





概要

JDR Cable Systems design and manufacture a wide variety of strain cables and umbilicals for naval applications as well as cables for tracking and signature ranges. Most cable/umbilical systems supplied for such applications are subjected to the most physically demanding conditions in hostile waters, their dynamic performance and reliability crucial to efficient and economic operation. This most demanding of environment and its various applications presents high challenges to a cable designer/manufacture and is an area where JDR Cable Systems has a strong expertise.

防衛機器向けJDR社の 豊富な経験

JDR Cable Systems has an impressive track record in the design and manufacture of rugged and innovative marine cables. To meet customer applications and specific requirements, the company draws upon a wide variety of special materials and manufacturing techniques.

JDR Cable Systems has the unique capability to produce all cables, hoses, terminations and ancillary items in-house, allowing changes in detail to be executed without undue delay to critical schedules. The company's European sites operate quality systems which are fully approved to ISO 9001:1994. To ensure single point responsibility, complete integrated packages can be supplied, including fully terminated assemblies incorporating electrical or optical connectors as well as the mechanical strength required to transmit load requirements through the cable. The company can also provide handling winches, slip rings and rotary unions, all factory outfitted and tested prior to despatch.

デザイン製造及び試験設備

Our manufacturing facilities are fully equipped with plant able to manufacture custom-designed, multi-functional cables up to an assembly diameter of 150 mm with thermoplastic sheath extrusion and braiding to similar dimensions and contrahelical armouring up to 120 wires. Approximate range of continuous lengths: 30-10000 metres (max. length dependent on content, outside diameter and weight). This provides flexibility in manufacture as there is a degree of crossover in the sites' abilities, ensuring that exacting delivery demands can be met.



製品/サービス

- ソナー・システム
ケーブル Tow cables for ship and submarine passive and active arrays. Helicopter sonar strain cables.
- レンジ・ケーブル For fixed and transportable signature ranges, tracking and surveillance systems and magnetic and acoustic ranges.
- ケーブル・ハーネス For hull mounted underwater sensors, control systems and hull penetrators.
- 潜水艦レスキュー・アンビリカル For submarine depressurisation and rescue control.
- 機雷カウンター・メジャー・ケーブル Tow and umbilical cables for in-line combined influence systems. ROV and Self Propelled Variable Depth Sonar (SPVDS) tethers.
- 魚雷ガイダンス用ワイヤー・パイプ Allowing protection of torpedo guidance wires during initial deployment.
- 潜水艦エアリアルシステム Tow cables for communication buoys. Buoyant wire aerials.
- 地上航空機搭載用ケーブル variety of specialist cable and connector assemblies for these hostile applications.
- ターミネーション Cable and umbilical terminations to support electrical, optical and mechanical connection requirements.
- オフサイト・バックアップ・サービス Engineers are available for off-site support, testing and termination work.
- 接続サービス Specialist personnel with a diversity of expertise and experience who are available for engineering and project study work.



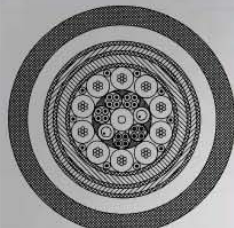
ソナー・システム・ケーブル

JDR Cable Systems' cables are designed to combine maximum strength with minimum diameter and weight, meet exacting electrical and data transmission requirements and survive repeated duty cycles over a long period without failure.

Strength members comprise aramid fibre braids/servings or steel wire armour, torque balanced to guarantee minimum rotation under load. Cable assemblies can

incorporate twisted pairs, coaxes, quads, optical fibres and power cores, all custom-designed for specific applications.

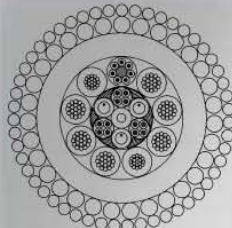
The company supplies neutrally buoyant cables for submarine passive Towed Array Systems (TAS), cables for surface ship passive and active TAS, cables for target and decoy systems and Self Propelled Variable Depth Sonar (SPVDS).



