



# The power to connect

Subsea cables,  
umbilicals and IWOCs  
for the global offshore  
energy industry



## In this book

The power to connect  
Connecting the international oil and gas industry  
Leading the way in the international renewables industry  
Asset Services – matching technical expertise with customer service  
Supporting the international offshore energy industry  
Find out more...

two  
six  
twelve  
**twenty-two**  
**twenty-four**  
twenty-eight





# The power to connect

**High-performance subsea cables and umbilicals to connect the global offshore energy industry**

In the world's harshest environments and ever-increasing water depths, JDR's world-leading products and services bring power and control to offshore oil, gas and renewable energy systems. For more than 20 years, we have built our success on our technical expertise and reliability. Every market we enter, every customer we serve, and every project we deliver benefits from our dedication to technical quality, service and support.

## Who is JDR?

We deliver reliable, high-quality products, bespoke solutions and full support throughout the product lifecycle to meet even the most complex and demanding project requirements.

### We are sector specialists

We design, manufacture, deliver, terminate, test and support subsea cables, umbilicals and IWOCs to the offshore energy industry – and we know your business and its demands as well as we know our own. Our knowledge and experience enable us to develop solutions that address the challenges of any project and precisely meet our customers' needs.

### We are technical experts

Technical excellence is in our DNA. Our engineers and designers are committed to creating products and solutions of the highest quality for our customers. Backed by our state-of-the-art manufacturing facilities and product lifecycle support teams, they ensure our customers benefit from innovation without compromise.

### We are global professionals

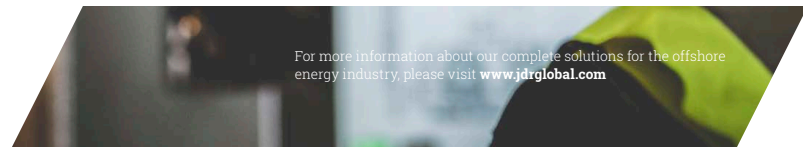
Wherever our customers are located, they can be assured of a superior service at all times. JDR is internationally equipped in strategic locations and our global network of highly experienced, fully qualified technicians deliver 24/7 installation and maintenance support as well as full engineering services worldwide.

### We are problem solvers

We work on some of the most complex technical projects and some of the world's largest installations – as well as some of the smallest. Every project presents new challenges and we have the flexibility, agility and dynamism to respond with innovative solutions. Whatever our customers need, JDR is committed to delivering the right solution.

### We are trusted partners

Our customers trust us to deliver on time, every time. In the harsh environment of subsea cabling and umbilicals, quality and reliability are essential. That's why we collaborate with our customers and end users throughout the supply chain to make sure we exceed Customer expectations at every stage.



For more information about our complete solutions for the offshore energy industry, please visit [www.jdrglobal.com](http://www.jdrglobal.com)



# Connecting the international oil and gas industry

## Excellence at every stage

We are oil and gas sector experts. We provide the products, people and services needed to build advanced, reliable and safe subsea connectivity. Our technical expertise and in-depth industry knowledge enable us to respond to design challenges and new situations with pioneering solutions, while retaining our proven design and technical reliability.



JDR designs, manufactures, delivers, and supports subsea production umbilicals, subsea power cables and Intervention Work Over Control Systems (IWOCs) for installation at ever-increasing depths.

We are committed to customer service throughout the product lifecycle, and our specialist engineering teams, experienced project management, integrated safety system, and global service network ensure customer expectations are continuously met.

Every business is different and every situation is unique, so we combine high-quality technology with a flexible approach to ensure our customers get exactly the solution they need.

**Subsea power cables**

Our subsea power cables are engineered and manufactured to suit the dynamics of each individual project. They can cover great distances and are designed to operate in subsea environments for many years. Our range of subsea power cable solutions also includes fibre optic communications and fluid transfer between offshore installations and subsea infrastructures.

**Subsea production umbilicals**

Our umbilicals are designed to operate in a wide range of water depths. They provide critical power, control and monitoring links, which connect the various elements of an offshore field. Our umbilical design engineers create products that maximise reliability, minimise project cost, and ensure long-term reliability.

**IWOC umbilical systems**

Working with customers on a wide range of systems, we have extensive experience in the design, development and manufacture of IWOC reelers and systems. Our IWOCs are custom-engineered, manufactured and validated for the harshest environments and toughest deployments.

