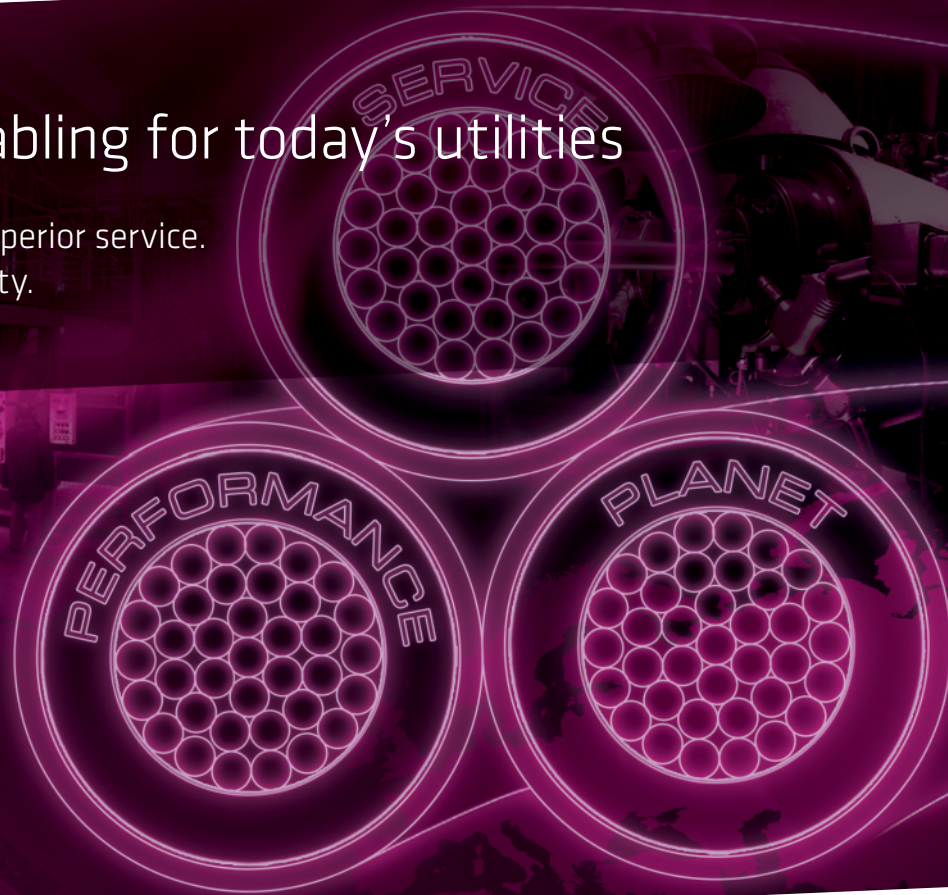


## The future of cabling for today's utilities

Enhanced performance. Superior service.  
Environmental sustainability.



## Linking the future

As the worldwide leader in the cable industry, Prysmian Group believes in the effective, efficient and sustainable supply of energy and information as a primary driver in the development of communities.

With this in mind, we provide major global organisations in many industries with best-in-class cable solutions, based on state-of-the-art technology. Through two renowned commercial brands – Prysmian and Draka – based in almost 100 countries, we're constantly close to our customers, enabling them to further develop the world's energy and telecoms infrastructures, and achieve sustainable, profitable growth.

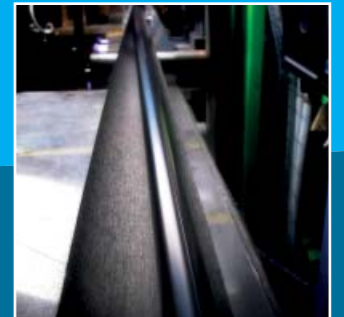
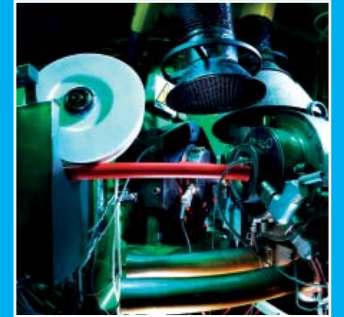
In our energy business, we design, produce, distribute and install cables and systems for the transmission and distribution of power at low, medium, high and extra-high voltage.

