LMS

Product Guide

www.LoadMonitoringSystems.com

CALIBRATION & TESTING

- Water weights & bags
- Beam proof load
- Crane/hoist loads
- Bollard pull for vessels
- Force calibration
- Hydraulic presses
- Laboratory weighing & calibration

INDUSTRY APPLICATIONS

- Wind turbine installations
- Warehouse despatch
- Subsea vehicle lifting
- Subsea cable laying, recovery & repair
- Subsea ploughs
- Anchor systems
- Mooring systems
- Under hook crane weighing
- Pipe laying ships
- Structural joints
- Hydraulic presses
- Lifting systems
- Aerospace development

MONITORING & MEASUREMENT

- Cable tension
- Towing
- Mooring
- Crane safe
- Anchor line tension
- Static wire tension
- Winch load
- Elevator cable
- Speed
- Payout distance
- Jacking force
- Pile force
- Sheave/pulley system line tension
- Container weighing
- Centre of gravity weighing
- Overload protection

Strength to get the job done.

Why choose LMS?

Based in Aberdeen Scotland, Load Monitoring Systems (LMS) specialise in the design and manufacturing of load monitoring products and services, including sales and rental of load cells, winch monitoring systems and Crane Safety Instrumentation.

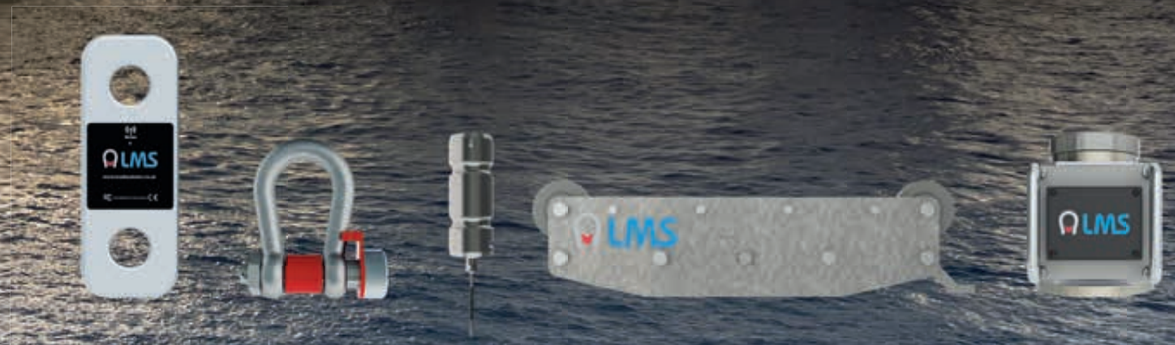
The products are engineered to the highest standards, defined by quality, strength and reliability and used globally for a wide variety of applications, across many industry sectors including, Oil & Gas, Marine, Subsea, Decommissioning, Construction, Mining, Wind Energy, Aquaculture & Entertainment.

With over 50 years' experience in specialist load monitoring, LMS products and services are being supplied to over 45 countries and most continents, often with support from local distributors and agents. LMS has a proven track record developing a range of products and services tailored around our customer requirements and continues to build the business and extend its offering with increased rental stock, larger capacity equipment and by providing a 'FAST-TRACK' repair and calibration service, specifically created to support customers where turnaround time frames are critical.

We would be delighted to discuss your requirements

Call: +44 (0) 1224 446100.
www.LoadMonitoringSystems.com
lms@loadmonitoringsystems.com

We specialise in the design and manufacture, rental and sales of load monitoring equipment for industrial applications across many industry sectors worldwide.



Harbour Crane Load Monitoring

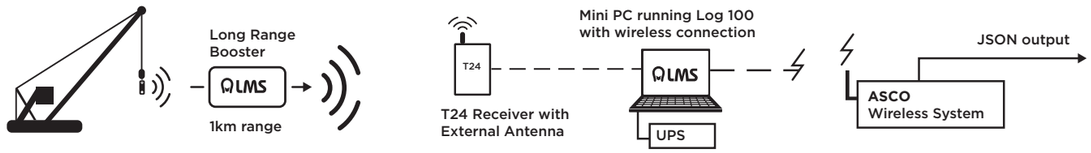
ASCO, an organisation with global expertise in the area of oil and gas materials and equipment management, needed to monitor crane loads in their supply base locations around the world.

Load Monitoring Systems (LMS) took on the project and developed a custom load link system.

LMS manufactured Load Cells, Mantracourt's T24 wireless telemetry instrumentation and strain gauges by industry-leading manufacturer Micro-Measurements were used. ASCO's sites operate in extreme weather conditions and the application was a test for the reliability of all components in the system. It was installed in 2014 and continues to prove its quality with ongoing faultless service.

"The installation of Load Monitoring Systems load cells and Mantracourt T24 technology across our operations has helped us to accurately monitor weights whilst feeding live information back into our operational systems. The interface with our Integrated Logistics Management System, has provided us with increased efficiencies and enhanced planning capabilities. The measurements have been accurate and reliable, even in challenging conditions."

Greg Skinner, Project Manager



Application

ASCO operate cranes in supply bases across the world, from Hammerfest in Norway to Darwin in Australia. Load Monitoring Systems (LMS) used Mantracourt's T24 wireless strain transmission module and Micro-Measurements strain gauges on their manufactured Load Cells to meet the requirements. The system has proved its quality by overcoming the challenges of the application, something the previous generation of solutions couldn't achieve.

Challenge

The nature of the application meant that large distances had to be covered reliably by the system. Signal integrity had to be sufficient for the system to continue functioning at times when the line of sight between the load links and the receivers was obstructed by the body of the ships. In addition, the application required that the data from the readings is easily visible from anywhere on the base - not just the control room. This way, supervisors would be able to monitor weights as they coordinate loading operations.

Solution

The system, designed, manufactured and assembled by LMS, picked up the signal from T24 transmission modules in load links and pushed it to the web as shown in the diagram above. This allowed for readings to be monitored using any cellular enabled device by accessing a dedicated web address. Overload warnings were in place, which simplified monitoring.

The JSON input provided by LOG100 web server is an ideal way of monitoring device readings in applications with lower levels of complexity. A link with visual the interface is automatically generated by the software. JSON packages containing the key information around a reading are also available to feed customised web interfaces. The web view can be made accessible either from the same network only, or forwarded to the internet, as was the case with Load Monitoring Systems' project.

Results

All technology has successfully proved itself in the face of the challenges offered by the application. The first of ASCO's systems has now been in service since 2014 and the pilot project has been replicated in an additional three locations of the company.