Here are just some of the projects we have worked on:



**01. Åsgard Field**

**Completion and workover umbilical systems**

- Norwegian Sea
- 50 wells
- 200 km offshore

JDR supplied a control package comprising Christmas-tree and landing-string umbilicals and jumpers, high-set lubricator valve umbilicals and jumpers, and hotline hydraulic and electric umbilical systems to Statoil's Åsgard field, one of the biggest developments on the Norwegian continental shelf. JDR custom-engineered and manufactured all components, which also included reels, sheaves, air hoses, and other ancillary equipment. The result is improved fatigue performance during handling, reduced reel size and deck footprint, and efficiency savings.

**02. Fletcher and Finucane**

**Subsea electro-hydraulic umbilicals and subsea power cables**

- Carnarvon Basin
- 150 km offshore
- 133-155m deep
- 60km of cables and umbilicals

JDR designed, manufactured and supplied a complete solution for the delivery of power, chemical injection and hydraulic control to three production wells on the Fletcher and Finucane project operated by Australian company Santos. The solution included thermoplastic control umbilicals, electrical submersible pump (ESP) power cables, and distribution equipment designed by JDR's engineering team, who specialise in custom-engineered systems for installations at ever-increasing depths and tieback distances.

**03. Jack and St Malo**

**Rigless, riserless intervention systems**

- Gulf of Mexico
- 450km offshore
- 2,100 - 3,000m deep
- Custom-engineered, patented design

For Chevron's Jack and St Malo deep-water project in the Gulf of Mexico, JDR developed two high-strength Self-Supporting umbilical systems that are designed to operate in depths of up to 2,100m. The total solution also featured JDR's patented high-capacity subsea termination and hydraulic reelers for open water operations. The Self-Supporting umbilicals can support their own weight and that of the termination assembly, and enable a range of well-control packages to be rapidly deployed without a riser.

# Leading the way in the international renewables industry

## **Innovation and expertise**

JDR is a leader in the renewable energy sector. We have the technical expertise and in-depth sector knowledge to design, test and deliver the next-generation of cable technologies. Leading the development of inter-array cable design and manufacture, we have created comprehensive systems for some of the world's largest offshore wind projects.





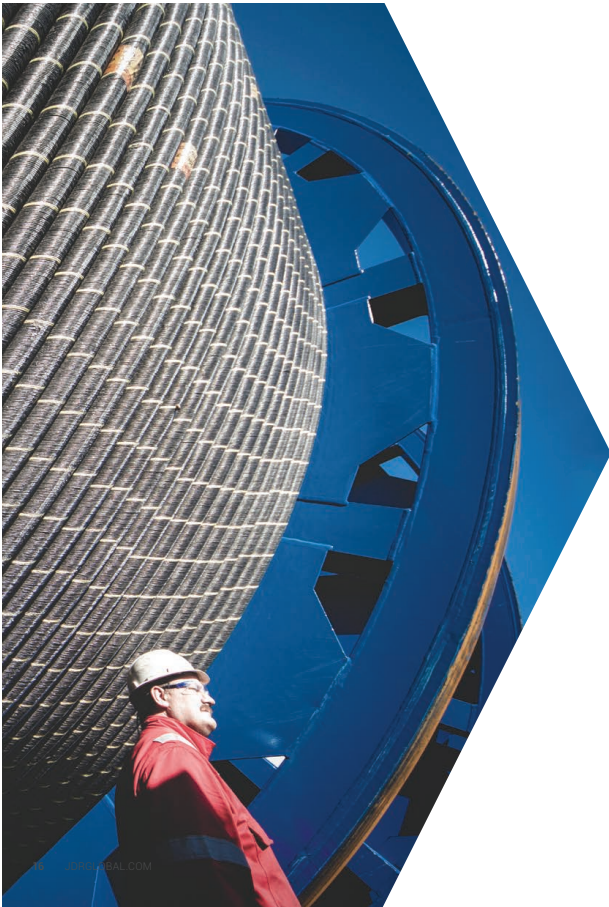
Deploying the latest technology advances, from high-voltage cable technology to new aluminium cores, JDR connects turbines at offshore wind farms to offshore or onshore substations.

Our subsea cables for renewable energy ensure that power is transferred in a safe, secure and environmentally responsible fashion.

Our research into high-voltage cabling is making offshore wind a more competitive source of power. Throughout our product development we focus on innovative solutions that will improve long-term product performance and support the future growth of the industry. By investing in long-term technology developments, JDR is supporting the evolution of cost-effective offshore wind energy production.