In telecoms, the Group is a leading manufacturer of all types of copper and fibre cables, systems and accessories – covering voice, video and data transmission.

Drawing on over 130 years' experience and continuously investing in R&D, we apply excellence, understanding and integrity to everything we do, meeting and exceeding the precise needs of our customers across all continents, at the same time shaping the evolution of our industry.

## P-Laser puts your network a smart step ahead

Thanks to its superior performance and reduced environmental impact, P-Laser is one of the most advanced solutions in Prysmian Group's smart grid range. This eco-friendly MV cable is the perfect way to achieve the balance between a sustainable future for the planet and satisfying future energy requirements.

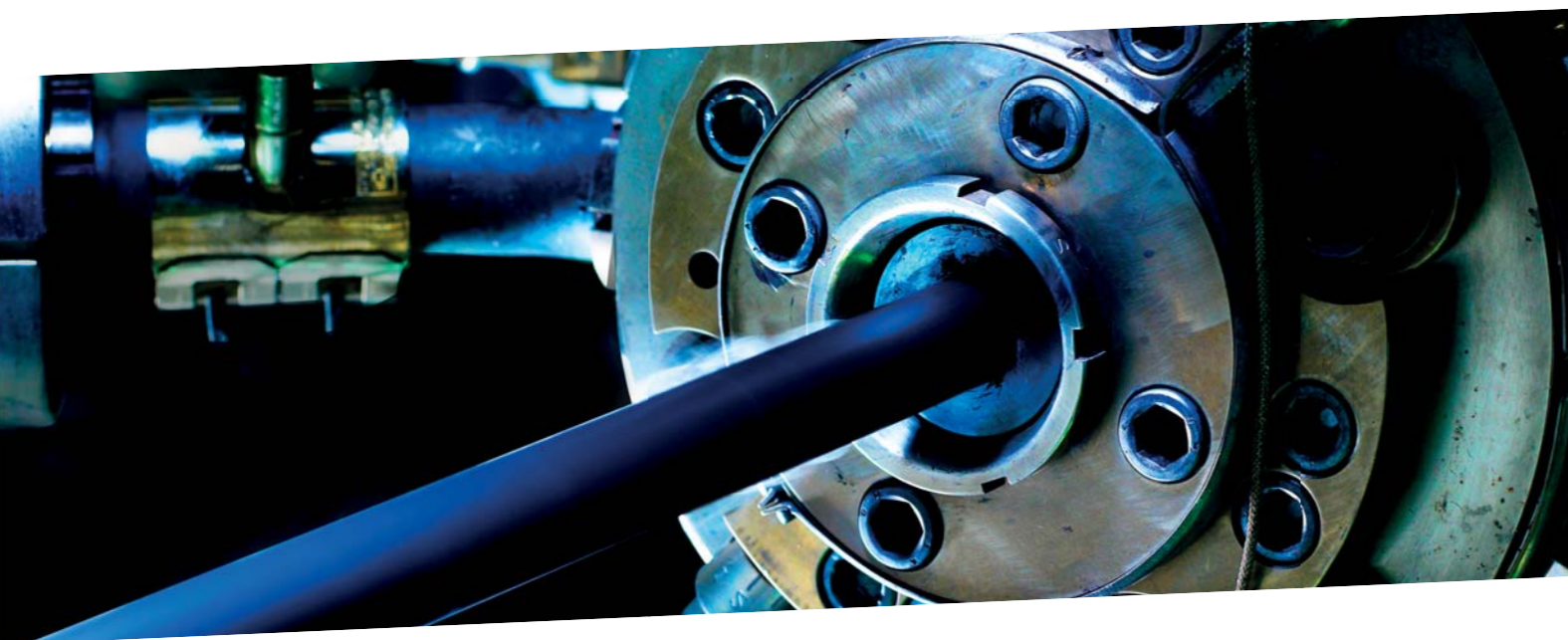


## What links power to the world?

Cable solutions to support the development of the world's energy infrastructure

Prysmian solutions exist to help grid operators and utilities, industrial companies, electrical wholesalers and installers generate and distribute the energy that powers every aspect of our world.

