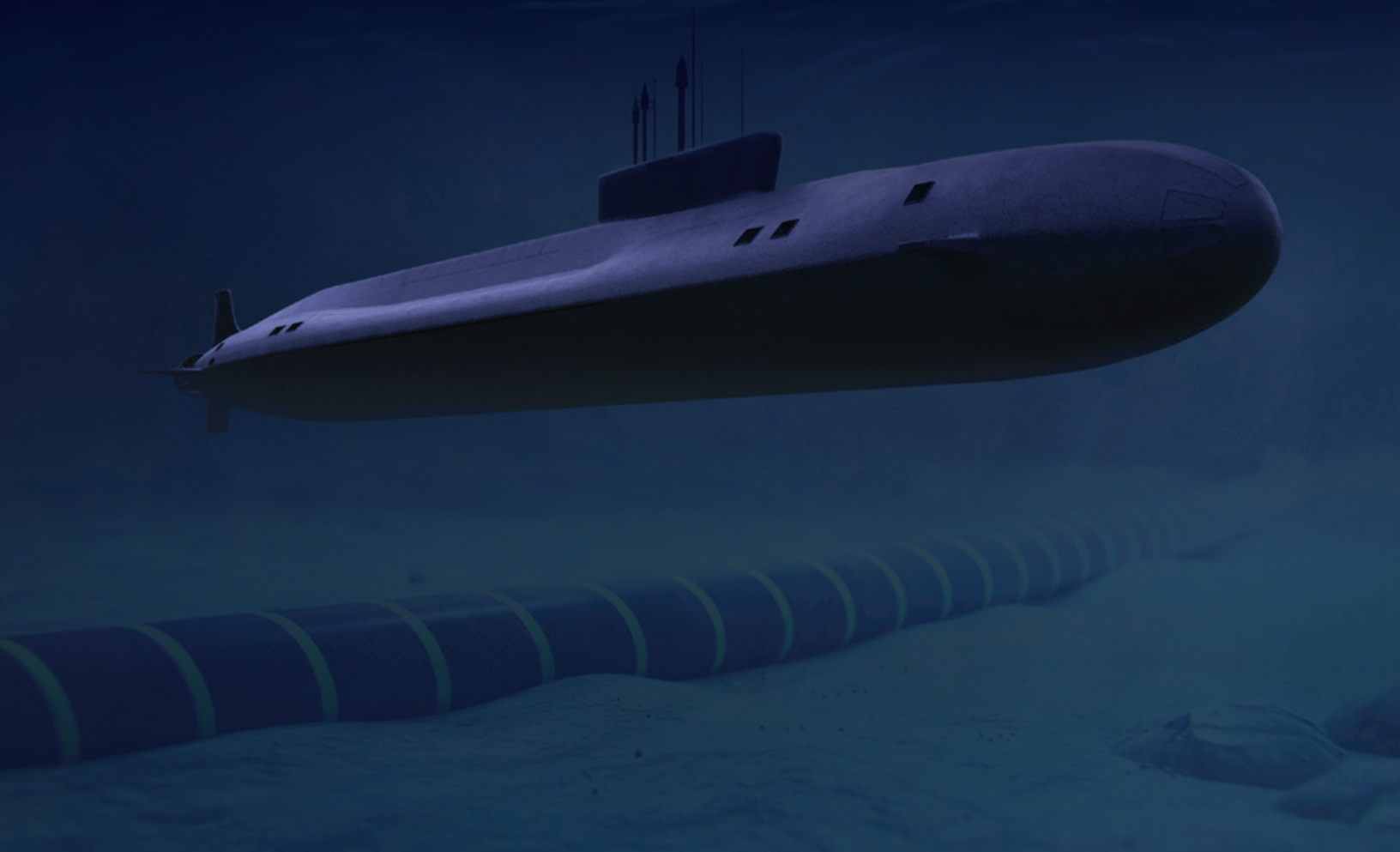




Leading the way in subsea connectivity solutions
for the defense, military aerospace, oil and gas,
and marine renewable energy sectors.

