

		 AB 171
MILITARY INSTITUTE OF ARMAMENT TECHNOLOGY		
LABORATORY OF THE INSTITUTE – TEAM OF RESEARCH LABORATORIES ul. Prym. St. Wyszyńskiego 7, 05-220 ZIELONKA tel. 22 / 76 14 422 akredytowane przez Polskie Centrum Akredytacji,		
TESTING LABORATORY OF FIREARMS AND PROTECTIVE COVERS (LBUSO)		
TEST PROTOCOL NO. 109/2026	CONTRACT NUMBER (ORDER): U/ZCU2/07/0034/2026	
	Date of preparation: 27.07.2026	

1. **CUSTOMER:** NOXODA LLC
32-500 Chrzanów, Wyczołkowskiego 1 Street
TIN: 628 229 92 94

2. **IDENTIFICATION AND DESCRIPTION OF TESTED PRODUCT:** Ballistic helmets type 01PRO-FAST – list of products in table 1.

3. **TEST BASE:** Contract no. U/ZCU2/07/0034/2026 dated 02.07.2026 r.

4. **SAMPLING FOR TESTING:**

The samples in the form of complete batch of Ballistic helmets 01PRO-FAST were provided by the customer representative for testing and accepted based on the sample identification protocol constituting an attachment to this test protocol. The samples were registered in the Register of samples & reports (Rejestr próbek i sprawozdań LBUSO RWD nr 203/7) under the item number: 144/26, sample no.: 144/26-34/26.

Detailed list of tested products can be found in Table no. 1.

Table no. 1

Year of production		2026
Product		Ballistic helmet
Type		01PRO-FAST
Lot No.		06/26/F
LBUSO sample no.		144/26-34/26
No.	No. of specimen	Size
1	(1)	M/L
2	(7)	M/L
3	(8)	M/L
4	(9)	M/L

**5. DATE OF ACCEPTANCE
OBJECTS FOR TESTING:**

02.07.2026 r.

6. DATE OF TESTING:

02÷03.07.2026 r.

**7. IDENTIFICATION OF TEST SCOPE
AND TESTING METHOD:**

The tests were conducted on the ballistic helmets listed in Table no. 1 within the scope specified by the Client, based on accredited testing procedures:

- LBUSO.PB.12 Edycja 7 z dnia 10.01.2024 r.
„Badania kuloodporności próbek”
(Procedure LBUSO.PB.12 Ed. 7 dated 10.01.2024 r. “Examination of bullet resistance of the samples”);
- LBUSO.PB.15 Edycja 4 z dnia 04.04.2022 r.
„Pomiar prędkości za pomocą barier optycznych”
(Procedure LBUSO.PB.15 Ed. 4 dated 4 April 2022, „Velocity measurement using optical barriers”);

and standard:

- PN-V-87001:2011 – „Osłony balistyczne lekkie. Hełmy ochronne odłamko- i kuloodporne. Wymagania i badania”
(PN-V-87001:2011 – „Light ballistic protection covers. Fragmentation and bullet-resistant helmets. Requirements and testing”).

8. ADDITIONAL INFORMATION:

8.1 Environmental conditions during test:	T-100	T-200
- temperature	23°C;	24°C
- relative humidity	40÷45%;	42%
- atmospheric pressure	1007÷1010 hPa.	1008hPa

8.2. Test equipment:

- Test barrel no. 6150 (chambered in 9x19 mm);
- 9x19 mm ammunition with FMJ projectile, lot no. T-17-005;
- Test barrel no. 3140 (chambered in .357 Magnum);
- .357 Magnum ammunition with JSP, lot no. 353/66/1;
- Test barrel no. 6386 (chambered in 9x19 mm, adapted for 1,1 g FSP)
- .22 1,1g FSP;
- Computer system for speed measurement BP-03 nr 0980-6-2011/CWA;
- Projectile velocity and angle of deflection measurement system, no. 0779-8-2018/CWA;
- Climate chamber Type C600-70 0577-8-2012/CWA;
- Weather gauge Kestrel, no. 31916/CWA and 31917/CWA;
- Tape measure SOLA-5m, no. 31978/CWN;
- Measuring tape 50 m, no. 30502/CWN;
- Steel ruler POLMIAR (0÷1000) mm, no. 30736/CWA;
- Digital protractor, no. 18506/CWN.
- Caliper LBUSO 32.

9. TEST RESULTS:

9.1 Ballistic Penetration Test (PN-V-87001:2011 section 4.9.3)

The test was conducted on the basis of the accredited testing procedures:

- LBUSO.PB.12 Edycja 6 z dnia 04.04.2022, „Badania kuloodporności próbek” (Procedure LBUSO.PB.12 Ed. 6 dated 4 April 2022, “Examination of bullet resistance of the samples”);
- LBUSO.PB.15 Edycja 4 z dnia 04.04.2022 r. „Pomiar prędkości pocisków za pomocą barier optycznych” (Procedure LBUSO.PB.15 Ed. 4 dated 4 April 2022, “Velocity measurement using optical barriers”);

and standard:

- PN-V-87001:2011 – „Osłony balistyczne lekkie. Hełmy ochronne odłamko- i kuloodporne. Wymagania i badania” (PN-V-87001:2011 – „Light ballistic protection covers. Fragmentation and bullet-resistant helmets. Requirements and testing”).