From submarine to high, medium and low-voltage cable solutions, we apply innovation and a commitment to helping customers achieve sustainable, profitable growth. Our best-in-class technology can be found at the heart of many globally significant projects, where power transmission and distribution are critical in the development of tomorrow's communities.







## Linking power grids to sustainability

Working in partnership with you. Understanding the challenges of the utilities sector. Helping you deliver the energy that supports lives around the planet.

Those are the commitments Prysmian makes to you, and which now see us introduce a distribution network cabling solution designed and developed to deliver the performance you need: P-Laser.



### A sustainable solution that integrates seamlessly.

Put us to work for your organisation and you'll discover that, finally, there is a partner offering solutions that are better for the planet and perfectly suited to integrating into your existing networks. A partner that helps you deliver better customer service. A partner whose support means you're ready for the future and the opportunities it presents.



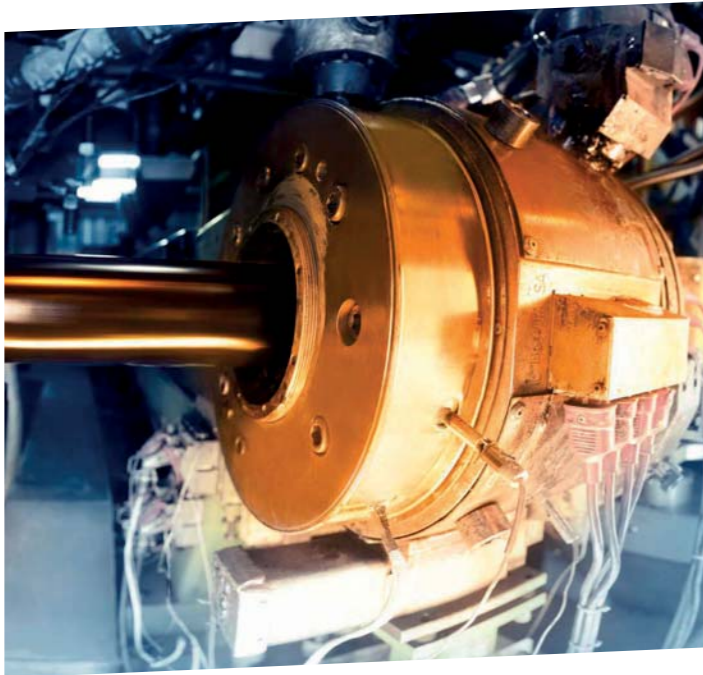


## Leading the world with our utility partners

Introducing a product such as P-Laser is the perfect demonstration of Prysmian's commitment to innovation and to working in partnership with you. And it is a story built on years of research and development.

P-Laser is the culmination of this in-depth R&D work, introducing a significant step forward in cabling technology. As well as providing enhanced performance and reliability, it optimises supply chain processes, reduces total cost of ownership and allows your organisation to operate more sustainably.