Key Benefits

- Load data reviewed wirelessly from tablets anywhere in the harbour.
- Accurate measurements under a wide range of temperatures made possible by Micro-Measurements strain gauges.
- Robust system that functions faultlessly under severe weather conditions.
- No cabling required on cranes. Load links are powered by batteries, which only need to be replaced in six-month intervals during routine maintenance.
- High signal integrity allows transfer of load data even with obstructions.

Rentals

When there's a need for load testing, rental is often the easiest and most cost effective solution.

RENT IT OR BUY IT

Rental Equipment

- Load Links 1Te – 500Te
- Load Pin Shackle 3.25Te - 500Te
- Data Logging
- Load Cell Displays

Proof Load Testing Equipment

- Water Bags & Test Weights

Lifting and positioning

- Equipment: Range of Air Skates

Applications

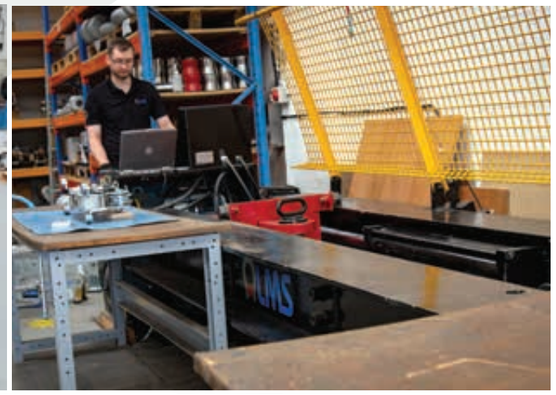
- Water Weights & Bags
- Payout Distance
- Towing
- Container weighing
- Winch Load
- Crane/Hoist Loads

Ready when you need it.

Trusted Rental Partner

Each rental item is fully maintained, checked and certified before leaving our facility so you can be confident it's ready to go as soon as it arrives on location.

Rental periods are flexible from a single day to longer-term hire, just give us a call to discuss your requirements and we'll provide you with a competitive quote.



Training

All equipment is supplied with relevant documentation including comprehensive operating instructions and certification.

LMS can provide training at our facilities should this be a requirement. Training covers all aspects of set up and operation and comes with our own proof-of-completion certificate.

Load Link

Accurate and reliable tensile load monitoring for lifting applications.

Suitable for all industry sectors including marine, offshore and subsea. Due to the robust, lightweight high tensile aluminium design these load links are Ideal for mobile applications and available as either cabled or wireless with a range of options.

Retro-fit load monitoring to existing applications where shackles are already available and fits all major shackle manufacturers including Van Beest, Crosby and GN Rope.

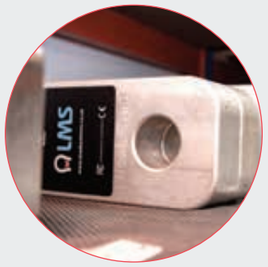
Options

- Wireless & Internal Antenna
- Matched Telemetry Displays
- Rent this item
- Cabled with 49.2ft flying cable
- Data Logging Software Available
- ATEX version

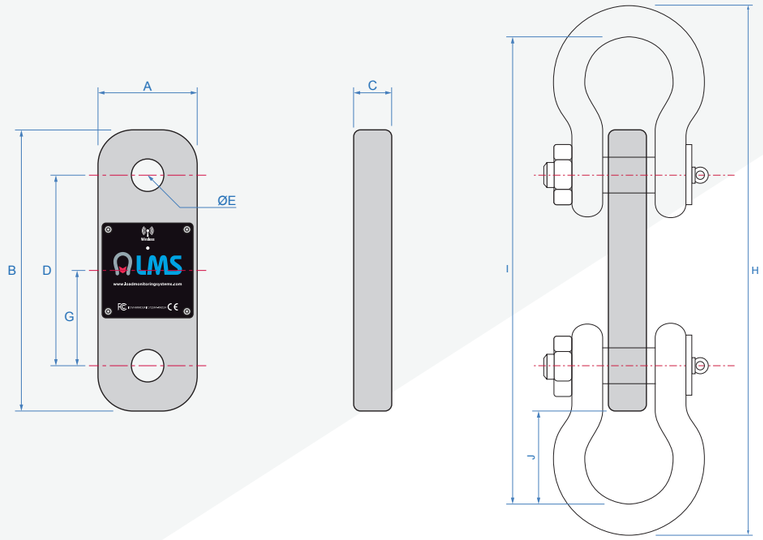
Specifications		
Overload Tested (Proof Load)		200% rated load (6.5te - 250te sizes) 150% rated load 300te and above
Minimum Breaking Load (MBL)	5Te to 400Te	500% rated load
	500Te	450% rated load
Dead Load Offset		+/- 0.1mV
Accuracy		< 0.5% of applied load
Repeatability		< +/- 0.1% of applied load
Hysteresis up to FS		Minimal
Operating temperature		-20°C to +70°C
Environmental Rating		IP67
Range		800 Meters (straight line uninterrupted view)
Transmit rate		900ms (standard)
Antenna (Wireless Version)		Internal
Radio (Wireless Version)		2.4 Ghz; worldwide licence free
Cabled Version Output Signals		**Analogue signals** 4-20mA in 2 or 3 wire output with 10-30VDC supply 0-5VDC or 0-10VDC 3-wire output with 10-30VDC supply **Digital signals** RS232 with a protocol of your choice with 5-20VDC supply RS485 with a protocol of your choice with 5-20VDC supply
Cable Version Connection Type		Load link with plug-in socket and 15m, 4-core screened PUR cable with matched plug-in connector fitted. Other types on request.
Battery Type / Lifespan	Load Cells	6.5Te - 2 x AAA 1.5V @ 500+ hours (continuous) 13.5Te - 85Te Load Link - 2 AA 1.5V @ 1200+ hours (continuous) 100Te - 500Te Load Link - 2 x C 1.5V @ 2000+ hours (continuous) Battery changes are reduced when device is put on sleep mode during 12 month calibration windows.
	Display	2 x AA 1.5V batteries @ 40 hours (continuous)
Calibration		12 months (calibration service available)
Warranty		12 months
Material Finish		Lightweight, high tensile grade aluminium, hard anodised for marine environments.
Traceability and Safety Compliance		BS EN ISO 7500-1:2004, Machinery directive 2006/42/EC (SI 2008/1597)
ATEX Options		
Zone 2		Standard options (wireless and cabled) - see datasheet
Zone 1		Standard options (wireless and cabled) - see datasheet
Zone 0		Stainless steel construction, cabled options – contact LMS for more details

