IMES International
Key Capabilities
IMES International is committed to being the leading subsea and marine company providing inspection, monitoring and engineering solutions to the global energy, defence and industrial markets through a collaborative approach to service and product development together with the industry and its customers.
IMES Specialisms

30 years experience, 70 experts and global industry reach

IMES hold a distinct competitive edge in the market place by offering essential services that together deliver synergies in lifting solutions, marine safety and product solutions that are industry leading.
IMES Operations

IMES have offices in six prime locations in the UK

Four locations have fully equipped workshop facilities each between 2630 to 7180 sq ft, and various test machines, varying from 30 tonne up to 60 tonne, grade 1 Horizontal test machine and 1600 tonne wire rope test bed.

IMES also has partners in Europe, Norway, South East Asia, USA, Egypt, Singapore and Brazil.
Defence & Industrial Customers

- ABP
- Babcock
- BAE Systems
- Dales Marine Services Ltd
- PD Ports
- Hooulder
- Briggs
- Ministry of Defence
- Tata Steel
- Rolls Royce
- Thales
- Cammell Laird Shiprepairers & Shipbuilders Ltd
- Frazer-Nash Consultancy
- DP World

imes international
Lifting and Inspection

IMES deliver **specialist** and **independent** inspection, test, repair and maintenance expertise on a range of fixed and loose lifting equipment to the global energy, defence and industrial markets and have developed a strong industry reputation over the past 30 years, with envious safety track record.

- Giving **complete confidence**
- **Expert** and **specialist** inspection and engineering team
- Ensuring **compliance** with LOLER regulations
- **Assuring operational safety** of cranes, lifting gear and other specialised structures
- **Preferred** lifting and inspection partner to many clients
Lifting & Inspection Services

- Statutory LOLER inspection
- Written Scheme of Examination implementation
- NDT & rope access
- Proof load testing
- Defect reporting & rectification

We are producing an ongoing **20% cost saving per year** for an Oil & Gas operator through our Written Scheme Examination implementation.
Lifting & Inspection Services
- Crane Condition Assessment

- 150t knuckle boom crane on M/V Olympic Triton
- Full material evaluation and survey
- Recommendations for continued use
AE-Analysis is an extremely powerful technology that can be deployed within a wide range of usable applications of non-destructive testing: metal pressure vessels, piping systems, structures, and similar.

Phased array ultrasonics is an advanced method of ultrasonic testing that has applications in industrial non-destructive testing. Common applications are to find flaws in manufactured materials such as welds.

Long Range UT employs mechanical stress waves that propagate along an elongated structure while guided by its boundaries. This is widely used to inspect and screen many engineering structures.

Eddy-current testing uses electromagnetic induction to detect flaws in conductive materials.

In ultrasonic non-destructive testing, high-frequency sound vibrations are transmitted into material. Magnetic particle inspection (MPI) is used for the detection of surface and near-surface flaws in ferromagnetic materials. Dye penetrant inspection is the basic stages of liquid penetrant inspection.
**Industry Leading Certification & Defect Management System**

**IMES** managed database
- QC on engineers inspection
- Ensures database is updated
- Manages 6 monthly inspections
- Can implement “written schemes”

**Client HQ** access on-line database for all specific work sites via internet
- Client can see equipment, vessel reports, trip summary reports
- View any photographs taken of equipment
- Client can address defective equipment
- Client gets weekly alert email for defective or warning equipment about to come out of certification

**Client work location**: Individual databases onboard
- Fully synchronised through internet
- Full item history
- Can add and scrap items (not inspect)
- Can search and print out reports/certs

Our industry leading certification system is installed on over 200 vessels worldwide
What does independence mean for you?

IMES is the only independent offshore LOLER inspection specialist

- **Technical Assurance**: No compromise for project schedules. Written Schemes require independent view.
- **Core Business**: Not a bolt on for equipment specialists.
- **Commercial Integrity**: No drive to sell new equipment = COST SAVINGS.
- **Competence**: UKAS accreditation.

