

# ENERGY NETWORK SOLUTIONS



Network  
Diagnostics



High Voltage  
Jointing



Circuit  
Reinstatement



High Voltage  
Testing

Prysmian  
Group

Linking  
the Future



# About us

For 100 years Prysmian has been designing, manufacturing and installing high voltage and extra high voltage cable systems throughout the UK and the rest of the world.

When it comes to maintenance and repair of existing fluid filled, polymeric insulated cable systems in the UK there is no other company who can claim to have greater experience than Prysmian. Our company has been installing and maintaining high voltage pressurised fluid filled cable systems, MIND insulated and Polymeric cable systems since their first introduction into the UK.

Prysmian are unique within the UK cable network maintenance sector in being able to utilise our manufacturing units, jointing and fluid technician training school and high voltage and chemical laboratories to support our maintenance activities.

## What is Energy Network Solutions?

Prysmian's Energy Network Solutions business operates a team of engineers, cable jointers and fluid technicians and our 24 hour call out rota system couples with our emergency hotline to ensure that Prysmian are able to provide a response 24 hours a day.

Whether the problem is catastrophic damage or an oil pressure alarm indication, Prysmian Energy Network Solutions are able to provide the specialist response expected from a leading manufacturer of power cables and accessories with 100 year history in the UK.

**24 Hr Emergency Hotline:**  
**0845 400 2 132**

Prysmian Group operates 51 factories worldwide which include both cable and accessory manufacturing plants within the UK, supported by regional operational bases.







# Network Diagnostics

## Asset monitoring systems & diagnostics

### For data-driven power

The worlds of monitoring, condition assessment and asset management of electrical systems are undergoing a revolution that can help prevent failures and service interruptions, increasing uptime and safety, enhancing longevity and significantly reducing maintenance costs and risks.

PRY-CAM is a breakthrough technology paired with a suite of electronics-based products that allow performing online measurement and data gathering of key parameters without service interruption, supported by a cloud data management platform.



### Partial Discharge (PD) monitoring solutions

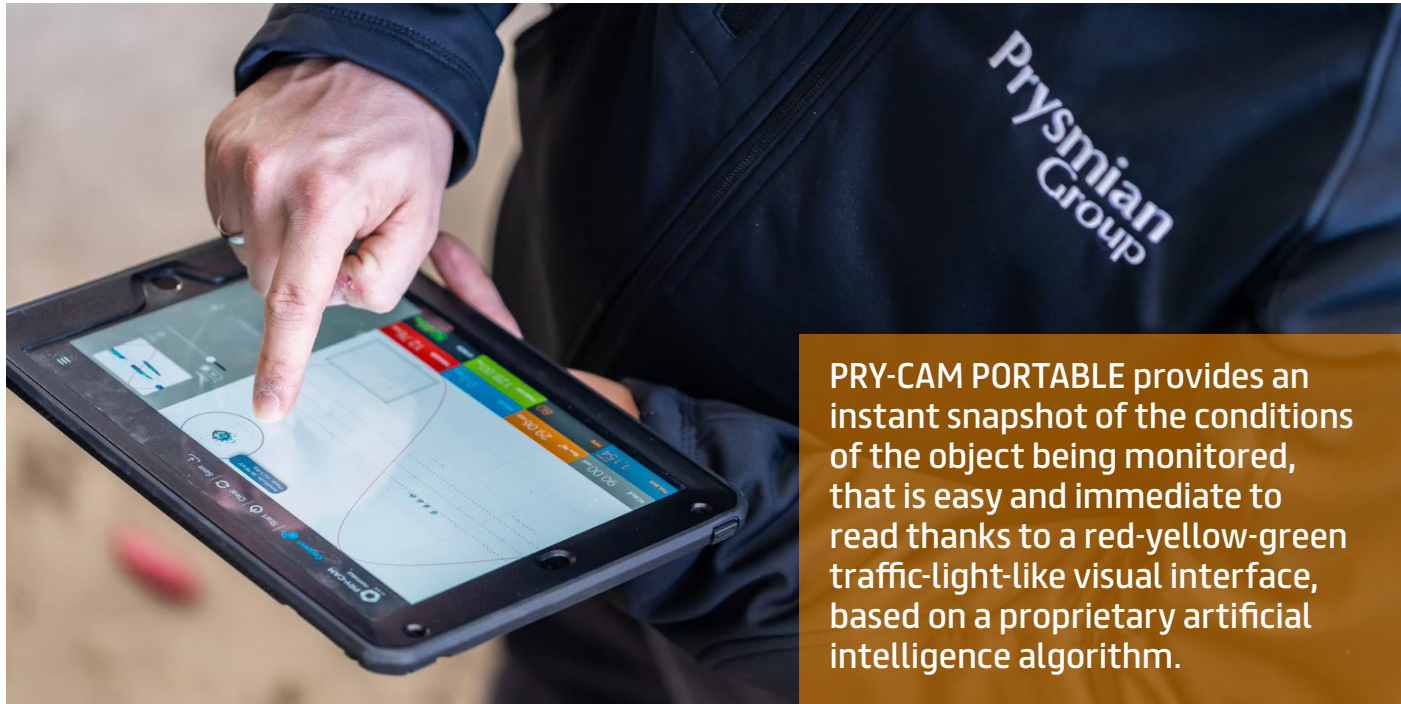
PD measurement is a key parameter to assessing the conditions of any electrical system. Nevertheless, PD testing has never been widely used as a powerful online diagnostic tool due to several limitations of traditional PD technologies, which are usually complex, expensive, unscalable to the whole asset and nearly impossible to integrate with all key asset parameters. In addition, defect detection and localisation can't always be performed online.