Features

- Load link designs from 6.5Te to 500Te as standard other capabilities on request
- Designed to be rigged & operated with a Working Load Link (WLL) of the same capacity
- Safety factor of 5:1
- Accuracy <0.5% of applied load
- ATEX versions available for zones 0, 1, & 2
- Subsea variants available on request
- Every unit load tested and certified



www.LoadMonitoringSystems.com



Load Link Dimensions mm																
Capacity Tonne	1	3.25	6.5	13.5	17	25	35	55	85	100	150	200	250	300	400	500
A	52	60	84	84	93	127	137	163	198	236	272	331	353	398	490	540
B	151	183	238	292	302	332	386	466	518	610	695	769	829	937	1037	1137
C	31	31	32	45	50	60	70	75	104	105	136	150	175	190	198	198
D	117	133	162	182	182	206	226	286	310	350	395	419	469	517	547	607
ØE	12	20	27	40	43	55	61	75	86	100	118	135	145	158	180	190
G	58.5	66.5	81	91	91	103	113	143	155	175	197.5	209.5	234.5	258.5	273.5	303.5
Weight (kg)	0.35	0.65	1.35	2.3	3	5.7	8.25	16	23.45	36.05	59.5	89.5	123.5	167	251	311
Load Link & Shackle Dimensions mm																
H	221	312	397	556	592	702	777	1006	1201	1435	1533	1815	1977	2183	2398	2588
I	201	280	353	486	516	612	677	876	1051	1245	1323	1575	1717	1903	2058	2228
J	25	48.5	57.5	97	107	140	145.5	205	266.5	317.5	314	403	444	483	510.5	545.5
Combined Weight (kg)	0.67	2.13	4.89	15.38	19.38	34.14	47.31	95.18	147.45	256.05	409.5	559.5	693.5	847	1371	1681
Kit Weight (kg)	2.5	6	5	6	6.7	9.5	12	23	30	47	74	106.15	140.15	183.65	267.65	327.65

Shackle Size / Type	1	3.25	6.5	13.5	17	25	35	55	85	100	150	200	250	300	400	500
Van Beest			G-4163							P-6036						
GN Rope			H9							H10						
Crosby			G2130 to G2140													

Load Cell Data Logging

LMS-LOG100 Advanced data logging software provides real time monitoring of up to 100 load cell devices simultaneously.

Remotely access your data quickly and easily from a computer, tablet & smart phone via web browser. Export data in standard JSON or CSV formats with customizable reporting to suit your needs.

Displays & Portable Case

Rugged case design with foam compartments to firmly hold the load link, telemetry display, spare set of batteries. Can also accommodate connecting cable for wired units and matched set of shackles.

- Lockable case
- Plastic case available for 6.5Te - 85Te
- Custom transport case 100Te - 500Te

Load Pin Shackle

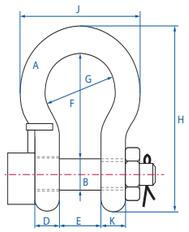
Robust, compact high tensile steel design from 2Te to 2000Te.

Ideal for precise tensile load monitoring for your lifting, static, pulling or weighing applications. Suitable for all industry sectors including marine, onshore, offshore and subsea.

You can be confident each shackle and load pin is up to the task with the certified load test before delivery.

Options

- Wireless & Internal Antenna
- Matched Telemetry Displays
- Rent this item
- Cabled with 49.2ft flying cable
- Data Logging Software Available
- ATEX version



Standard Designs (Van Beest Shackles)

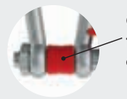
Capacity Te	Dimensions (mm)								Weight (kg)
	a	b	d	e	f	g	h	j	
3.25	16	19	16	26	63	43	110	75	1.7
4.75	19	22	19	31	76	51	129	89	1.9
6.5	22	25	22	36	83	58	143	102	3.2
13.5	35	38	35	57	133	92	227	238	6.54
25	45	50	45	74	178	126	300	216	14.22
35	50	57	50	83	197	138	331	238	19.85
55	65	70	65	105	260	180	433	310	39.59
85	75	83	73	127	329	190	527	340	62
120	95	95	91	147	400	238	647	428	110
150	105	108	102	169	410	275	688	485	160
200	120	130	113	179	513	290	838	530	235
250	130	140	118	205	554	305	904	565	285
300	140	150	123	205	618	305	996	585	340
400	170	175	164	231	668	325	1114	665	560
500	180	185	164	256	718	350	1190	710	685
600	200	205	189	282	718	375	1243	775	880
700	210	215	204	308	718	400	1263	820	980
800	210	220	204	308	718	400	1270	820	1100
900	220	230	215	328	718	420	1296	860	1280
1000	240	240	215	349	718	420	1336	900	1460

Special Designs (Crosby Shackles)

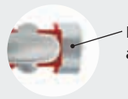
Capacity (Tonne)	Dimensions (mm)								Weight (kg)
	a	b	d	e	f	g	h	j	
6.5	24.6	25.4	22.4	36.6	84	58	148	102	3.2
25	44.5	51	49	73	178	127	313	225	18

Features

- Design uses VanBeest™ Greenpin® shackles as standard, others on request
- Load pins from high-strength stainless steel
- Safety factor of 5:1
- Up to 12 shackles can be linked to the handheld display for individual or summed load values
- Integral signal conditioning
- Subsea variants available on request
- Special design available on request



Centralising bobbin for improved load cell accuracy



Integrated aerial for added protection

Load Pin

Accurate real-time load monitoring of any load bearing pin connection or joint.

Load pins are integrated in mechanical structures and mechanisms to provide precise load monitoring accurate to 1%, safety factor of 5:1 and all proof-loaded to 150%.

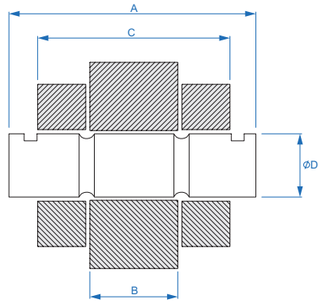
Used in construction, automation, marine, offshore and subsea, these pins can be designed to suit your application with capacities from 2Te to 2000Te.

Options

- Wireless & Internal Antenna
- Matched Telemetry Displays
- Rent this item
- Cabled with 49.2ft flying cable
- Data Logging Software Available
- ATEX version

Features

- Output options include mV, mA, V, RS232 with others available (on request)
- Single, dual and redundant bridge designs
- Standard operating temperature -20°C to +80°C
- Plug-in connector versions available
- Integral signal conditioning available
- Enclosure IP67 as standard
- Subsea variants (on request)
- Every unit load tested and certified



Indicate preferred side for load pin head and anti-rotation plate with enquiry.

Each load pin will be designed and manufactured to suit your application, ensuring maximum performance and ease of installation.

Detailed above are the most critical dimensions. When making an enquiry, please provide these values (A, B, C and D) along with any additional requirements/restrictions due to the application such as pin length, head size etc.