**In fact, research and development sits at the heart of what we do.**



### Our R&D expertise

130 years' experience

5,288 patents granted or filed

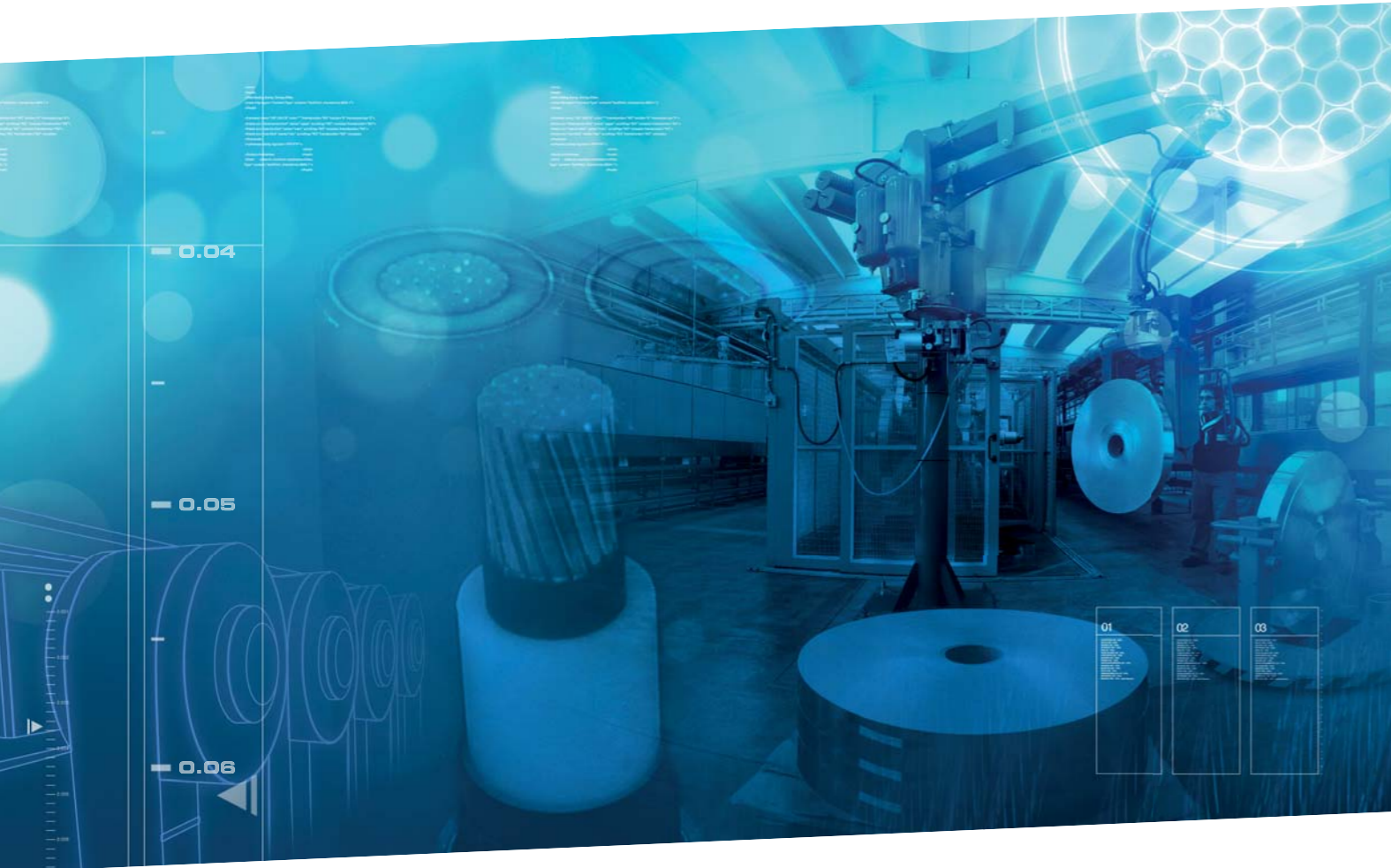
17 excellent centres around the world

600 R&D professionals



# P-Laser gives you more – in three ways

P-Laser is the first eco-sustainable cable for electrical grids. It gives you the ideal solution with which to deliver enhanced network reliability, whilst enjoying operational and environmental benefits.



## Operating temperature range increased by 20%

P-Laser isn't compromised by temperatures as high as 130°C. So in the case of emergencies or grid congestion, it delivers greater capability, meaning your network reliability isn't compromised and you mitigate the risk of financial penalties.



## Superior service thanks to production time cut from days to hours

The process of producing P-Laser is more efficient and reliable than previously achievable. Without the degassing process and thanks to the possibility of uninterrupted, single-line production, you receive the cable you need, faster and in a form that's fully compatible with your existing networks.



