

Summary Data Sheet

# Solutions for Fiber Optic Systems – Cables and Ducts



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	Application	Component	Type	Grade	Material + MB*	Features
Tight Buffer Unit	Buffer	Outer Fiber coating	Natural	Cascio™ FR4807	LSZH Compound	Soft fiber protection, easily strippable and LSZH.
			Black	Borstar® HE6062	HDPE	High Strength, very good crush resistance, good ESCR.
			Natural	Borstar® HE6063	HDPE + color MB	Natural version of HE6062, UV stabilized.
	Standard Typical diameter: 8.5 mm	Jacket	Black	Borstar® HE6067	HDPE	Extra low shrink back, low extrusion temperature, good crush resistance (HE6068 natural stabilized version).
			Natural	Borstar® HE6068	HDPE + color MB	Natural version of HE6067. UV stabilized, extra low shrink, high strength.
			Black	Borstar® HE6069	HDPE	Similar properties to HE6067 & HE6068 but laser printable.
			Black	Borstar® LE8707	LLDPE	High Strength, crush resistance, good ESCR.
			Natural	Borstar® LE8706	LLDPE + color MB	Natural version of LE8707, UV stabilized.
			Black	Borstar® ME6052	MDPE	Slightly less hard and lower shrinkage than HE6063, good processing.
			Natural	Borstar® ME6053	MDPE + color MB	Natural version of ME6052.
			Black	Borstar® HE6067	HDPE	Extra low shrink back, low extrusion temperature, good crush resistance (HE6068 natural stabilized version).
	Mini cables Typical diameter: 6.5 mm	Jacket	Natural	Borstar® HE6068	HDPE + color MB	Natural version of HE6067. UV stabilized, extra low shrink, high strength.
			Black	Borstar® HE6069	HDPE	Similar properties to HE6067 & HE6068 but laser printable.
			Black	Borstar® HE6062	HDPE	High Strength, very good crush resistance, good ESCR, UV protected.
Central tube	Central tube	Reinforced Jacket	Natural	Borstar® HE6063	HDPE + color MB	Natural version of HE6062.
			Black	Borstar® LE8707	LLDPE	High Strength, crush resistance, good ESCR, UV protected.
			Natural	Borstar® LE8706	LLDPE + color MB	Natural version of LE8707.
			Black	Borstar® ME6052	MDPE	Slightly less hard and lower shrinkage than HE6063, good processing, UV protected.
			Natural	Borstar® ME6053	MDPE + color MB	Natural version of ME6052.
			Black	Borstar® HE6062	HDPE	High Strength, very good crush resistance, good ESCR, UV protected.
Slotted core	Buffer tube	Jacket	Natural	PP1121	PP	PP for buffer tubes for loose tube constructions.
		Core	Natural	PP1121	PP	PP for buffer tubes for loose tube constructions.
Speciality	ADSS aerial	Jacket	Black	Borstar® HE6081	HDPE	Track resistant.
	Submarine	Jacket	Natural	Borstar® HE6068	HDPE	High cleanliness, extra low shrink back, low extrusion temperature.
	LSZH	Jacket	Black	FR4810	LSZH Compound	High flame retardant for campus cables and fiber optic cables.



**All our grades are also available as the Borneables™**, our portfolio of premium polyolefins produced with ISCC PLUS-certified renewable feedstock. These sustainable polyolefins offer the same high material performance as virgin polyolefins, yet decoupled from fossil-based feedstock and with reduced carbon emissions.

Learn more: [www.borealisgroup.com/circular-economy/borneables](http://www.borealisgroup.com/circular-economy/borneables)

UV: Ultra-violet  
LSZH: Low smoke zero halogen  
FR: Flame retardant  
ADSS: All dielectric self supporting  
ESCR: Environmental stress crack resistance