Load Pin Locking

The load pin needs to be securely locked into position.
This can be achieved by the following common methods:

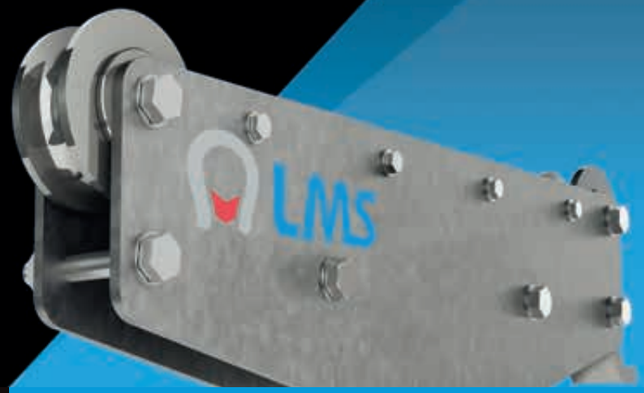
- Single anti-rotation plate
- Double anti-rotation plate (both on one end or one on each end of pin)
- Anti-rotation plate, split pin & washer
- Anti-rotation plate and lock nut on threaded end of load pin
- Anti-rotation yoke (similar to shackles), split pin & washer

Running Line Tensiometer

For winch, crane, towing, laying and tensioning applications.

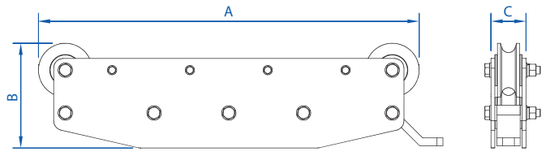
Monitor speed, payout for wire rope, synthetic rope, dyneema, fibre optic and cable systems in marine, offshore, onshore and subsea applications.

Incorporate data logging and the matched line monitor display for capacities up to 120Te.



Options

- Wireless & Internal Antenna
- Matched Telemetry Displays
- Rent this item
- Cabled with 49.2ft flying cable
- Data Logging Software Available
- ATEX version



RLM Dimensions (mm)					
Rope Size	Model	A	B	C	Weight (kg)
10	1	722	250	162	21.5
13	1	722	250	162	21.5
16	1	722	250	162	21.5
19	1	722	250	162	21.5
22	1	722	250	162	21.5
25	1	722	250	162	21.5
22	2	810	270	186	37
25	2	810	270	186	37
28	2	810	270	186	37
32	3	963	297	188	56
35	3	963	297	188	56
38	3	963	297	188	56
40	3	963	297	188	56
42	4	1029	296	198	77
44	4	1029	296	198	77
48	4	1029	296	198	77
52	8 ST	1250	426	185	125
56	8 ST	1250	426	185	125
64	8 ST	1250	426	185	125
70	8 EX	1703	488	278	330
77	8 EX	1703	488	278	330
88	8 EX	1703	488	278	330
103	8 EX	1703	488	278	330

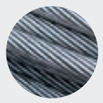
Line Monitor Displays

Matched with our running line tensiometer featuring simple to use keyboard and clear multi-digit 0.35mm LCD display.

- Calibrated in tonne with weight resolution accuracy available in kg, lb or kN
- Wireless range of 600m+
- Tactile keypad
- Low power consumption for long battery life

Features

- 20 Running line tensiometer designs
- Line capacities up to 120Te
- Rugged design for operation in the most extreme environments
- Simple and quick access for line/rope fitting
- Marinised design ensures corrosion prevention in offshore environments
- Line mounted supplied with tether/swivel mount as standard with the options for bolt on feet or trunnion mount (pivot on 2 feet)
- Custom mounts available on request



Line Diameters from Ø10mm to Ø104mm

Use in conjunction with LMS handheld displays

LMS

www.LoadMonitoringSystems.com

Compressive Load Cell

Compressive load monitoring indoors, outdoors or subsea.

Perfectly at home in the laboratory or hostile marine environment, the compact and robust stainless steel design can be used for weighing, force measurement and calibration.

Standard capacities from 2Te to 1000Te, accuracy better than 1% and each unit proof loaded to 200% (LOLER compliant) and certified.

Options

- Wireless & Internal Antenna
- Matched Telemetry Displays
- Rent this item
- Cabled with 49.2ft flying cable
- Data Logging Software Available
- ATEX version

Features

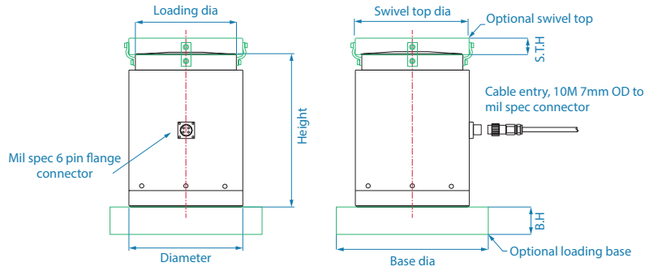
- Cells designed to your application
- Safety factor of 5:1
- Operating temperature -20°C to +80°C as standard
- Enclosure IP67 rated
- Output options include mV, mA, V, RS232 with others available, on request
- Single, dual and redundant bridge designs
- Extra support base flanges available on request
- Plug-in connector versions available
- Integral signal conditioning available
- Subsea variants available on request

Supplied with domed top and spherical loading cap

Cabled versions with 10m glanded exit flying cable as standard. Other lengths available on request.

LMS

www.LoadMonitoringSystems.com



Typical Load Cell Sizes

Capacity (Tonne)		50	100	200	300	500	1000
Diameter (mm)	øA	75	120	125	150	200	290
Height (mm)	B	110	142	180	180	300	425
Loading Diameter (mm)	øC	60	90	110	130	170	250
Spherical Cap Diameter (mm)	øF	65	93	125	150	200	290
Spherical Cap Height (mm)	G	10	18	30	30	50	50

These sizes are a guide, larger or smaller sizes are available. We can design and manufacture a load cell to suit your exact application so that you achieve the maximum performance.

New Centre of Gravity Feature

The Centre of Gravity (COG) function found within T24LOG100 gives you the tools to quickly calculate and visualise centre of gravity from up to eight sources of weight data. Choose your weight data, specify the X and Y co-ordinates and let LOG100 do the work to calculate and display the position of COG.

Digital Pad Eye Tester

Allows you to proof test your pad eyes to ensure a safe lift

Lightweight, portable tool for testing pad eyes, lifting lugs, and eye bolts. It can be used upright, inverted, or in a horizontal plane. Models are available up to 10Te & 30Te models proof test capability. Equipped with an adjustable clevis height and Digital Mounted Display.