中性浮力タイプ TOWケーブル 構造

- 2 x 0.14 mm² twisted quads.
- 2 x multi-mode optical fibres
- 3 x 0.08 mm² twisted quads
- 10 x 0.9 mm² signal cores
- 10 x 0.08 mm² spare cores
- 2 x layers contrahelically wound, torsionally balanced layers of aramid fibre serving
- Polyurethane outer sheath
- Foamed polyethylene flotation sheath

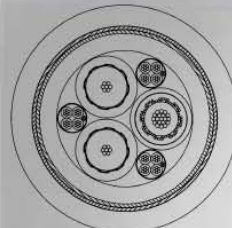
・ 外径
27 mm
・ 破壊荷重
8 Tonnes



曳航型アレー・ ソナー・ケーブル 構造

- 3 x 0.14 mm² screened twisted quads.
- 3 x multi-mode optical fibres
- 2 x 1.5 mm² signal cores
- 6 x 2.4 mm² power cores
- Polyurethane outer sheath
- 2 x layers contrahelically wound, preformed high tensile galvanised steel wire armour

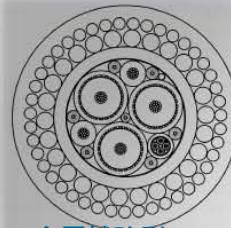
・ 外径
23 mm
・ 破壊荷重
25 Tonnes



曳航型アレー・ ソナー・ケーブル 構造

- 2 x coaxial cables
- 1 x triaxial cable
- 3 x 0.34 mm² screened twisted quads
- Polyurethane inner sheath
- 2 x layers contrahelically wound, torsionally balanced layers of aramid fibre serving
- Polyurethane outer sheath

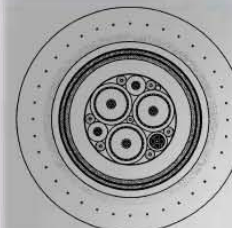
・ 外径
22 mm
・ 破壊荷重
4 Tonnes



金属補強型TOW ケーブル 構造

- 3 x 50Ω coaxial cables
- 2 x 1.34 mm² power cores
- 1 x 0.22 mm² screened twisted quad
- Polyurethane inner sheath
- 2 x layers contrahelically wound, preformed high tensile galvanised steel wire armour
- Polyurethane outer sheath

・ 外径
30 mm
・ 破壊荷重
30 Tonnes



TOWケーブル 構造

- 3 x 50Ω coaxial cables
- 2 x 1.34 mm² power cores
- 1 x 0.22 mm² screened twisted quad
- Thermoplastic rubber inner sheath
- 2 x layers contrahelically wound, torsionally balanced layers of aramid fibre serving
- Thermoplastic rubber intermediate sheath
- Cellular polyethylene buoyancy layer
- Thermoplastic rubber outer sheath

・ 外径
39 mm
・ 破壊荷重
11 Tonnes

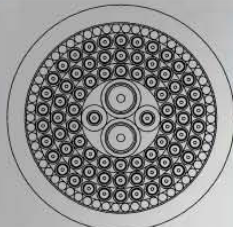




ケーブル・ハーネス

Submarines have deployable and fixed sensors fitted outside of the hull which require power and signal connections to inboard equipment. Similarly, surface ships also have hull mounted systems in an underwater environment.

JDR Cable Systems can supply special cable harnesses and umbilicals for hull mounted systems, submarine hull penetrators and watertight glands. This includes an innovative water blocked co-axial cable which withstands the constant flexing imposed by the stabilised hull mounted transducers in mine counter measure vessels.

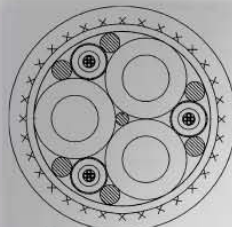


トランスデューサー・ケーブル

構造

- 76 x 50Ω coaxial cables
- 1 x layer of tinned copper wire serving/screen
- Layer of Teflon® tape
- Flame retardant polyurethane outer sheath

・ 外径
27 mm
・ 破壊荷重
N/A

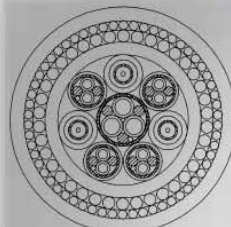


潜水艦レスキュー・アンビリカル

構造

- 3 x 3/4" NB non-collapse Armallex hoses
- 3 x 0.96 mm² cadmium bronze screened twisted quads
- Polyurethane inner sheath
- Aramid fibre strength braid
- Polyurethane outer sheath

・ 外径
92 mm
・ 破壊荷重
20 Tonnes



金属補強型レスキュー・システム・ケーブル

構造

- 3 x 4.0 mm² power cores
- 3 x 75Ω coaxial cables
- 4 x 1.35 mm² screened twisted pairs
- Polyurethane inner sheath
- 2 x layers contrahelically wound, preformed high tensile galvanised steel wire armour
- Polyurethane outer sheath

・ 外径
35.5 mm
・ 破壊荷重
25 Tonnes

潜水艦レスキュー・アンビリカル

Most major navies of the world that operate submarines have special systems designed to assist rescue of personnel who may become trapped in the event of a total submarine systems failure. Rescue equipment varies from modified commercial remotely operated vehicles (ROV), to purpose built manned systems which can lock onto access ports.