hydrogroup-uk.com

hydrogroupsystems.com



HYDRO GROUP

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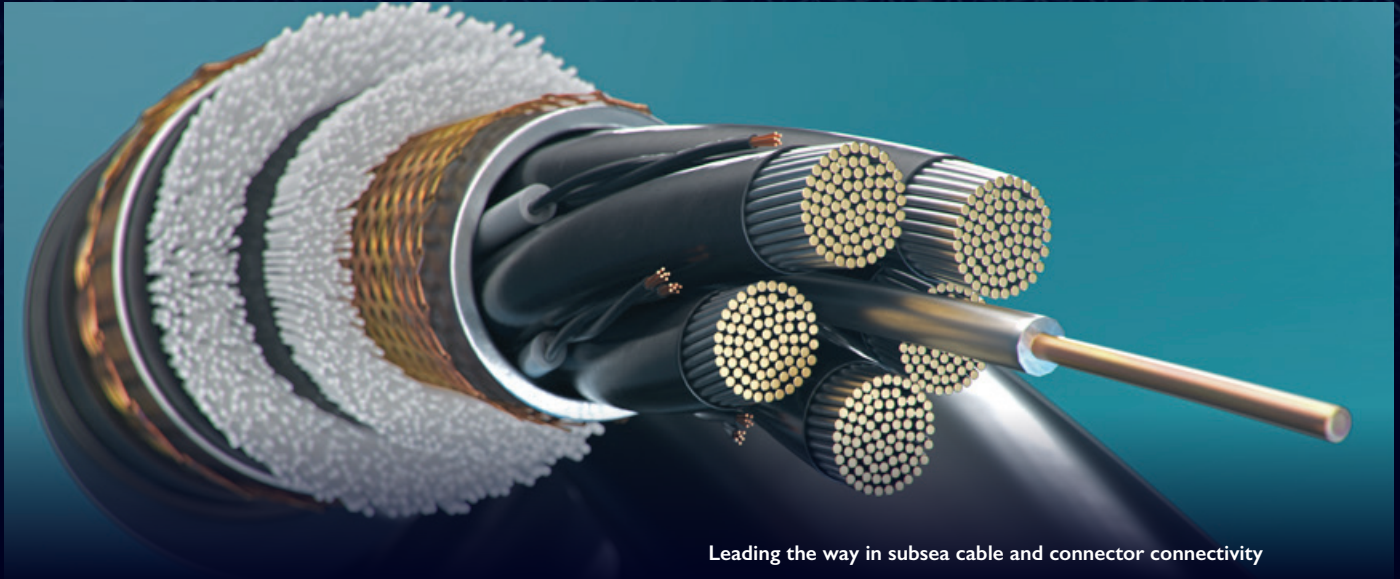
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Leading the way in subsea cable and connector connectivity

HYDRO GROUP

With decades of proven capability, sector experience and a workforce of over 130 worldwide, Hydro Group leads the way in subsea cable and connector connectivity. We are engaged in challenging global projects including solutions for defense-related innovations, subsea oil & gas structures, floating wind turbines and tidal stream connectivity. Our scope of work includes R&D, prototype development, product design, manufacture, testing, certification, and installation.

Facilities - *state of the art*

Located at Aberdeen Energy Park in Scotland, UK, Hydro Group design and manufacturing headquarters spans a total of 60,000 sq. ft.

The facility includes our product design, engineering and R&D departments, assembly workshops, maintenance areas, quality control, testing zones, storage goods in/out and external yards. The extensive manufacturing floor features state of the art technology including insulating lines, cable lay-up machines, braiding lines, extrusion lines, spooling areas, cable armoring lines and a machine shop.

With concerns for the environment, our purpose-built facility has been designed to reduce the company's carbon footprint by utilizing solar energy, rainwater recovery and heat recirculation.

QHSE - *continually improving*

Hydro Group work activities are conducted in accordance with our accredited management system ISO 14001:2015.





OUR HISTORY

It all started in Aberdeen, Scotland in the early 80s with a small team of design engineers forming Hydro Bond Engineering and Hydrocable Systems.

Success with product development in the early oil & gas years paved the way for continued growth into the defense and marine renewable energy markets. Working together in global connectivity projects and sharing expertise, the two companies were brought together with the formation of Hydro Group in 2002.



Award - *winning*

To celebrate Scottish innovation, Hydro Group scooped two awards at the 2016 Royal Bank of Scotland 'Made in Scotland' inaugural awards. In 2017, Hydro Group was recognised in the 'fastest-growing international sales' Sunday Times league table, and secured 'Company of the Year' at the Subsea UK Awards. In 2018, we were presented with the prestigious 'Queen's Award for Enterprise - International Trade' with a Grant of Appointment scroll, on behalf of Her Majesty the Queen.

GLOBAL PARTNERS

From its Headquarters in Aberdeen, Scotland, Hydro Group has an extensive network of official business partners located in strategic locations around the world, allowing us to market our products throughout Europe, Africa, America and Asia.

- | | |
|-----------|-------------|
| Australia | Philippines |
| Canada | Poland |
| China | Singapore |
| Finland | South Korea |
| France | Spain |
| India | Taiwan |
| Indonesia | Turkey |
| Israel | UK |
| Japan | USA |
| Malaysia | Vietnam |





SECTORS

Hydro Group provides a global service to the defense, military aerospace, oil and gas, and marine renewable energy sectors.

