# Welcome to the future!

Our complete optical fibre offer opens up a new world of possibilities.



Linking the Future

# A new world of possibilities.

In the innovative minds of our engineers, knowledge and imagination are fused in order to link the present to the future. And the result is even better than the fairy tales – a complete offer of optical fibre solutions at the edge of the technological revolution. Plus, we provide you with all the services that you might need: before, during and after purchase. Go get ém.



#### A complete offer

Everything from optical fibres, cables and connectivity to services and project management.

# World-record density

SIROCCO<sup>xT</sup> cables have a world-record optical fibre density of amazing 180 µm.

#### **Bend insensitive**

BendBright<sup>xs</sup> single mode optical fibres offer stable connectivity and resilience even at a density of 180 µm.

#### Prysmian Group

### A COMPLETE OFFER



#### First-rate reliability

We offer highly reliable solutions for both single and multi-mode applications.

#### **Speciality fibres**

Cables specially made for sensitive environment such as Medical, Marine, Oil & Gas, and Telecoms sectors.



#### A perfect fit

All connectivity products are made to match, offering outstanding connection standards.



# **Optical fibres**

We manufacture a full range of single mode, multimode and specialty optical fibres that have been specifically designed, developed, manufactured and tested to meet even the most challenging of demands.

#### Single mode fibres

The single-mode fibre portfolio is reflected in a complete range of products:

- BendBright<sup>xs</sup> 180 µm
  - World's first 180 micron bend insensitive fibre, fully compliant with g.652 and G657.A2 global standards, pushes dimensions to an unprecedented lower level.
- G.657 series
  - With bend insensitive BendBright<sup>xs</sup> technology critical for FTTx rollouts.
- G.652 series
  - Offers superior performance in all cable constructions including Loose Tube, tight buffered, ribbon and central tube designs.
- G.654 series
  - Specially developed for submarine and ultra-long-range operation.
- G.655/G656 series
  - Long-distance non-zero dispersion shifted (NZDSF) fibres developed for optimized dispersion in high-capacity, long-distance networks.
- ColorLock<sup>xs</sup>
  - Prysmian's revolutionary coating technology making our single-mode fibre series more reliable, durable and long-lasting.

#### **Multimode fibres**

Prysmian Group's multimode optical fibres are based on our Plasma-Activated Chemical Vapour Deposition Process (PCVD), acknowledged worldwide as offering the best core-profile accuracy in multimode fibres. The result is a complete portfolio covering the full range of application standards, from OM1 and OM2 optical fibres, right up to high-data-rate OM3 and OM4.

#### • WideCap

- Based on OM4 and VCSEL technology, WideCap provides a low cost and power efficient solution for data centre networks using parallel multimode fibres. In addition, extended reach, fibre efficiency and low-power consumption can be achieved simultaneously by combining 4x25 Gbps WDM VCSEL transceivers with WideCap.
- WideCap is the first multimode fibre optimised for multi-wavelength systems, extending the traditional operating window of traditional 0M4 fibres to 950 nm – adding three channels to the regular 0M4 850 nm.



#### **Specialty fibres**

DrakaElite is dedicated to the specialty market segment. It includes a comprehensive product range offering solutions as well as active and passive components for the Medical, Marine, Oil & Gas, and Telecoms sectors.

With an extended patent portfolio, DrakaElite offers an extensive number of solutions that exceed the requirements of your applications: high-temperature coatings, radiation hardened optical fibre, tight geometry optical fibres, and much more.

# **Optical fibre cables**

Our extensive portfolio of optical fibre cables is available in a wide range of fibre counts, fibre types and mechanical constructions, including the ultra-high fibre count cable MassLink<sup>™</sup>. The majority of the cables are provided with fire retardant sheaths and are compliant with CPR certifications.

- Aerial
  - FTTH distribution (short span cables).
  - Core/backbone network (short and long span cables)
- Underground
  - Standard duct, minicables, direct buried cables
- Indoor
  - Riser-, drop-, central office/data centre cables

- Indoor/Outdoor
  - Facade-, drop-, central office/data centre cables
- Special
  - Submarine/subaqua, tunnel and circuit integrity, QFCI for Oil and Gas – circuit integrity, ALPAM/Oil and Gas, OPGW (Optical Ground Wire) and hybrid cables for mobile or remote power applications

#### **Connectivity products**

Our connectivity products are made to measure both our own and other fibre cable solutions. The high-end products are designed for versatility, covering all cable management needs, whatever the network type.

