TEST & EVALUATION CAPABILITIES

L3HARRIS™

ENABLING YOUR SUCCESS WITH DEVELOP, TEST AND VERIFICATION

Test & Evaluation Capability Overview

The L3Harris facility in Brighton, UK, proudly stands as a leading authority in the UK for Pit Drop testing of carriage and release equipment with vibration, shock, and climatic capability to cover your end-to-end needs. Our highly customisable solutions are expertly designed to tackle various environmental conditions and ejection performance specifications. These are crucial for developing and qualifying products in both military and commercial applications.

Our facility is equipped with sensors and advanced measurement methodologies, including a high-force, multifunctional vibration shaker that complies with the rigorous standards of the Defence and Aerospace sectors. We take pride in our expertise in shock and multi-axis vibration testing, which is meticulously designed to fulfil the stringent requirements of Defence applications. Our highly skilled team evaluates a diverse array of release systems, including Gravity Release, Pneumatic Ejectors, Pyrotechnic Ejector Release Units, and Bomb Release Units, ensuring optimal performance and reliability.

We provide a comprehensive testing package, seamlessly coordinating with our trusted UK partners to fulfil additional testing needs. With a single point of contact, our clients benefit from a complete suite of testing services, all expertly managed by our dedicated in-house team.

In addition to our testing services, we proudly offer design and analysis services that, combined with our machine operations, empower us to create vibration fixtures, tooling, adaptors, or any test hardware you envision. Discover the full potential of our machine operations in the standalone L3H Brighton brochure.

Equipment

- Pit Drop Facilities
- Vibration Facilities
- Pneumatic Facility
- Climatic Facilities

Supporting Services

- Humidity
- Altitude
- EMC
- Transit Drop
- Salt Fog
- Waterproofness
- Icing

Product Throughput Control

- Real-time job tracking.
- Full Job traceability to all levels and components back to source.

Quality

- AS9100 and AS9102 accreditation

Shift Capacity

- Single shift with the capability of double shift (16 hours) running*

** Notice and ramp-up time will be required and denoted in any proposal.*

Pit Drop Equipment

The facility is fully equipped to support a diverse range of sensors, equipment, and measurement techniques, both contact and non-contact. Our capabilities include Accelerometers, Angular Rate Sensors (ARS), Loadcells, Pressure Transducers (dynamic and static), Thermocouples, Linear Voltage Differential Transformers (LVDTs), Laser Transducers, and High-speed Video for precise multi-object tracking and displacement data collection.

Specification

- Pit Drop Capture Pit: 4.0 m length x 1.5 m width x 2.7m height
    - (Load Beam maximum distance to Pit)
- Store capability from 5kg – 1400kg
- Standard pneumatic pressurisation using Clean Dry Air (CDA), Oxygen (O_2) at 19.9-21.9% balanced with Nitrogen (N) up to 6000 psi using a gas booster.
- Pyrotechnic release testing using CBC-4 and CERU 201 impulse cartridges.
- Simulated manoeuvre loads induced using hydraulic rams.
- Temperature conditioning (-70 to +120 °C)
- High-speed video capability for up to four synchronised Cameras (6000 fps), complete with a wide range of lenses to suit point(s) of interest and/or field of view.
- Synchronized High-speed Video and DAQ Data (up to 50kS/s).
- Capture dynamic response during Pit Drop separation trials such as Pyro-Shock and system pressure distribution.
- Post-test Analysis software utilising dynamic graphs, highspeed video and synchronised DAQ data.
- Multiple object tracking for pixel-to-displacement calculations, complete with subpixel tracking to increase measurement accuracy and reduce error due to aliasing.
- Accelerometers (Tri-Axial up to ±500g)
- Angular Rate sensors (Tri-Axial up to ±150 deg/s)
- Two-way verification techniques to ensure measurements, such as velocity and angular rate.
- Generate and receive various time-based signals as required.
- Shear Wire, Fuzing Wire and Lanyard length design validation.