PRY-CAM innovative wireless technology allows PD testing to be performed online - i.e. without having to switch the system off - and without the need for a direct connection to what is being tested, which means also greater safety for operators. Hundreds of failures have already been prevented using PRY-CAM condition assessment and defect localisation systems and services.



## PRY-CAM Portable

PRY-CAM PORTABLE is an integrated portable instrument for the automatic acquisition, processing and classification of pulse signals generated by PD phenomena occurring in insulating materials of Medium and High Voltage electrical systems and equipment, such as transformers, electrical machines, cables systems and switchgear.



## PRY-CAM Grids

PRY-CAM GRIDS is a fixed device for the temporary and permanent monitoring of PD in AC electrical systems through PRY-CAM WINGS sensors. Key features include online installation, no galvanic connection, several data connectivity modes for remote communication and access, automatic advanced warning and alarms based on PRY-CAM BRAIN A.I. algorithm.

PRY-CAM WINGS sensors are active sensors that provide higher sensitivity, up to 70 MHz bandwidth, suitable for continuous monitoring of PD and temperature and are IP 68 rated (can be installed in critical water environment).

For HVDC electrical systems PRY-CAM GATE is the only PD monitoring solution available on the market to date.





# PFT Solutions

## What is PFT?

PFT stands for Perfluorocarbon Tracers. These highly volatile compounds with excellent insulation properties are added to the cable fluid in minute quantities. Where the cable system is damaged, the fluid with the PFT tracer leaks into the environment and the volatile PFT compounds permeate through the ground and can be picked up using highly sophisticated detection equipment.

Prysmian Group have developed specialised methods of mixing PFTs with cable oil to facilitate injection into the cable system with no detriment to the oils flow or its insulation properties. Through Prysmian's unique position in continuing to manufacture accessories for fluid filled cable systems we have developed bespoke tagging equipment which is modular and easily deployable to site.



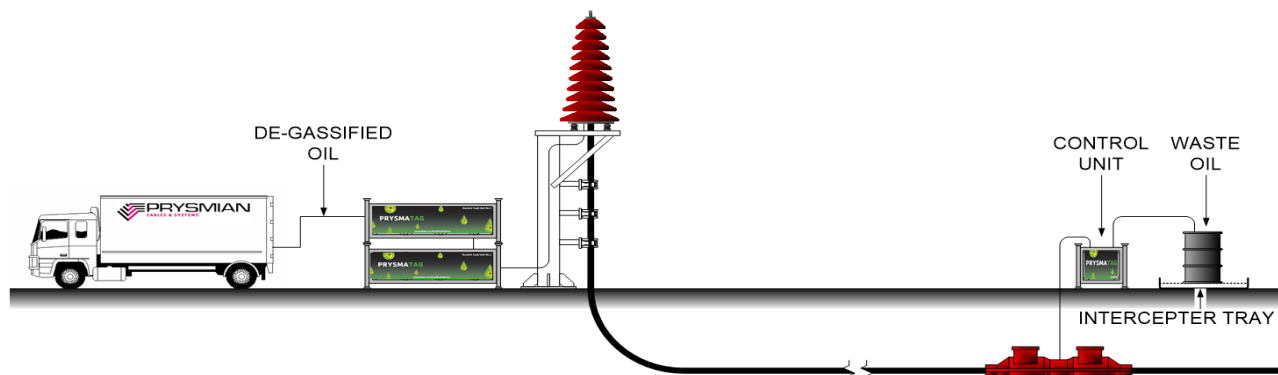
## Injection

Circuit tagging can be carried out with or without the need for a circuit outage. Prysmian has developed technical solutions to overcome all variables in cable design and hydraulic installation parameters. PFT technology has the following advantages:

Vulnerable cable systems that have high environmental impacts if they leak can be pre-tagged so that should a leak occur it can be located and repaired promptly.

