Double up!

Including both energy and fibre, our new hybrid cable CYY-F-FO is the flavour of the future.

Made in Romania

prysmian

The planet's pathways

Connecting the world.

Today and in the future.

Prysmian – the world leader in the energy and telecom cables and systems industry.

With 140 years' experience, Prysmian is strongly positioned in high-tech markets and offers the widest possible range of products, services, technologies and know-how.

140
YEARS OF EXPERIENCE

25
R&D CENTRES AROUND THE WORLD

We specialise in underground and submarine cables and systems for power transmission and distribution, special cables for applications in many different industries, and medium and low voltage cables for the construction and infrastructure sectors.

For the telecommunications industry, Prysmian is the world's largest provider of cutting-edge cables and accessories for voice, video and data transmission, offering a comprehensive range of optical fibres, optical and copper cables and connectivity systems.

We are committed to environmental responsibility in our production processes, the protection of the global environment, and the responsible management of relations with the local communities in which we work.

For us, innovation means meeting the needs of our customers and communities by understanding their business drivers as quickly as they do. To do that, our team of over 900 Research & Development professionals is constantly looking to the future, predicting and identifying emerging trends in each of our industries and sectors. Acting on this intelligence from 25 R&D centres around the world, we're constantly close to our customers in their own local markets.

Linking communities to the new digital world.

The world is in the midst of a data explosion. Across the globe, people are sharing, purchasing, downloading, streaming, connecting and communicating in the digital sphere. Living and working digitally is the new normal. And for network operators, this means managing a near-exponential increase in bandwidth. Modern day networks must provide robust physical infrastructure, trusted IT security and long-term reliability in order to meet the world's rising demand.

At Prysmian, we've been refining our technical expertise for more than 140 years, so we can support our partners with communication solutions throughout every step of their evolution.

Our global presence, combined with our experts' regional knowledge, mean we're uniquely placed to support the needs of every customer: from manufacturing high-performance and cost-effective data cables within tight lead times, to offering specialised network solutions which enable high-speed connectivity in the core network, within data centres, or at the edge. And of course, our proprietary optical fibre technology sets us apart from our competitors.

At Prysmian, whether it's supporting our OEM customers to become specified within target projects or enabling our distribution partners to secure key orders and satisfy market demand, every solution we create is designed to help them follow or even shape global trends, and meet the needs of their own customers.

TAILORED TELECOM SOLUTIONS.

When it comes to serving our Telecom customers, our FlexRibbon cabling solutions feature increased fibre density, allowing more efficient data transmission between the world's increasingly important Data Centres. Our SIROCCO family of cables enable network deployment where it's desperately needed within overcrowded infrastructure – all the while, performing at the highest standards of safety and technical compliance, and meeting key industry legislation. In fact, whatever product or service we supply, it's tailored to help customers and partners deliver the connected buildings, advanced IoT networks and smart factories of tomorrow.

STATE-OF-THE-ART FIBRE OPTICS

Our fibre optic systems are being adapted for special applications across the world: the cornerstone of building network and sensing solutions for industrial and Oil & Gas partners, providing a versatile connectivity solution designed for cable management needs – whatever the network type. And as the fiberisation of power networks continues, we are combining our experience with Energy Utilities and Telecom networks to provide solutions to deploy fibre through energy networks with OPGW, ADSS, and lashed systems.

WITH OUR CUSTOMERS, REACHING FOR INNOVATION.

Above all, everything we do helps our customers become more innovative, reach more of their business milestones, and grow to be even more competitive within their market. We've been working with many of our customers for more than 30 years, continuing to deliver the service and quality they expect – whether we're supplying next-generation miniaturised cabling, or working to build a complete end-to-end IoT enabled solution.

By building long-term relationships with our customers, and understanding their business intimately, we can help them grasp new opportunities afforded by 5G, cloud-based Data Centres, Industry 4.0, Radio Access Networks, Pulse Electricity, and more.

For Prysmian, it's about more than being a market leader or setting global and regional quality standards. It's about adding, complementing and enhancing what's possible for our customers, helping them power the world's networks of tomorrow. And providing our service in the way they need it most.

It's about being the telecommunications industry's trusted partner of choice, and connecting people across the globe – today and in the future.

Double up!

Including both energy and fibre, our new CYY-F-FO hybrid cable is the flavour of the future.

