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>Wire Rope Wedge socket tie-off</th>
<th>A-Frame</th>
<th>LTMS</th>
<th>Wire Rope Clamp on load cell</th>
</tr>
</thead>
<tbody>
<tr>
<td>500kg</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>☑</td>
<td></td>
<td>Rope Size / Capacity</td>
</tr>
<tr>
<td>1t</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>☑</td>
<td></td>
<td>1-10mm 750kg</td>
</tr>
<tr>
<td>5t</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>☑</td>
<td></td>
<td>11-13mm 1700kg</td>
</tr>
<tr>
<td>12t</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>☑</td>
<td></td>
<td>14-16mm 3000kg</td>
</tr>
<tr>
<td>25t</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>☑</td>
<td></td>
<td>18-19mm 4000kg</td>
</tr>
<tr>
<td>50t</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>☑</td>
<td></td>
<td>20-22mm 5700kg</td>
</tr>
<tr>
<td>100t</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>☑</td>
<td></td>
<td>24-26mm 7000kg</td>
</tr>
<tr>
<td>250t</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>☑</td>
<td></td>
<td>28mm 9700kg</td>
</tr>
<tr>
<td>500t</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>☑</td>
<td></td>
<td>32mm 12,600kg</td>
</tr>
<tr>
<td>1000t</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>☑</td>
<td></td>
<td>35mm 15,000kg</td>
</tr>
<tr>
<td>2000t</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>☑</td>
<td></td>
<td>38mm 18,000kg</td>
</tr>
</tbody>
</table>

**Application Specific**
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 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
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