



Hydro Group plc.



One Team, Two Companies, Unique Strength



Hydro Group plc.



Who We Are

Hydro Group specialises in design and manufacture of subsea and harsh environment electrical and optical cables, connectors, penetrators, cable assemblies and terminations for the oil and gas, marine renewable energy and defence industries.

With more than 30 years' experience Hydro Group set global standards in design and manufacturing of subsea connectivity systems. The Group is at the forefront in the development of subsea technologies with involvement from prototype concept through to design, manufacture and project management, supplying the whole package, including umbilical cables, electrical and optical connection systems for data, power and signal transmission.

1982
HYDRO BOND
ENGINEERING LTD

1988
HYDRO CABLE
SYSTEMS LTD

1992
HYDRO GROUP
PLC

2013
HYDRO GROUP
ASIA PTE LTD



Hydro Bond Engineering & Hydro Cable Systems

- Engineering bespoke connectivity solutions
- Fully integrated package from concept through to design and manufacturing
- Single source for subsea connectivity solutions
- 25 years lifespan
- Maintenance free

Highest Standards

Committed to meet the highest standards

- ISO 9001:2008
- ISO 14001:2004
- DNV
- ABS
- Def. stan
- Mil. spec
- SC21

Worldwide Representation

Headquarters design & Manufacture in Aberdeen, UK

Sales, service & support in Singapore

Representation all over the globe



Hydro Group Asia.

Located in Singapore South East Asia hub, Hydro Group Asia offers a range of services

Cable Testing

- Umbilical testing
- Tether cable assessment
- Fibre optic testing
- Fault finding



Moulding

- Cable moulding
- Splicing
- Encapsulation

Repair & Maintenance

- On and off site repair works
- Cable repair
- Cable re-termination

Termination

- Fibre optic cable termination and splicing
- Strain terminated cable
- IP rated enclosures & assemblies

On-site Support

- Cable termination
- Cable moulding
- Cable splicing
- Emergency cable splicing & moulding repairs



Cable Stock

Wide range of commonly used composite cables and connectors in stock

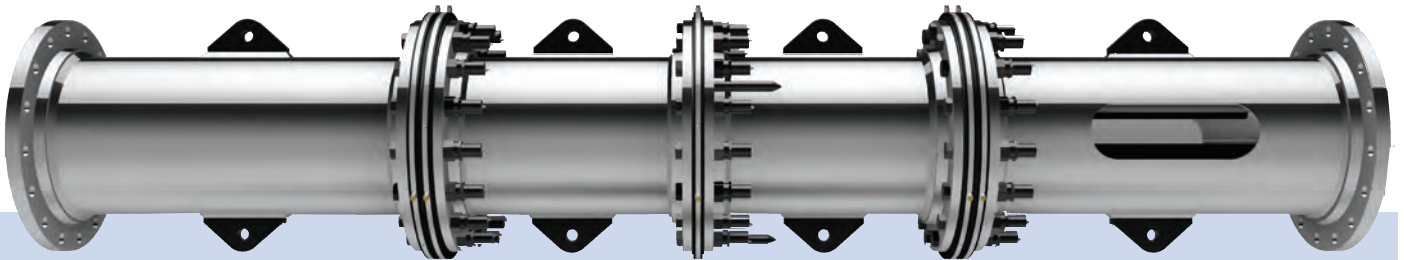
- Video & TV Cables
- Mini TV Cables
- Fiber Optic Cables
- Power Cables
- Signal & Comms Cables
- Control Cables
- Tethers



Hydro Bond Engineering Ltd

Engineering Excellence

Bespoke subsea optical & electrical



Connectors

Deck Mateable,
Underwater Mateable
Composite: (electrical,
fibre optic, coax)
HV connectors
Miniature connectors
EExd rated
RF connectors



Penetrators

NPT
UNF
Fibre optic
Electrical
(manned or
unmanned)



Terminations

Optical: single
mode & multimode
Strain termination
Wire Armour
Aramid (typically
Vectran)

Assemblies

Submarine Hull Glands
Proximity sensors actuators
Junction boxes
Y splices
Subsea Jumpers
Moulding kits



Setting Global Manufacturing Standards

Hydro Bond Engineering prides itself with the use of the highest grade materials

- Stainless steel
- Aluminium
- Titanium
- Silicon Bronze
- P.U. P.E. P.V.C.
- Hytrel
- Neoprene
- Peek Light & Non Magnetic

Every stage of the manufacturing process is tested.