魚雷ガイダンス用ワイヤー・ディスペンサー・ホース・パイプ

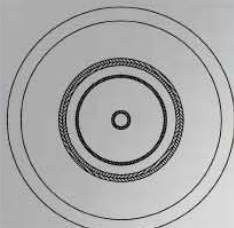
Torpedo weapon systems often use a command/control data link of wire or optical fibre between the weapon and its launch vessel. To protect this link during the critical initial deployment of the torpedo, a wire dispenser hose pipe is released simultaneously, thus providing protection as the wire passes through the submarine's launch system. This comprises of a flexible, hollow and heavyweight assembly with appropriate strength to allow the safe passage of the data wire through the assembly during torpedo deployment. Termination units are fitted at each end to allow attachment and to facilitate shearing, when necessary, of the termination from the torpedo.





● 潜水艦エアリアル ● (架空)システム

These systems allow a submerged submarine to receive and transmit radio information and are in the form of buoyant antennae. These are tethered to the submarine via a cable which also provides power and data transfer links.

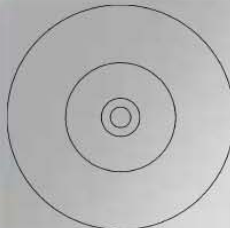


● 浮中エアリアル・ケーブル

● 構造

- Nylon monofilament
- Silver plated copper wire braid
- Cellular polyethylene insulation
- Silver plated copper wire braid
- Polyethylene inner sheath
- 2 x layers of aramid serving
- Cellular polyethylene buoyancy sheath
- Polyethylene outer sheath

● 外径
16.5 mm
● 破壊荷重
N/A

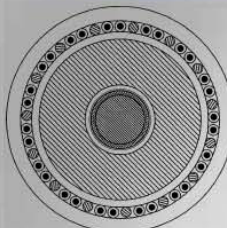


● 浮中エアリアル・ケーブル

● 構造

- Copper clad electroplated steel core
- Cellular polyethylene insulation
- Cellular polyethylene buoyancy sheath
- Polyethylene outer sheath

● 外径
16.5mm
● 破壊荷重
N/A



● マイン・カウンター・メジャー・ケーブル

● 構造

- Aramid/nylon central strength member
- Foamed polyethylene sheath
- Polyethylene inner sheath
- 30 x 1.5 mm² signal cores
- 15 x filler wires
- Polyethylene outer sheath
- Finished diameter 61.7 mm
- Theoretical Break load: 21 Tonnes

● 外径
62 mm
● 破壊荷重
21 Tonnes

● マイン・カウンター・メジャー・ケーブル

JDR Cable Systems design and manufacture lightweight fully terminated ROV/SPVDS (Remotely Operated Vehicles/Self Propelled Variable Depth Sonar), umbilicals complete with aramid fibre strength members, telemetry and control data links and, if necessary, power cores. Increasingly telemetry data is transmitted via fibre optics, particularly where 'noise' from power conductors or 'cross talk' may disturb the quality of transmission.

The company also supplies tow cables and interconnecting umbilicals for in-line combined influence mine sweeping systems. These cables are fully terminated, incorporate data and control links, power cores and hoses, to meet the specified requirements for magnetic and acoustic field generation.



レンジ・ケーブル

Typical fixed signature ranges employ a number of sensors located on, or anchored to the sea bed with power and data transmission cables connecting to a shore station. Transportable ranges are deployed from the surface and comprise a number of interconnected sensors and a data relay facility.

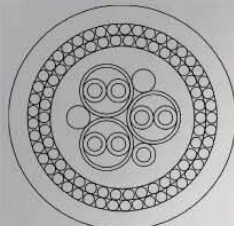
JDR Cable Systems can supply complete, fully terminated cable systems including underwater mateable connections. Steel armouring (tensile/mechanical protection) or aramid braiding (tensile protection only) are also offered. These systems are designed for ease of deployment and high reliability.

ターミネーション

Our in-house termination facility is fully equipped to design, manufacture and install a wide range of effective terminations for all applications. These can incorporate cable/fibre optic connectors, hose fittings, mechanical terminals, multi-connectors and bend restrictors.

Customers' own or specified connectors can also be fitted.

