



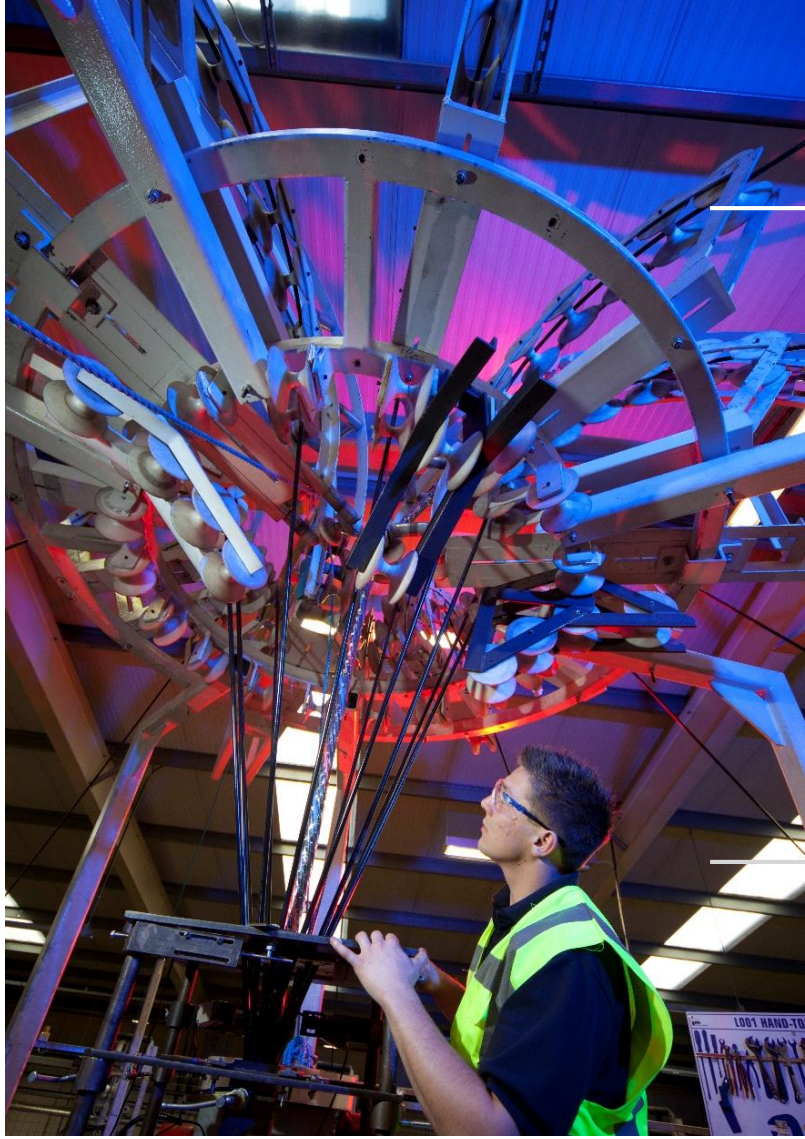
PROVIDING THE **VITAL** CONNECTION

WHO IS JDR

JDR is a world-class provider of the technologies and services that connect the global offshore oil, gas and renewable energy industries:

- ✓ Subsea control and control umbilicals
- ✓ Subsea MV/HV power cables
- ✓ IWOC Systems
- ✓ Flying leads & topside cables
- ✓ Subsea engineered equipment
- ✓ Product and installation support and offshore / onshore testing and termination services
- ✓ Engineering services (FEED studies & analysis)

Through specialist engineering teams, experienced project management and innovative designs, JDR provides optimally configured products that enable subsea operations.



VISION AND VALUES



JDR'S VALUES ARE THE BELIEFS THAT BIND OUR TEAM AND DEFINE OUR BEHAVIOR

AGILITY | We are responsive to the needs of our customers and their global markets.

QUALITY & INNOVATION | We target reliability in everything we do. We apply our expertise to find better ways of doing things, everyday.

HEALTH, SAFETY & ENVIRONMENT | The wellbeing of our people and partners is our first priority, always.