- Hydro static pressure
- Helium
- Vibration test
- Shock test
- Tensile test
- Optical
- High Voltage test



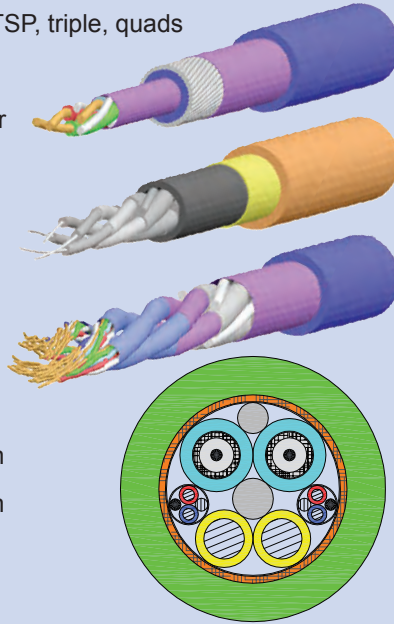
Hydro Cable Systems Ltd

Bespoke subsea and topside optical & electrical cables and umbilical. Over 10,000 designs.



**HYDROCABLE
SYSTEMS**

- | | |
|-------------------|---|
| Electrical | Multi-conductor – TSP, triple, quads
High voltage
Thin wall conductor |
| Optical | Single mode
Multi-mode |
| Ethernet | CAT 5
CAT 7 |
| Coax | RGE 59 – 75 ohm
RGE 179 – 75 ohm
RGE 174 – 50 ohm
RGE 58 – 50 ohm |

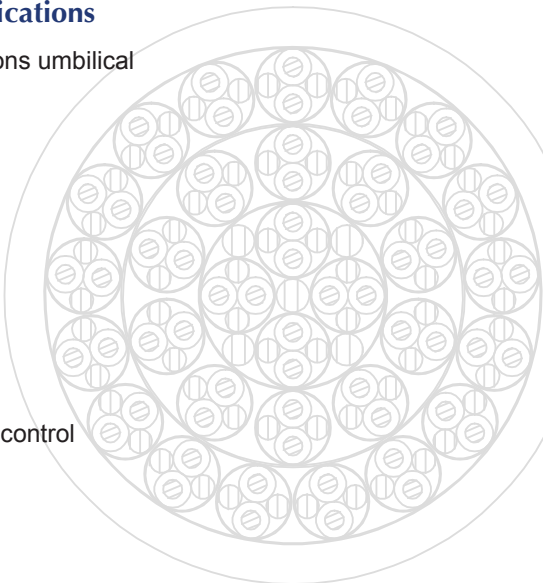


- | | |
|-----------------|---|
| Armoured | Single wire
Contra helical |
| Braids | Aramid fibre
Tinned copper wire
Galvanised steel wire
Stainless steel wire |
| Sheaths | Polyurethane (P.U.)
Polyethylene (P.E.)
Hytrel
Cogegum
EPR
EPDM |



Typical Cable Applications

- Diver communications umbilical
- ROV tether
- Towed array
- Mini TV
- Push rod
- Acoustic ranges
- Towed sonars
- Subsea welding
- Subsea production control
- Completion control
- Stinger



Accessories

- Strain terminations
- Kellems grip / Chinese fingers
- Acoustic dampener / Hairy fairings
- Cable and connector splice kits
- Cable bend restrictors / stiffeners



Hydro Group Services

Hydro Group offers a range of services in house and on-site

On-site Installation & Repair

Qualified personnel perform on-site terminations, mouldings, splices of Hydro Group's or any third party cables & connectors. The Team is able to mobilise all over the world 24 hours a day 7 days a week



Hydro Static Pressure & Helium Testing Facilities

Hydro Group offers 5 Hydro Static Pressure vessels for Cable and connector testing on a rental basis.

Hydro Static Pressure	Hydro Static Pressure	Hydro Static Pressure
2000 psi 138 bar 1370 msw	3250 psi 224 bar 2226 msw	10000 psi 689 bar 6849 msw
Helium	Hydraulic Oil	Hydraulic Oil
2000 psi 138 bar 1370 msw	5000 psi 345 bar 3425 msw	10000 psi 689 bar 6849 msw

Moulding & Splices

The Group prides itself in the use of specialist moulding tools and materials to perform complex moulding and splices on a wide range of cable, connector and other assemblies. Some of the moulding materials include:

- Polyurethane
- Polyethylene - low, medium and high densities
- Hytrel
- Rubber

Electrical (HV Testing)

Hydro Group offers complete high voltage testing services for cable harness and connectors up to 100 kV.