Decades of sector expertise and capability in subsea product design and manufacture and our extensive knowledge of subsea connectivity engineering, means that we have a proven ability to provide custom and innovative solutions to global sectors. Our products can withstand the harshest environmental conditions on earth, including saltwater, solar effects, storm-force winds, dynamic tidal, and wave motion.

Defense - *decades of proven ability*

Hydro Group has over 4 decades of experience in designing, developing, and supporting specialist solutions for the global defense market. We provide total solutions to a portfolio of prime defense and nuclear-related contractors including the M.O.D.

We are at the forefront in the research and development of key defense related technologies, with involvement from prototype concept through to design and manufacture. Hydro Group design and manufacture several key defense industry products including:

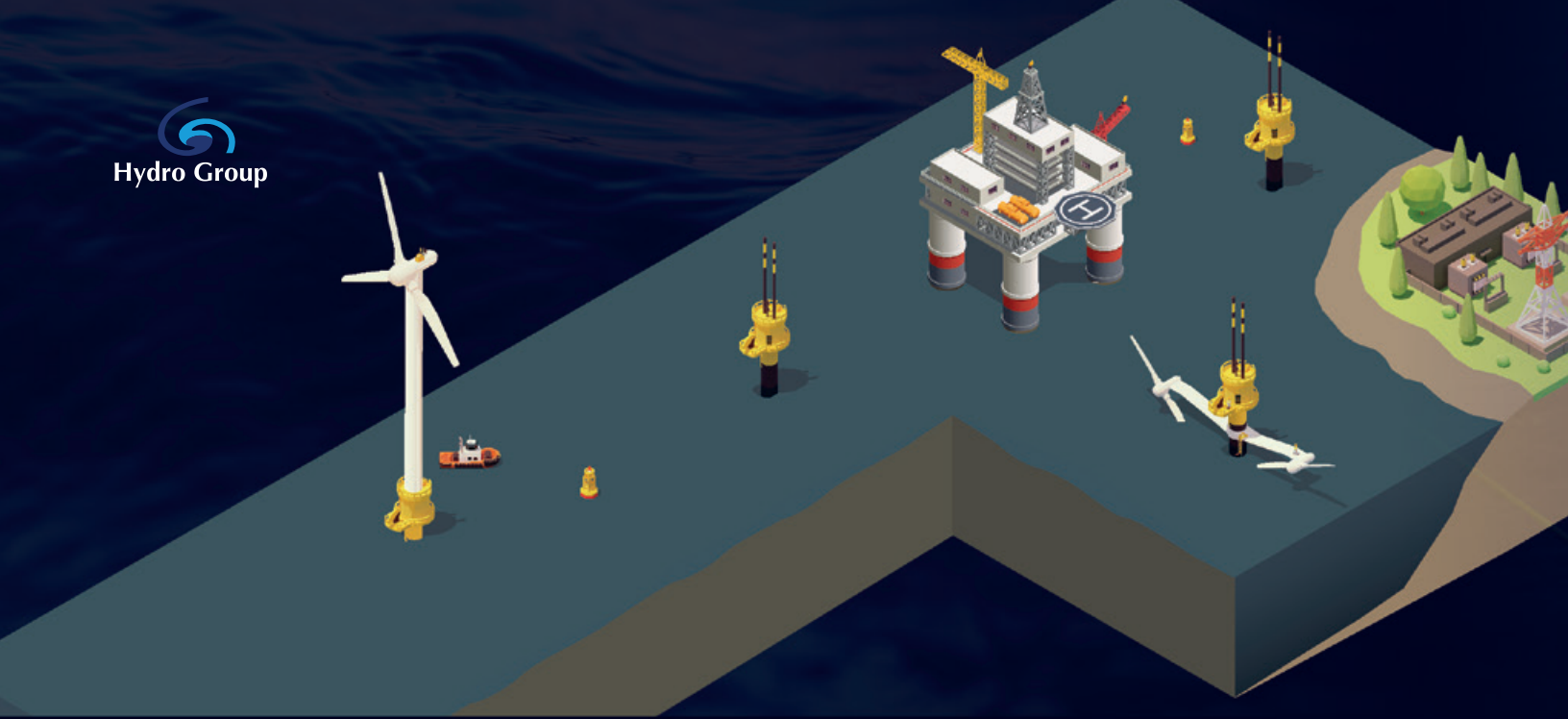
- Fiber optic, hybrid cables, connectors, cable assemblies
- Non-penetrative mast systems
- Flank array sonar cable assemblies
- 2076 tow cables
- UK Astute Class outboard cable assemblies
- Pressure hull penetrators for UK & overseas submarine platforms
- Acoustic and magnetic range connections systems for the UK & US Navy
- Mast-raising equipment assemblies
- Dipping sonar cable assemblies

Military Aerospace - *product technology*

Hydro Group designs and manufactures high tensile and high temperature cable and connection systems to support military aerospace projects.