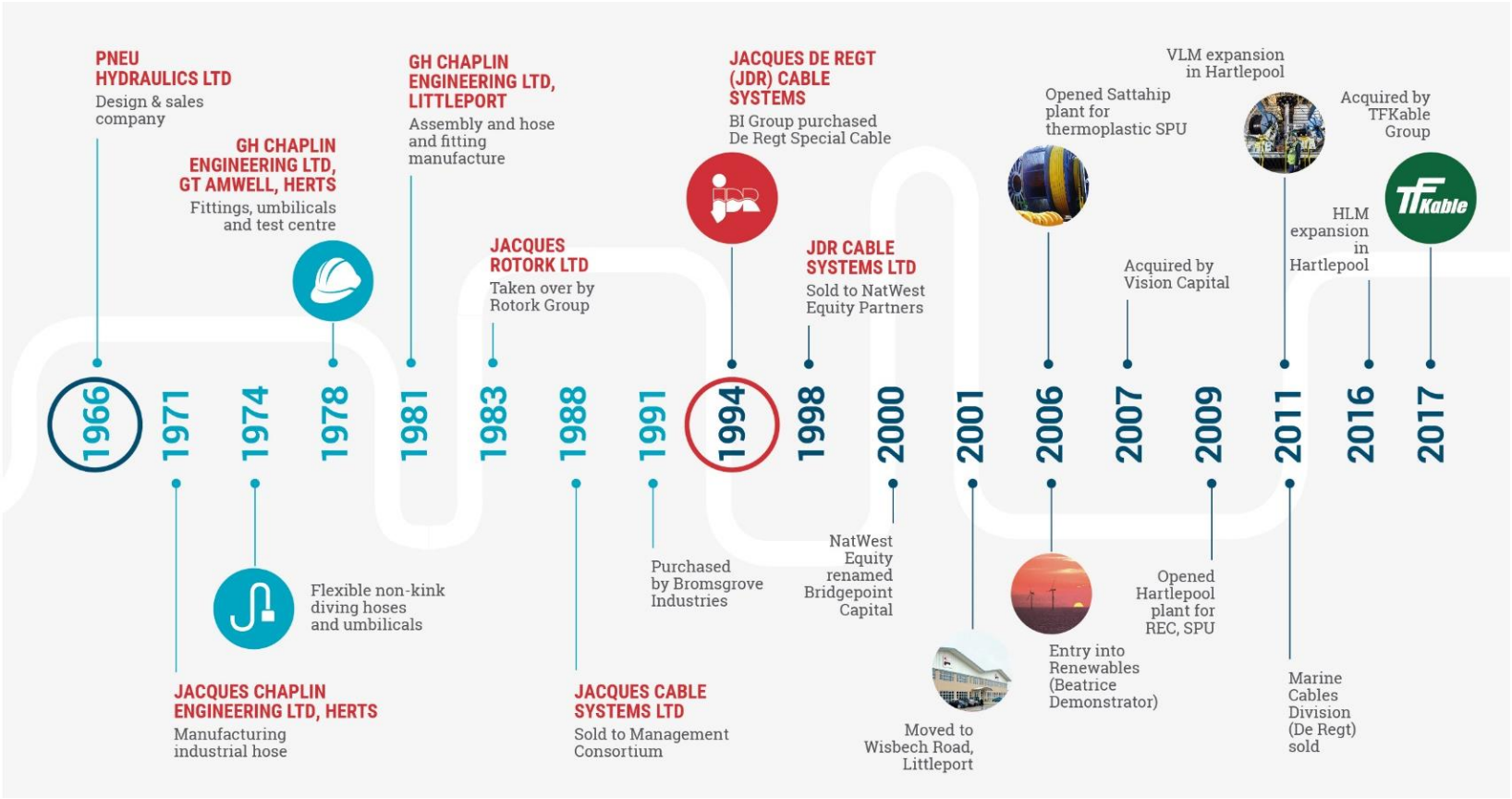
CUSTOMER FOCUS | We work in partnership with our customers to achieve world-class results.

ETHICS & INTEGRITY | Ethics are of the highest standard. Honesty, fair play and respect are at the core of our business.

PEOPLE | We care about our people and the communities in which we operate.

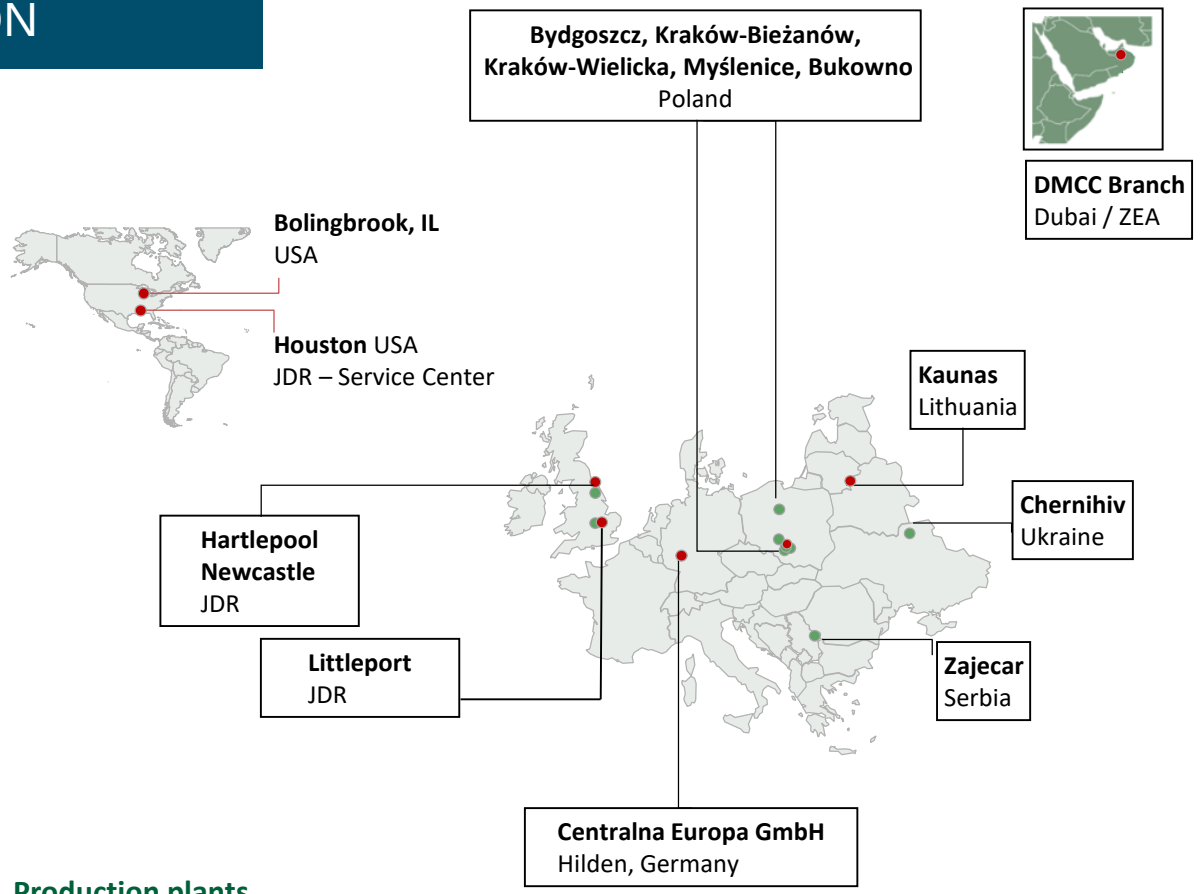
LEADERSHIP | We lead by example, at all levels.