Say hello to our latest and coolest innovation. By including both energy and two BendBright^{XS} fibres in the same cable, you'll get more time to chill. Not only will you be able to install electricity and data transmission simultaneously – it will be cleaner, simpler and faster, too. CYY-F-FO the cable of tomorrow. Get a taste of it already today!

APPLICATION

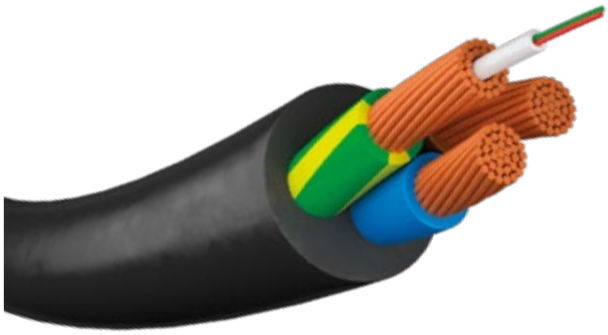
By the end of 2025, it's expected that up to 65 % of the world's population will connect to the 5G network. Largely, this increased consumption will be driven by services such as video streaming, alongside emerging immersive media formats like HD and Ultra-HD video, 360-degree film, Augmented and Virtual Reality. This fast-speed change will put new demands on the backbone infrastructure regarding both supply on energy and optical fibres.

To support the growth of connectivity in an already congested infrastructure we've invented a hybrid cable that will ensure that the system continues to remain stable, interoperable and secure, while minimising upgrade costs for power conductors and mobile network operators.

By including both power and two BendBright^{XS} fibres in the same cable a safe and reliable feed of both energy and digital information can be secured. Having both in one cable means reduced cable costs as less material has to be used. In addition, you can lower your installation costs as there is only one expense for the materials of the route (e.g. pipes or cable trays) and the installation will be performed by only one installation team. Moreover, the speed of deployment can be significantly increased as you can eliminate the time for legal approvals and agreements since the electrical utility can be installed without legal constraints.

MAIN FEATURES

- Compact design
- Faster installation
- Lower cable costs
- Faster approvals for deployment
- Carbon footprint reduction
- Logistic cost reduction
- One installation team
- Lower total installation costs



BendBright^{XS} bend insensitive fibres

The denser the cable, the higher the risk of fibre stress and bending loss, especially in space limited connectivity devices. Our bend insensitive BendBright^{XS} 200 µm single-mode fibres easily overcome these challenges, offering a stable connectivity and increased resilience.

Gainful application areas

Our new CYY-F-FO cable has great value whenever an installation including both electricity and optical fibre will be taking place, but the hybrid cable is particularly worthwhile within the following domains:

Residential houses: you can feed every apartment with energy and provide FTTH solutions at the same time by using one single cable.

Manufacturing industries: the cable can transfer data from the machines to the server room to optimize power consumption and modify and/or monitor machine settings. At the same time, the cable will power the equipment used near the machine for data collection. Using only one interference free cable will provide less risk for faults and help optimising the space in an industrial environment.

Smart cities: equipment such as Wi-Fi hotspots, lighting fixture controls, sensors measuring temperatures, pollution etc. can be powered by a single cable.

Telecommunication equipment: by using the hybrid cable small field deployment equipment such as optical nodes, switches or even the upcoming 5G antennas can be remotely powered and connected to the data network at the same time.

CYY-F-FO	
Global data	
Brand	Prysmian
Type designation	CYY-F-FO
Standard and certifications	IEC 60502-1 EN/IEC 60332-1-2
Design features	
Elements	Conductors without FO element: Copper Round Flexible (RF) or Solid (RE) Conductor with FO element: Copper Round Flexible (RF) FO element: 1 x TIGHT x 2FO
Core identification (acc. HD 308 S2)	Yes
Fibre type	BendBrightXS
Core insulation material	Thermoplastic or thermosetting materials
Inner bedding (optional)	Rubber like filler, if exist, otherwise talcum powder
Material outer sheath	Thermoplastic materials
Cable shape	Round
Cable colour	Black

CYY-F-FO	
Electrical parameters	
Nominal voltage U0	0.6 kV
Nominal voltage U	1 kV
Test voltage	3.5 kV
Chemical parameters	
UV resistant	Yes
Lead free	Yes
Thermal parameters	
Max. conductor temperature	70 °C
Max. conductor temperature at short circuit	160 °C
Laying temperature (min.)	-5 °C
Laying temperature (max.)	50 °C
Mechanical parameters	
Bending radius (rule)	During installation: 15 x D single-core cables 12 x D multi-cores cables

PATENT

CYY-F-FO hybrid cable is a patented design developed by Prysmian Romania!