- Towed decoy cable for the Typhoon (Eurofighter/EFA) aircraft
- Headset cable assemblies





Oil & Gas - *the experience to be innovative*

Since the discovery of North Sea oil in the 70s, Hydro Group evolved naturally into the oil & gas sector due to its location, and the growing demand for innovative subsea cable/connector connectivity solutions.

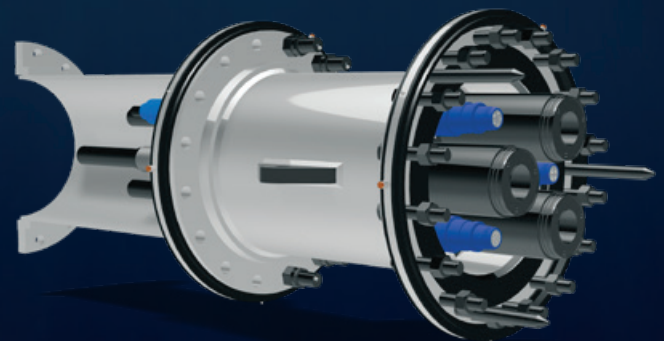
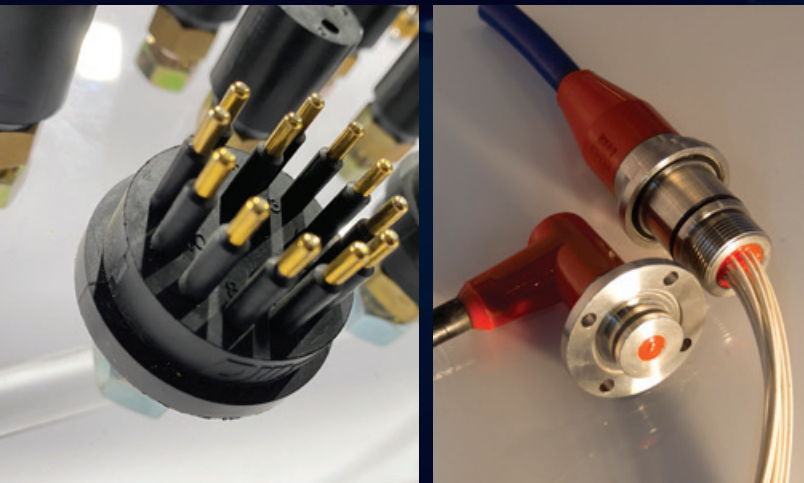
Today, Hydro Group is a well accomplished and proven market leader in the design, manufacture and certification of subsea connectivity products and solutions to major oil & gas contractors and operators.

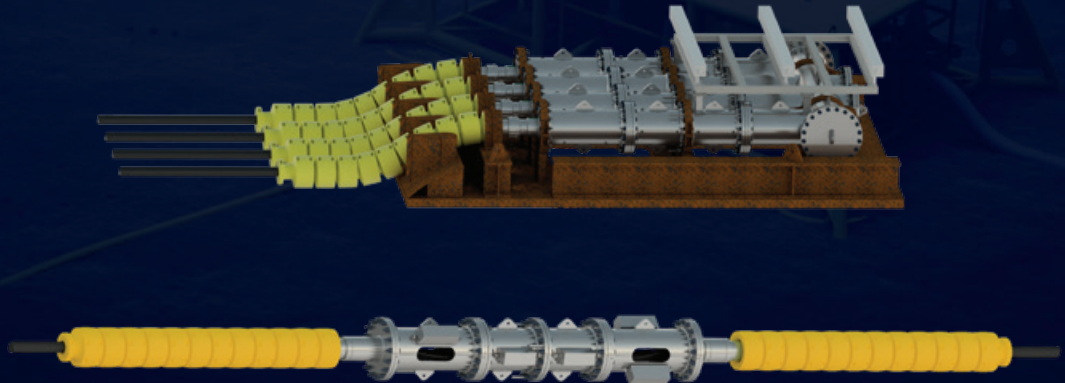
- Cables, electrical, optical and hybrid
- Connectors and connector-cable assemblies
- Penetrators, manned and unmanned
- Glands, electrical, coaxial and optical
- Assemblies, 36kV, PDH and HRC
- Terminations, mechanical strain
- Breakout molds, encapsulations and splices

Marine Renewable Energy - *leading the way*

Since the turn of the Millennium, Hydro Group has been building advanced and robust marine renewable energy connectivity solutions.

Currently, Hydro Group offers two tried and proven connectivity solutions, our 24kV Power Distribution Hub (PDH) and our 36kV Hydro Renewable Connector (HRC). We have undertaken projects in many challenging environments around the world, installing subsea connectivity solutions in France to South Korea, and collaborated with regional partners to deliver solutions on time and within budget.