Cable systems that have on-going small leaks can be tagged during an outage period and leak detection can take place whilst the system is energised.

Many fluid filled cables have poor quality cable fluid. Replacing the loose oil with modern alkylbenzene oils offers greater biodegradability should these fluids leak into the environment. Furthermore, modern alkylbenzene oil has superior electrical qualities and greatly improved gas absorption properties.

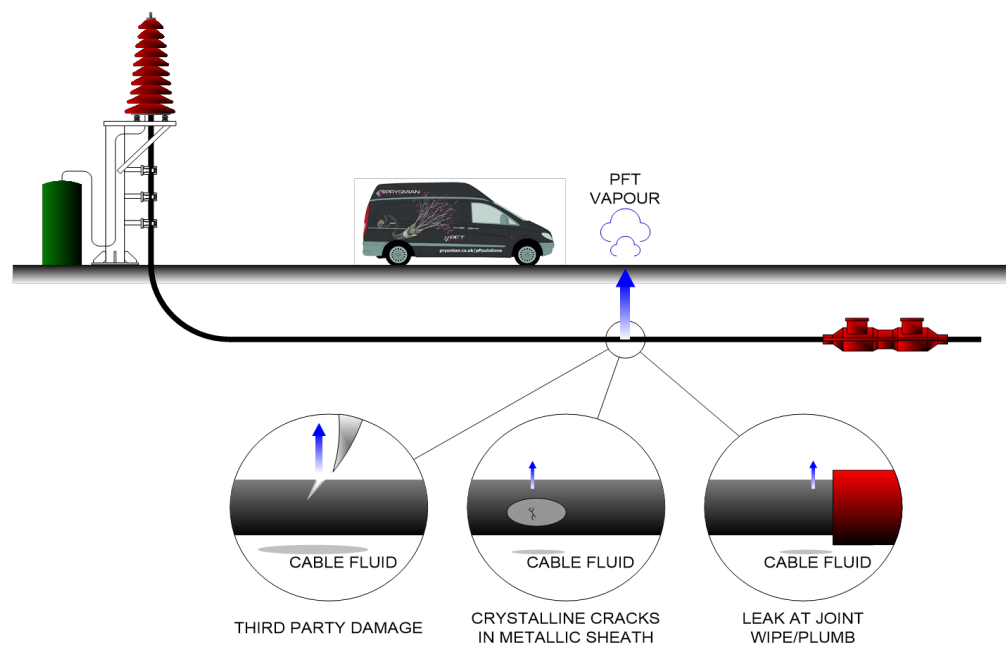




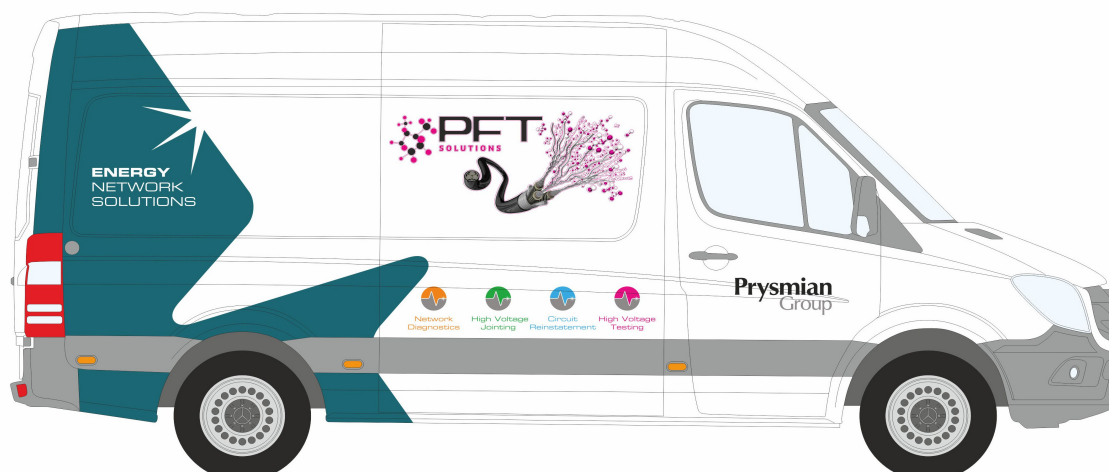
## Detection

Prysmian Group has developed an advanced mobile laboratory, which can detect background levels of perfluorocarbons in the atmosphere. Prysmian's mobile laboratory will sample the air over the cable route and detect any PFT which has permeated through the subsoil from the leaking cable fluid. The level of PFT above a cable leak is incredibly small, typically 40 to 100 parts per million however, using our specialist equipment it is readily detectable above background levels of perfluorocarbon.