Our Unique Digital Pad Eye Tester

There are many pad eye testers in the market however the main unique difference with LMS pad eye tester is the on board 'Digital display' (Tonnes, US Ton, Lbs, Kg) and the ability to transmit the information wirelessly to a Hand held Display, a Laptop or PLC and finally the Bluetooth feature for use with a Mobile Phone, Tablet or Laptop.

Applications

Proof testing pad eyes, lifting lugs, and eye bolts. Can be used upright as pictured, inverted, or in a horizontal plane

Display Options

- Standard – On Board Digital Display
- Bluetooth – Mobile & Table App
- Wireless – Laptop or Handheld Display
- Data Logging – Laptop

Features

- Light weight and portable
- Assist handles on two sides
- Large dial capacity readout
- Xylan coated finish
- 10ft. polyurethane hose with quick couplers
- Lightweight two-speed hand pump with locking handle
- Proof tested and calibrated
- Carrying case

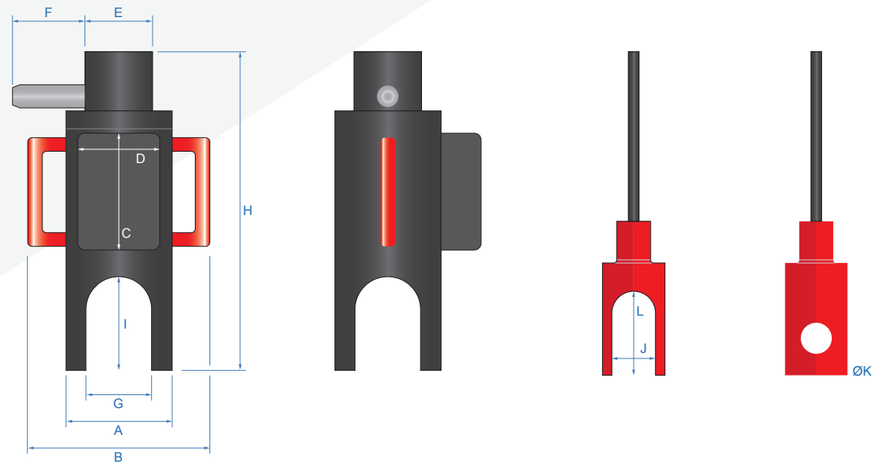
LMS

www.LoadMonitoringSystems.com

LMS

Eye Pad Tester
TECHNICAL INFORMATION

Padeye Tester Dimensions (mm)												
SWL	A	B	C	D	øE	F	G	H	I	J	øK	Weight
10te	124.5	258.5	188.5	99.5	70.5	77	78.5	471	120	52	33	11.5kg
30te	203	330	188.5	99.5	115	96	100	767	234	72	53	56kg



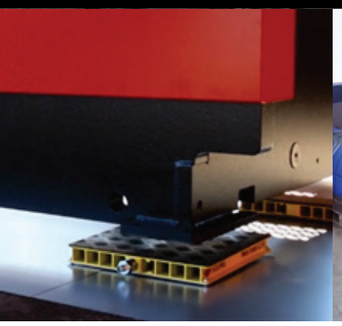
Spec		
Battery Type & Lifespan - 8 x AA 1.5V @ 80 hours +		
Safety Factor - 4:1		
IP Rating - IP65		
Stroke - Variable with adjustable threaded length		
Proof loaded - 125%		
Calibration - <1% of FSD, valid for 12 Months		
Warranty - 12 Months		
Five Pins and Collar Sets -	10te Tester	30te Tester
	3.25te	9.5te
	4.75te	12te
	6.5te	13te
	8.5te	17te
	10te	30te

Features
Digital Mounted Display
Peak Value
Zero Function
Overload Warning
Displays readings in US TN, Tonnes, kg & lb
Lightweight with Handles for Easy Transport
Bluetooth Signal
Radio Wireless Signal Transmitter with a range of up to 800m
Hydraulic High pressure hoses
Hydraulic Hand pump
Threaded rod to allow varying heights
Additional threaded rod to increase the height
Hose nozzle equipped with quick coupling that can be detatched from the Padeye tester for transport
Easily assembled and disassembled for transport and replacing parts

Air Skates

Air skates are an innovative and cost-effective solution for moving heavy loads

Air skates are robust, low profile, high capacity load-moving modules used in sets of four or more to enable large or heavy objects to be moved with ease.



Versatility and Efficiency

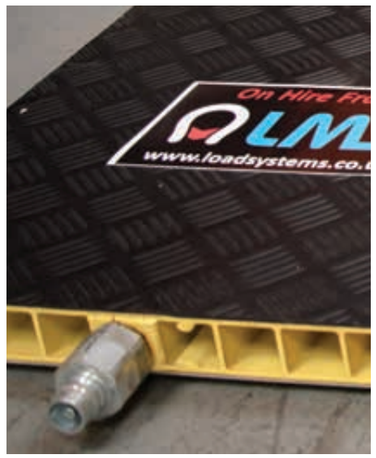
Combine simplicity of operation with extreme versatility. Load movement is easy, exceptionally smooth, omnidirectional and can be performed anywhere in the work environment where there is an adequate floor surface. Operation in tight spaces is a breeze.

Load Module™ Aero-Caster® distribute the load weight over a greater surface than with rollers or wheels, spreading any stress evenly on the floor. This eliminates damage to the floor and the need for expensive tracks, reinforced floors and building structures.

Load Modules™ are easily portable and can be positioned under the load according to weight distribution on load support points. This minimizes stress on the load structure.

How they Work

The air skates are connected with a hose manifold and supplied with compressed air. With the air turned on, the flow to each air skate is regulated to accommodate the load and floor conditions, allowing the load to be lifted clear of the floor.



Features

- Working load capacities of up to 100 tonnes and higher
- Move loads in restricted areas where forklifts/cranes cannot reach
- Easy to set up with quick release couplings
- Powered by a regular workshop air supply of 5 to 7 bar
- Easy to use and cost effective
- Low floor pressures
- Modular capability giving ultimate versatility
- Accurate and repeatable positioning with omni-directional capability
- Low profile skate modules for ease of location underneath loads