Additional features

- Fixture Design and Manufacture
- Icing Test
- Eject Performance (Ambient, Low and High Temperatures)
- Test Plan sequencing and optimisation using temperature conductivity studies and configuration.
- Configurable high DC power supply up to 315VDC (Single Phase).
- Configurable Power supplies to meet environmental and customer requirements, external Sensor excitation, Eject Release Unit Standby and Launch
- Preparatory development and customer-specific configuration
- Precise and repeatable signal generation.
- Store configuration and design, mass, C of G, Inertia measurement (Bi-Filar Method)

Vibration Test & Evaluation Equipment

Our high-force, versatile vibration shaker confidently delivers reliable testing that meets stringent Defence and Aerospace standards. Our robust capabilities are expertly designed to tackle complex demands, from shock testing to multi-axis vibration, ensuring complete confidence in the results.

Machine	**LARGE – Hottinger Brüel & Kjaer (HBK) V8900**
Power (Max Thrust Sine)	80kN, Maximum Thrust Random: 76kN.
Freq Range	**5 – 3000 Hz**
Amplitude / Acceleration	100g
Displacement	± 50mm (Reduces as vibration frequency increases)
Envelope (Standard)	0.8 m (L) x 0.8 m (W) x 0.605 m (H)
Envelop (With Extension)	1.4 m (L) x 0.8 m (W) x 2.0 m (H)
Max Mass Allowable	800kg (Allowable reduces as the Vibration Spectra increases)
Max Mass Hoist	500kg

Machine	**SMALL - LDS V830-335 Vibration shaker**
Power (Max Thrust Sine)	9.8kN, Maximum Thrust RMS: 9.8kN
Freq Range	1Hz to 3000Hz
Amplitude / Acceleration	70.8g
Displacement	± 50.8mm (Reduces as vibration frequency increases)
Envelope (Armature Dia)	335 mm (13.19 in) – (We can provide bespoke fixture designs)
Max Mass Allowable	160kg (Allowable reduces as the Vibration Spectra increases)

Precision Data Acquisition (DAQ) System

Our m+p VibRunner 32-channel DAQ system is expertly engineered for Defense-grade noise and vibration testing. Fully compliant with MIL-STD-810 and DEF STAN 00-35 standards, it delivers dependable and scalable data acquisition across a variety of test modes, including Sine, Random, Gunfire, Mixed Mode (Sine on Random, Random on Random), Shock (Sawtooth, Half-Sine), and more. This advanced system is designed to meet high-channel and multi-axis requirements, making it the ideal solution for complex scenarios.

Equipment and Capabilities

****34 Tri-Axial ICP Accelerometers:**** We use PCB Piezotronics accelerometers for precise multi-axis measurements, ensuring high accuracy in various applications.

****On-Site Monitoring and Data Replication:**** We offer on-site monitoring and replicate field conditions in our lab to provide accurate test results.

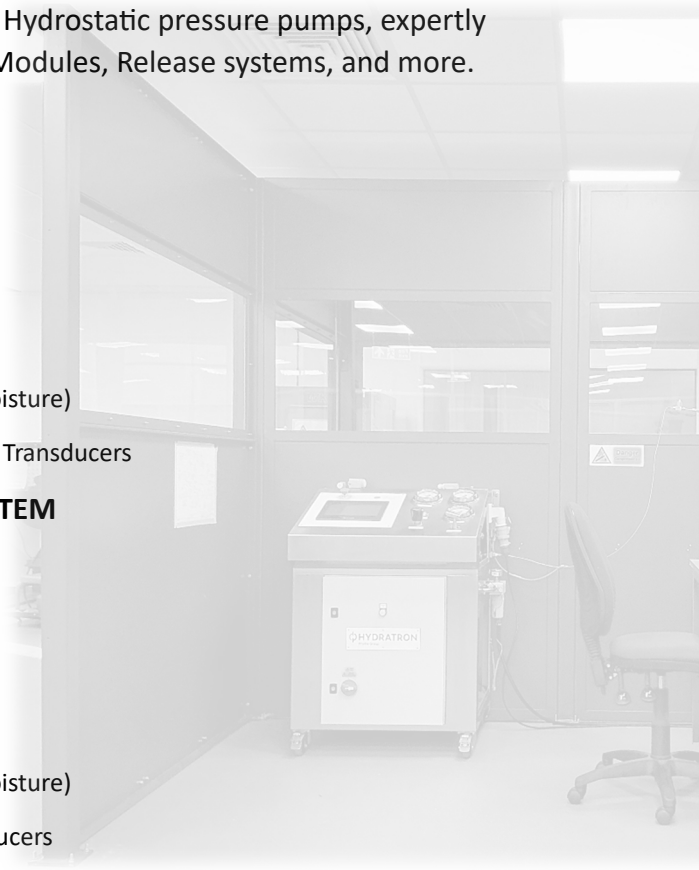
****Frequency Modal Analysis:**** Our modal analysis identifies optimal sensor placement for effective data capture and validates modal responses, delivering tailored, data-driven solutions for complex systems.