HISTORY



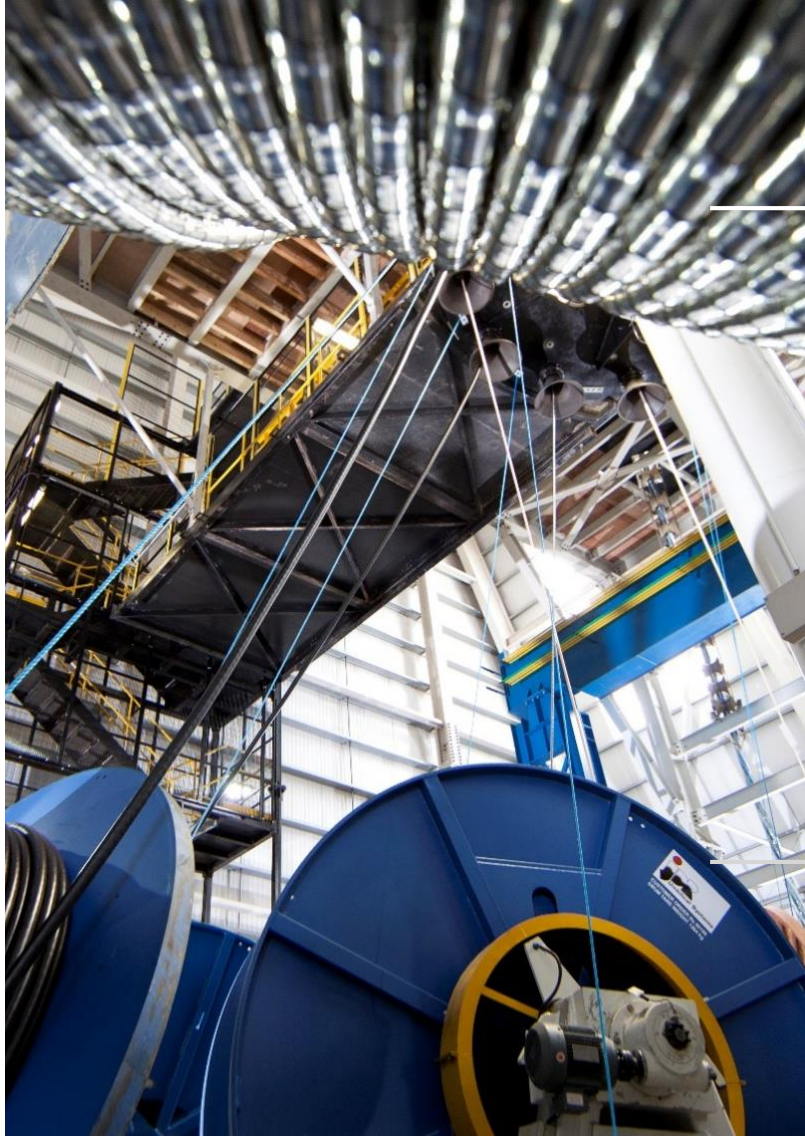
50 YEAR HERITAGE - 1966 TO PRESENT

PRODUCTION & DISTRIBUTION



Production plants

Subsidiaries



MANUFACTURING LOCATIONS



A BYDGOSZCZ

- ✓ Medium and high voltage cables up to 500kV
- ✓ The only manufacturer of HV cables in Poland

B KRAKÓW – WIELICKA

- ✓ Largest cable plant in Poland
- ✓ Rubber insulated power cables

C KRAKÓW - BIEŻANÓW

- ✓ Copper and aluminum wires and cords, 1 kV wires

D MYŚLENICE

- ✓ Telecom copper cables, data cables, fibre optic cables
- ✓ Speciality cables

E HARTLEPOOL

- ✓ Subsea Power & Array cables
- ✓ Subsea production umbilicals
- ✓ Subsea Equipment

F LITTLEPORT

- ✓ Subsea Power & Array cables
- ✓ Subsea production umbilicals
- ✓ Subsea Equipment
- ✓ IWOCS Systems

MANAGEMENT SYSTEMS

OUR GUIDING PRINCIPLES

TH!NK SAFETY

HEALTH, SAFETY & ENVIRONMENT

The wellbeing of our people and partners is our first priority, always.