LMS

www.LoadMonitoringSystems.com

LMS

Modular Air Bearing System (MLS)
TECHNICAL INFORMATION

Type [1]	Capacity per set of 4[2]		Air consumption[3]		A	B	C	D	E[5]
	kg	lbs	Nl/min	SCFM	mm	mm	mm	in	in
MLS 412X-S-A	7000	15400	1120	39	304	31/51[4]	15	1/2	1
MLS 415X-S-A	10000	22000	2200	77	380	31/51[4]	20	1/2	1
MLS 418X-S-A	11200	24200	2600	92	457	58	20	3/4	1
MLS 421X-S-A	14000	31000	3000	106	534	58	25	3/4	1
MLS 427X-S-A	24000	53000	3400	120	684	65	35	3/4	1 1/2
MLS 436X-S-A	44000	97000	4000	141	914	71	50	3/4	1 1/2
MLS 418X-H-A	20000	44000	4600	162	457	58	20	3/4	1
MLS 421X-H-A	28000	62000	5200	184	534	58	25	3/4	1 1/2
MLS 427X-H-A	48000	106000	6000	212	684	65	35	3/4	1 1/2
MLS 436X-H-A	80000	176000	7000	247	914	71	50	1	1 1/2
MLS 442X-H-A	120000	265000	7500	262	1070	71	65	1	2
MLS 448X-H-A	160000	353000	8000	282	1220	71	75	1	2
MLS 460X-H-A	240000	528000	11000	388	1505	71	75	1	2

Type [1]	Capacity per set of 6[2]		Air consumption[3]		A	B	C	D	E[5]
	kg	lbs	Nl/min	SCFM	mm	mm	mm	in	in
MLS 612X-S-A	10500	23000	1680	59	304	31/51[4]	15	1/2	1
MLS 615X-S-A	15000	33000	3300	116	380	31/51[4]	20	1/2	1
MLS 618X-S-A	16800	37000	3600	126	457	58	20	3/4	1 1/2
MLS 621X-S-A	21000	46000	4500	158	534	58	25	3/4	1 1/2
MLS 627X-S-A	36000	79000	5100	179	684	65	35	3/4	1 1/2
MLS 636X-S-A	66000	145000	6000	210	914	71	50	3/4	1 1/2
MLS 618X-H-A	30000	66000	6300	221	457	58	20	3/4	1 1/2
MLS 621X-H-A	42000	92000	7800	273	534	58	25	3/4	1 1/2
MLS 627X-H-A	72000	158000	9000	315	684	65	35	3/4	1 1/2
MLS 636X-H-A	120000	264000	10500	368	914	71	50	1	2
MLS 642X-H-A	180000	396000	11100	389	1070	71	65	1	2
MLS 648X-H-A	240000	529000	12000	420	1220	71	75	1	2
MLS 660X-H-A	360000	792000	16500	582	1500	71	75	1	2

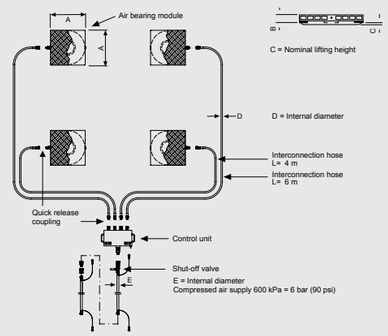
1) A' refers to standard plastic support bars under the control unit. Other features are available under 'Options' below.
2) The modules must be placed under the load so that each one sees no more than one quarter of the full system capacity.
3) These figures refer to good floor conditions, i.e. power-trowelled andsealed concrete surfaces.
4) Cast aluminium/Extruded aluminium construction.
5) Supply hose ID and shut-off-valve thread size.

The Modular Air Bearing System includes:

- 4 air bearing modules
- 4 interconnection hoses with quick release
- couplings
- Control unit equipped with pressure
- Regulator and gauge for each module,
- Supply pressure gauge and plastic support bars
- 30 m supply hose including shut-off valve
- Operating instructions

Optional:

- Remote control unit
- Control unit for six-module system
- Control unit equipped with assembly
- Brackets or ball casters
- 8 m or 10 m interconnection hose
- 50 m supply hose including shut-off valve
- Outlets for air jacks and external drive units



COMBO-Kits

Portable, flexible & ready right out of the box.

When you need a load monitoring kit onsite that can be tailored for low head height situations.

Options

- Wireless & Internal Antenna
- Matched Telemetry Displays
- Rent this item
- Cabled with 49.2ft flying cable
- Data Logging Software Available
- ATEX version

Current Range

3.25 Te Load Cell COMBO Kit.
4.75 Te Load Cell COMBO Kit.
6.5 Te Load Cell COMBO Kit.
13.5 Te Load Cell COMBO Kit.
17 Te Load Cell COMBO Kit.

Combo-Kit Contains

- Rugged case design with foam compartments to firmly hold the load link, telemetry display.
- 1 x T24 HA Handset (Can operate with both Load Link or Load Pin).
- 1 x Aluminium Load Link complete with calibration certificate.
- 2 x Safety Bow Shackles.
- 1 x Shackle Load PIN complete with calibration certificate.
- 1 x centralising Bobbin.
- Spare Battery Set.

Features

- All of the equipment supplied in a custom transport case.
- Load Link concept can be used for greater accuracy with adequate head space.
- Load Shackle concept can be used when lower head space is required.
- Only one wireless handset is required.

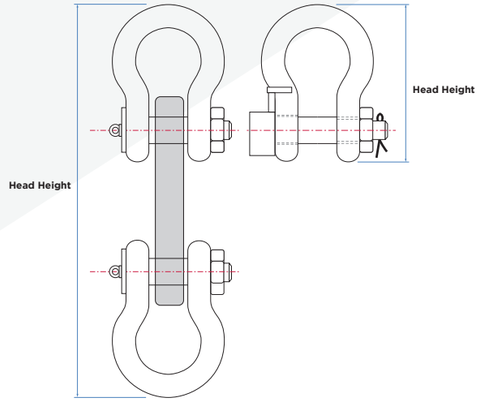
Optional Accessories

- Wireless Data Logging Kit. (Including Wireless Base station receiver and Logging Software)

www.LoadMonitoringSystems.com

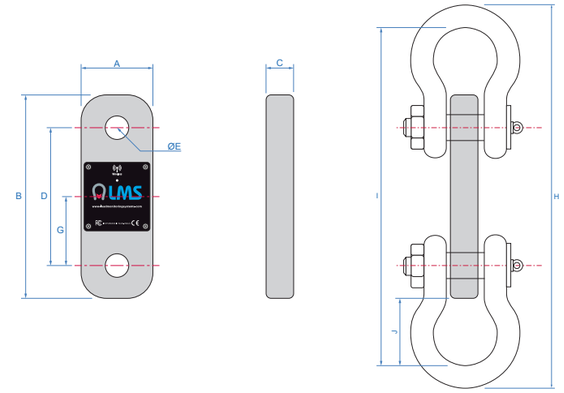
Head Height Comparison (inch)

Dimensions (inch)					
Capacity Ton	3.25	4.75	6.5	13.5	17
Load Link	12.3	13.6	15.6	21.9	23.3
Load Pin Shackle	4.3	5.1	5.7	8.9	9.8