\*Masterbatch to be added during duct/cable production

# Solutions for Fiber Optic Systems – Cables and Ducts

	Application	Component	Type	Grade	Material + MB*	Features
Subduct	Tube Typical diameter: 16–50+ mm, Mono-Bilayer	Outer layer	Natural	BA415E	PP + UV MB	Downgauging possibilities. Optimal robustness during installation.
			Natural	BB2541	HDPE + UV MB	Easy processability. Optimal coiling.
		Inner layer	Natural	BA415E	PP + Slip MB	Mono layer option, maximize downgauging.
			Natural	BB2541	HDPE + Slip MB	Mono layer option, easy processability, Optimize coiling.
Microducts	Minicable Duct Typical outer diameter: 10–16 mm, Bi-Trilayer (Skin coloring)	Outer layer	Natural	BB2541	HDPE	Easy processability. Optimal coiling.
		Inner layer	Natural	BB2541	HDPE Ribbed	Easy processability. Optimal coiling.
	Fiber Unit Duct Typical outer diameter: 3–10 mm, Bi-Trilayer (Skin coloring)	Outer layer	Natural	FA3227	LDPE	Optimal coiling. Most flexible installation. UV stabilized.
			Natural	FB4230	LLDPE	Good coiling. Most flexible installation. Excellent ESCR.
		Inner layer	Natural	FA3227	LDPE	Optimal coiling. Most flexible installation. UV stabilized.
			Natural	FB4230	LLDPE	Good coiling. Most flexible installation. Excellent ESCR.

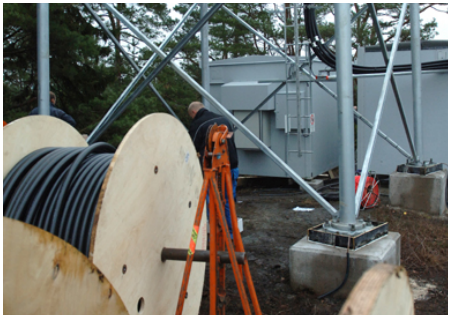
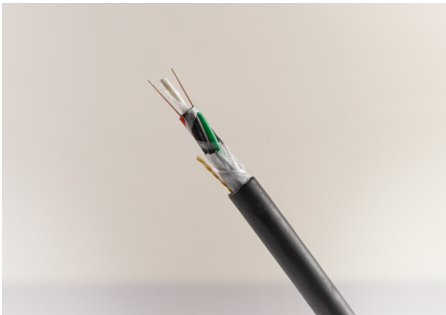


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# Solutions for Fiber Optic Systems – Cables and Ducts

## Fiber Optic System Solutions

Optical fiber infrastructure is now recognized as the main building block for future-proof, high-speed data transfer. Cables can be aerial, direct-buried, placed within a modular duct system, or submerged underwater. This places rigorous demands on the materials that protect the cable from external elements. Choosing the right duct, jacket, and tube is essential to produce an easy-to-install, robust and future-proof system. Borealis and Borouge offer an extensive section of globally available products tailored to meeting these needs.

This document provides a concise overview of our solutions for fiber optic systems. We recognize that each project has unique requirements, and we specialize in providing custom solutions to meet your specific needs. For detailed inquiries, please contact one of our local technical service engineers.

## Borstar® – Enhanced Polyethylene

To meet the continually evolving needs of fiber optic systems solutions, Borealis and Borouge offer a range of polyethylene and polypropylene materials based on our proprietary Borstar® bimodal technology. These materials ensure reliable performance by protecting optical fibers during cable installation underground or sub-sea, as well as throughout their operational life, delivering a combination of properties and performance levels not available with conventional PE, including:

- Thermal stability at high and low ambient temperatures
- Excellent balance of physical and water barrier properties
- Good aging performance for extended service life
- Optimal Environmental Stress Cracking Resistance
- Easy low-temperature processability with minimal shrink back

## Bibliography

- Davies M et al, "An ADSS Optical Fiber Cable Utilizing Advanced Sheathing Technology", Proc. Materials in Technology, London, 2001.
- De Boer H et al, "Low shrink HDPE for the sheathing of fiber optic minicable", Proc. 59<sup>th</sup> IWCS, Providence (RI), Nov, 2010.
- Lahti M et al, "Nonlinear modeling of excess fiber length of dry polypropylene tubes", Proc. 63<sup>rd</sup> IWCS, Providence (RI), Nov, 2014.
- Miller K et al, "Alternative physically foamed insulation concepts for higher category data cable", Proc. 65<sup>th</sup> IWCS, Providence (RI), Nov., 2016.
- Robinson JE et al, "Strategies for the Incorporation of Carbon Black into Cable Sheaths to Ensure Adequate Weathering". Proc. 58<sup>th</sup> IWCS, Charlotte (NC), Nov, 2009.
- Steffl T et al, "Laser printing on black low shrink HDPE for the Sheathing of Fiber Optic Cables", Proc. 67<sup>th</sup> IWCS, Nov."

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### Borealis GmbH

Trabrennstraße 6–8, 1020 Vienna, Austria

Tel +43 1 22 400 000

[borealisgroup.com](http://borealisgroup.com)

### Borouge Pte Ltd Sales and Marketing Head Office

1 George Street #18–01 Singapore 049145

Tel +65 6 27 541 00

[borouge.com](http://borouge.com)