Test Fixturing

We expertly design and manufacture vibration fixtures utilising our advanced SolidWorks PDM package. Our team conducts thorough FEA analysis using ANSYS to eliminate unwanted resonant frequencies, ensuring optimal performance. Our in-house machine shop is fully equipped to produce these fixtures, and we can also facilitate the machining of more significant components through our established partnerships with top machining suppliers.

Pneumatic Test & Evaluation Equipment

Our facility offers state-of-the-art high-pressure Pneumatic & Hydrostatic pressure pumps, expertly engineered for pressure testing of High-Pressure Pneumatic Modules, Release systems, and more.



HYDRATRON GPU-GBS96 MANUAL GAS BOOSTER PUMPS

Quantity : 2

Use Case : Pneumatic release system pressure testing.

Pressure : 0 – 6,000 psi(g)

Test Piece Volume : Up to 1000 cc

Test Gas : Clean Dry Air (<1% impurities, and <5ppm moisture)

Other : UKAS traceable calibrated Gauges & Pressure Transducers

BESPOKE SEMI-AUTOMATIC HYDRATRON GAS BOOSTER SYSTEM

Quantity : 1

Use Case : Pneumatic release system pressure testing.

Pressure : 0 – 6,000 psi(g)

Test Piece Volume : Up to 1000 cc

Test Gas : Clean Dry Air (<1% impurities, and <5ppm moisture)

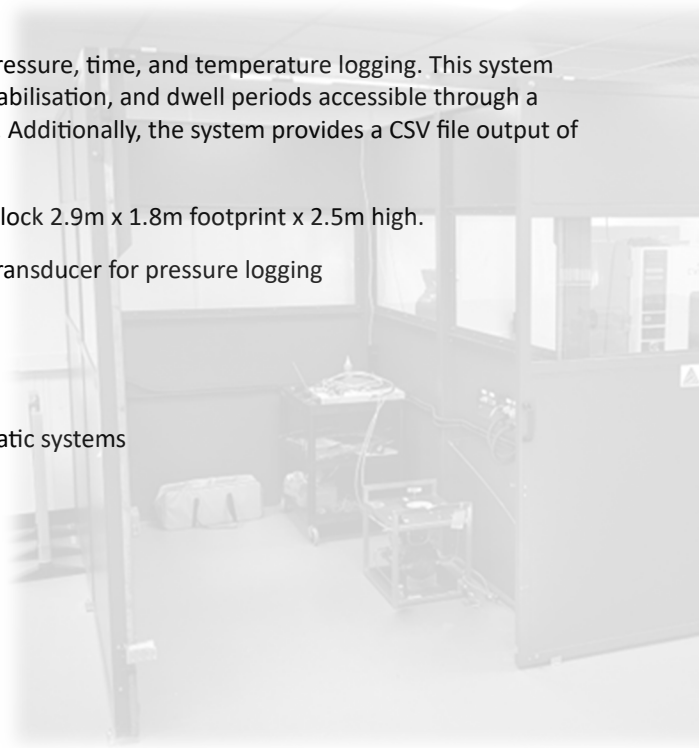
Electrical Output : 24 Vdc for powering external pressure transducers

Inputs : Facility for logging 2 off external pressure transducers (0.5 – 4.5 Vdc), External Thermocouple input to log pressure against temperature.

Software : A Siemens S7 PLC is utilised for Customised pressure, time, and temperature logging. This system features programmable variable ramp rates, stabilisation, and dwell periods accessible through a touch-screen Human-Machine Interface (HMI). Additionally, the system provides a CSV file output of the recorded data.