= COMPLETE CUSTOMER CONFIDENCE
Wire Rope Inspection and Management

IMES delivers independent inspection and examination services providing integrity assurance assessments for internal and external defects of wire ropes;

- Giving complete confidence
- Specialist and competent technicians
- Expert and specialist inspection and engineering team
- In-house capability to load test, calibrate and break wire ropes
Wire Rope Inspection and Management

- Visual Inspection
- Electromagnetic wire rope NDT Inspection
- Socketing and cut-backs
- Spooling
- Pressure Lubrication
- Load test
- Destruct test up to 800 tonne
Wire Rope Inspection & Management

- Load test or destruct test of wire rope
- Rosyth Test Facility - up to 250 tonne capacity
- Aberdeen Test Facilities - one up to 50 tonne and the second up to 800 tonne capacity
- Portsmouth Test Facility – up to 40 tonne
- Plymouth Test Facility – up to 60 tonne
Wire Rope Inspection & Management  
- Wire Rope NDT

• For the Non-destructive Inspection of wire ropes
• Testing using electromagnetic flux leakage
• Rope inspection sizes: up to 120mm
• Speed and Distance Wheel assembly. Calibrated for Yards or Meters
• Display of LMA, LF and Distance
• Test data that is readily understood

LF – localised flaws
LMA – loss metallic area
Wire Rope Inspection & Management
- Wire Rope Pressure Lubrication

- The Viper MkII Wire Rope Lubricator range provides fast and effective cleaning and lubricating of wire ropes
- Sizes from 8mm (5/16”) to 165mm (6-1/2”) in diameter
- Greased at speeds up to 2,000mt per hour
- Ideal for use on all cranes, towing lines and mooring lines
- Eliminates manual greasing
- Single pass lubrication
- Stops corrosion, protects ropes
- Penetrative, displaces moisture from ropes core
- Safer, reduced lubricant usage, less leakage & mess
- Fast, efficient wire rope lubrication
- Reduces downtime, improves equipment availability
- Environmentally friendly

Proven cost saving - 40% less lubrication used as standard
Load monitoring and measuring systems

IMES has significant experience, competence and delivery in the supply and service of load measurement, monitoring and control systems in the UK and globally. IMES has built a strong worldwide reputation in the design and manufacture of precision weighing systems for harsh environments;

- Customised monitoring and load measurement products
- Combining client problems with collaborative partnerships and innovation
- Designed and built to industry standards and compliant with ATEX
## Standard Product Capacity

<table>
<thead>
<tr>
<th>Load Cell</th>
<th>Load pins</th>
<th>Load Measurement Shackles</th>
<th>Load Measuring Link</th>
<th>Load measuring crane hook trunnion</th>
<th>Wire Rope Wedge socket tie-off</th>
<th>A-Frame</th>
<th>LTMS</th>
<th>Wire Rope Clamp on load cell</th>
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<tr>
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<td>✓</td>
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<td>✓</td>
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<td>✓</td>
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<td>✓</td>
<td>38mm 18,000kg</td>
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</table>

Application Specific

Rope Size / Capacity

- 1-10mm 750kg
- 11-13mm 1700kg
- 14-16mm 3000kg
- 18-19mm 4000kg
- 20-22mm 5700kg
- 24-26mm 7000kg
- 28mm 9700kg
- 32mm 12,600kg
- 35mm 15,000kg
- 38mm 18,000kg
Load Measurement Products

To support the integration of custom designed monitoring systems, IMES maintains a range of standard Load Measurement products. These can supplied as individual items or as part of an integrated system.

**Custom design load pins** with Mv or 4 to 20 mA outputs and wireless/wired communications between device and other instrumentation. Typical applications found throughout industry where an axle is removed and replaced with a strain gauged measuring pin.