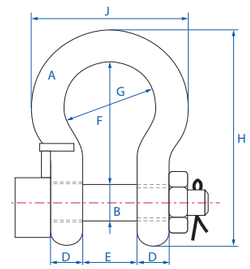
Load Link Dimensions (inch)

Dimensions (inch)											
Capacity Ton	A	B	C	D	Eø	G	Weight	H (Head Height)	I	J	Combined Weight
3.25	2.4	7.2	1.2	5.2	0.8	2.6	1.43	12.3	11.0	1.9	4.69
4.75	2.4	7.2	1.2	5.2	0.9	2.6	1.43	13.6	12.1	2.4	6.63
6.5	3.3	9.4	1.3	6.4	1.1	3.2	2.98	15.6	13.9	2.3	10.78
13.5	3.3	11.5	1.8	7.2	1.6	3.6	5.07	21.9	19.1	3.8	33.90
17	3.7	11.9	2.0	7.2	1.7	3.6	6.61	23.3	20.3	4.2	42.71



Load Pin Shackle (inch)

Dimensions (inch)									
Capacity Te	A	B	D	E	F	G	H (Head Height)	J	Weight
3.25	0.6	0.7	0.6	1.1	2.5	1.7	4.3	3.0	1.98
4.75	0.7	0.9	0.7	1.2	3.0	2.0	5.1	3.5	2.60
6.5	0.9	1.0	0.9	1.4	3.3	2.3	5.7	4.0	3.90
13.5	1.4	1.5	1.4	2.2	5.2	3.6	8.9	6.4	14.41
17	1.5	1.7	1.5	2.4	5.7	3.9	9.8	6.9	18.05



Load Cell Data Logging

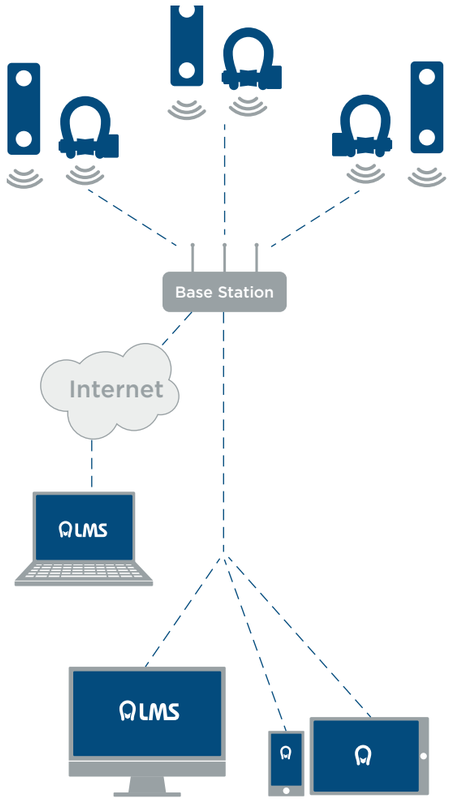
LMS-LOG100 Advanced data logging software provides real-time monitoring of up to 100 load cell devices simultaneously.

Quick and easy to remotely access your data on computer, tablet & smart phone via web browser. Export data in standard JSON or CSV formats with customisable reporting to suit your needs.

Options

- Wireless & Internal Antenna
- Matched Telemetry Displays
- Rent this item
- Cabled with 49.2ft flying cable
- Data Logging Software Available
- ATEX version

How it Works



Product Support

Load Shackle

Load Link

Line Rider Tensiometer

Compressive Load Cell

Load Pin

Features

- Log data at timed intervals, manually (on demand), on entering & exiting a pre-set overload/underload, during an overload/ underload.
- Visual display and audible alarm indicators for overload/underload conditions as well as loss of communication
- Display live data readings on a visual graphic of your application (picture/ drawing/schematic)
- Display numeric and graph data
- Units of measurement selectable to match load cell
- Built in web server
- Defined algorithms and maths functions
- Works with USB base station
- Windows 8, 7, Vista & XP compatible
- Supplied pre-installed on computer with or without display screen
- System can be installed on existing computers

Use in conjunction with LMS handheld displays

www.LoadMonitoringSystems.com

LMS-QV

Quick View for Load Cells

This software allows you to quickly detect, pair, view and log data from a LMS load cell device.

System requirements: Windows 8, 7, Vista or XP & USB base station

Features

- Detect or pair to a load cell device
- View the acquired data on a large simulated LED display
- Export the data to a CSV file
- Supplied pre-installed on computer with or without display screen
- System can be installed on existing computers
- Quick & easy to operate

Product Support

Load Shackle

Load Link

Line Rider Tensiometer

Compressive Load Cell

Load Pin

LMS-Toolkit

Toolkit for Load Cells

This software allows you to quickly and easily configure, test communication and calibrate LMS wireless load cell devices.

System requirements: Windows 8, 7, Vista or XP & USB base station

Features

- View and alter load cell device parameters
- Execute commands
- Save and restore configuration data to files
- Check radio link quality
- Calibrate load cell modules
- Perform simple data logging
- Supplied pre-installed on computer with or without display screen
- System can be installed on existing computers

Product Support

Load Shackle

Load Link

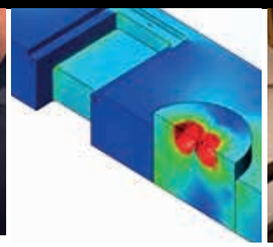
Line Rider Tensiometer

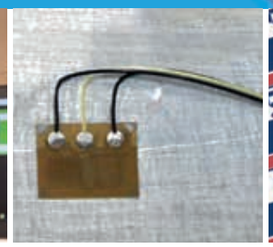
Compressive Load Cell

Load Pin

Design, Testing, Repair and Calibration

Benefit from our years of experience.
We can design, manufacture, service and test load monitoring equipment.





Load Cell Calibration & Testing

LMS have multiple test beds in-house, that enable us to provide a quick and effective repair and calibration service.

Our technical experts can carry out inspections and repairs, upgrades and conversions, scheduled or project calibration and certification and bespoke reporting.

We can also provide stress analysis and measurement for client products whether in-service or in the laboratory.

Key facilities include:

- Vertical & horizontal
- 50 Te and 100Te test rigs
- Comprehensive data logging
- A dedicated strain gauge area
- Mechanical technicians
- Electrical technicians
- In-house electronics & machining

100Te Tensile Test Rig	
Description	100te vertical digital test rig
Safe Working Load (SWL)	100 metric tonne (TE)
Mode of Operation	Tensile
Category	Class 1 test bed
Certification Standard	ISO 7500-1:2004 (E)
Accuracy	+/- 1%
Repeatability	+/- 0.2%
Resolution	User display: 1 kg res. Large display: 100kg res.
Logging Rate:	Up to 200 readings per second
Method of Measurement	Whetstone bridge on double strain gauged column

500Te test bed capabilities

Load Cell Display

Our advanced handheld display allows you to connect and monitor up to 12 wireless load monitoring devices.