TH!NK QUAL!TY

QUALITY & INNOVATION

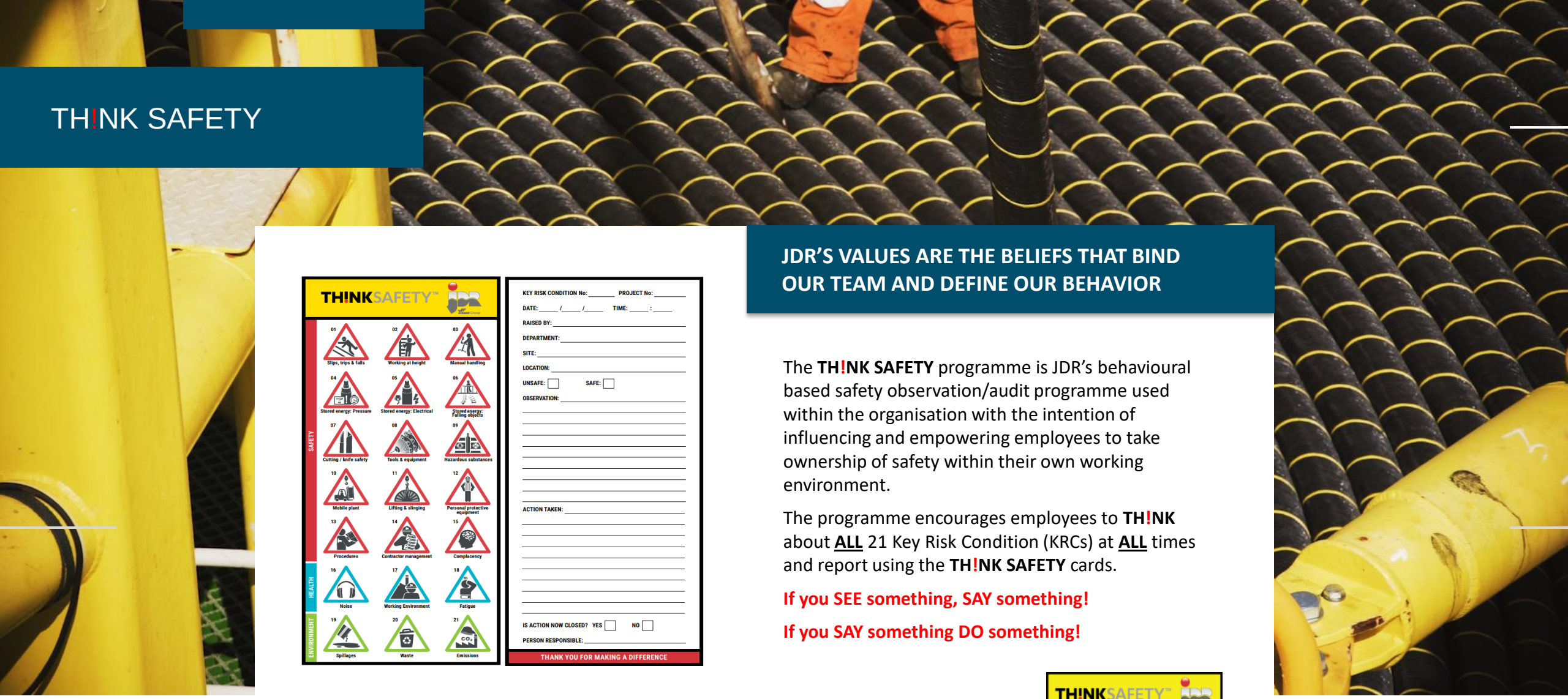
We target reliability in everything we do.
We apply our expertise to find better ways of doing things, everyday.



MANAGEMENT SYSTEMS VERIFICATION

- ✓ We work with LRQA to maintain certification and drive continuous improvement in HSE
- ✓ Health & Safety: OHSAS 18001:2007 Safety Management Standard
- ✓ Environmental: ISO 14001:2015 Environmental Management Standard
- ✓ Quality: ISO 9001:2015 Quality Management Standard

TH!NK SAFETY



JDR'S VALUES ARE THE BELIEFS THAT BIND OUR TEAM AND DEFINE OUR BEHAVIOR

The **TH!NK SAFETY** programme is JDR's behavioural based safety observation/audit programme used within the organisation with the intention of influencing and empowering employees to take ownership of safety within their own working environment.

The programme encourages employees to **TH!NK** about **ALL** 21 Key Risk Condition (KRCs) at **ALL** times and report using the **TH!NK SAFETY** cards.

If you SEE something, SAY something!

If you SAY something DO something!

TH!NKSAFETY™

TH!NK QUAL!TY



QUALITY PLAYS A UNIQUE ROLE IN ENSURING THAT WE SATISFY OUR STAKEHOLDERS EXPECTATIONS

We deliver **TH!NK QUALITY** by understanding and delivering the following:

CONTEXT | Ensuring we understand our **customer** needs and expectations

LEADERSHIP | We align **values** and **culture** to account for these expectations

OPERATIONAL GOVERNANCE | We build a management systems to help the organisation consistently make the right decisions for customers, stakeholders and the organisation

ASSURANCE | Understand performance and **identify the risks** to trust and reputation

BUSINESS IMPROVEMENT | Investing in the **right improvements** to improve performance and trust

MARKET SEGMENTS

OIL & GAS

Global offshore subsea intervention, production and control/processing installations.