The main advantage of Prysmian Group's PFT Solutions mobile laboratory is that the analysis time between taking the air sample and gaining the result is 90 seconds, meaning that detection results are achieved in real time. This compares very favourably with other technologies which require air sample tubes to be taken and samples to be sent by courier to laboratories and then results received one/two weeks later.



Prysmian Group PFT Solutions offers all the essential services, tools, equipment and specialist knowledge required for modern fluid filled cable maintenance.



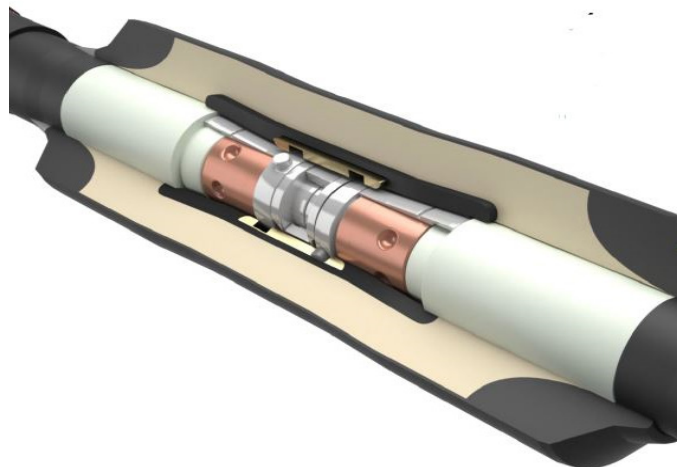


# High Voltage Jointing

## Our expert jointers

All jointing operatives and fluid mechanics have undergone training and certification in Prysmian's own purpose built training school. Prysmian cable jointers and fluid mechanics also undergo regular refresher training within the Prysmian training school in order to ensure that Prysmian's high standards are being maintained. Prysmian not only trains its own personnel at our training facilities but offers external training opportunities to the wider industry.

Our site operatives are supported by Prysmian's dedicated maintenance engineers and from head office by jointing engineers, oil engineers, cable system & installation designers, cable accessory designers, high voltage cable technologists and our logistics department with its extensive holding of special jointing tooling and materials.



Whether it is the installation of new cable accessories or the repair of existing cable accessories, Prysmian are able to provide all the necessary skilled resources required, for all voltages up to and including 400kV.





# Circuit Reinstatement

## What we offer

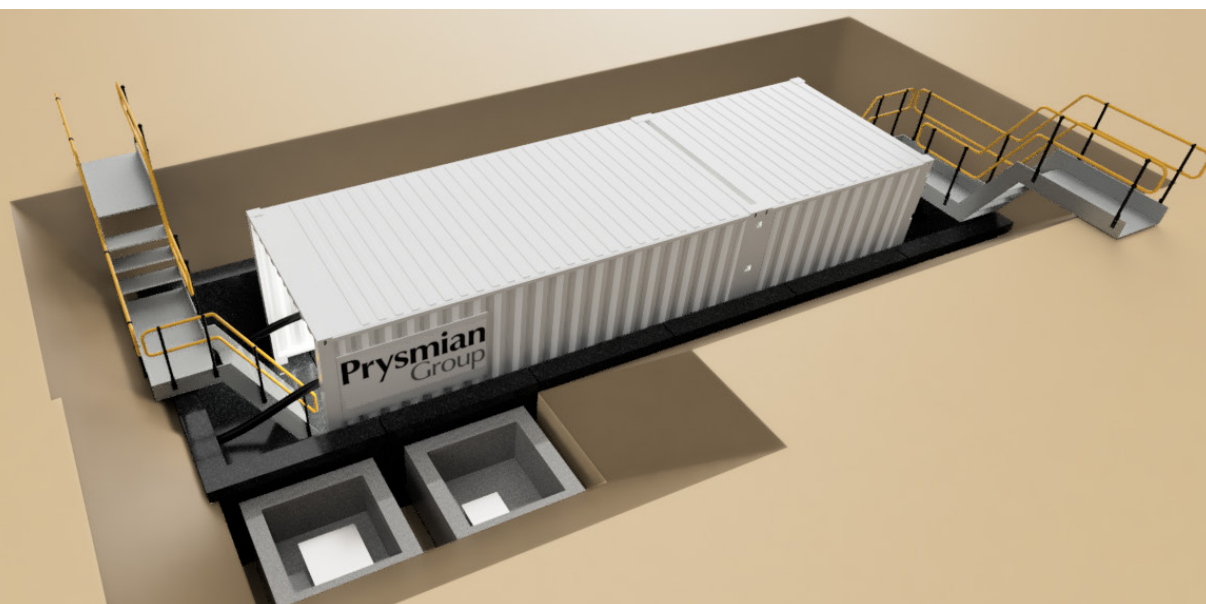
Prysmian can offer a full range of services required to maintain, repair or upgrade your transmission or distribution network.