**Load measuring shackles** in various capacities with either wired or wireless communications between device and instrumentation. Also available with inbuilt angle sensing. Typical applications - cranes (under hook) and deep subsea on anchor systems where resistance to depth and water pressure is a critical requirement.

**Load measuring links** with either wired or wireless communications between device and display instrument. Also available with inbuilt angle sensing. Typical applications - cranes (under hook) and rope tie off points such as spreader lifting beams.

**Custom design load measuring crane hook trunnions** with wireless and wired communications between device and instrumentation. Typical applications on cranes where accuracy and repeatability is a key factor to clients operations.
Load Measurement Products

Line tension meters or line riders measuring the load in moving wire ropes. Available in sizes to suit rope dimensions and monitoring of load, payout and speed. Typical applications found in mooring systems and for recovery/deployment of equipment where a wire rope winch is used to control the operation.

Instrumented wire rope wedge socket tie off with either wired or wireless communications between device and instrumentation. Typical applications found on cranes and lifting apparatus where a rope tie off is used.

A comprehensive range of load cell type and capacity. Typical applications found throughout industry where precision and repeatability of measurement is a key factor to the clients operations.

Wire rope clamp-on load cells which measure load in the section of rope deflected by the load cell. Typical applications- cranes or where through deflection, the load on a wire rope can be measured.
Subsea Load Cells

Sub Sea Load Cell Types
- Compression Load cells
- Tension Load cells
- Load Cell Shackles
- Load Pins

Typical Sub-sea Applications
- Chain Stopper Load cells
- TLP Tether Tension Monitoring Load cells
- ROV Tether Load Pin Monitoring Systems
- Riser Tension Monitoring Load cells
- Anchor Monitoring Load Cells

Typical Features
- Bespoke solutions
- Rated from 5 to 5000M Depth
- Pressure balanced
- Corrosion Resistant
- Impermeable barrier filled
- Wet or Dry mate connectors
Mooring Systems

Load Cells, equipment and software for:

• Buoy Mooring Tension Systems
• Turret mooring Tension Monitoring Systems
• FPSO Anchor Chain Monitoring
• Anchor Line Load Monitoring Systems
• Chain Stopper Monitoring Systems
• TLP Tether Tension Monitor

We have our monitoring systems installed on a third of the world's TLPs
Mooring Systems

- In line Mooring connectors
- Chain interfaces
- Risers and structures
- Diver and ROV Deployed Systems
- Acoustic Modems, cabled, local logging
- Long Battery Life
- In series or parallel solutions
A Frame Monitoring Systems

**Standard Package Measurements**
- A-Frame load
- Winch load
- A-Frame angle
- A-Frame radius
- Vessel angle

**Typical Features**
- Colour HMI Touch screen display
- Extremely simple operation
- Telemetry wireless sensors
- Load versus angle load chart
- Graphical A Frame position display
- Safe Load Indication
- Visual and Audible Alarm system
- Data logging lifts and utilisation
- Removable memory
- Long Life Battery powered
- Battery life monitoring

**Optional Features**
- Sea and Wind Conditions
- Rope payout length/Speed/direction
- Winch Hour Meters
- Winch and A Frame utilisation data
- Inspection reminder
- Trip system (winch/A frame inhibit)
- Portable handheld display for Riggers
Crane, Lifting and Centre of Gravity

• High capacity module weighing systems
• Weight distribution analysis during build
• Auto C of G systems and services
• Calibration and lifting rigs
• Heavy lift applications
• Spreader Beam and Lifting equipment design

We have produced a monitoring/weighing system for precision C of G at 1:16000
Load Monitoring & Weighing Systems

Goliath Load Test
Management – 1100 tonnes
Monitoring systems ensure safe, reliable and effective operation of the asset. IMES design and support.
Engineering and design consultancy

Our focus is on giving clients **complete confidence** through an **expert** and **specialist** engineering team, working with you to address your engineering assessment needs, IMES provides a range of engineering and design consultancy services to clients seeking assurance on the integrity, compliance and operational safety of cranes and lifting equipment, structures, mechanical handling systems and other specialised equipment.