#### • Rack-mounted and Racks

- Sub rack system (SRS4000) & Rack system (RS4000)
- Street Cabinets (SC)
- Joints
  - Large multi-function Joint (LMJ)
  - Compact and Medium multi-function Joint (UMJ, CMJ, MMJ)
  - Small Joint Closure (SJC)
- Wall boxes
  - Large Distribution Wall Box (LDWB)
  - Medium Distribution Wall Box (MDWB)
  - Small Distribution Wall Box (SDWB)
  - Medium Termination Wall Box (MTWB)
  - Small Termination Wall Box (STWB)
  - Modular Distribution Box (MDB)
  - Small and Medium OneBox

#### Customer termination boxes

- Ultra-Compact Termination Box Mk2 (UCTB Mk2)
- Compact Termination Box Mk2 (CTB Mk2)
- Compact Termination Box Mk3 (CTB Mk3)
- External/Internal Compact Termination Wall Box (ECT)T)

#### **Pre-connectorized products**

Additionally, we offer an extensive range of highperformance optical fibre accessories as an essential part of an integrated product or network solution.

- Indoor
  - Adapters
  - Pigtails
  - Patchcords
  - Splitters and splitter modules
  - Pre-connectorised Compact Termination Boxes (CTBs)
  - Pre-connectorised breakout
- Outdoor
  - Pre-connectorised Enhanced Performance Fibre Unit (EPFU)
  - Pre-connectorised Lead-In Assembly (LIA)
  - Pre-connectorised CTBs
- Co-Existent
  - CoEx LGX module Type 1 to 6
  - CoEx compact module Type 1 to 6
- High Density
  - MPO Cable Assembly
  - MTP<sup>®</sup> Cable Assembly



# **Optical fibre cables technologies**

Our cable management technologies are designed to deliver high-speed data in the most efficient and effective way, even in the harshest of environments.

#### Loose Tube

The Loose Tube technology generally includes up to 12 optical fibres per tube. The structure can be reinforced in many different ways depending on your needs. Loose Tube cables are designed for aerial or underground installations in ducts or by direct burial in open-cut trenches.

#### Main advantages

- 🚫 Well known technology
- Already deployed products with reliable performances
- Small sizes for low fibre count cables allowing higher density for blown application

	UniTube (Central Loose Tube)	Loose Tube (Multi Loose Tube)		
	Tube with optical fibres is centrally positioned.	With several tubes wrapped around a central resistance element.		
No. of fibres	Typical configuration of 12f	Typical range 12–288f		
Approx. tube diameter (mm)	3.0	1.5 to 1.35	2 to 2.5	
Approx. cable diameter (mm)	6.6	5.7 to 10.8	8 to 18	

	Multi Loose Tube cables with higher fibre count					
No. of fibres	384f	432f	576f	624f	768f	864f
Approx. tube diameter (mm)	2.8					
Approx. cable diameter (mm)	19		22	22	25	27

#### FlexTube®

FlexTube<sup>®</sup> is an easy-to-handle optical micromodule, which can be built into many different designs of internal and external solutions. By adding constructive elements to the cable design or changing materials, the FlexTube<sup>®</sup> cables can be used in all sorts of applications withstanding various types of risks. The technology is retractable and solutions where the number of splices is reduced to a minimum are available.

#### Main advantages

- Extremely flexible
- Reduced installation time
- Reduced total cost of ownership
- Very small cable size for higher fibre density
- Allows fibre midspan access
- Gives the possibility to reduce the size of connectivity products
- More secure during installation, operation or maintenance

	Standard duct cables	Cables for blowing applications	Cables for aerial applications	Drop cables
No. of fibres	Available up to 864f	Typical range 12–144f	Typical range 12–144f	Up to 12f
Approx. cable diameter (mm)	6 to 19	5.8 to 8.4	6 to 14	6

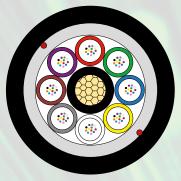




UniTube (Central Loose Tube)



Mini Loose Tube



Standard Multi Loose Tube





Duct FlexRibbon cables for FTTH applications



FlexRibbon cables for Data Centers



Tunnel cables



Hybrid Cables



Complete solutions for FTTA



**OPGW** and **OPPC** 

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#### FlexRibbon™

This advanced technology enables fast deployments of very high fibre counts especially in data centres but also in other areas of the network. The high fibre count is achieved by using extremely flexible fibre ribbons that can be rolled up for high-packing densities or laid flat for ribbon splicing. FlexRibbon™ cables are available in a wide mix of fibre counts, fibre types and mechanical constructions depending on the specific application.