## CO<sub>2</sub> equivalent emission reduced by 80% (range)\*

With P-Laser, you are better placed to meet your environmental responsibilities and make less impact on the planet, providing energy in a way that safeguards the future for all of us. That's because it uses:

- **100% eco-friendly thermoplastic\*\* and fully recyclable materials**
- **zero-gas technology, which means increased energy efficiency and reduced greenhouse gas emissions**

\* Refers to the end-of-life phase of Life Cycle Assessment (LCA) evaluation

\*\* HPTE: High-performance Thermoplastic Elastomer



## With P-Laser, rising network temperature doesn't mean falling reliability

In the case of network emergencies or grid congestion, power surges and increased traffic can cause cable temperatures to rise – which can reduce the life expectancy of other cabling solutions.

P-Laser is different. A medium-voltage solution manufactured using thermoplastic, it's capable of performing at higher temperatures than other cabling technology.

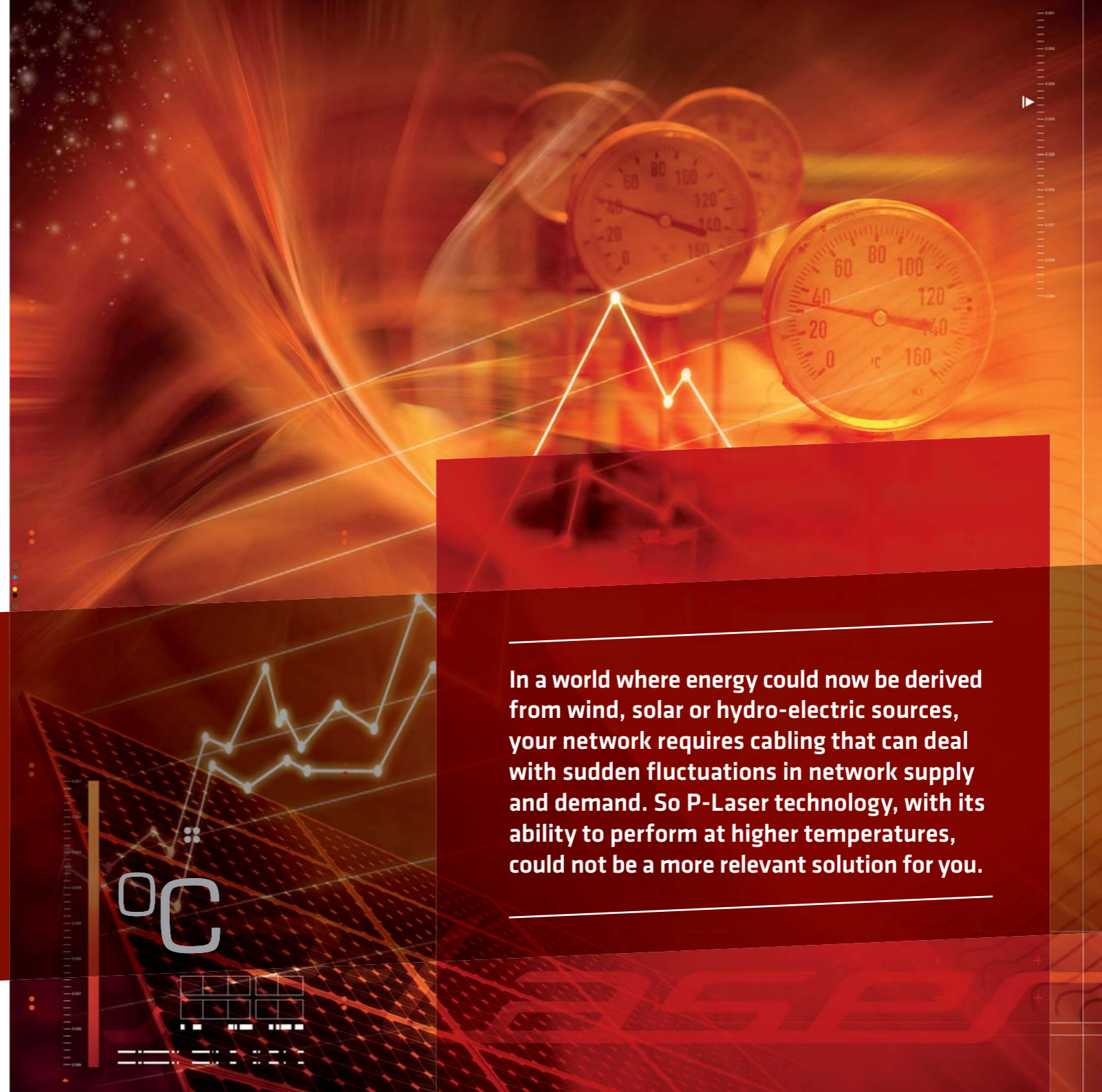
So you know that when the pressure is on, your network will still perform.