Enclosure : Dedicated test chamber with automatic door lock 2.9m x 1.8m footprint x 2.5m high.

Other : UKAS traceable calibrated internal Pressure Transducer for pressure logging



DRUCK PV212 HYDROSTATIC HAND PUMPS

Quantity : 2

Use Case : Testing and calibration of sensors and pneumatic systems

Pressure : 0 – 10,000 psi(g)

Test Piece Volume : Up to 1000 cc

Test Media : Demineralized water

Other : UKAS traceable calibrated Gauges

Climatic Test & Evaluation Equipment

We operate two advanced climatic chambers designed explicitly for rigorous thermal and humidity testing of our products. These chambers also ensure a controlled air environment for the release systems in our pit drop test facility, enhancing the reliability and accuracy of our assessments.

Our extensive range of CVMS high-performance temperature and climatic chambers consistently delivers exceptional temperature and humidity variations tailored to your specifications. Whether you prefer manual operation or the convenience of programmed complex profiles, our chambers are designed to meet your testing requirements. Our compact Weiss temperature and climatic chamber also provides a wide range of temperature and humidity options for smaller components, ensuring reliable performance for all your testing needs.

Machine	**C-THL1000-70/5**
Thermal Range	-70°C to 180°C
Humidity Range	10% to ~ 98% RH
Ramp Rate	±5°C / min
Heating Time	-70°C to 180°C within 50 minutes
Cooling Time	180°C to -70°C within 50 minutes
Chamber Capacity	1000 L (1m x 1m x 1m)

Machine	**WK1 – 180/70**
Thermal Range	-70°C to 180°C
Humidity Range	10% to ~ 98% RH
Ramp Rate	±5°C / min
Heating Time	-70°C to 180°C within 70 minutes
Cooling Time	180°C to -70°C within 120 minutes
Chamber Capacity	190 L (0.75m x 0.58m x 0.45m)

Project & Quality Management

Quality is the fundamental principle of every project we undertake. We have established a dedicated team focused on project management and quality assurance to meet this standard. This team oversees the entire process, from the initial order to the final delivery, and our extensive experience serves as a valuable support mechanism.

We are dedicated to upholding a Quality Management System that meets the highest standards expected by our customers. This commitment is supported by comprehensive inspection and metrology capabilities, along with a robust quality planning and project management process that guarantees the excellence of your product.

Fully Equipped Inspection Department

- 2 x CMMs.
- Profile projectors.
- SPC (Statistical Process Control).
- First Article Inspection (AS9102).
- Automated high-voltage cable testing.
- Tensile testing (Destructive Product Quality Testing).
- PAT (Product Acceptance Testing).
- 1st Off In-process inspection.
- Stage & Final Inspection.

Non-Destructive Flaw Testing

- MPI (Magnetic Particle Inspection) to EN4179
- LPI (Liquid penetrant inspection) to EN4179

Accreditations

- AS9100 Rev D
- DAOS (Design Approval Organisation Scheme)
- FSC Facility Security Cleared with Protected Status

AS9100 Accreditation

LRQA

Issue date: 22 April 2024
Expiry date: 21 April 2027
Certificate identity number: 10584548

Original approval(s):
AS9100 - 22 April 2009
ISO 9001 - 7 March 1993

Certificate of Approval

This is to certify that the Management System of:

L3Harris Release and Integrated Solutions Ltd

Unit 2, Emblem House, Home Farm Business Park, Home Farm Road, Brighton, BN1 9HU, United Kingdom

has been approved by LRQA to the following standards:

AS9100D (technically equivalent to EN 9100:2018, JISQ 9100:2016 and KS Q 9100:2018), ISO 9001:2015

This certification has been performed in accordance with the requirements of EN 9104-001:2013

LRQA Limited is accredited under the IAQG ICOP scheme

Certification Structure – Single Site

Approval number(s): AS9100 – 0002521, ISO 9001 – 0002520

The scope of this approval is applicable to:

Design, development, manufacture and service support of aircraft stores carriage release and arming assemblies, cabling systems, electro mechanical devices and precision machined components.

Marta Escudero

Regional Director, United Kingdom and Americas (UKAM)

Issued by: LRQA Limited

CONTACT US

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