offering their exceptional aramid fibers **Twaron®** and **Technora®** to a wide variety of customers.

Para-aramids have low creep rates. They have fair UV resistance and should be protected when exposed to sunlight. Abrasion resistance can be low and should be taken into account when considering their use. Resistant to weak acids, bases, water and salt water. Degradation induced by strong acids and bases in high concentration or high temperature.

Para-aramid Copolymer has low creep rates. It also has fair UV resistance and should be protected when exposed to sunlight. Abrasion resistance is good. Resistant to acids, bases and organic solvents.

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## PBO Fiber

**ZYLON.**

Polybenzoxazole (PBO) is a high-performance, heat-resistant fiber with a benzene-fused oxazole ring structure. The fiber is almost twice as strong as aramid fibers and about 10 times stronger than steel making it the strongest manmade organic fiber. It also has a 100°C higher decomposition temperature than aramid and exhibits very little creep under stress making it suitable for high continuous loads.

EuroFibers offers **Zylon®** a trademarked name for a range of thermoset liquid-crystalline polyoxazole manufactured by the Toyobo Corporation.

PBO has very low creep rates and low abrasion resistance. It has poor UV resistance and should be protected when exposed to sunlight. Resistant to weak acids, bases, bleach and organic solvents. Degradation induced by strong acids at high temperatures.



**HIGH PERFORMANCE FIBER CHART**

FIBER DESCRIPTION			PHYSICAL PROPERTIES (see footnotes)								
Generic Description	Tradenames	Standard Color	Density [g/cm <sup>3</sup> ]	Breaking Tenacity [gpd]	Breaking Tenacity [cN/dtex]	Breaking Strength [GPa]	Initial Modulus [GPa]	Elongation at Break [%]	50%-Strength Temp. [°C]	Melting Point or Decomp Temp. [°C]	Moisture Regain [%]
LCP Polyester-Polyarylate	Vectran®	Light Gold	1,40	26 - 29	23 - 26	3.2 - 3.6	65 - 93	3.3 - 3.6	150 °C	MP: 330 °C	< 0.1
Para-Aramid	Twaron® Kevlar® Alkex® Heracron®	Yellow	1.44 - 1.47	18 - 29	16 - 26	2.3 - 3.7	55 - 140	1.5 - 4.4	300 °C	Does not melt Decomposes @ 500°C	1.5 - 6.5
Aramid Copolymer	Technora®	Gold	1,39	28	25	3.4	72	4,6	300 °C	Does not melt Decomposes @ 500°C	2,0
HMPE (gel spun)	Dyneema® Trevor® Spectra® Doyentrontex®	White	0,97	25 - 44	22 - 39	2.1 - 3.8	68 - 145	2.5 - 3.9	70 °C	MP 143-155 °C	0,0
HMPE (solid state)	Endumax® Tensylon®	White	0,97	28	25	2,4	175	1,9	80 °C	MP 143-155 °C	0,0
PBO	Zylon®	Gold	1.54 - 1.56	42	37	5.7	175 - 275	2.5 - 3.5	400 °C	Does not melt Decomposes @ 650°C	0.6 - 2.0

**PHYSICAL PROPERTY DEFINITIONS**

Breaking Tenacity: break load in grams force per denier weight or centinewton per dtex weight.  
 Breaking Strength: break load divided by fiber cross sectional area.  
 Modulus: resistance to stretch, or slope of load-elongation curve.  
 Elongation at Break: change in yarn length at break, expressed as percent of initial gage length.

*Moisture regain tested at standard conditions of 22 °C at 65% relative humidity*

**TRADEMARKS**

Dyneema® and Trevor® are registered to [DSM](#)  
 Twaron®, Technora® and Endumax® are registered to [Teijin Aramid](#)  
 Vectran® is registered to [Kuraray](#)  
 Zylon® is registered to [Toyobo](#)  
 Spectra® is registered to [Honeywell](#)  
 Kevlar® and Tensylon® are registered to [DuPont](#)  
 Alkex® is registered to [Hyosung](#)  
 Heracron® is registered to [Kolon](#)  
 Doyentrontex® is registered to [Beijing Tongyizhong](#)



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# Fiber Enhancing Services

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Next to a wide variety of High Performance Fibers, EuroFibers has the fiber enhancing capabilities to provide Prisma® coated, twisted, assembled, intermingled, and engineered yarns, short cut and staple fiber, exactly according to your specification.

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## PRISMA® COATING

Our proprietary Prisma® coating technology has been widely adopted all over the world by rope makers, net makers, weavers and knitters of products based on high-performance fibers. Prisma® coating technology helps to improve the performance and extend the life of ropes, cables, nets and fabrics.

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## ASSEMBLING

Our state-of-the-art Roblon twisting machine can produce a large range of customer-dedicated, intermediate products that make things a lot easier for producers of ropes and round slings. Our machines have a substantial range and can assemble from 5.000 to 200.000 dtex.

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## TWISTING

By twisting the yarn, we create a compact bundle that is easier to process. We master the different kinds of twisting, like 2-for-1 twisting and ring twisting and have the ability to check every meter of yarn on imperfections.

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## CHOPPING

EuroFibers can chop all coated and uncoated high-performance fibers to short-cut fiber or crimped staple fiber. These chopped high-performance fibers are used in a variety of applications, from concrete to cotton reinforcement, to improve process and product performance.

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