IMES Key Capabilities

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**Who we are**

**IMES** are 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**.
HSEQ Highlights

- Certified to ISO 9001:2008 (QMS)
- Certified to ISO 14001:2004 (EMS)
- Certified to OHSAS 18001:2007 (SMS)
- Average Client FPAL Feedback Performance Score of 8.8
- DNV & Lloyds approved ILSTO
- Accredited as a Type C Inspection Body to ISO 17020:2012 (by UKAS)
- Internationally certified supplier of Inspection Services by Lloyds Registers
- BASEEFA certified for our EX rated products

we go beyond the standard
we go beyond the standard

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.
Montrose Workshop & Storage Facility

- Service centre established at Montrose harbour
- Facility includes fit out assembly and testing services
- Montrose is an expanding Area for Oil & Gas Companies, 30 miles south of Aberdeen
- 20,000 sq ft of workshop and storage space
- Access to hard standing and harbour for in water testing
- Good secure site with electronic barriers
Montrose Workshop & Storage Facility

Source: Google Maps
we go beyond the standard
Oil & Gas Customers

we go beyond the standard
Defence & Industrial Customers

BAE Systems

Lockheed Martin

Dales Marine Services Ltd

A&P

Oceaneering

ABP

PD Ports

Houlder

Ministry of Defence

Tata Steel

Rolls Royce

Briggs

Thales

Cammell Laird

DP World

we go beyond the standard
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
**NDT Capability**

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

**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

**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

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*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

we go beyond the standard
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
Independent lifeboat and davit inspection and testing

IMES MSS provides independent inspection and testing services that will ensure your equipment remains in a state of readiness.

- ILSTO Approved = Complete Confidence
- Specialist Multi-Skilled Technicians
- Inspection, Maintenance + Testing Services – IMO/SOLAS regulatory requirements
- Account Manager - Dedicated Focal Point

we go beyond the standard
Regular lifeboat station inspection and maintenance will ensure your equipment remains in a state of readiness. With our team of multi-skilled technicians, IMES Marine Safety Systems can perform your periodic maintenance and five yearly lifeboat station inspections and testing.
Capabilities

• Statutory six-month & annual thorough examination of Lifeboat/release hook/davit and winch systems
• 5 year 110% load test of Lifeboat and davit and winch systems
• 5 year 110% Hydraulic release hook testing
• 5 year Lifeboat air cylinder change out
• 5 year Lifeboat fall wire / gripe wire / maintenance hang off pendant replacements
• Refurbishment programs - removal retesting of existing lifeboat, davit & winch systems
• Structural/in-service NDT inspection (eddy current, ultrasonic, magnetic particle, dye penetrant)
• Install, commissioning and testing of new lifeboats and davit systems
we go beyond the standard
North Sea FPSO–Lifeboat release hook pin

**Workscope**
- Lifeboat release gear inspection
- LOLER inspection

**Issues**
- Lifeboat inspector thought item was LOLER item
- LOLER inspector thought item was Lifeboat item

**Solution**
- Multi skilled team able to cover both LOLER and lifeboat workscopes

**Savings**
- All safety critical items covered
- No potential manning issues
- Single mobilisation

North Sea Diving Support Vessel–Combined workscope

**Workscope**
- Lifeboat davit load test
- Crane load test
- Re-socket and load test of ROV Davit

**Issues**
- Crane unavailability
- Limited time-Vessel sailing
- Limited Bed space

**Solution**
- Multi skilled team able to move from scope to scope
- No downtime
- Single mobilisation

**Savings**
- 50% saving on cost
- No downtime
- Single mobilisation
Lifeboat and davit load testing

Periodic test and certification
With our team of multi-skilled lifeboat technicians, IMES Marine Safety Systems can perform your five yearly or new installation testing requirements.
we go beyond the standard

Inspection/Recertification combined package

- Lifting
- Align visit
  - Complete package
- Lifeboats, davits,
  - Winches

Multi skilled
- No grey areas
- Technicians

SAVINGS
- Time
  - Improved productivity
- Cost
  - Less days & Single
    - mob
- Reporting
  - Online

we go beyond the standard
Harkand Atlantis at Rosyth
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 Capacity</th>
<th>Load Cell</th>
<th>Load pins</th>
<th>Load Measurement Shackles</th>
<th>Load Measuring Link</th>
<th>Wire Rope Measuring</th>
<th>A-Frame</th>
<th>LTMS</th>
<th>Wire Rope Clamp on Load Cell</th>
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<tbody>
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<td>✓</td>
<td>✓</td>
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<td></td>
<td>38mm 18,000kg</td>
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</table>
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 client's 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

we go beyond the standard
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 worlds 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

we go beyond the standard
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
Crane condition monitoring

Monitoring systems ensure safe, reliable and effective operation of the asset. IMES design and support.
CCM Screen Shots – Output pictures

- North Main Hoist: Load - North Aux Hook Height
- North Aux Hook Height: Load

we go beyond the standard
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
we go beyond the standard

**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.
Partnership with MODULIFT – Spreader Beams supply

• Every Modulift Modular Spreader Beam consists of a pair of End Units and a pair of Drop Links, with interchangeable struts that can be bolted between the End Units to either lengthen or shorten the beam, to suit the requirements of the lift (making them reusable at different spans)

• The Modulift Spreader Beam enables slings to connect to large and bulky objects in a vertical attitude
Partnership with MODULIFT - Heavy Lift Projects

- Spreader Beams up to 2000t and available for worldwide distribution;
- Standard and customised designs
- Working in partnership with IMES to provide total Lift Management – Load Cells, Shackles/Strops, Rigging Expertise, Spreader Beam Supply, Engineering Calcs and Waterbags
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
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
9. DNV/Lloyds Accreditation for Lifeboats – only company dual accreditation North of Newcastle
Thank you

Any questions?