FTTH + Energy = Double duty in Slatina

In 2020 the hybrid solution was tested in a pilot project that covered two blocks of flats located in Slatina.

Background

The pilot was part of an extended program to upgrade the old energy infrastructure in a large number of blocks of flats.

Purpose

The purpose of the pilot was to put into effect a solution for connecting apartments in two different blocks of flats to both the electricity distribution network and the Fibre To The Home (FTTH) network.

Based on a Prysmian proposal, the utility company Distribuție Energie Oltenia (CEZ) with the support of ADREM Invest for Infrastructure Design and Installation, decided to test the possibility of improving the deployment by installing a single infrastructure for both utility and telecommunication services.

Benefits

- Speed of deployment significantly increased
- Space usage inside the buildings highly op
- Number of installed networks reduced
- Subscribers' experience improved as both energy and telecommunication was installed during one visit

Description

The first estate included 70 apartments divided between three staircases with five floors on each. The second pilot was a 10-floor estate with 70 apartments but with only one staircase.

The challenge was to make the installations as simple and cost-effective as possible without tampering on
either quality or safety. The solution was to connect our CYY-F-FO hybrid cable to the electrical and optical fibre grids.

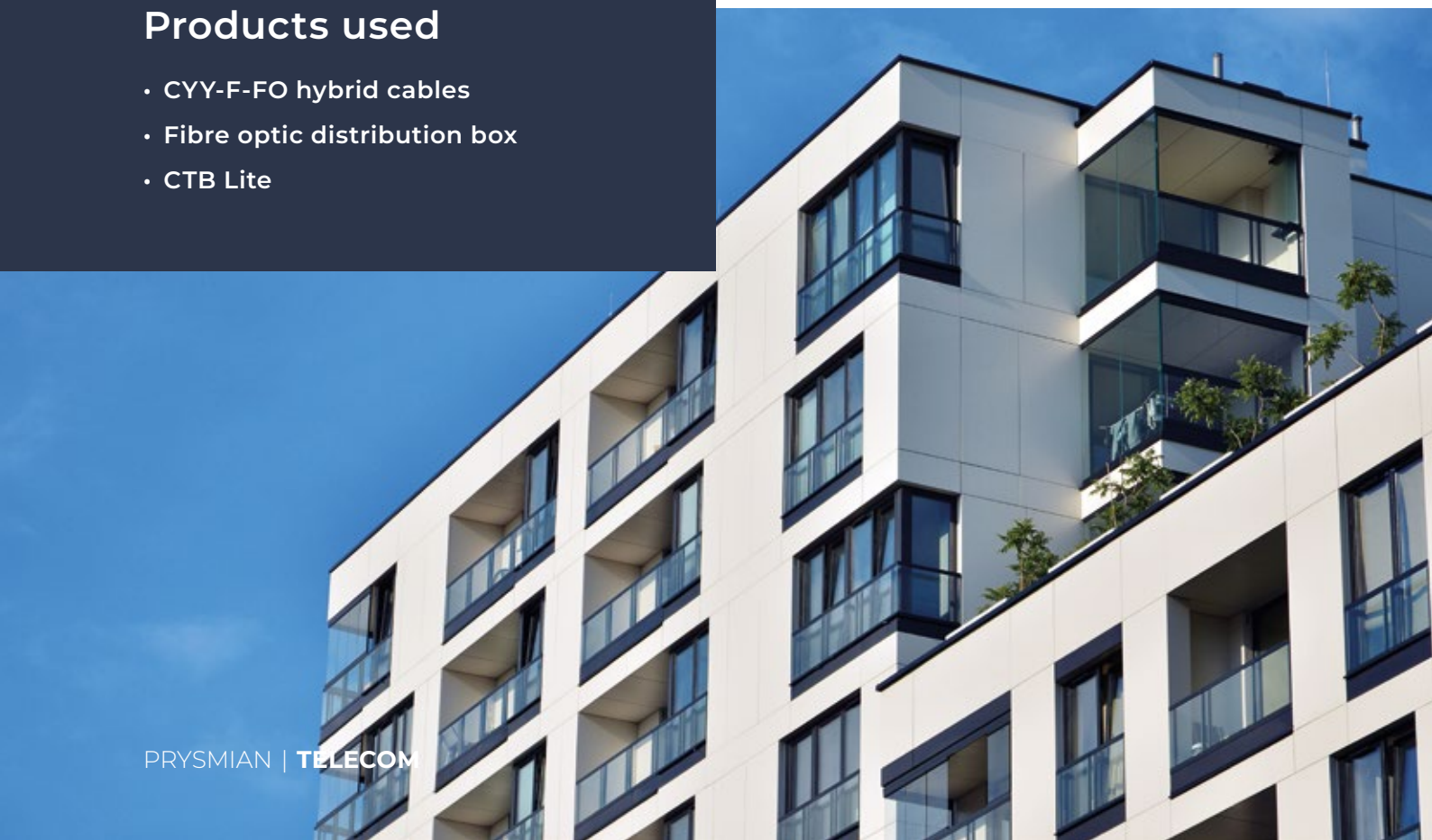
The old electrical distribution niche was replaced with a FDCP and next to it a fibre Optic Distribution Box (ODB)was used to splice the fibre into one fibre for each apartment.