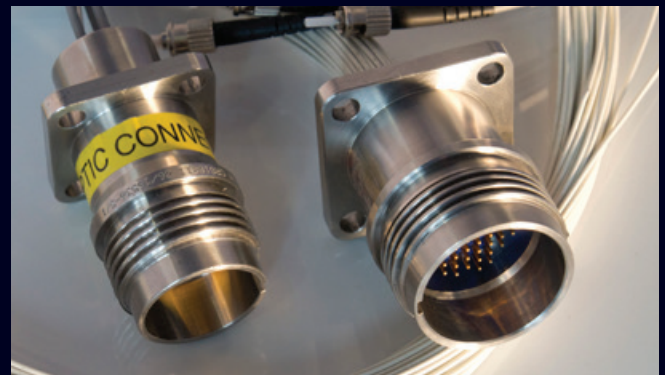
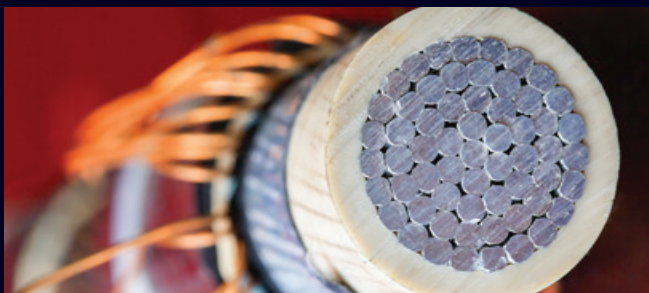
PRODUCTS

With certification approval to ISO 9001: 2015, our range of subsea products are designed and manufactured in-house to exact requirements for global projects. Our products include subsea cables, connectors, penetrators, glands and connectivity assemblies, tested extensively for quality, performance and endurance in their specific environment. Importantly, our products have a proven track record over many years on local, national and global projects.

Cables - *quality, performance and endurance*

Our cable design engineering team is respected globally for its high level of industry knowledge and innovation, achieving unique cable design solutions for challenging subsea applications.

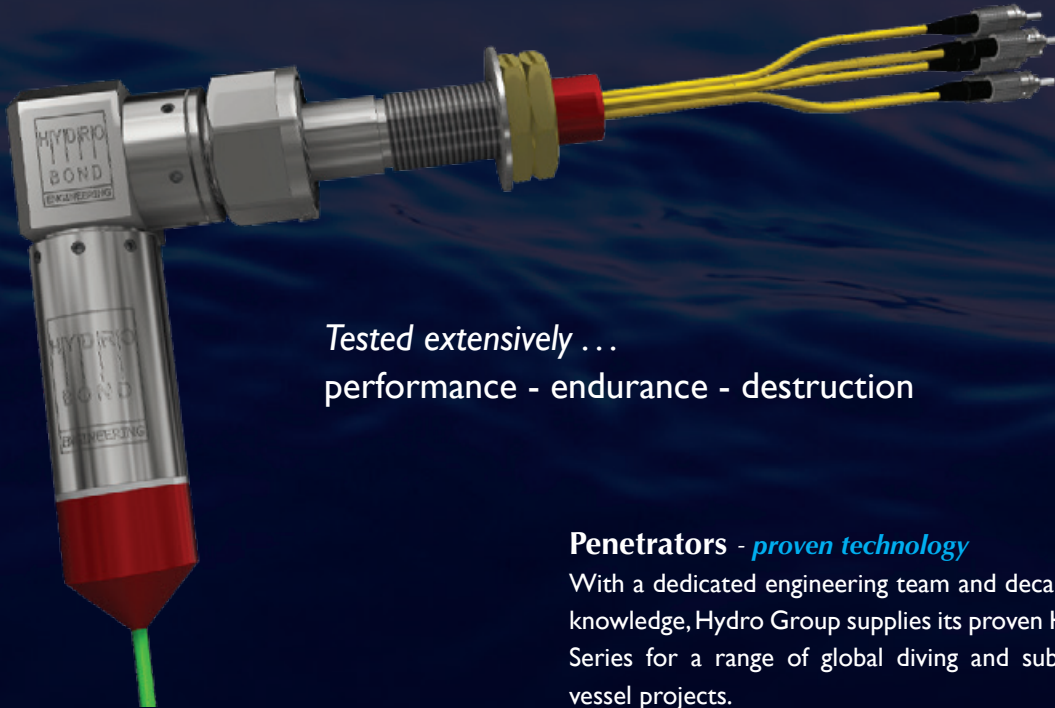
- Armored tow cables / strain bearing cables
- Acoustic range sea cables / high voltage & power cables
- Composite communication cables
- Underwater TV and video cables
- Composite optical / electrical cables
- Armored cables, tethers and umbilicals
- Laying-up of hose, cable and strength member bundles
- Neutrally - positively - buoyant or negatively buoyant cables and tethers
- Polyurethane or polyethylene jacketed cables



Connectors - *custom design solutions*

Our connectors have been tested internally and externally by third-party verification companies, and pressure tested up to 10,000 PSI / 6860 MSW. We offer wet and dry mate connectors in a range of shell sizes and pin configurations.

