INSPEC International Limited
56 Leslie Hough Way
Salford, Greater Manchester
M6 6AJ, United Kingdom

Tel: +44 (0) 16 1737 0699
Email: equipment@inspec-international.com

Ballistics test equipment

Description



This equipment is designed for impact testing of helmets or eye protection using a 6mm ball bearing.

The apparatus comprises essentially three main parts:

An adjustable headform mounted in an impact resistant enclosure. The required headform needs to be specified when ordering.

A pneumatic circuit including a semi-automatic ball loading mechanism, a barrel and necessary controls. Aiming of the ball is aided by a laser, projecting a spot on to the target area.

An electrical circuit, including the ball speed measurement system.

With the standard barrel, the rig is capable of a projecting a 6mm diameter steel ball at a range of velocities from approximately 12 - 210 m/s.

The equipment is bench mounted and includes a large capacity test specimen enclosure. The door to the specimen enclosure is interlocked and fitted with polycarbonate panels to enable viewing of tests.

The headform may be adjusted horizontally and vertically to enable the test areas specified in various performance standards to be targeted. The headform may be rotated about the vertical axes defined in the various standards.

The rig incorporates a semi-automatic breech to supply balls to the barrel and automatic collection of spent balls to the centre of the test enclosure. The propulsion is generated by compressed air with a precision pressure regulator and gauge. All operating controls are easily accessible at the front of the unit.

The control circuit incorporates adjustable gas pulse duration, safety interlocking, reset and fire controls. The ball speed is verified by light source and photocell detection units; with the velocity indicated by a digital display.

Continued on page 2

Ballistics test equipment (continued)

Services required

Bench mounted.
110/230 volts AC, 50/60Hz, mains electricity.
Compressed air at a pressure of up to 6 bar.
At the higher impact energies, the equipment can produce sudden loud noises. It is recommended that hearing protection is worn by the operator at these levels.

Optional items

A wheeled trolley for the equipment is available as an accessory (product code 3408).

A barrel for projecting ¼" diameter steel balls is available as an accessory (product code 3436).

The equipment is supplied without a headform, for which various shapes and sizes are available. The headform of choice should be specified when ordering. ISO 18526-4 size 1-M or EN 168 medium headforms are the normal choice, but other sizes can be supplied upon request. Please contact us for details.

Consumables

6 mm steel balls
Sacrificial sheet of polycarbonate for set-up (one sheet is provided)
Replacements for these can be ordered from us.

Approximate dimensions and weight

190 x 120 x 70 cm, 145 kg

Relevant standards

Eye protection
ANSI Z87.1:2020
AS/NZS 1337.1:2010
CSA Z94.3-20
EN 166:2001
EN 168:2001 and other standards that refer to this method.
EN 175:1997
EN 207:2017
EN 14458:2018
ISO 12311:2013
ISO 12312-1:2022
ISO 16321-1:2021
ISO 16321-3:2021
ISO 18526-3:2020 and other standards that refer to this method.
NFPA 1971:2018
PSDB 21/04
UN ECE Regulation 22

Head protection
EN 443:2008
EN 16473:2014