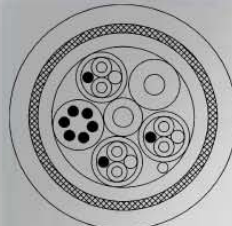
In addition, **JDR Cable Systems** can supply complete systems including cable handling systems, electro/optical converters, connectors and jumper harnesses.



スチール補強型 レンジ・ケーブル 構造

- 3 x 4.0 mm² twisted pairs
- 1 x 4.0 mm² earth core
- Polyethylene inner sheath
- 2 x layers contrahelically wound, preformed high tensile galvanised steel wire armour
- Polyethylene outer sheath

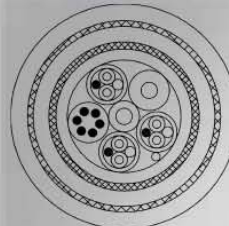
・ 外径
40.5 mm
・ 破壊荷重
13 Tonnes



ショアー・エンド・ レンジ・ケーブル 構造

- 2 x 6.0 mm² power cores
- 3 x 1.34 mm² screened twisted pairs
- 1 x 6 way multi-mode optical fibre unit
- Polyurethane inner sheath
- Aramid fibre strength braid
- Polyurethane outer sheath

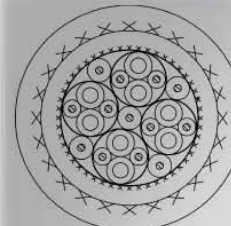
・ 外径
32 mm
・ 破壊荷重
6 Tonnes



ショアー・エンド・ レンジ・ケーブル 構造

- 2 x 6.0 mm² power cores
- 3 x 1.34 mm² screened twisted pairs
- 1 x 6 way multi-mode optical fibre unit
- Polyurethane inner sheath
- Aramid fibre strength braid
- Polyurethane intermediate sheath
- Galvanised steel wire braid
- Polyurethane outer sheath

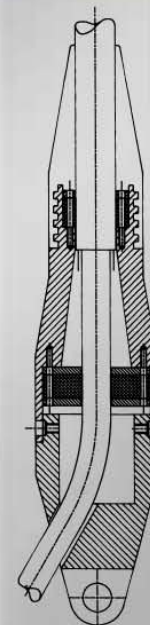
・ 外径
40 mm
・ 破壊荷重
6 Tonnes



スチール・グレイド型 レンジ・ケーブル 構造

- 4 x 1.50 mm² twisted pairs
- Tinned copper wire braided screen
- Polyurethane inner sheath
- Galvanised steel wire braid
- Polyurethane outer sheath

・ 外径
23 mm
・ 破壊荷重
15 Tonnes





• コンポーネント

• ケーブル

Designed and manufactured in-house, each component is sized to ensure a balanced and circular construction.

Data and signal transmission line options include twisted pairs, triads or quads (screened if required) and coaxes of various specifications. These are all optimised for particular attenuation, capacitance, cross-talk, resistance and other important electrical parameters. To avoid RF and EM interference, power cables are screened using either copper braid or aluminium/polyester film or other combinations.

Electrical cores: Generally comprise multi-strand copper or aluminium where neutral buoyancy is important. Strand size is determined according to specification and/or duty. Multi-strand constructions ensure good flexibility for dynamic duties. Insulation materials are usually thermoplastic compounds, including polyethylene, cross-linked polyethylene, polypropylene, FEP and ETFE.

Fibre optic elements: Selected from standard basic units and then further processed as necessary. Fibre optics are being used more widely for data transmission due to their large bandwidth capability, low attenuation and freedom from interference. There are also advantages in using fibres for long cables (say over 1000 metres) where signal losses in copper conductors may be unacceptable. Multi- and single-mode fibres are available in a variety of constructions: loose tube systems utilise fibres in plastic or steel tubes, while tight buffered systems typically include a steel armour or aramid reinforcement.

ケーブル/アンビリカル • 構造



• レイ・アップ

To achieve the best dynamic performance and to prevent stress build-up in outer components during bending, all units are helically laid up in a full 360 degree cable construction. Lay angles are carefully selected to suit the construction and subcomponent design. As a general rule, the smallest diameter possible is always strived for, taking into account the components required. This is important where drag effects of the cable and stiffness can affect the performance of the system.

• 補強/テキスタイル強化

Heavy duty, preformed contrahelical galvanised steel wire armour or aramid fibre servings or braids are offered to provide strength to cables and umbilicals. Both steel and textile reinforced cables and umbilicals possess high tensile strength, or with the application of armouring, are also protected against damage.