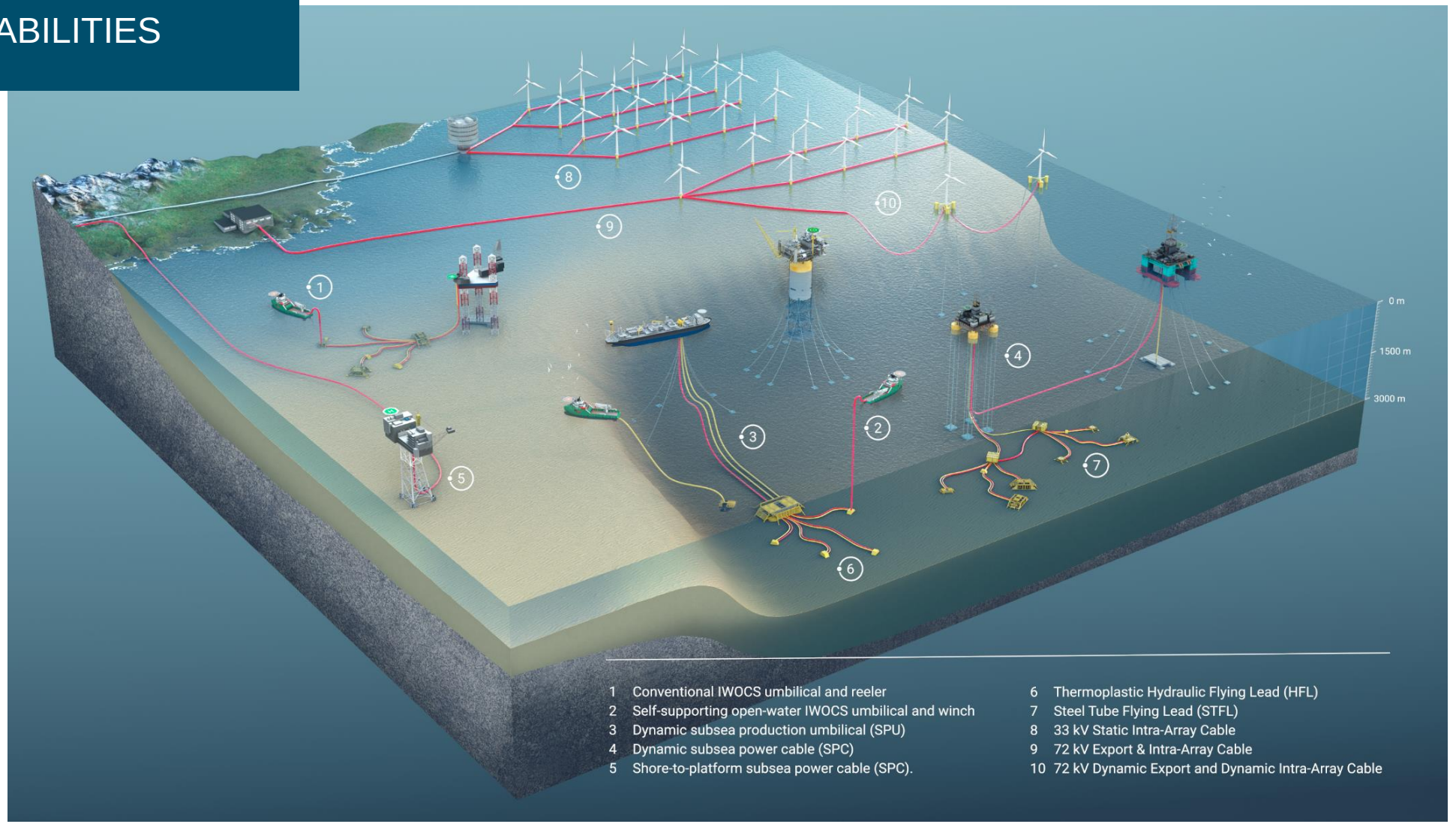
RENEWABLES

Inter-array and export MV/HV power cables for offshore wind, wave and tidal energy projects.

PRODUCT & INSTALLATION SERVICES

Offshore product services for the oil and gas and renewable energy industry. JDR support customers from project installation through commissioning and life of asset.

JDR CAPABILITIES



SUBSEA ENGINEERED EQUIPMENT



TERMINATIONS & ACCESSORIES



TERMINATIONS & HARDWARE



PULL-IN EQUIPMENT



HANG-OFF POTTED BODY



DYNAMIC BEND STIFFNER



BUOYANCY MODULES



MID-WATER ARCH CLAMP



BALLAST MODULES



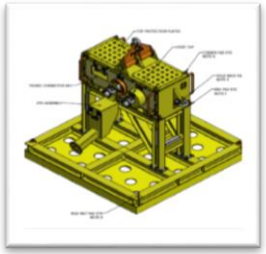
TOUCHDOWN TETHER CLAMP



MIDLINE QUICK CONNECTION



TERMINATION ASSEMBLY



DISTRIBUTION UNIT (SDU)



TERMINATION HEADS

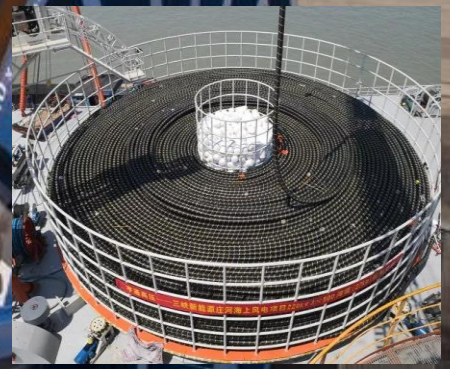
JDR MANUFACTURING



INTERVENTION WORKOVER CONTROL SYSTEMS (IWOCS)



SUBSEA PRODUCTION UMBILCALS



SUBSEA POWER CABLES

PROVIDING THE **VITAL** CONNECTION

JDR LITTLEPORT

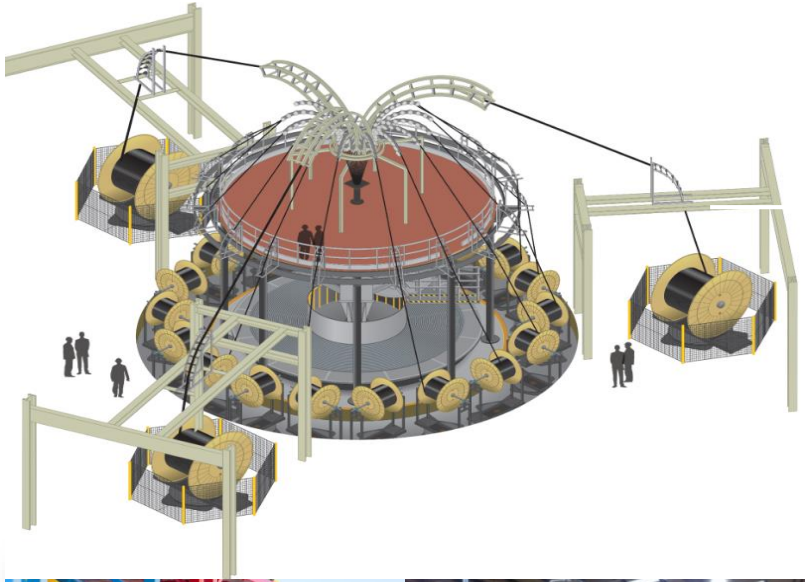
CENTRE OF EXCELLENCE FOR HOSE & CABLE MANUFACTURING