We work closely with our customers to deliver consistently reliable, high-quality solutions to meet even the most complex and demanding project requirements.





## Here are just some of the offshore renewables projects we have worked on:



Leading the way in the international renewables industry

### 01. Rampion

#### First offshore wind farm in Southern England

- English Channel, England, South East Coast 116 wind turbines
- 16.9 kilometres offshore
- 19m – 39m water depth

Developed by E.ON Climate and Renewables, the Rampion Offshore Wind Farm is the first wind farm off the south coast of England. Upon completion in 2018, the development will have a 400 megawatt capacity and could provide enough electricity to supply energy to around 300,000 households. JDR designed and manufactured 142 kilometres of 36kV inter-array cables for the project. The scope also included the supply of hang-offs, electrical T-connectors, inner cone connectors, cable cleats and a J-tubeless cable protection system specifically designed to optimise installation time and minimise the potential for cable damage during installation and throughout its operation.

### 02. Dudgeon

#### North Sea Offshore Wind Farm

- North Sea, Norfolk
- 67 wind turbines
- 32 kilometres offshore
- Powering 410,000 homes

Developed by Statkraft AS and Statoil ASA, the Dudgeon Offshore Wind Farm is located 32 kilometres off the UK coast in North Norfolk in water depths between 18 and 25 metres. With 67 x 6MW wind turbines, the farm is expected to create enough electricity to power more than 410,000 households per year. JDR provided over 95 kilometres of copper-core inter-array cable. JDR supplied two inter-array cables; a 185mm<sup>2</sup> and a 500mm<sup>2</sup> copper conductor cable along with a range of accessories including pulling grips, hang-offs, connectors, fibre optic patch panels, cable cleats, three-month abandonment kits and subsea repair joints.