JDR Cable Systems can manufacture armoured cables up to 10,000 metres in length depending on diameter and weight. Cables can have one, two, three or more layers of wire armour to ensure maximum strength, protection and minimum diameter, according to the application. Manufacturing plant includes a 120 bobbin armouring machine fully equipped to pre-form high tensile steel wire.

All cables have been designed to be torque balanced, which results in negligible rotation at the working load.

• シース

Extruded sheathing of most thermoplastic materials (ether-based polyurethane, polyethylene, thermoplastic rubber are commonly used) is available for maximum protection and service life. Materials are selected for their resistance to a seawater environment, durability under handling, low weight, where buoyancy is a requirement, and cost.





File

Contacts

Testing

Offsite Back-up Service

Consultancy

所在地

JDR Cable Systems (Holdings) Ltd

Badentoy Road, Badentoy Park, Portlethen, Aberdeen AB12 4YA
Scotland.

Tel: **+44** (0)1224 782 244 Fax: **+44** (0)1224 782 250
e mail: aberdeen@jdr cables.com

JDR Cable Systems Ltd.

11 Padnal, Littleport, Ely, Cambridgeshire, CB6 1NS, England.

Tel: **+44** (0)1353 860 022 Fax: **+44** (0)1353 861 388
e mail: uk@jdr cables.com

JDR Cable Systems BV.

Admiraal Helfrichweg 2, P. O. Box 49, 2900 AA Capelle a/d IJssel,
The Netherlands.

Tel: **+31** (0)10 258 6800 Fax: **+31** (0)10 458 6364
e mail: nl@jdr cables.com

JDR Cable Systems Inc.

6225 West Sam Houston Parkway North, Houston, TX 77041, USA

Tel: **+1** 281 240 6600 Fax: **+1** 281 240 6601
e mail: usa@jdr cables.com

JDR Cable Systems A.s.

P.O. Box 343, Storgata 4, N-4892 Grimstad, Norway.

Tel: **+47** 3704 3202 Fax: **+47** 3704 0255
e mail: norway@jdr cables.com

JDR Cable Systems

3 Route de Choisy, 60200 Compiègne, France.

Tel: **+33** (0)3 44 40 80 81 Fax: **+33** (0)3 44 40 81 18
e mail: france@jdr cables.com

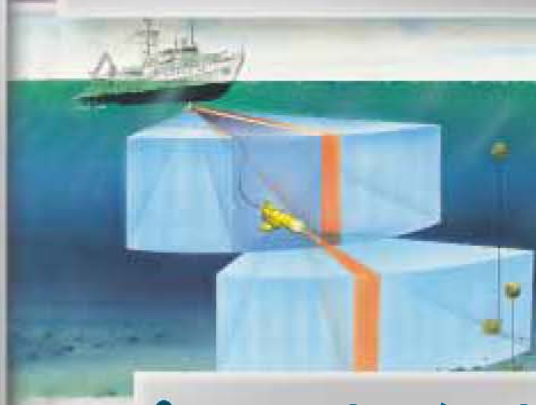


For the latest information
on JDR Cable Systems'
products and services see
our web site.

www.jdr cables.com

オフサイト・バックアップサービス

Our products are used in the harshest marine environments and on-site modifications can be necessary. **JDR Cable Systems** therefore offers a world wide, fast reaction, modification and repair service, for all products. These activities are carried out by experienced and highly skilled technicians.



試験

All cables undergo stringent pressure and electrical testing. In addition, sample lengths of cable or umbilical can be subjected to a wide range of mechanical, electrical and optical tests to ensure conformance to pre-determined standards. These tests may include ultimate tensile and/or cycle-testing with full component monitoring at the design working load.

Our purpose-built cycle/tensile test rig is capable of in-line pulls to 100T and also of cycling

umbilicals up to 150 mm in diameter at 50T whilst continuously monitoring all components whether electrical, optical or hydraulic.

コンサルタント

Within the engineering department, **JDR Cable Systems** has a team of specialist personnel with a diversity of expertise and experience who are available for engineering and project study work in:-

- 海洋オペレーション
- 海中オペレーション
- 展開プロジェクト
- 機材の評価と選択

製造元: JDRケーブル・システムズ社

輸入元: 日本エアークラフトサプライ株式会社

・住所 東京都新宿区西新宿1-19-6 山手新宿ビル

TEL 03-3343-1800

Published by: JDR Cable Systems Ltd Marketing Department Designed by: **GRAPHICWORKS**

