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Laboratory for Ballistic Research
(LBO)

Visiting address:
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2496 ZA 's-Gravenhage

Test certificate *

The test has been carried out according to **EN 1522-1**
class **FB4 NS, .44 FMJ-FN**

Assignor **ÇUHADAROĞLU Metal Sanayi ve Pazarlama A.Ş.**
Yakuplu köyü yolu 34900 Beylikdüzü
Istanbul
Turkey

Subject
Ballistic experiments

Date
28-04-2005

Our reference
05BP676

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The Standard Conditions for Research
Instructions given to TNO, as filed at the
Registry of the District Court and the
Chamber of Commerce in The Hague shall
apply to all instructions given to TNO.

Experiment date 19-04-2005
Project Frame
Sample identification AR 83-FB4 (.44 FMJ)

For details see page 2 upto page 8

The sample does fulfill the ballistic requirements according to level 'FB4 NS, .44 FMJ-FN'


T.A. van de Voorde
Project leader

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Test certificate number 05BP676

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Experiment date

19-04-2005

Assignor Cuhadaroglu

Test certificate ***Test results****Description of testmethod**

In order to determine the ballistic protection performance of windows and doors, three experiments are performed according to NEN-EN 1522-1 / 1523-1. The panel is clamped in a specially designed mounting system. The ballistic impact experiments are conducted with a bullet for the desired protection level as described in the standard. Three areas should be tested; 1. Armoured and re-enforced areas, 2. Transition / connection between frame and solid or moving sub-frame, 3. Parts like handle's, lock's, and their connection, weld's, etc. The mutual distance between the consecutive points of impact is 120 + 10 mm. If no penetrations occur but splinters are released at the rear face of the testpanel, this is marked as S (Splinters) behind the protection level in the testresults. If not, this is marked as NS (No Splinters).

Results

Sample identification : AR 83-FB4 (.44 FMJ)					
Shotnumber	V-impact (m/s)	Vr (m/s)	Valid (Yes/No)	Obliquity (°NATO)	Results
GKW1 05SN173	433		Yes	0	Stopped
GKW1 05SN174	431		Yes	0	Stopped
GKW1 05SN175	431		Yes	0	Stopped
GKW1 05SN176	448		Yes	0	Stopped
GKW1 05SN177	440		Yes	0	Stopped
GKW1 05SN178	444		Yes	0	Stopped
GKW1 05SN179	448		Yes	0	Stopped
GKW1 05SN180	437		Yes	0	Stopped
GKW1 05SN181	440		Yes	0	Stopped
The sample does fulfill the ballistic requirements according to level 'FB4 NS, .44 FMJ-FN'					

Remarks : See page 4 for impact points.

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Test certificate number 05BP676

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Experiment date

19-04-2005

Assignor Cuhadaroglu

Sample specifications

Assignor identification	: AR 83-FB4 (.44 FMJ)
TNO identification	: 05MB960
Reference number	: -
Date of arrival	: 19-04-2005
Size	: 1200 x 1200 mm ²
Thickness	: - mm
Weight	: - gram
Areal mass	: - kg/m ²
Composition of sample in direction as encountered by projectile (Specification assignor)	: See page 5 until 8 for composition drawings.
Remarks	: The connection between the Aluminium frame (armoured part) and the sub-frame is, according to the assignor, not comparable with the construction in a building and therefore it is not tested for ballistic resistance.

Test Specifications

Experimental facility	: Large Calibre Firing Range no. 1 Ypenburg
Ambient temperature	: 18 °C
Relative humidity	: 60 %
Conditioning of sample material	:
- duration at least	: 24 hours
- at temperature	: 18 - 22 °C
- at rel. humidity	: 60 - 70 %
Temperature of sample during experiment	: 18 - 22 °C
Remarks	: none

Ballistic specifications

Weapon	: SVB .44
- Barrel length	: 605 mm
- Rifling twist	: 1:450 Omw.:mm
Projectile	: .44 FMJ-FN
- Weight	: 15.6 gram
- Calibre	: 0.44 inch
- Manufacturer	: CCI-Speer
Velocity range	: 300 - 550 m/s
Distance muzzle to target	: 8.00 m

Other specifications

Contract number	: 17268
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Test certificate number 05BP676