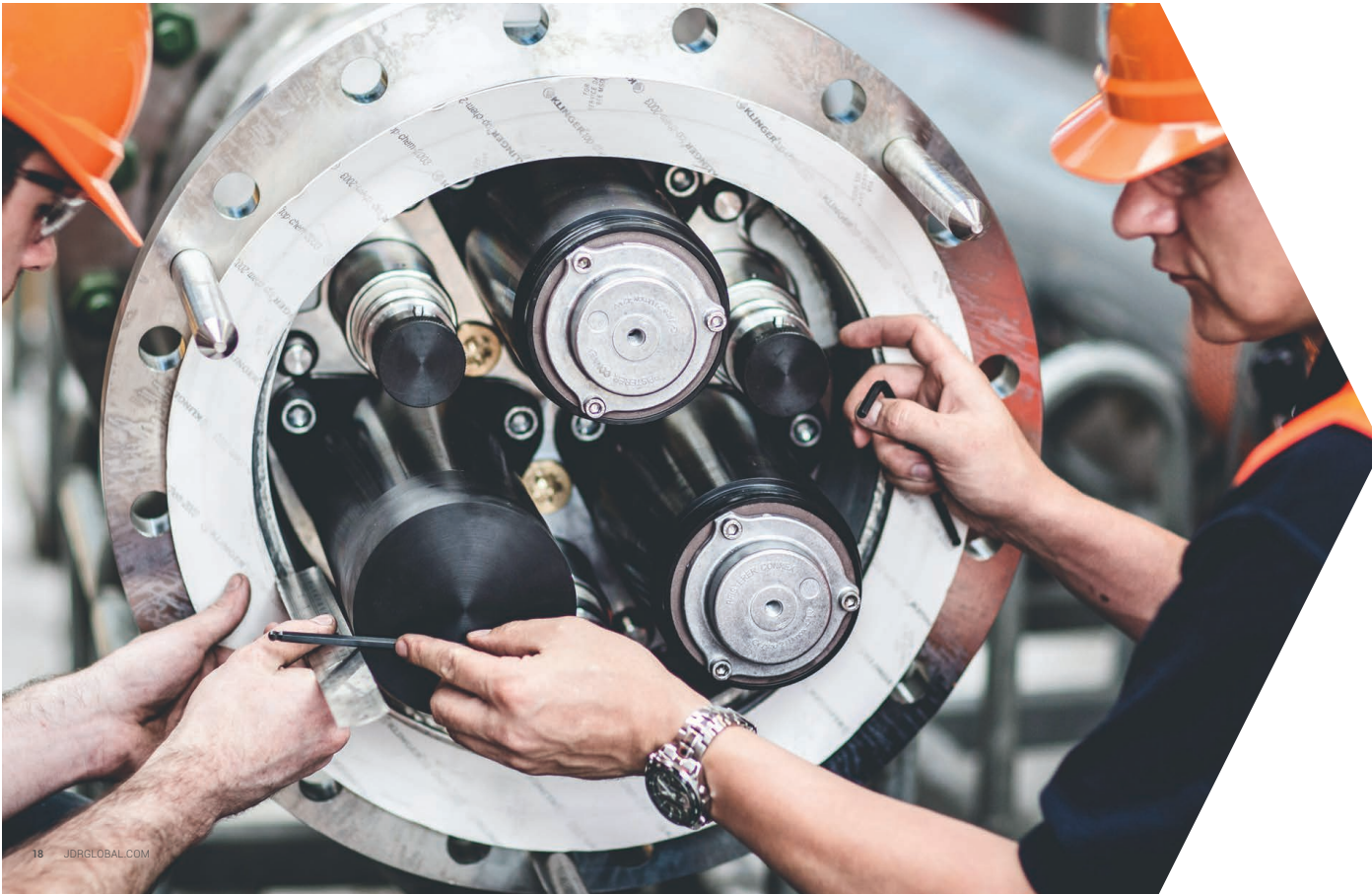
### 03. Nordsee One

#### Part of Germany's largest offshore wind farm cluster

- North Sea, Germany
- 40 kilometres offshore
- 34 metre water-depth
- 54 wind turbines

Contracted by Siemens Offshore Contractors GmbH, JDR provided over 70 kilometres of aluminium core inter-array cable. The Nordsee One Offshore Wind Farm project utilised two JDR designed inter-array cables: a 240mm<sup>2</sup> and an 800mm<sup>2</sup> aluminium conductor cable. Additionally JDR supplied a range of accessories including cable pulling grips and hang-offs, cable cleats, power core termination connectors and fibre optic splice boxes.

As part of JDR's life-cycle offer, the contract also included JDR's installation and maintenance service teams to install the hang-off and route, terminate and test each cable.



# Asset Services – matching technical expertise with customer service

## **Product support from cradle to grave**

We support our customers at every stage of the project. From design and engineering, through manufacture and delivery, to maintenance, termination and loadout, we provide expertise, support and insight at every step. Our dedication to customer service throughout the entire product lifecycle is matched only by our commitment to technical excellence at every stage.



JDR's global asset services are an integral part of what we do. Our goal is to maximise our customers' investment in our technology, lower the total cost of asset ownership, and extend the life of our subsea installations.

Every part of our business, from design and delivery to support services, is dedicated to developing the right solution for each customer project.

Every solution that we design and develop is supported to the end of its life by our fully trained and certified personnel. Asset services operate 24/7/365 from strategically located bases in the UK, USA, Brazil, Asia and West Africa. Each location offers access to a team of multi-skilled, certified and fully equipped field service technicians supported by a team of office-based technical support staff and logistics. Our people can be mobilised at short notice to provide full after-care options on all JDR and non-JDR manufactured and supplied equipment.



Asset services combining technical expertise with customer service

**Installation, repair, maintenance, and healthcare services**

JDR's asset service team offers support to offshore installation, field-of-life operations and end-of-life product removal. It provides repair services, including emergency response, as well as equipment and product maintenance. It also supports asset healthcare, assurance, equipment and product upgrades for oil and gas and renewable markets.

**Specialist equipment and testing**

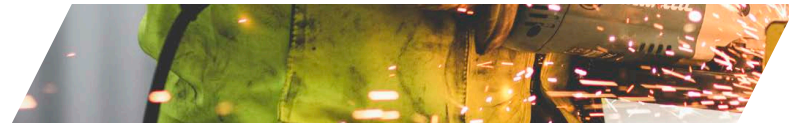
JDR offers customers access to its complete portfolio of specialist tooling and test equipment. The equipment rental service can be mobilised alongside specialist technicians anywhere in the world, and includes mechanical, hydraulic power cable and fibre optic capabilities. Test services include post-integration testing and post-pull-in testing as required during cable handling.

**Spare parts and asset management**

JDR provides spare parts and spare parts management from strategically situated bases across the globe. It also provides equipment asset management, storage, pre-mobilisation testing and post-job inspection and maintenance.