Test was conducted according to methodology specified in section 5.10.2. of PN-V-87001:2011 standard. The results of bullet resistance tests are presented in Table no. 2.

The following notation is used in the table below:

- (PP) – partial penetration according to PN-V-87001:2011.

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LBUSO sample no.		144/26-34/26			
Sample condition		Dry, conditioned at +20°C ± 2°C			
No. of specimen		(9)		(1)	
Amunition		9x19 mm with FMJ projectile		.357 with JSP projectile	
Parameter		Projectile measured velocity [m/s]	Result	Projectile measured velocity [m/s]	Result
1	Front	429	PP	433	PP
2	Back	426	PP	433	PP
3	Left	430	PP	434	PP
4	Right	423	PP	443	PP

9.2 Fragment resistance test (PN-V-87001:2011 section 4.9.3)

The test was conducted on the basis of the accredited testing procedures:

- LBUSO.PB.12 Edycja 6 z dnia 04.04.2022, „Badania kuloodporności próbek”, (Procedure LBUSO.PB.12 Ed. 6 dated 4 April 2022, “Examination of bullet resistance of the samples”);
- LBUSO.PB.15 Edycja 4 z dnia 04.04.2022 r. „Pomiar prędkości pocisków za pomocą barier optycznych” (Procedure LBUSO.PB.15 Ed. 4 dated 4 April 2022, „Velocity measurement using optical barriers”);

and standard:

- PN-V-87001:2011 – „Osłony balistyczne lekkie. Hełmy ochronne odłamko- i kuloodporne. Wymagania i badania” (PN-V-87001:2011 – „Light ballistic protection covers. Fragmentation and bullet-resistant helmets. Requirements and testing”).

Test was conducted according to methodology specified in section 5.10.1. of PN-V-87001:2011 standard. The results of fragment resistance tests are presented in Tables no. 3÷4.

The following notations are used in the tables below:

- (CP) – complete penetration according to PN-V-87001:2011,
- (PP) - partial penetration according to PN-V-87001:2011,
- (YES) – shot qualified for V50 evaluation,
- (NO) – shot not qualified for V50 evaluation.

Table no. 3

LBUSO sample no.	144/26-34/26	
Sample condition	Dry, conditioned at +20°C ± 2°C	
No. of specimen	(7)	
Amunition	.22 FSP 1,1g	
Parameter	V [m/s]	Penetration/ qualification
1	693	CP YES
2	671	PP YES
3	679	PP YES
4	685	PP YES
5	702	CP YES
6	694	CP YES
V50	687	
ΔV	31	
Parameter	V [m/s]	BFS [mm]
1	526	15

Table no. 4

LBUSO sample no.	144/26-34/26	
Sample condition	Dry, conditioned at +20°C ± 2°C	
No. of specimen	(8)	
Amunition	.22 FSP 1,1g	
Parameter	V [m/s]	Penetration/ qualification
1	678	PP NO
2	698	PP NO
3	704	PP NO
4	711	PP NO
5	723	PP YES
6	747	CP YES
7	734	CP YES
8	733	PP YES
9	737	PP YES
10	755	CP YES
V50	738	
ΔV	32	
Parameter	V [m/s]	BFS [mm]
1	546	17

10. MEASUREMENT ACCURACY:

Measurement uncertainty is in the range of:

- projectile velocity: $\pm 0,20 \%$;
- linear length measurement: $\pm 0,20 \%$;
- BFS $\pm 1,0 \text{ mm}$;
- angle of projectile impact: $\pm 0,1^\circ$.

Extended uncertainty arises from the standard uncertainty multiplied by an expansion factor of $k=2$, which, for a normal distribution, provides a confidence level of approximately 95%.

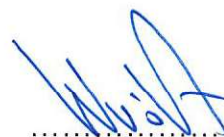
The above test results apply only to the tested samples.

Without written permission of the LBUSO Laboratory test protocol cannot be copied otherwise than in its entirety.

Attachments:

1. Protokół wyboru próbek (obiektów) do badań nr 18/2026 dated 02.07.2026 r.
2 pages. – only ad acta ZCU.5200 kat. B15.
2. Oświadczenie Zamawiającego o przeznaczeniu wyrobów na rynek cywilny dated 22.06.2026 r. 1 page. – only ad acta ZCU.5200 kat. B15.
3. Oświadczenie Zamawiającego o przekazaniu kompletnych partii wyrobów dated 29.06.2026 r. 1 page. – only ad acta ZCU.5200 kat. B15.

Test manager:



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MSc Eng. Andrzej WRÓBLEWSKI



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MSc Eng. Maciej TRZEPAŁKA

Authorized by:



.....
MSc Łukasz WALASZEK

Head of the Testing Laboratory::



.....
p.p. MSc Łukasz WALASZEK

Head of the Institute Laboratory:



KIEROWNIK ZESPOŁU
LABORATORIÓW BADAWCZYCH
PEŁNOMOCNIK DYREKTORA
8's. LABORATORIUM INSTYTUTU

.....
PhD Eng. Eugeniusz MILEWSKI
dr inż. Eugeniusz MILEWSKI

----- END OF TEST PROTOCOL -----

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Created by: Eng. Jakub Przybysz (+48 22 76 14 809)

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