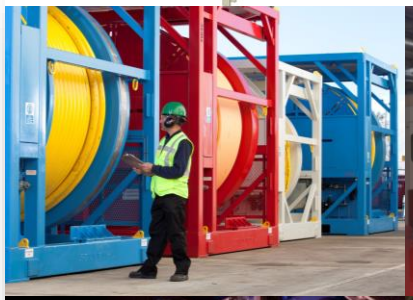
Bespoke equipment for IWOCS umbilical production:

- ✓ Vertical Helical Lay-up
- ✓ Horizontal Helical Lay-up
- ✓ SZ Lay-up
- ✓ Armouring
- ✓ Sheathing
- ✓ 120 Tonne Load-out

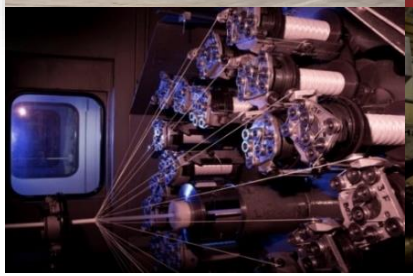
Umbilical and Reeler Integration:

- ✓ Skilled workforce with in-depth knowledge of integration and hook-up
- ✓ Reeler assembly and commissioning
- ✓ Integration and functional test facility
- ✓ Site integration testing
- ✓ Reeler spooling facilities
- ✓ Flushing and cleanliness verification









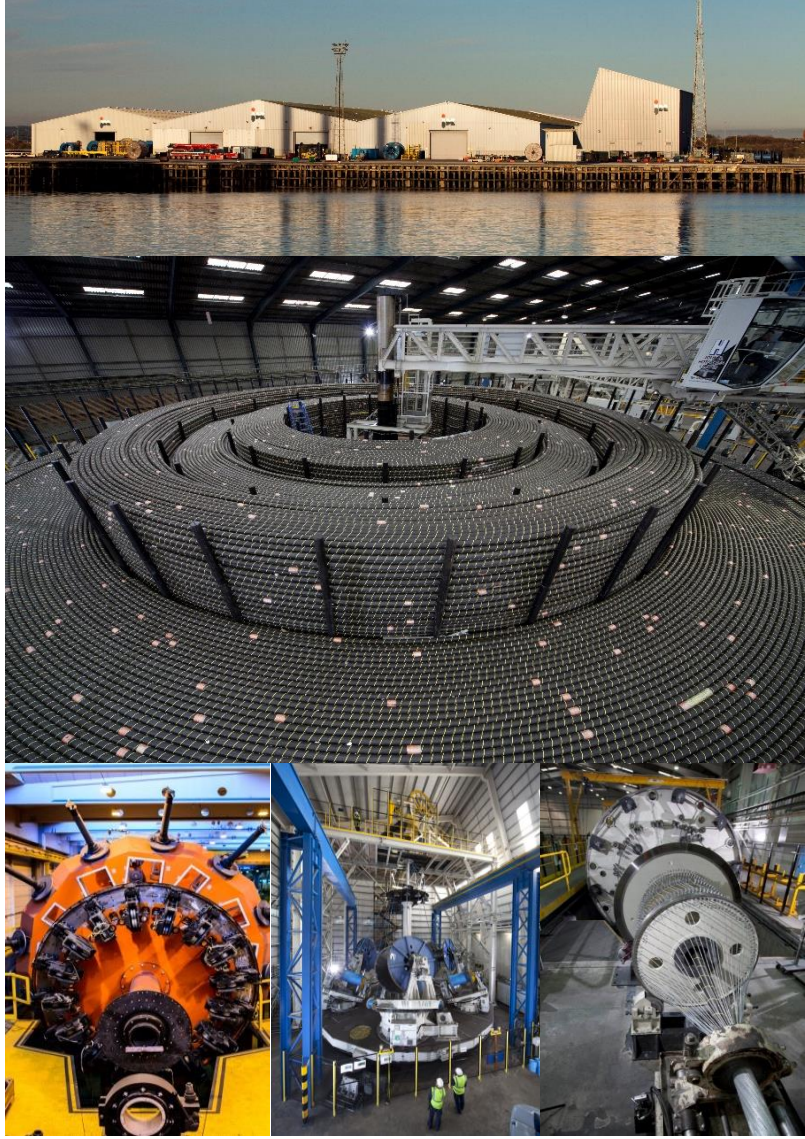


JDR HARTLEPOOL

STATE OF THE ART UMBILICAL & CABLE MANUFACTURING

JDR's largest manufacturing site with specialist engineering design and project management teams:

- ✓ High capability equipment offers production flexibility
- ✓ Large vertical lay-up machine
- ✓ Six carrier horizontal lay-up machine
- ✓ SZ (Oscillatory) lay-up
- ✓ 4 x 2,200 ton carousels
- ✓ 2 x 4,000 ton carousels
- ✓ 2 x armoring lines
- ✓ Sheathing line
- ✓ Product verification suite
- ✓ Large horizontal lay-up machine
- ✓ Deep water quay side access



JDR GLOBAL SERVICES





JDR GLOBAL SERVICES OFFERS COMPLETE LIFECYCLE SUPPORT ACROSS SUBSEA PRODUCTION UMBILICALS, SUBSEA POWER CABLES AND INTERVENTION WORKER CONTROL SYSTEMS

JDR's global onshore and offshore installation and maintenance services supports customers throughout project planning, mobilisation, installation, commissioning and maintenance; providing total life-cycle support for your asset:

- ✓ Delivered by a global network of qualified technicians
- ✓ Installation, Commissioning and De-Commissioning
- ✓ Asset Management Services
- ✓ Umbilical and Cable Fault Identification and Repair
- ✓ Power Backbone Integrity Management
- ✓ Full Field Maintenance and Inspection Service Provider
- ✓ IWOCS Rental Equipment

We create a one stop shop for our customers for services beyond factory delivery, providing the best technical support 24/7/365.