Cable Braiding & Armouring

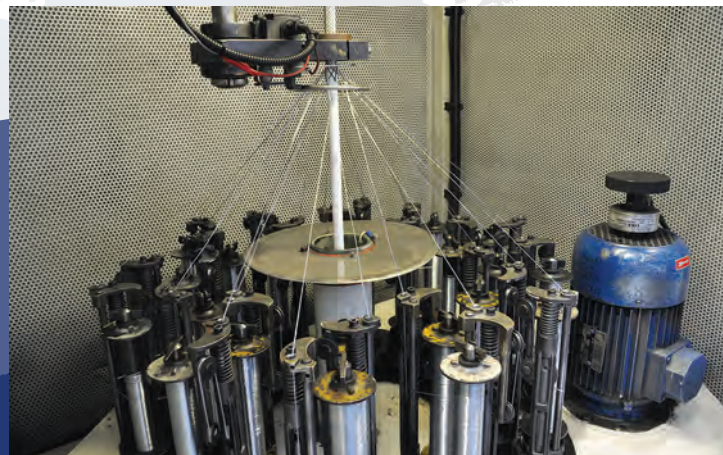
The Group is conscious of the increasing demand for cable protection and strength. This is why the company has increased its cable braiding and armouring capability to incorporate:

Armouring

- Single wire armouring
- Contra helical armouring
- Nitronic 50
- Stainless steel
- Galvanised steel wire

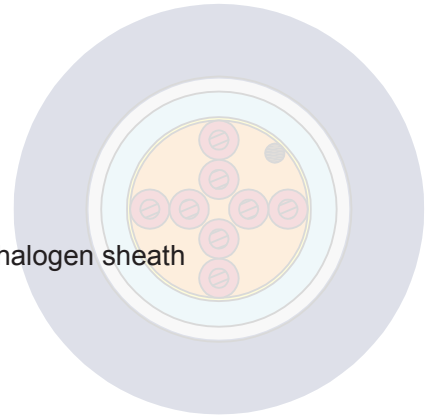
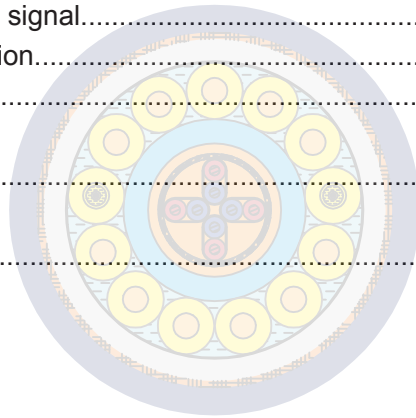
Braiding

- Aramid fibre (typically Vectran)
- Stainless steel
- Galvanised steel wire
- Tinned copper wire




In brief...

Subsea video, comms & signal.....	Coax & fibre optic
Subsea telecommunication.....	CAT 5 & CAT 7
Subsea power.....	Electrical cables HV cables
Subsea Strength.....	Braids & armours Strain bearing
Subsea Hazards.....	Low smoke, zero halogen sheath Zone 1 & 2 Topside & Subsea



HRC



Deck mateable
12 kV & 36 kV
Electrical & optical
Up to 100/50 mates and de-mates
Depth rated 100 metres
Installation time <12 hrs
Loop back, weak link & strain terminations (optional)

HDM



Deck mateable
High pin density up to 110 pins
High pressure up to 6900 MSW
Up to 3300 volts RMS
Fibre optic:
Non-magnetic options available

HRS



Underwater mateable
Up to 70 pins
Up to 3300 Volts
Depth rated 2440 msw
Bulkhead, panel mount or cable mount
Non-magnetic options available

HPS



Fully pressure blocked
Mono and bidirectional pressure design
Electrical, optical and coaxial options available
DNV approved
In-board conductor tails
Variety of outboard composite cable designs

HYB



Deck mateable
Pressure blocked 50 Ω and 75 Ω coaxial inserts
Tested to 86 Bar
Electrical, optical and coaxial options available
Non-magnetic options available



Hydro Group

plc.



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CABLE
SYSTEMS**

www.hydrogroupplc.com

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