



Accelerating
the future
of aerospace

AEROSPACE SYSTEMS DIVISION

ELECTROMAGNETICS, ENERGY MANAGEMENT & QUALIFICATION

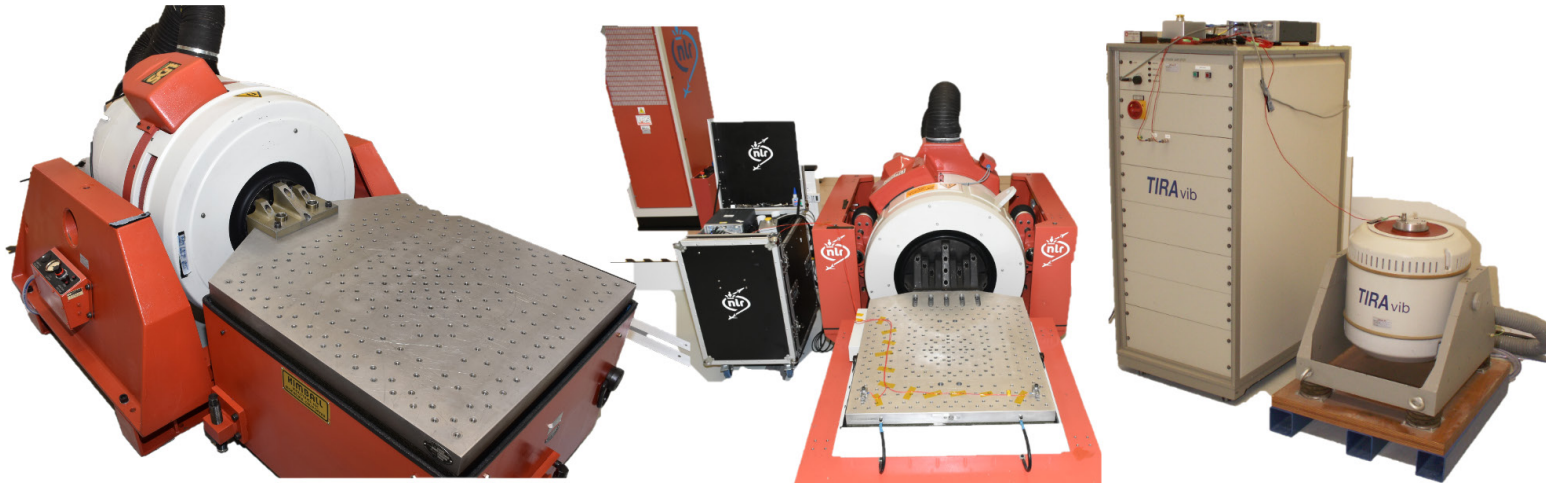
Mechanical vibration and shocktesting

PRODUCTS & SERVICES



The vibration and shock test laboratory

The vibration and shock test laboratory material and equipment used for aerospace applications have to satisfy a broad range of special requirements mostly due to the specific environment in which aircraft and spacecraft are required to perform reliably and safely.



The Vibration and Shock Test laboratory is one of NLR's environmental test facilities, covering test requirements regarding temperature, humidity, EMC, vibration and shock, altitude, thermal vacuum, fluid contamination and salt spray. Other requirements are tested externally, but under NLR's responsibility, giving the opportunity for 'one door shopping'.

WHAT YOU NEED

One door shopping @ NLR

WHAT WE DELIVER

DESCRIPTION OF LABORATORY The NLR Avionics Division also operates a laboratory for vibration and shock tests. These tests can be done in accordance with any applicable standard including the RTCA DO-160F, MIL-STD810F and IEC standards. Also dedicated test procedures can be applied. The VST laboratory is included in the Dutch Accreditation Council (RvA) register of test laboratories under no. L220, for areas described in detail in the accreditation.

OUR CAPABILITIES

The two larger shakers (V810, V875) are used for general purpose vibration and shock tests, the smaller shaker is especially suited for small items that have to be tested for a high level/high frequency environment (e.g. turbojet engine components). A sine vibration level of 60 g for a 3 kg load is feasible up to 5 kHz.

- Removable clean room (guaranteed up to Class 100,000, FED-STD-209B/ ISO 14644-1 Class 8), with contamination monitoring equipment
- A temperature chamber which can be used in conjunction with the V810 shaker to create a temperature environment with the following characteristics:
 - Temperature range: -70 °C to +200 °C
 - Maximum rate of change: 30°C/minute
 - Dimensions: 600 x 800 x 1000 mm3
- A temperature controlled slitable for thermal isolation
- Dactron photon+, 4 channel dynamic signal analyser
- A range of accelerometers: light (weight approx. 0.2 g), accurate, extreme temperature range, Tri-axial output
- Laser-based vibrometers for vibration measurements without mass loading (Ometron VH300, MicroEpsilon NCDT1700 laser displacement sensors)
- Mechanical workshop for quick mechanical repair and small modifications of test objects;
- (Clean room capable) Electronics workshop for immediate repair or modifications of test objects.

OUR CAPABILITIES

Shaker system	LDS	LDS	TIRA
Type	875	810	50350
Head	440 mm	240 mm	115 mm
Sine Force	35.6 kN	17.8 kN	2.7 kN
Random Force	26.6 kN	13.3 kN	2.0 kN
Shock Force	84.3 kN	34.8 kN	4.0 kN
Max. Load	600 kg	249 kg	35 kg
Max. Displacement	2.75 inch	2.0 inch	1.0 inch
Max. Velocity	1.8 m/s	2.0 m/s	1.5 m/s
Max. Acceleration Sine	112 g	120 g	125 g
Max. Acceleration Random	56 grms	60 grms	75 grms
Armature Resonance	> 2100 Hz	> 2500 Hz	> 3500 Hz
Control System/Data Acquisition System	LMS Mobile	LMS Scadas III	LMS Scadas III
Max. Channel Count	16	16	16
Slitable Size	762x762 mm	750x750 mm	-
Head Expander Size	762x762 mm	400x600 mm	-