JDR NEWCASTLE

GLOBAL SUPPORT NETWORK FOR RAPID REGIONAL RESPONSE

Supported by a team of office based technical support staff and logistics ensures our people and equipment can be mobilised at short notice providing 24/7/365 coverage.

- ✓ Installation and Commissioning: Electrical, Fibre and Hydraulic Termination, Testing and Flushing
- ✓ Asset Management Service: Cable Loadout and Cable Storage Services, Accessory Storage and Management
- ✓ Umbilical and Cable Fault Identification and Repair: Fault Finding and Testing, Short Cable Length Replacement, Repair Joints, Re-terminations, Repair Services
- ✓ Power Backbone Integrity Management: Transformers, Switchgear and Protection Circuits
- ✓ Full Field Maintenance and Inspection Services: Including LV Electrical, Lighting, Communications and Safety Equipment
- ✓ Mobilisation and Training Facilities



JDR HOUSTON

SPECIALIST RENTAL SOLUTIONS

IWOCS rental services provides offshore oil and gas operators with the ability to increase production from subsea wells without requiring a CAPEX investment:

- ✓ EH IWOCS umbilical
- ✓ Hydraulic IWOCS reeler and drive hydraulic power unit (HPU) or pneumatic drive IWOCS reeler
- ✓ Umbilical sheave
- ✓ JDR modular UTA / subsea interface panel
- ✓ Emergency disconnect system (hydraulic or mechanical)
- ✓ LARS with drive HPU
- ✓ JDR IWOCS controls HPU
- ✓ Zone-rated workshop container with IWOCS spares
- ✓ JDR-certified IWOCS field service technicians







TECHNICAL LEADERSHIP & INNOVATION

GLOBAL ENGINEERING CAPABILITIES

Our Engineering teams are at the forefront of technology developments: from project concept, engineering proposal to detailed design and development throughout manufacture, installation and commissioning technical support:

- ✓ JDR technology roadmaps define R&D and resource investment by product type and are customer input
- ✓ Our capability includes FEED studies with major energy companies
- ✓ We partner with customers and project management teams to create innovative products tailored to individual customer requirements
- ✓ Our dynamic and static analysis group are based in the UK







RENEWABLE SECTOR PROJECTS

1,747 km

of subsea cables were delivered by JDR for offshore projects since 2016
Source: 4COffshore Market Overview Report.

Formosa 1 – Phase 2

First offshore wind farm in Taiwan

- ✓ Strait of Taiwan
- ✓ 22 wind turbines
- ✓ 15m - 30m water depth

Formosa 1 is Taiwan's first commercial-scale wind farm and is located approximately 6km off the west coast of Miaoli in the Strait of Taiwan. Spread over an area of 11km^2, Formosa 1 lies in water depths between 15m and 30m.

Contracted by Jan De Nul Group, JDR provided 21km of 33kV inter-array cable, 13km of export cable and a further 16km of land cable.

Additionally, JDR supplied a range of accessories including cable protection systems, t-connectors and hang offs. JDR also provided cable installation, accessory fitment and post installation support.

East Anglia One

First commercial wind farm with 66 kV cables

- ✓ North Sea, Suffolk
- ✓ 102 wind turbines
- ✓ Powering 500,000 homes

Contracted by Boskalis Cables, JDR will design and manufacture 155km of 66 kV inter-array cables for Scottish Power Renewables' East Anglia One (EA1) offshore wind farm.

EA1 is the world's first commercial application of 66kV cable technology. The innovative 66kV high voltage technology enables increased power transmission back to shore from large, high powered offshore turbines compared to 33kV cables. JDR will also provide a unique cable management system at each offshore wind turbine generator which allows for a 66kV topside connection to the switchgear cables.

The wind farm is expected to power 500,000 homes when fully operational in 2020.

Windfloat Atlantic

World's first application of innovative 66kV technology to dynamic cabling for floating offshore wind

- ✓ Iberian Peninsula, Portugal
- ✓ 66 kV Technology
- ✓ Unique dynamic cable break away system

Located off the coast of Viana de Castelo, Northern Portugal – the project will see the industry's first application of dynamic cables operating at 66kV. The scope of supply includes the design and manufacture of array cables to suit the three WindFloat platforms, supporting MVOW V164 wind turbines. The floating wind turbines will be connected via a network of inter-array cables to one export cable.