- HRS underwater mateable electrical connectors
- HDM Hydro Deck Mate connector
- Fiber optic and EXD-rated connectors
- HRC Hydro Renewable Connector (36kV)
- Surface mateable coaxial connectors
- HRM Hydro Rubber Moulded connectors
- SDM - Submarine Deck Mate shock-rated optical and electrical connectors
- Pressure hull penetrators

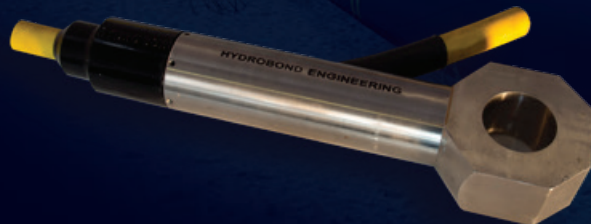


Tested extensively . . .
performance - endurance - destruction

Penetrators - *proven technology*

With a dedicated engineering team and decades of industry knowledge, Hydro Group supplies its proven HPS Penetrator Series for a range of global diving and submarine rescue vessel projects.

- Robust designs, electrical, coaxial and optical
- 316 stainless steel or titanium, aluminium, etc
- Voltage ratings up to 3,000 volts RMS
- Non-magnetic versions available
- Mono directional depth rated to 1,500 MSW
- Bi-directional manned pressure vessel depth rated 650 MSW



Strain Terminations - *track record*

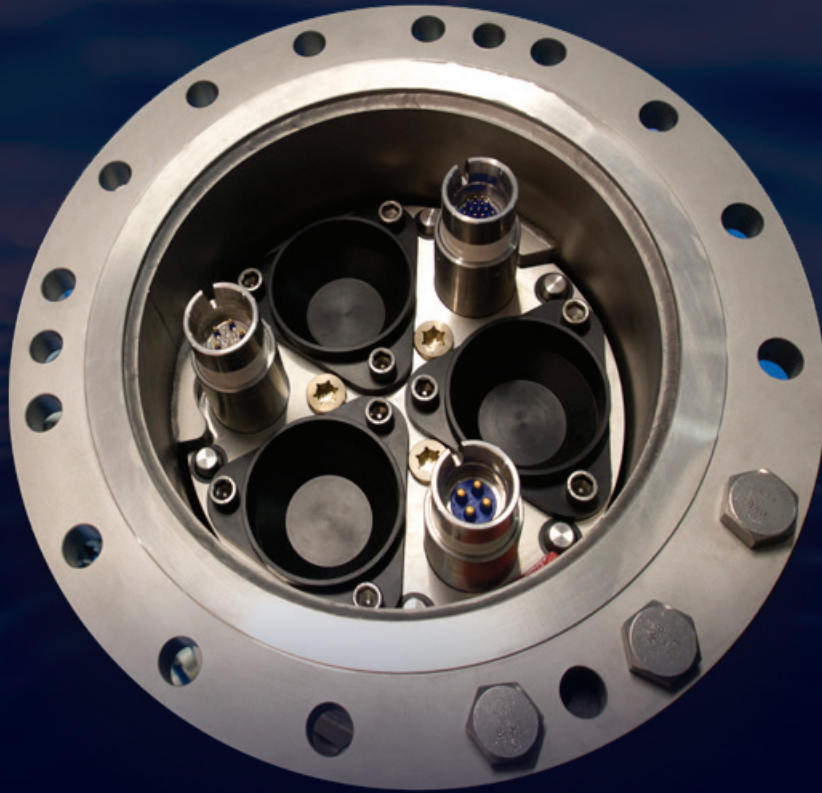
Tested extensively for performance, endurance, and destruction, our terminations have a proven track record over many years on local, national and international projects.

- Designed to suit your working load
- Mechanical termination of the cable directly to connector back-shell or to custom strain bar
- Available with load transferred to outer cable diameter for use with lifting buoys and cable grips

Assemblies & Molding - *subsea & topside*

We provide complete interconnection arrangements to suit a range of subsea and topside applications including a full molding, encapsulation and termination service.

