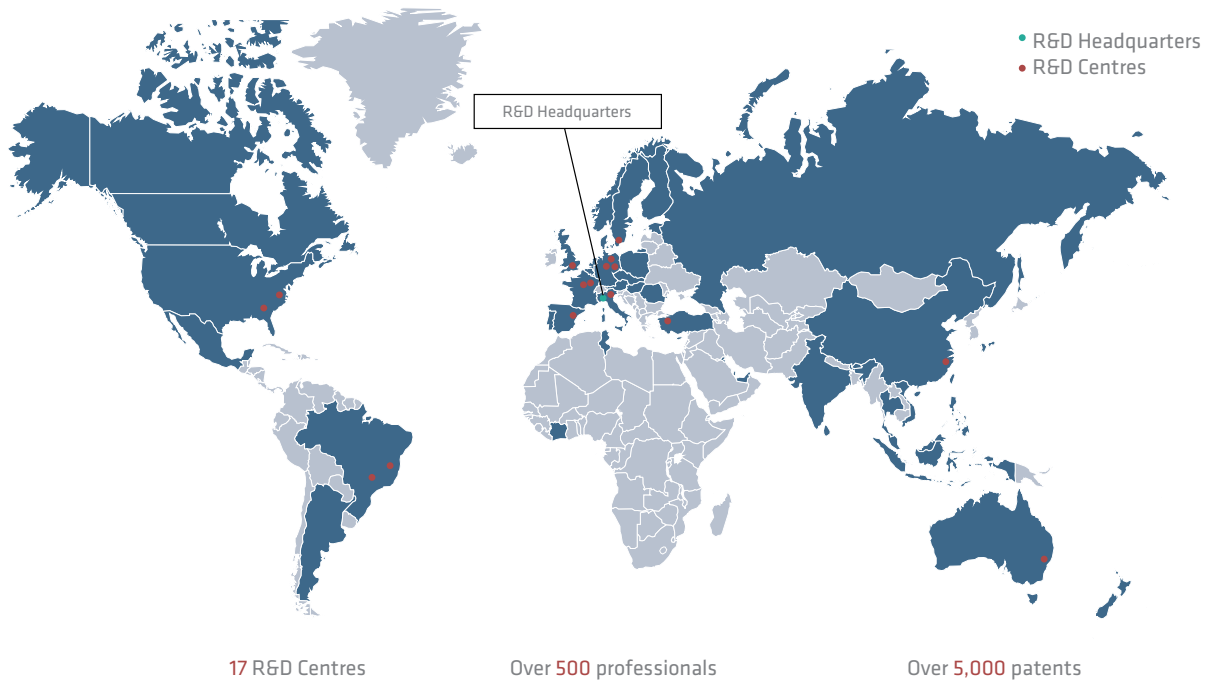


RESEARCH AND DEVELOPMENT

With 17 Centres of Excellence, over 500 professionals, about 5,700 patents and partnerships with universities and research centres in many countries, the Prysmian Group intends to be an innovation leader.

Prysmian Group has always given key strategic importance to Research & Development to maintain its market leadership, with the aim of differentiating itself and of providing its customers with technologically innovative solutions at increasingly competitive costs. The Group currently has 17 Centres of Excellence, with headquarters in Milan, and over 500 skilled professionals. With around 5,700 patents

granted or filed and partnerships with major universities and research centres in many countries where it is present, the Prysmian Group intends to be industry leader in R&D. The Group's spending on Research, Development and Innovation amounted to approximately Euro 68 million in 2013, broadly in line with the previous year and confirming its steadfast commitment to and focus on long-term sustainable growth.



The main achievements of the year in the **Energy business** included:

- In the area of Submarine cables, internal qualification testing was completed of the 2400 mm² Cu 600 kVDC MIND (mass impregnated-non drain) cable for the WesternLink project, including the official type test; a prototype 1900 mm² Al 500 kVDC MIND cable was produced for the Montenegro-Italy project, and its internal qualification completed, as was the new composite armour system for 150 kVAC three-core cables, which substantially reduces cable weight and consequently allows cables to be

laid at depths well beyond current limits; the SZ stranding line (energy conductors twisted in alternating directions as indicated by the letters S and Z) entered full operation at the Arco Felice plant for all three-core high voltage cables.