#### Main advantages

- O Decreased splicing time due to ribbon technology
- 🛇 Can be used in standard Loose Tube structures
- Maximizes fibre density and duct space utilization
- 🚫 Kink resistant and highly flexible
- Lightweight and easy to handle

111	FTTH cables		Data Centres		
	Duct FlexRibbon™ cables		1728 MassLink™ with FlexRibbon™ Technology	3456 MassLink™ with FlexRibbon™ Technology	6912 MassLink™ with FlexRibbon™ Technology
No. of fibres	192f	432f	1728f	3456f	6912f
No. of fibres/ micro-module	8 x (2 ribbons x 12f)	12 x (3 ribbons x 12f)	6 ribbons x 288f	16 ribbons x 216f	24 ribbons x 288f
Approx. cable diameter (mm)	7.4	12	24.9	28.2	39

#### **Special cables**

Our vast range of Special Cables includes complete solutions for Fibre To The Antenna (FTTA) designs securing quality of transmission even in the most aggressive environments; hybrid cables including both copper conductors and bend-intensive fibres suitable for FTTA wireless applications as well as Optical Ground Wires (OPGW) systems for installation on High Voltage electric lines. All designed to be applied in customised optical network infrastructures.

In addition, the range includes hybrid cables for mobile or remote power applications, submarine/subaqua cables, tunnel cables and circuit integrity, QFCI cable for Oil and Gas – circuit integrity, ALPAM/Oil and Gas and OPPC systems (Optical Phase Conductor).

#### Main advantages

- O Customization for each application
- Integration of different technologies in the same cable (eg. hybrid)
- Complete set of accessories
- Fully support for products

## **Deployment solutions**

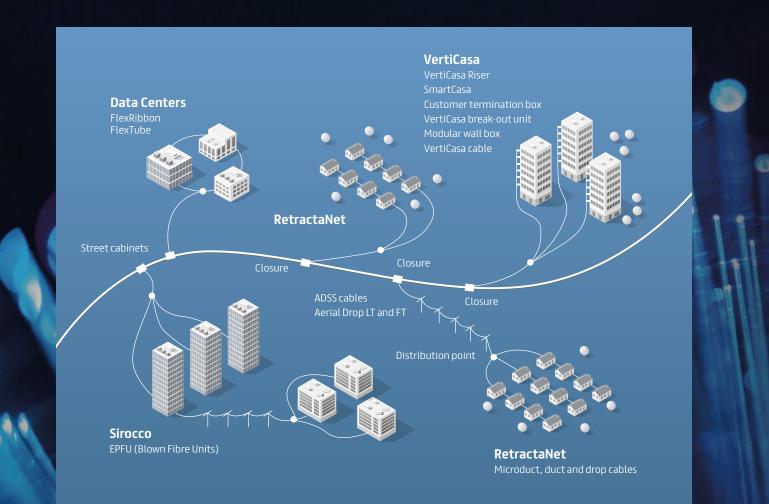
With our integrated range of deployment solutions, it is easier than ever to plan and install a next-generation network. Our systems make projects simple, transparent and manageable – and deliverable at the lowest possible cost.

#### **RetractaNet**<sup>xs</sup>

A reliable, flexible and easy to deploy direct buried drop solution for your existing duct or sub-duct infrastructure. May it be mobile applications, rural broadband, Wifi or DAS – RetractaNet<sup>xs</sup> will do the trick with minimal installation costs.

#### **VertiCasa**xs

The VertiCasa<sup>xs</sup> system for high-rise apartments features a unique concept in optical construction, allowing remarkably easy fibre access and break-out, reducing the demand for skilled labour, installation time and costs.





#### Sirocco<sup>xs</sup>

Our Sirocco<sup>xs</sup> blown fibre system uses compressed air to blow optical fibre into pre-installed tubes, enabling on-demand deployment of optical fibres from one internal or external network point to another.

In addition, it is easy to interrupt existing tube routes to reach new users. That way Sirocco<sup>xs</sup> substantially lowers network building costs while providing a more flexible design.

#### **Drop Solutions**

Our connection solution is a direct buried ducting system for all parts of a fibre optic network – particularly FTTH. By blowing in optical fibre cables through microduct bundles, you get the flexibility to choose what you need, when you need it. And as the thick-walled microducts don't need any outer protection they're easy to branch off too. Straightforward, cost-effective and user-friendly.

#### **Data Centres**

Ultra-High-Density data centre solutions have been engineered specifically to meet the increasing bandwidth demands, posed by billions of connected devices. Including FlexRibbon™ ultra-high-density cables, and modules that can be connected by Multi-fibre Push On connectors (MPO), direct termination or splicing, it'll provide you with ultimate flexibility and ease of use.



# Fat on fibre!

#### The optical cable SIROCCO<sup>HD</sup> can swallow surprising quantities of fibre.

Despite its apparently modest size, the fibre cable SIROCCO<sup>HD</sup> can stuff down incredible amounts of optical fibres – while remaining highly flexible! It actually provides world record diameters and fibre densities for blown microduct cables. And that's not the only thing being minimized – as they are made in the EU the lead times are short and transports can be kept to a minimum. That in combination with a clean electricity mix at our factories, the CO<sub>2</sub> emissions will be held on lower levels. Less is more!



#### Linking the Future

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