

Shock absorption & penetration test equipment

Description

The INSPEC shock absorption and penetration test equipment comprises the drop enclosure and the control box. The drop enclosure comes as either standard or tall. The tall enclosure can test a wide range of helmets, whilst the standard enclosure can only perform drop heights up to 1.5m.

The test equipment itself comprises a steel plate bonded to a concrete block upon which is mounted an aluminium framework with clear polycarbonate guarding fitted to an appropriate height around all four sides. The front has double opening doors that are interlocked for user safety.

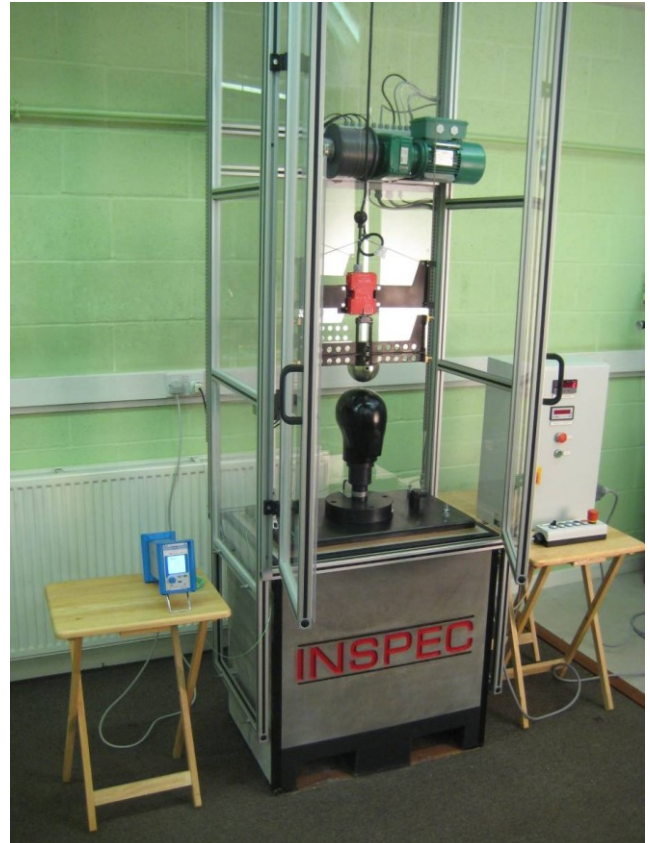
The standard version uses the guarding as support for the guide wires for the drop assembly. The tall version has a steel column to support the guide wires.

This framework is disassembled for shipping.

The striker assembly is hoisted by an electric winch, guided by two vertical pre-tensioned cables, and released via a pneumatic, fail-safe, release system.

Removable, interchangeable impactors are available as are the required test headforms. A rubber (MEP) test block to use as a system check, is included. Each is readily interchangeable via a quick release clamp.

The equipment is controlled by the supplied data logging hardware and software which interfaces with the supplied speed measurement system, force transducer and charge amplifier, together with connecting cables. The program displays the force v time history and saves the data.



Services required

Floor mounted

Electricity at 240V and 50Hz

Compressed air at 5-10 bar

Computer with an appropriate version of Microsoft Office for the software (one can be supplied with the rig), note: some antivirus packages and enterprise security systems can prevent the software from working with MS Office correctly, in those cases it is possible to set the software to produce a .csv file which can then be used in Excel.

Optional items

Headforms and strikers are specific to the standard being tested against. Please specify the required standard(s). The supplied software will only allow the standards requested during purchase to be available for testing.

Approximate size & weight

Item		Width (mm)	Depth (mm)	Height (mm)	Weight (kg)
Drop enclosure	Standard	900	550	3365	740
	Tall			5000	800
Control Box	Both	500	215	500	18

Relevant standards

ANSI Z89-1:2014 Type 1	7.1.2 Force Transmission
	7.1.3 Apex Penetration
AS/NZS 4067:2012	5.5 Impact Energy (Acceleration)
	5.6 Impact resistance (Force)
	5.7 Penetration Resistance
EN 397:2012	5.1.1 Shock Absorption
	5.1.2 Resistance to Penetration
EN 443:2008	4.2 Shock absorption
	4.3 Penetration
EN 812:2012	5.1.1 Impact Protection
	5.1.2 Resistance to Penetration
EN 14052:2012	5.2.1 Shock absorption
	5.2.2 Resistance to penetration
EN 16471:2014	5.2 Shock absorption
	5.3 Penetration Resistance
NFPA 1971:2013	8.15 Impact Resistance (Force)
	8.16 Impact Resistance (acceleration)
	8.19 Penetration resistance

Other standards include EN 960:2006, AS/NZS 2512-1:2009, AS/NZS 2512-3.2:1997, EN 13087-2:2012, EN 13087-3:2000, and ISO 6487:2015