- In the High Voltage cables area, a new insulating package for applications up to 400 kV was identified and implemented internally in order to reduce the dependence on the current supplier; a 150 kV WAS (welded aluminium screen) design was qualified and went into production at the Pignataro plant, allowing a reduction in average variable cost of 150 kV cable production compared with the previous design; a 110 kV WAS design with integrated optical

element went into production at Delft; the 150 kV Feltoflex cable for the EXXON Mobil project achieved qualification and entered production.

- With reference to developments in P-Laser technology, a 1,000 mm² Cu 150 kV cable was fully qualified and installed in the Lacchiarella circuit for the Italian customer Terna; the cable has a much lower environmental impact than conventional XLPE systems, and is designed to be fully compatible with this type of cable. This is the first installation in the world of a 150 kV cable with thermoplastic insulation at operating temperatures of ≥ 90 °C, which has been laid in a particularly important part of the national transmission grid located in the south-west of Milan. In addition, testing of a 240 mm² Al 20 kV cable for Iberdrola was started and the 20 kV and 30 kV versions of the cable were fully qualified; in The Netherlands, the manufacture and sale of 20 kV cable to the customer Alliander was completed. Lastly, the pre-qualification phase was started for a 320 kV HVDC prototype; this development displayed the benefits of P-Laser technology, which not only reduces the product's environmental impact (due to the thermoplastic recyclable nature of all the cable's components) but also allows complete elimination of the degassing phase typical of cross-linked insulated cable.
- In the Trade & Installers and Power Distribution businesses, with a difficult market backdrop especially in Europe, attention focused on the transfer of know-how and technology from European subsidiaries to those operating in emerging markets such as China, Hong Kong, North America and Brazil.
- In the OEM cables business, several new products were released during the year, including SHD and SHD-GC cables (standard mining cable in accordance with ICEA standards) in South America, EN-compliant railway cables for applications down to -50 °C, developed in France and Germany, hybrid cables with low and medium voltage for mining applications (Tenax R - Tri Plug) in Germany, a 25 kV railway power cable for Alstom in partnership with France and Germany, the Panzerflex ELXX, a lighter and smaller cable, for Crane application in Italy, a cable for submersible pumps in North America that meets Franklin Electric and European standards for drinking water applications; in addition, work continued on the transfer of know-how and technology between subsidiaries in order to serve customers locally without the need for production by other sites in the Group.
- In the Elevator Cables business, several new products were developed during the year, including special conductor flat cables for high-speed elevators, suspended cable bundles up to 4.25" in width, developed under a joint venture in China with Nantong Zhongyao Mechanical & Electrical Manufacturing Co. Ltd., brakes for safety ropes up to 5/8", developed in partnership with a Chinese supplier (the brake

is designed and optimised to stop unexpected movement of the elevator), a special monitoring system developed in partnership with ElectroDYN Systems for old generation elevators lacking built-in sensors, and the automatic Acculube Rope Oiler system.

- In the area of Prycam technology, two important new versions of the products were developed in 2013 to monitor electrical parameters in fixed installations: Prycam Grids, for monitoring high and medium voltage systems, and Prycam Drive, targeting the sector of engines and generators. Both instruments, offering very high performance in terms of measurement sensitivity and reliability, are fully accessible online, allowing data to be stored in a database and the setting of alarm functions for anomalies detected during monitoring.

Achievements in the **Telecom business** included:

- In the field of Optical Fibre and Optical cables for telecommunications, the Group carried on developing bend-resistant fibre (BendBright-XS) and special eco-friendly cabling solutions for FTTH (Fibre to the Home) applications and for mobile networks (LTE and 4G networks). These new products (Micro and Nano Flextube optical cables) offer an excellent solution for use in conduits congested with other cables. In addition, the new "RetractaNet" technology, able to reduce user connection costs by up to 25%, was rolled on a massive scale in The Netherlands.
- In the Connectivity field, several new connectivity accessories were developed for use in FTTH (Fibre to the Home) and FTTA (Fibre to the Antenna) applications; in particular, new types of joints were qualified for installation in the basements of buildings and/or apartment buildings for connecting the distribution network to the building's own network.