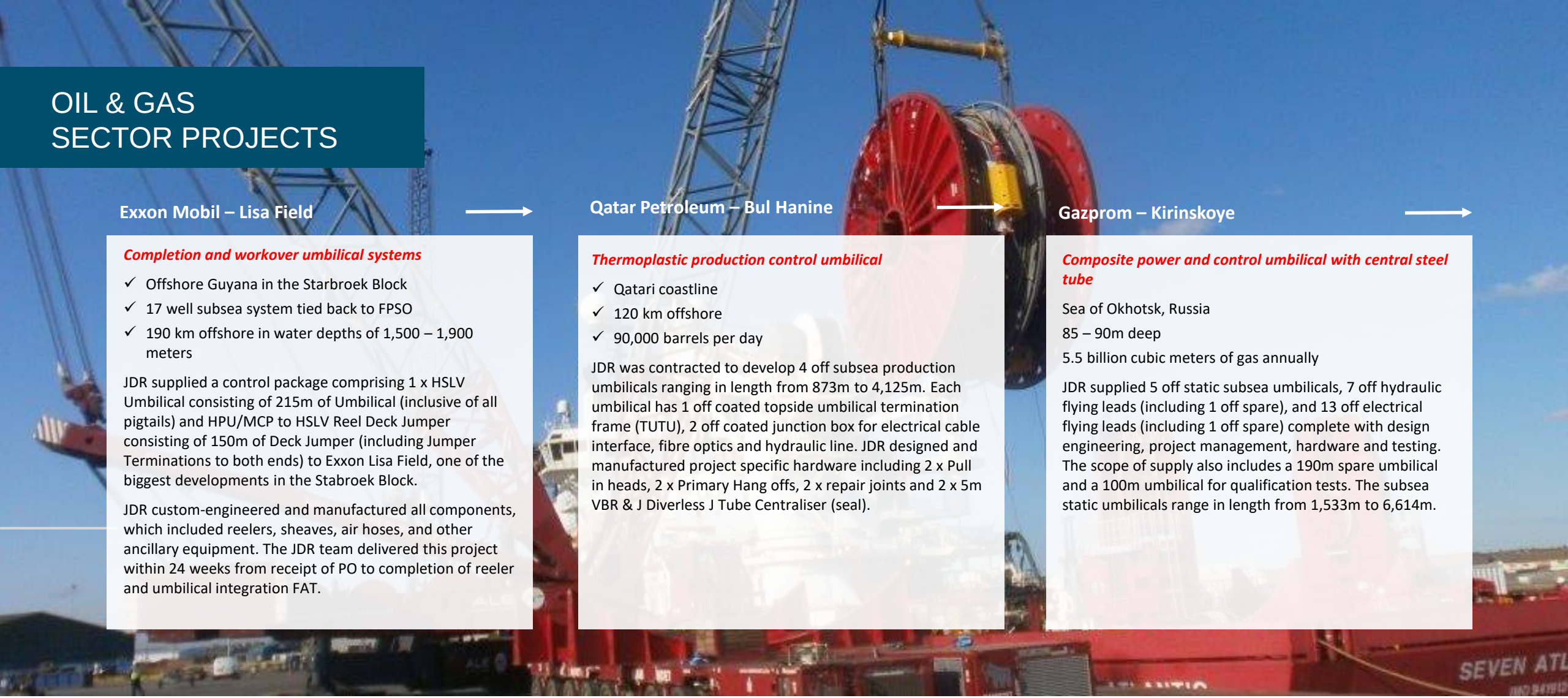
To support the project, JDR has designed a unique, easy to install, dynamic cable break away system (BSR Latch and T-Connector Break Away System (T-BAS), which protects the floating platform in the unlikely event of a mooring line failure

RENEWABLE SECTOR CUSTOMERS



PROVIDING THE **VITAL** CONNECTION

OIL & GAS SECTOR PROJECTS



Exxon Mobil – Lisa Field

Completion and workover umbilical systems

- ✓ Offshore Guyana in the Starbroek Block
- ✓ 17 well subsea system tied back to FPSO
- ✓ 190 km offshore in water depths of 1,500 – 1,900 meters

JDR supplied a control package comprising 1 x HSLV Umbilical consisting of 215m of Umbilical (inclusive of all pigtails) and HPU/MCP to HSLV Reel Deck Jumper consisting of 150m of Deck Jumper (including Jumper Terminations to both ends) to Exxon Lisa Field, one of the biggest developments in the Stabroek Block.

JDR custom-engineered and manufactured all components, which included reelers, sheaves, air hoses, and other ancillary equipment. The JDR team delivered this project within 24 weeks from receipt of PO to completion of reeler and umbilical integration FAT.

Qatar Petroleum – Bul Hanine

Thermoplastic production control umbilical

- ✓ Qatari coastline
- ✓ 120 km offshore
- ✓ 90,000 barrels per day

JDR was contracted to develop 4 off subsea production umbilicals ranging in length from 873m to 4,125m. Each umbilical has 1 off coated topside umbilical termination frame (TUTU), 2 off coated junction box for electrical cable interface, fibre optics and hydraulic line. JDR designed and manufactured project specific hardware including 2 x Pull in heads, 2 x Primary Hang offs, 2 x repair joints and 2 x 5m VBR & J Diverless J Tube Centraliser (seal).

Gazprom – Kirinskoye

Composite power and control umbilical with central steel tube

Sea of Okhotsk, Russia

85 – 90m deep

5.5 billion cubic meters of gas annually

JDR supplied 5 off static subsea umbilicals, 7 off hydraulic flying leads (including 1 off spare), and 13 off electrical flying leads (including 1 off spare) complete with design engineering, project management, hardware and testing. The scope of supply also includes a 190m spare umbilical and a 100m umbilical for qualification tests. The subsea static umbilicals range in length from 1,533m to 6,614m.

OIL & GAS SECTOR CUSTOMERS





SUMMARY

We partner with our customers and have a long track record for:

- ✓ High quality products
- ✓ On-time delivery
- ✓ Solving complex challenges
- ✓ Global offshore experience in delivering leading technologies to major energy and equipment/service provider companies

We invest in people and technology to develop next generation oil, gas and renewable energy products and services that will provide the delivery of power, control and communications for subsea operations.