The hybrid cable, in turn, was drawn to each apartment. When entering the switchboard inside the apartment, the electrical wire and the BendBright^{XS} optical fibres were separated (the fibres are embedded among the electrical copper wires).

The electrical conductors were connected to the electrical circuit box whereas the fibre was attached to an optical outlet. The fibre could then be fixed to a router from where data could be distributed wirelessly throughout the home.

Products used

- **CYY-F-FO hybrid cables**
- **Fibre optic distribution box**
- **CTB Lite**



Products used

- CYY-F-FO hybrid cables
- BOX2M data collection equipment

Factory 4.0 in Slatina Milcov

At our own optical fibre plant in Slatina Milcov, we are utilizing the benefits with the hybrid cable CYY-F-FO to a maximum, making it a Master for future factory developments.

Background

Prysmian has launched a project named Factory 4.0, focusing on creating smarter plants in order to streamline our production in benefit of our customers. The goal is partly to schedule machine maintenance and find deviations at an early stage, making our plants safer and more efficient.

Purpose

To be able to prevent rather than to react to problems and critical issues it is imperative for any type of industrial company to keep close track of the mechanical equipment; to collect data continuously and being able to analyse it before running into trouble such as downtime hours due to misfunctioning robots or machines.

At our Factory 4.0 plant in Slatina Milcov, we used CYY-F-FO hybrid cables to connect our manufacturing machines both to the electrical grid and the server room in which data is collected, analysed and immediately acted upon when necessary.

Benefits

- Both energy and data fed through the same cable.
- Received data used to track down critical issues in order to prevent malfunctions.
- Less downtime hours due to breakdowns.
- Happy customers getting their orders in time.
- The company brand strengthened in terms of trust and reliability.
- Optimizing machines power consumption.

Description

The CYY-F-FO is connected to a machine data collection equipment provided by our partner BOX2M. The collected data (for example power consumption, settings and status reports) are transmitted directly to the server room. As the data is being analysed new instructions can automatically be sent to individual machines in order to optimize energy usage or modify settings.

Both the power supply and the data connection are provided by the same cable minimising installation costs and networks. As CYY-F-FO is optical there is no risk of electromagnetic interference.

Smart Cities – the Wave of the Future

A Smart City is a place where traditional networks and services are made more efficient with the use of digital and telecommunication technologies for the benefit of its inhabitants and businesses. It means for example smarter urban transport networks and more efficient ways to light and heat buildings.

To reap the benefits of a Smart City approach, infrastructure needs to support multiple applications in areas such as lighting, traffic, and surveillance. As wireless infrastructure becomes increasingly centralized, it makes sense to converge wireless backhaul traffic onto fibre. However, this requires careful planning, to avoid digging up streets repeatedly.

One important factor is to be as efficient and effective as possible. Like using CYY-F-FO hybrid cable for double work: feeding the equipment with electricity while sending data forward at the speed of light.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