These displays are matched to the LMS devices and feature a simple to use tactile keypad and easy to read multi-digit 9mm LCD display and a maximum wireless range of 600m+.

T24-HS Features

- Display for individual or summed load values.
- Calibrated in Te with pounds resolution accuracy (alternative weighing units on request eg kg, kN, lb, Te).
- Tare function.
- Fully configured and calibrated for your application.
- Sleep/wake acquisition modules.
- Very low power consumption for long battery life.
- Auto shutdown feature available on request.
- Power by 2 x AA internal batteries.
- Worldwide licence exempt 2.4 GHz radio.
- RS232 output available on request. Requires base station for wireless displays and dual cable on cabled displays.
- Operating Temperature -10°C to +50°C.
- Relative humidity 95% non-condensing.
- Environmentally sealed to IP65.
- Carry case available.

T24-HDP Features

- All the basic features of the T24-HS with the addition of;
- Dual Unit Function – The user can select two different units of measurement.
- Peak Hold Function – The display has the option to select & hold the highest ‘Peak’ recorded reading.

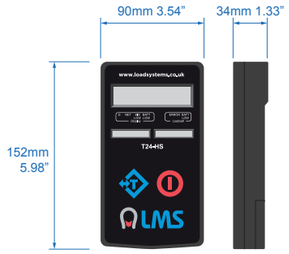
These displays are matched to the LMS devices and feature a simple to use tactile keypad and easy to read multi-digit 9mm LCD display with a maximum wireless range of 600m+

Wireless

Cabled

Large Wall mount display

Dimensions



ATEX Version

Get stress-free in less than 24hrs.

FAST-TRACK
SERVICE AVAILABLE CALL FOR DETAILS

We understand that sometimes calibrations or essential repairs become a priority issue and equipment needs to be back in service as quickly as possible.

FAST-TRACK repair and calibration provides a 24hr priority service designed to support customers when they need it most. Call or visit **www.LoadMonitoringSystems.com** to find out more.

Services

- Calibration
- Repair
- Inspection
- Non-destructive testing (including overload and proof-load)
- Certification
- New electronics for existing/OEM products
- Analogue and digital output module upgrades
- Bespoke test reports
- Call-out service for testing at site
- Load cell design development service
- Machining service for bespoke designs

Servicing

We can service all types of load cell products not just our own.

- Load links
- Load shackles
- Load pins
- Compressive load cells
- Running line tensiometers
- Load washers
- Shear beam load cells
- Displays

LEEA Full Member

GUH MEMBER

Member of DECOM North Sea

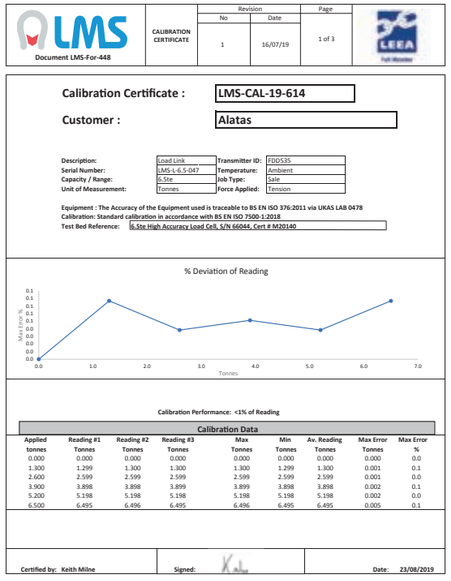
MANAGEMENT SYSTEM CERTIFICATION DNV ISO 9001 · ISO 14001 ISO 45001

Ex

IECEx

Certification & Compliance

Compliance with all major standards including those for LOLER, BSI, DNV, ASME, CE, EMC, FCC and Machinery Directive.



LMS Document LMS-For-448 | CALIBRATION CERTIFICATE | Revision No: 1, Date: 16/07/19 | Page: 1 of 3 | LEEA Full Member

Calibration Certificate : LMS-CAL-19-614

Customer : Alatas

Description:	Load Link	Transmitter ID:	FDD535
Serial Number:	LMS-L-6.5-047	Temperature:	Ambient
Capacity / Range:	6.5te	Job Type:	Sale
Unit of Measurement:	Tonnes	Force Applied:	Tension

Equipment : The Accuracy of the Equipment used is traceable to BS EN ISO 376:2011 via UKAS LAB 0478
Calibration: Standard calibration in accordance with BS EN ISO 7500-1:2018
Test Bed Reference: 6.5te High Accuracy Load Cell, S/N 66044, Cert # M20140

% Deviation of Reading

Max Error %

Tonnes

Calibration Performance: <1% of Reading

Calibration Data

Applied tonnes	Reading #1 Tonnes	Reading #2 Tonnes	Reading #3 Tonnes	Max Tonnes	Min Tonnes	Av. Reading Tonnes	Max Error Tonnes	Max Error %
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0
1.300	1.299	1.300	1.300	1.300	1.299	1.300	0.001	0.1
2.600	2.599	2.599	2.599	2.599	2.599	2.599	0.001	0.0
3.900	3.898	3.898	3.899	3.899	3.898	3.898	0.002	0.1
5.200	5.198	5.198	5.198	5.198	5.198	5.198	0.002	0.0
6.500	6.495	6.496	6.495	6.496	6.495	6.495	0.005	0.1

Certified by: Keith Milne | Signed: | Date: 23/08/2019

Authorised Partners

LMS

pewag lifting solutions

RaycoWylie SYSTEMS

- Wireless speed indicator
- Crane safety instrumentation
- Safe load indicators
- Anti-two block systems

CRANE SAFETY SYSTEMS

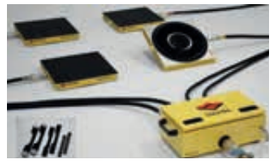
Load Test - Water Bags

Test Weights

Modulift
working between the hook and the load

SOLVING

Modular Air Bearing System



HILMAN ROLLERS
WWW.HILMANROLLERS.COM

LOAD MOVING SOLUTIONS

Hilman provides quality heavy load moving solutions for a variety of applications. Our products are made in the USA and are known throughout the world for their dependability, flexible design, and durability

Strength to get the job done.

Strength to get the job done.

Load Monitoring Systems
LMS House,
Aberdeen Energy Park,
Claymore Drive,
Aberdeen,
AB23 8GD.

Office: +44 (0) 1224 446100

Email: lms@loadmonitoringsystems.com

www.LoadMonitoringSystems.com