- **Independent** engineering consultancy acting as the “**client friend**”
- **Distinct ability** to offer complete inspection, engineering and monitoring package for cranes, lifting equipment and other specialised structures
Engineering & Design Consultancy

- Independent Crane inspection, backed up by engineering analysis for:
  - Procurement assistance
  - Crane life expectancy
  - Crane life extension
  - Damage assessment/thickness loss/metal fatigue assessment
  - Crane suitability assessment
  - Advice on spares/repairs/inspection criteria
  - Procedures and operations reviews
  - Accident investigation/Expert witness

- Engineering calculations for sea fastening/deck loadings/deck plans
- Bespoke spreader beam/bar design and build and associated spreader beam software for loading calculations and C of G
Spreader Beam Software

Assists in the usage of spreader beams designed by Imes

Benefits:

- Application informs the user if a specific reel can be safely lifted using the spreader beam
- Calculates the correct rigging configuration for a specific reel and outputs a rigging drawing
- Eliminates the need for detailed calculations for every lift
COFAS ™ - Crane Online Fatigue Assessment System

Benefits:
- Automatic analysis of load data obtained from the crane load monitoring system, calculates the actual load spectrum each time data is updated and compares this with the nominal design load spectrum.

- The output from the calculation is used to assess the number of residual lift cycles and approximate date when each crane will reach its design life based on projected future utilization.

- The load data comprising magnitude and number of lift cycles during single lift and twin lift operations is processed by the application to determine an actual load spectrum, which through comparison with the design load spectrum is used to calculate the remaining lift cycles life of the crane.
Subsea diagnostic tooling

IMES has engineered **collaborative bespoke solutions** for clients providing them with faster diagnosis of integrity issues

- Our focus is on giving clients **complete confidence** through an **expert** and **specialist** engineering team, incorporating innovative products and collaborative solutions.
- Over the last 3 years we have invested **£1m on R&D**
Subsea Diagnostic Tooling
- Marine Tail Shaft Inspection System

• Predicts through life maintenance, repairs and replacement of the tail-shaft

• Tail shaft inspection whilst vessel in-situ

• Ability to access through small and confined aperture

• Precise NDT scanning from inside the tail-shaft using TOFD and PE Ultrasonic Inspection

The ‘Ferret has saved the UK MOD over £12m in inspection costs and inspected 24 tail shafts
Subsea Diagnostic Tooling
- Subsea Electrical Test System

• Subsea electrical test system (SETS) contains the cable testing instruments and core selection controllers
• Subsea pod is mounted into the ROV and communicates via the ROV umbilical to the surface vessel
• Tests up to 50km of subsea cabling
• Fault diagnosis accuracy of 0.01%

SETS has saved industry over $20m in subsea electrical fault finding
Subsea Diagnostic Tooling
Riser Inhaul Camera System

- Riser Inhaul Camera System (RICS) monitors load on risers and visually confirms connections
- RICS consists a number of sections which are transported as individual pieces to the FPSO in suitable packing containers
- Reassembled and deployed into the selected I-Tube utilising a purpose built “A Frame”
- Positioning and stability of the assembly within the tube is achieved through pneumatic cylinders all fed via a multifunction umbilical
- From the surface cameras and lights are fully controllable from an operators control desk
- Total 877 man days of deployment

RICS has load and visually recorded over 25 riser pull-ins and removals
Subsea Diagnostic Tooling
RICS – Views by Camera

Actual views captured and recorded during the riser in-haul operation.
Why IMES?

1. Accredited by UKAS 17020: 2012 Competency Standards
2. Excellent safety track record
3. Independent inspection body
4. Industry leading certification management database
5. Preferred lifting partner to many clients = customer confidence
6. Strong worldwide reputation
7. Collaborative partnership approach
8. Bespoke ruggedised monitoring and measuring systems
Thank you

Any questions?