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Experiment date

19-04-2005

Assignor

Cuhadaroglu

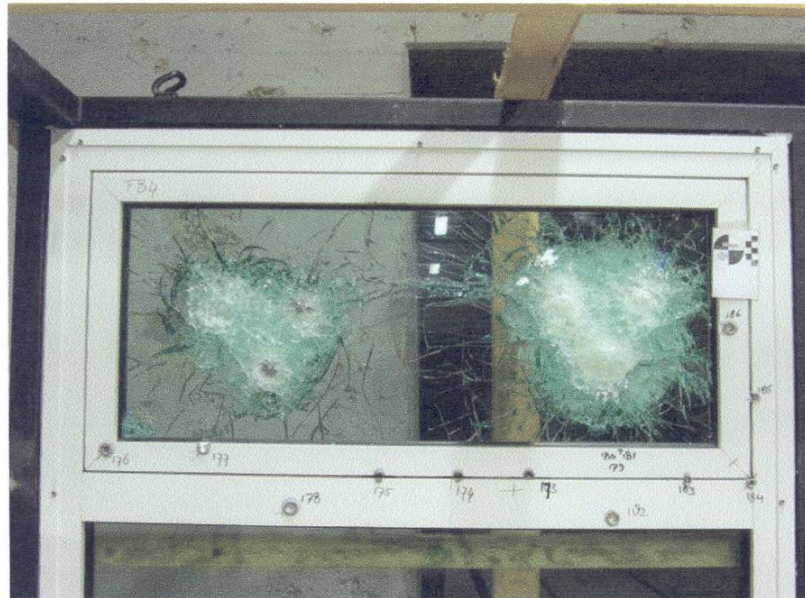


Figure 1 : Front sample AR 83 - FB4 after testing with .357 CB and .44 FMJ. Shot no. 05SN173 until 181 concerning .44 FMJ-FN.



Figure 2 : Back sample AR 83 - FB4 after testing with .357 CB and .44 FMJ.

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Test certificate number 05BP676

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Experiment date

19-04-2005

Assignor

Cuhadaroglu

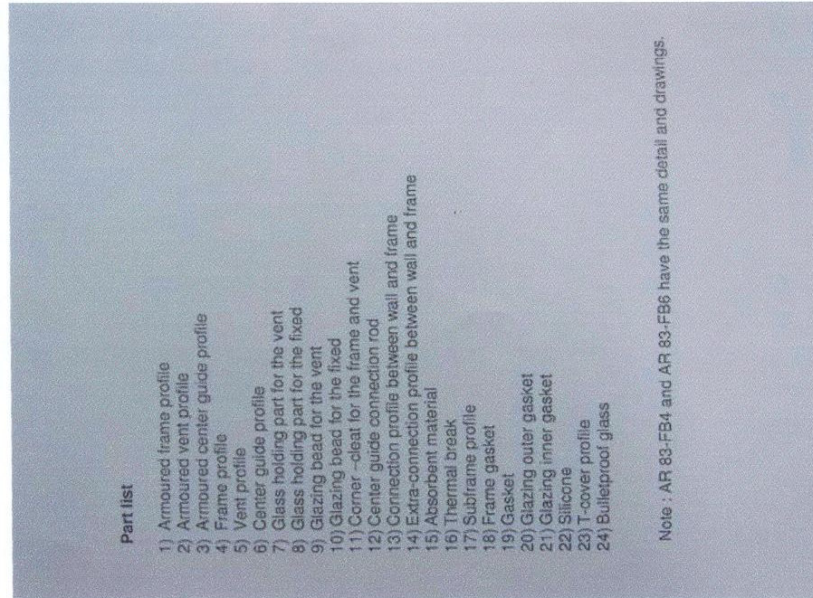


Figure 3 : Part list

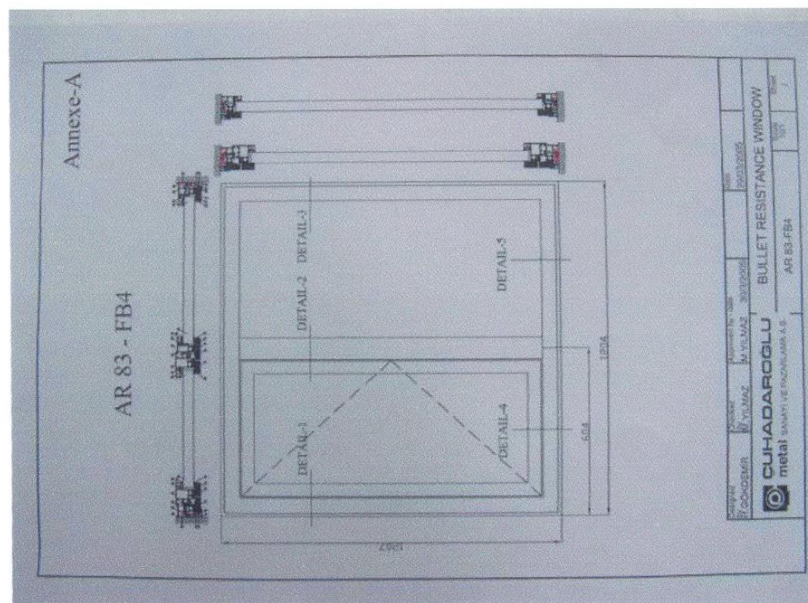


Figure 4 : Sample AR 83 - FB4

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