In terms of **industrial innovation**, the strategic role played by materials in cable and accessories technology had led Prysmian Group to step up its exploratory studies in this area. Among the main achievements in the year:

- In the petrochemicals sector, prototypes of 4" and 6" flexible pipes were manufactured in Brazil for deepwater pre-salt oil fields, using innovative technology that can minimise corrosion by hydrogen sulphide and carbon dioxide, thus allowing these pipes to be used in oil and gas reserves full of such gases, like those off the coast of Brazil.
- Innovative materials for SURF applications were successfully tested, both in the lab and factory, for use in manufacturing flexible pipes and umbilicals; these materials have much better thermo-mechanical and chemical stability than those currently used.
- A technique was developed and validated for determining the gas permeability of polymeric materials used in flexible pipe manufacture; this process allows the composition

of corrosive gas in direct contact with the armour to be assessed.

- The most recent formulations for the Afumex line went into production, with an improved performance in terms of operation and mechanical properties, while the study of heavy metal and phthalate plasticiser-free PVC formulations was successfully completed.

Lastly, work on cost optimisation continued during the year. The package of DTC (Design to Cost) projects was extended to over 1,500 projects, which, combined with compound rationalisation and better use of materials, allowed the Group to achieve further significant cost savings.

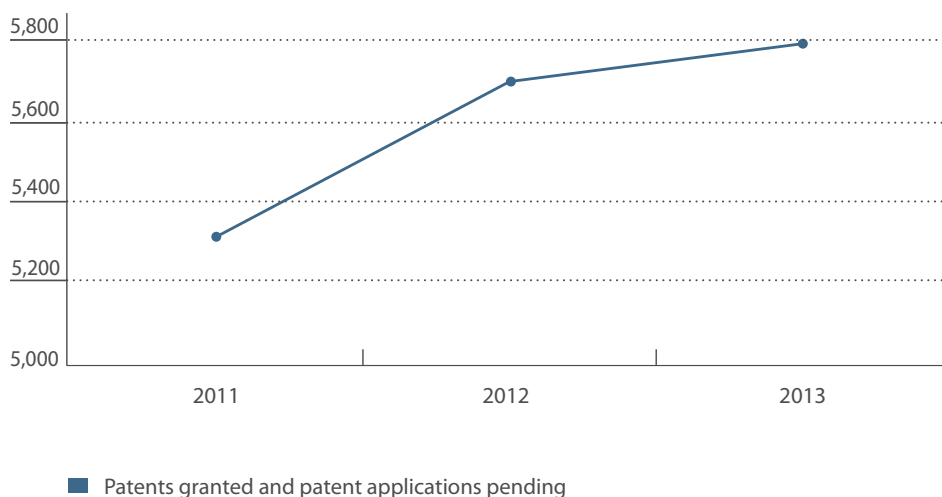
Intellectual property rights

Protecting its portfolio of patents and trademarks is a key part of the Group's business, particularly due to its strategy

of growth in high-tech market segments. In particular, the Group's intense R&D activities, in both the Energy and Telecom businesses, have allowed it to continue to add to its patent portfolio, especially in the high-tech and higher value-added segments, to support its major investments in these fields in recent years and to protect the related businesses, both now and in the future.

As at 31 December 2013, the Prysmian Group had 5,731 patents and pending patent applications throughout the world, covering 905 inventions (of which 268 in the Energy business and 637 in the Telecom business). During 2013, 37 new patent applications were filed, of which 23 in the Telecom area and 14 in the Energy area, and 209 patents were granted after examination, of which 37 by the European Patent Office (EPO) and 59 in the United States.

PATENTS GRANTED AND PATENT APPLICATIONS PENDING



The most important products, typically distinguished by particular characteristics or a specific production process, are protected by trademarks that allow them to be identified and guarantee their uniqueness. At the end of 2013, the Prysmian Group also owned more than 3,000 trademark registrations in its countries of operation, corresponding to 648 different trademarks covering the names and identifying symbols of its companies, activities, products and product lines.