**Health, safety and specialist certification**

JDR's field service technicians are trained in all aspects of risk assessment, the safe operation of high-voltage power systems, climbing and access for wind turbines, and basic offshore safety. They also complete relevant energy training courses, including HUET and EBS, and UK BOSIET OPTIO approved courses. Our safety management system is regularly verified by Lloyds Register Quality Assurance.



# Supporting the international offshore energy industry

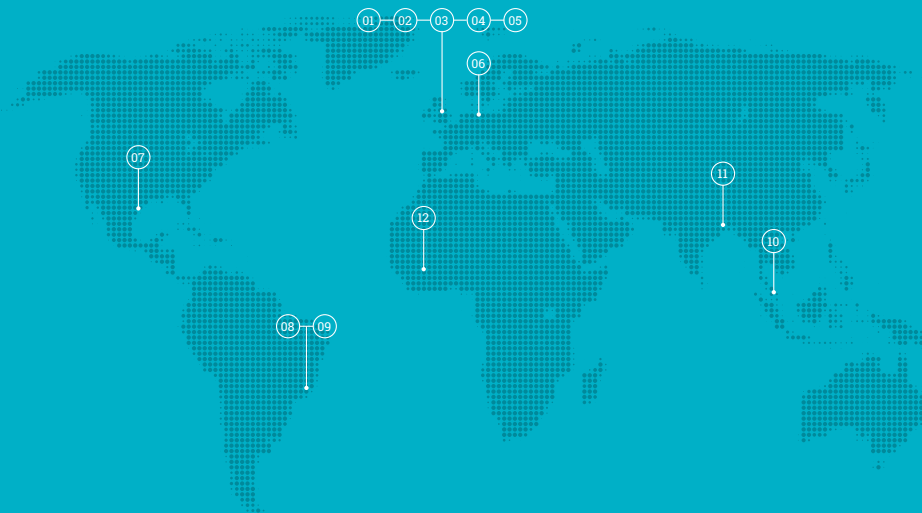
## Global locations and support

JDR operations are truly international. Manufacturing, design, engineering, and support are all available worldwide. This means we can deliver local project management as well as our substantial global operations. Whatever the size and wherever the location, our experts are available to support our customers.





# JDR Global Locations



- 01. Littleport, UK**  
Manufacturing, product services, sales, management, engineering
- 02. Hartlepool, UK**  
Manufacturing, engineering, R&D
- 03. Newcastle, UK**  
Sales, engineering
- 04. Cambridge, UK**  
R&D, engineering
- 05. Aberdeen, UK**  
Sales
- 06. Hamburg, Germany**  
Sales
- 07. Houston, TX US**  
Sales, product services, management, engineering
- 08. Macaé, Brazil**  
Sales, product services
- 09. Rio de Janeiro, Brazil**  
Sales
- 10. Singapore**  
Sales, product services
- 11. Bangkok, Thailand**  
Engineering
- 12. West Africa**  
Product services

Supporting the international offshore energy industry

### Spotlight on Hartlepool

JDR's base at Hartlepool dock is a 9,300 square metre, state-of-the-art facility for manufacturing and engineering subsea power cables and umbilicals. Hartlepool's deep-water quay and its easy access to North Sea shipping lanes mean we can spool cables directly from the factory to offshore cable lay vessels moored in the quay. The Hartlepool facility houses two 2,200 tonne and two 4,000 tonne covered carousels, one of the world's largest vertical lay-up machines (VLM), a high capacity, high specification horizontal lay-up machine (HLM) (coming in 2016), two armouring lines and a range of other world-class machinery utilised for the reliable manufacture of subsea umbilicals and power cables for both the oil and gas and renewable markets.

In 2015 and continuing into 2016, JDR expanded the Hartlepool facility, adding 7020 square metres to its footprint. Along with the installation of the new HLM, the expansion also

included the addition of a dedicated tube and umbilical sheathing line, two more 2200 tonne carousels and three additional 600 tonne carousels, spooling equipment and a new Technical Training Centre – making JDR's Hartlepool facility a Centre of Excellence for cable and umbilical manufacture.

### Spotlight on Littleport

Our 10,000 square metre Littleport facility houses our IWOC Centre of Excellence as well as our design, engineering, small parts manufacturing, qualification testing, and R&D. It's also the centre of our worldwide supply of critical components for subsea power cables, umbilicals, specialised hoses and integrated packages for the oil and gas industry.



# The power to connect

# Find out more

**What can JDR do for you?**

[jdrglobal.com](http://jdrglobal.com)  @ConnectwithJDR  jdr-cable-systems  connectwithjdr

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