- Harnesses fully labeled to your requirement
- Low environmental impact
- Corrosion protection
- Dual water ingress protection
- Maintenance-free



SERVICES

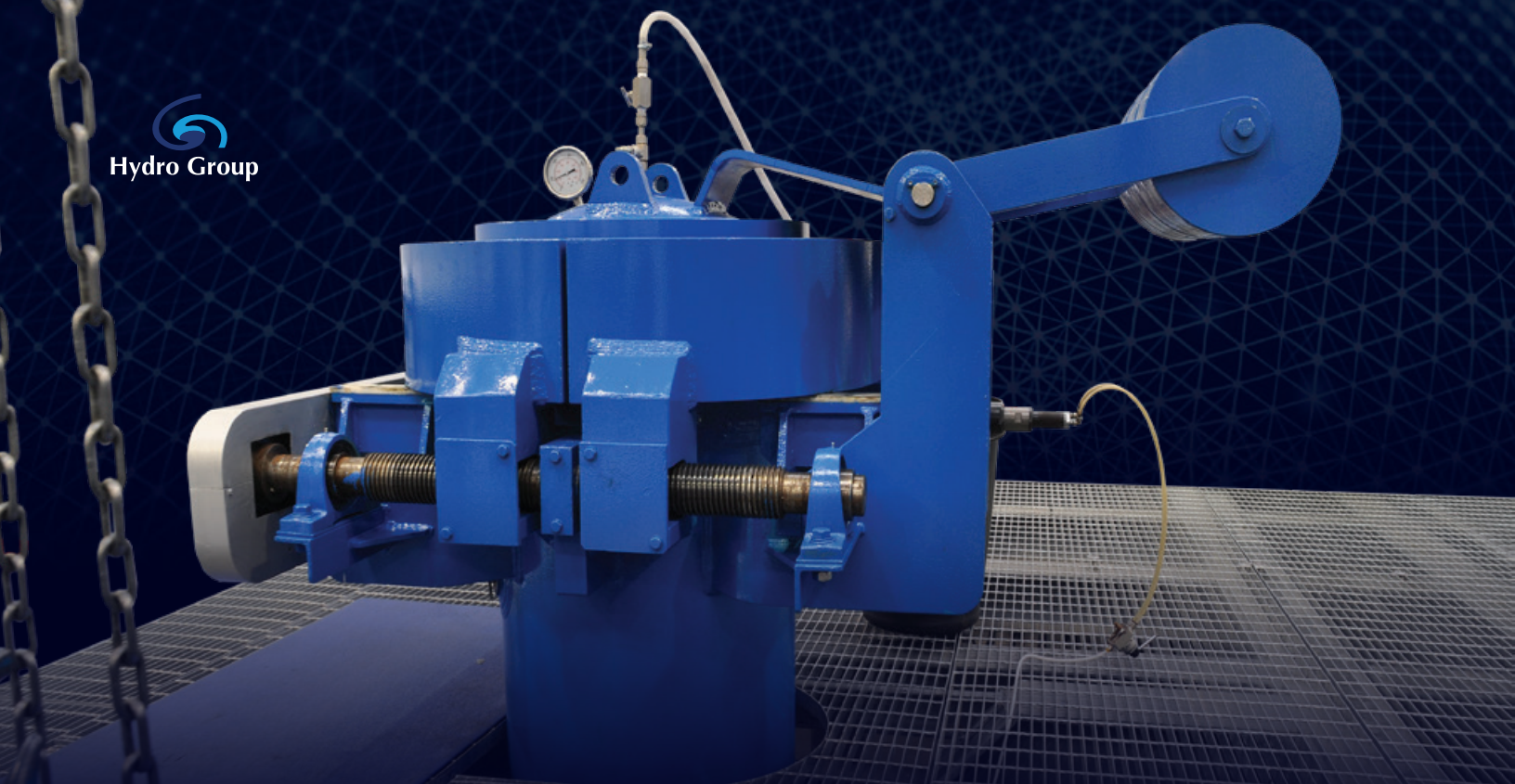
Hydro Group services include design & engineering, manufacture, testing and maintenance. Supporting our key service is a professional in-house team of fully trained and equipment certified electrical engineers and technicians.

Design, Engineering & Manufacture - *in-house*

Hydro Group is involved in R&D, design, prototype development, engineering and the manufacture of custom connectivity products for the defense, oil & gas, subsea and more recently the marine renewable energy industry.

Our departments consist of highly experienced development engineers, mechanical design engineers, production engineers, electrical engineers and CAD operators. For quality assurance and subsea performance, our products are tested and certified independently by qualified third party surveying companies such as Lloyd's Register, Det Norske Veritas and the American Bureau of Shipping.





Testing - *quality assured*

Hydro Group has an extensive test facility at its Aberdeen HQ, equipped with the latest optical and electrical pressure testing machinery and testing equipment to ensure accurate results and certification.

We offer in-house pressure, optical and electrical testing through our Quality Assurance team.

Hydro Group can carry out hydraulic, hydrostatic and helium pressure-testing along with SF6 gas testing. Testing is performed with several pressurize, hold and vent cycle combinations for total assurance in multiple operating environments.