	XLPE	HEPR	P-Laser
Operating temperature	Up to 90°C	Up to 105°C	Up to 110°C
Emergency temperature	105°C	130°C	130°C
Dielectric strength	Excellent	Good	Excellent
Electrical breakdown	Very good	Good	Excellent
Dielectric losses	Excellent	Good	Excellent
Thermo-pressure resistance	105°C	130°C	130°C
Handling characteristics	Good	Excellent	Excellent

 :Best in class

In a world where energy could now be derived from wind, solar or hydro-electric sources, your network requires cabling that can deal with sudden fluctuations in network supply and demand. So P-Laser technology, with its ability to perform at higher temperatures, could not be a more relevant solution for you.





## A production process that means better service for you

The production of P-Laser is more efficient and reliable than previously achievable with existing cabling solutions.

P-Laser is manufactured using a high-performance thermoplastic elastomer (HPTE) developed by Prysmian's R&D laboratories and covered by patents and patent applications.

The use of thermoplastic means degassing is no longer required and it is possible to manufacture P-Laser on a single and uninterrupted production line.

This means product and production process are completely integrated, which significantly streamlines the supply chain and considerably reduces factory lead times. So not only does the product deliver performance benefits, it also means you enjoy advantages in terms of service and supply.

Finally, P-Laser is a product developed to satisfy the bespoke requirements of networks in various countries, and is 100% compliant with current network components.



	Standard process		P-Laser process	
	Elapsed time	°C	Elapsed time	°C
<b>Insulation</b>	11 hours	130-300	5 hours	200
<b>Degassing</b>	48+24 hours	80		
<b>Jacketing</b>	8 hours	200		
<b>Total</b>	91 hours (≈ 4 days)		5 hours (-94%)	

“ P-Laser's production processes mean significant reductions in lead time and real advances in product availability. ”

**Massimo Battaini**  
Chief Operating Officer,  
Prysmian Group





## Meeting the demands of your business and the planet

Whether it's to satisfy your sustainability objectives or to reduce your impact on the planet, environmental concerns are never far from the agenda of a utility organisation like yours.

That's why P-Laser cabling is the ideal answer. Manufactured using thermoplastic and fully recyclable materials, the solution is 100% eco-friendly. What's more, its innovative production process and 'zero-gas technology' mean increased energy efficiency and reduced greenhouse gas emissions.

So, from your operations to the world in which we live, you know you're satisfying the demands placed upon your business.

### Meeting regulatory requirements

Along with all other Prysmian products, P-Laser is manufactured to comply with major national and international standards across Europe. The Prysmian sites on which P-Laser is manufactured are certified according to ISO 18001 Quality Management Systems standards for their specific activities and products and ISO 14001 Environmental Quality standards.



**=500 kg**  
of recyclable plastic

Thanks to fully recyclable materials, 500kg of high-quality plastics are recovered from every 1km of 185mm<sup>2</sup> cable core section.

“ Prysmian's aim is to partner utilities engaged in upgrading and developing their electrical grids while seeking to reduce the environmental impact of such grids. ”