Including design feasibility studies, circuit overlays, diversions and repairs, with our in house system and installation designers, engineers, jointers, fluid mechanics, civil operatives and diagnostic engineers we have the capability and experience to engineer the solution to safely deliver your operational requirements.

Our UK based high voltage cable and accessory manufacturing facilities and expertise enables Prysmian to identify and provide all the materials required to reinstate the circuit to commercial operation in the shortest practical time scale.

Our company's long history in the supply, installation, repair and maintenance of high voltage cables and systems, working with many different clients within the UK and worldwide, makes us fully aware of the critical importance of returning a power cable circuit into service as soon as possible following a circuit outage.

Whether the outage is planned or the result of a fault or third party damage Prysmian's clients can be assured that Prysmian have all the resources necessary to reinstate the circuit to full commercial operation quickly and economically, addressing diagnostics, repair and testing, without compromising the future integrity of the circuit.



Typical joint bay arraignment.

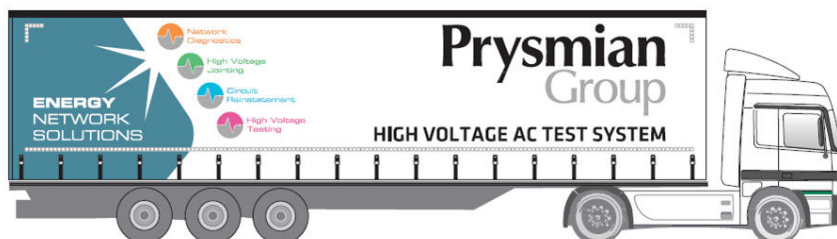


# High Voltage Testing

## Mobile High Voltage Testing

In addition to our high voltage laboratory in Eastleigh, UK, Prysmian have extensive mobile high voltage testing facilities. High voltage tests are often required prior to returning a cable circuit into service following replacement of major components, such as cable joints or the diversion of an existing circuit. Prysmian are able to perform a full range of tests on a cable circuit whether as part of repair, diagnostics or routine maintenance performed in order to avoid a fault and hence a forced outage occurring in the future.

Prysmian within the UK have in house three HV resonance test trailers capable of testing up to 400kV. We have the capacity to mobilise multiple HV test teams at any one time anywhere in the UK. Further capacity, when required, is available from Prysmian affiliates in Europe, fully SCT36 compliant. We have a team of highly skilled operatives that offer a national service. This enables us to offer a flexible service to work with customers on changing installation programmes. We are also able to offer a wide range of ancillary testing services including PD monitoring, HVDC testing, sheath continuity testing and fault finding services.



## Mobile Testing Facilities include:

### Low Voltage Testing and DC Testing

- DC conductor resistance tests.
- Sheath resistance and continuity checks.
- Contact resistance measurement.
- Serving (oversheath) testing.
- Oversheath fault location.
- Insulation resistance measurement.
- Cable sheath voltage limiter (tests for correct operation up to 15kV).
- Cable cross bonding verification checks.
- Impedence measurements.
- Cable fault locations.

### High Voltage Testing

- High voltage DC testing at voltages from 10kV to 450kV.
- High voltage AC testing at voltages up to 310kV.
- Partial discharge monitoring on termination and joints while energised by the AC test equipment.
- Online partial discharge monitoring of circuits on load.





## ENS Depot Locations



We have regional depots throughout the UK to allow us to provide a national service providing reactive maintenance to minimise costly circuit down time.







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24 Hr Emergency Hotline:  
0845 400 2 132

Website  
[uk.prysmiangroup.com](http://uk.prysmiangroup.com)

Email  
[cables.marketing.uk@prysmiangroup.com](mailto:cables.marketing.uk@prysmiangroup.com)