Third-party verification on our testing procedures can also be delivered by surveying companies including Lloyd's Register, Det Norske Veritas and the American Bureau of Shipping.

Our optical technicians are trained in optical fiber installation and testing to City & Guilds standards, with specialized engineers trained in multimode optical termination and testing.

Our technicians can carry out fast and accurate fault finding in any supplied connector or cable assembly. A full report can be generated listing the repair recommendations, accompanied by a formal written quotation detailing the costs associated with its repair.

Maintenance - *trouble-free*

Our return-to-base maintenance service is complemented with our on-site field support service for electrical, optical and mechanical terminations and molding requirements. Specifically-engineered terminations and mold tools can be created through our engineering department to ensure a trouble-free installation on-site.

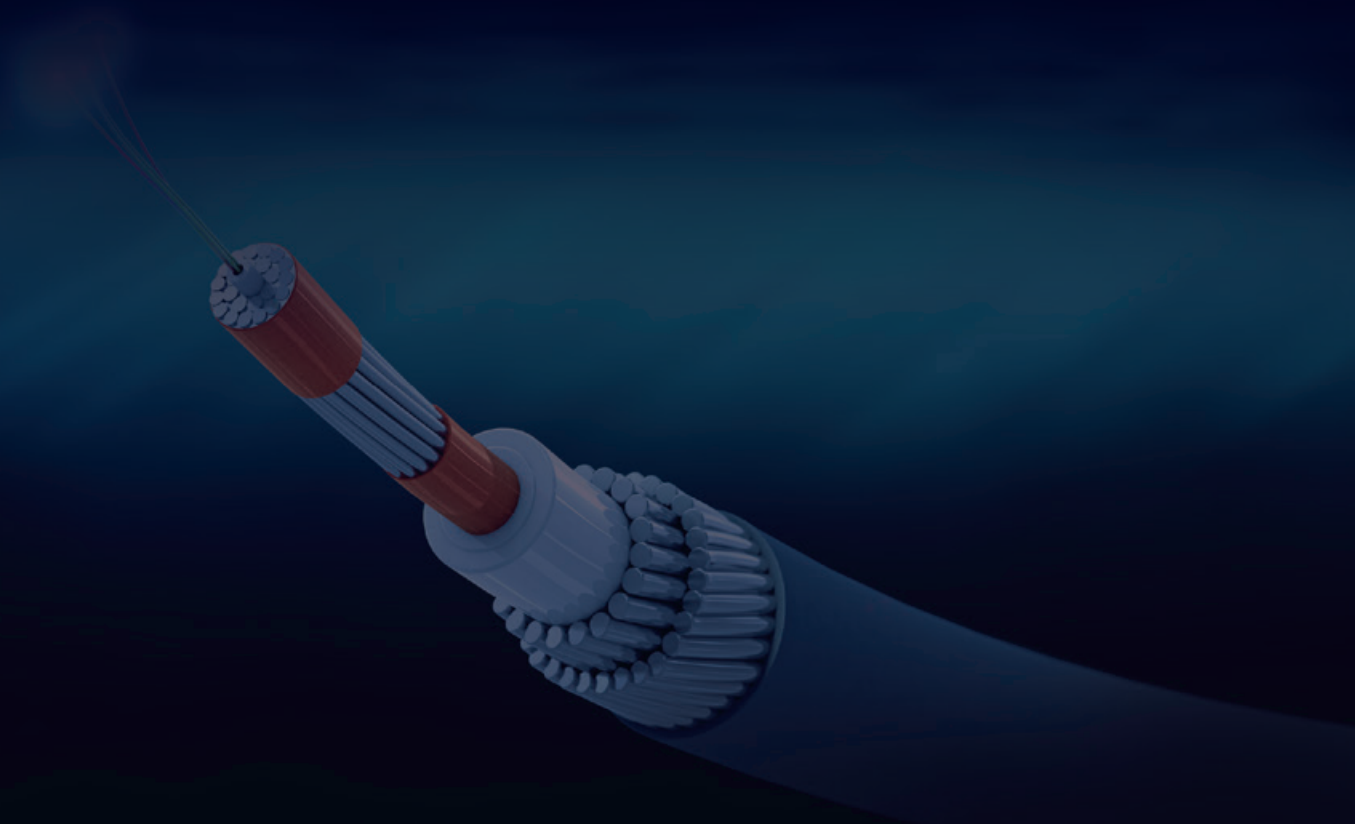
We can carry out fault-finding, repair and maintenance recommendations on a variety of customer-supplied connectors and cable assemblies, and our trained technicians can be made available globally to carry out maintenance.



[Over 4 decades of experience]

R&D
design
manufacture
testing
certification
installation

defense - military aerospace - oil and gas - marine renewable energy





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