**Fabio Romeo**  
Executive Vice President Energy Business,  
Prysmian Group

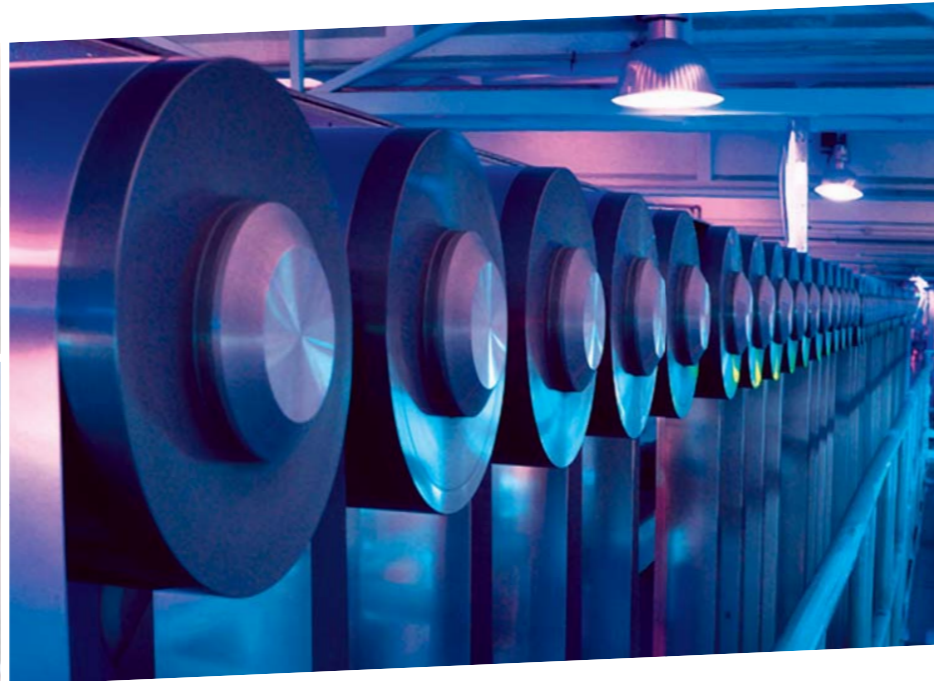




# Total Compatibility

P-Laser technology has been designed to meet your precise requirements. Every stage of its production – and its performance – is optimised to deliver maximum benefit to you. P-Laser represents a major step forward in distribution network cabling, but its implementation in the field is entirely consistent with existing processes.

- The same tools
- The same joints
- The same preparation methods
- The same technicians



“ From the outset of the P-Laser project, compatibility has been at the forefront of our thinking. We were determined to develop a product that integrated seamlessly with all existing technology, be that Prysmian’s or indeed competitor products, and required no re-training. ”

**Alberto Bareggi**  
R&D Product Development Manager Power Distribution,  
Prysmian Group

01	02	03
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# P-Laser – a history of innovation

The history of Prysmian Group is punctuated by many notable innovations. From the laying of cabling between Italy and the American continent to a submarine telephone line between Europe and South America, we've constantly led the world in cable solutions. P-Laser is a further continuation of this commitment to innovation, representing a breakthrough in sustainability and performance.

- 2003** Start of development activity in R&D, Milan Laboratory
- 2005** Prototype production in Pignataro Maggiore (Italy)
- 2006** Installation and plug-in in Italy for triplex 185mm<sup>2</sup> 12/20kV in Enel electrical network
- 2007** Installation and plug-in in The Netherlands for triplex solid 240mm<sup>2</sup> 6/10kV in Nuon/Liander network
- 2008** National approval release according to CEI 20-86 standard (Italy)
- 2009** Production of 3,000km core achieved in Pignataro factory to support Italian customers
- 2010** Production of airbag cable with P-Laser technology. 7 layers extrusion in one single production step
- 2011** Extension of product range up to 30kV for Wind projects
- 2012** Incorporation in the European standard for MV cables, Cenelec HD 620, of Italian and Dutch cable constructions with high-performance thermoplastic insulation

# P-Laser

## P-Laser track record

More than 17,000km core produced in Europe to deploy P-laser technology around Europe

- |                  |                 |
|------------------|-----------------|
| Italy            | The Netherlands |
| - ENEL           | - Alliander     |
| - Acea           | - Enexis        |
| - Acegas         |                 |
| - EN.IT          | Spain           |
| - ELCE,          | - Iberdrola     |
| - AGO Renewables |                 |
| - F.E.R.A.       |                 |



**Prysmian Group**  
Linking power to the world

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