CERTOTTICA

Istituto Italiano per la Certificazione dei Prodotti Ottici Scarl

Loc. Villanova Zona Industriale-32013 LONGARONE (BL)
Tel.: + 437 573157 Telefax: + 437 573131

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TEST REPORT

Client:	**BOLLE' PROTECTION**
Address:	**95 rue Louis Guérin - 69 100 VILLEURBANNE FRANCE - FR**
Article:	**Spectacle**
Model:	**SHOOTING – CSP oculars**
Job n. :	**C150708**
Report n.:	**151862**
Receiving date:	**04/06/2015**
Date of Test Begin:	**06/07/2015**
Date of Test End:	**07/07/2015**
Issuing Date:	**07/07/2015**
Reference standard:	**STANAG 2920 (Edition 2): Ballistic test method for personal armour materials and combat clothing.** **STANAG 4296 PCS (Edition 1): Eye protection for the individual soldier – ballistic protection.**

Note 1: This test report is valid only for the tested samples and any changes can be made only with the issuance of a new test report.
Note 2: The partial reproduction of this test report is forbidden without written permission of Certottica.
Note 3: The tests were performed on samples sent by client.
Note 4: This test report is an official document digitally signed according to the current italian law.
Note 5: The declared uncertainty of the measure is expressed double the spread (which corresponds, in the case of a normal distribution, to a confidence level of about the 95%).

Test conditions:

- Calibre: 3.6 mm
- Bullet type: FSP STANAG 2920 (edition 2) A3/6723 ø3.6mm
- Test weapon: Air gun
- Barrel length:
- Propellant: compressed air
- Angle of incidence: 90°
- Impact points: frontal impacts at the eye centres
- Witness system: 0.5 mm thick aluminium alloy sheet, 2 cm behind sample.
- Test head-form: medium head-form approximates a 50th percentile adult male with internal core covered by a nominal 12 mm thick layer of polyurethane.
- Room temperature: 23°C ± 3°C
- Conditioning of the samples: 24 hours at a temperature of 20°C ± 2°C and a relative humidity of 65 % ± 5 %

Requirements

The V_{50} ballistic limit is determined by the average of an equal number of highest partial penetration velocities and the lowest complete penetration velocities which occur within a specified velocity spread. The test equipment use an high pressure air gun with projectile FSP shaped of 3.6 mm calibre. The witness system consists in a 0.5mm thick aluminium plate, placed 2 mm behind the test sample. The samples are conditioned for at least 24 h prior to testing. Testing procedures use an electronic velocity detection by light beam; the projectile impacts the visual centre perpendicularly to the device's surface, after the impact the device and the witness are submitted to visual examination. The classification of results is as follow:

- Complete penetration (CP) means the situation in which the impacting projectile or any fragment thereof, or any fragment of the test specimen perforates the witness plate.
- Partial penetration (PP) in any impact which can't be considered a complete penetration.

Unacceptable shot is determined by the number of corners visible in the impact site: if less than 3 corner were visible the shot was considered invalid.

NOTE: any deviations from standard as agreed by client.

Results

Sample	Ocular	Velocity [m/s]	Result	Data used for V_{50}
151862 1	Left	239	PP	---
151862 3	Right	238	CP	X
151862 4	Right	237	PP	---
151862 5	Left	246	PP	---
151862 6	Left	231	PP	---
151862 8	Right	230	PP	---
151862 9	Left	252	CP	---
151862 10	Left	250	PP	---
151862 12	Right	248	PP	X
151862 13	Right	239	CP	---
151862 14	Right	247	PP	X
151862 15	Right	236	CP	X
V_{50} [m/s]			242	

The testing samples has 2.2-2.3 mm lenses thickness and a weight of 26g. The tested samples met the requirements according to STANAG 4296 paragraph 5 and 6.

Figure1: specimen picture

Firmato digitalmente da
Giorgio Sommariva
CN = Sommariva Giorgio
O = Certottica Scrl
C = IT

La quality technical manager: Giorgio Sommariva