

# ELEMENT MATERIALS TECHNOLOGY WICHITA

## NIJ 0106.01 HELMET: BALLISTIC PENETRATION TEST

Date Received: January 21, 2025  
 Via: DHL  
 Returned Via: DHL

Record No.: SBD25001-10  
 Test Date: February 3, 2025  
 Customer: Sestan Busch

**Test Conditions**

Temperature: 22.2 °C  
 Humidity: 42 %

**Range 2**

Muzzle to Screen 1: 1.52 m  
 Screen 1 - 2: 1.52 m  
 Screen 2 - Target: 1.83 m  
 Midpoint to Target: 2.59 m

Test Standard: Modified / Abbreviated NIJ Standard 0106.01 for Ballistic Helmets  
 December 1981

Headform Size: 7 1/4  
 Witness Plate: 2024-T3 Alum.  
 Barrel Length: 25.4 cm

Test Method: IAW Paragraph 5.2 Ballistic Penetration Test  
 Test Ammunition: IAW NIJ Standard 0108.01, September 1985  
 Threat Level: IIIA  
 Conditioning: Ambient  
 Submersion: No

Sample Tested Description		Test / Ammunition Description				Chronograph		Test Results	
Manufacturer:	Model No.:	Shot No.	Impact Location	Degree Obliquity	Caliber	Bullet Weight (gr.) / Type	TIME sx-5	VELOCITY m/s	Penetration No Penetration
Sestan Busch	BK-ACH-HC	1	Front	0°			360.7	422.5	No Penetration
Size: L	Serial No.: C134109	2	Back	0°			349.0	436.7	No Penetration
Production Date: 01/2025	Weight (kg.): 1.277	3	Right	0°	9mm	124 / FMJ	360.2	423.1	No Penetration
Protection Level: NIJ IIIA		4	Left	0°			362.0	421.0	No Penetration

*This test report may not be used to claim product certification, approval, or endorsement by NVLAP, NIST, NIJ or any agency of the Federal Government. This report contains data that are not covered by the NVLAP accreditation. This test was performed in accordance with the specification requirements listed in addition to any customer testing modifications or requests. The test results properly reflect the ballistic performance of the listed sample. This test report shall not be reproduced except in full without written approval of Element Materials Technology Wichita. Classification: EAI*

**Notes:**

•Helmet tested as received from customer with retention / suspension system, chinstrap and pads.

**Test Ammunition / Velocity Information:**

Test Round: Remington (23558), 9mm 124 gr. FMJ RN  
 Test Velocity: 426 +/- 15 m/s (1400 +/- 50 ft/s)

Technician (s): Cisneros / Castillo / Montgomery

# ELEMENT MATERIALS TECHNOLOGY WICHITA

## NIJ 0106.01 HELMET: BALLISTIC PENETRATION TEST

Date Received: January 21, 2025  
 Via: DHL  
 Returned Via: DHL

Record No.: SBD25001-11  
 Test Date: February 3, 2025  
 Customer: Sestan Busch

**Test Conditions**

Temperature: 22.2 °C  
 Humidity: 42 %

**Range 2**

Muzzle to Screen 1: 1.52 m  
 Screen 1 - 2: 1.52 m  
 Screen 2 - Target: 1.83 m  
 Midpoint to Target: 2.59 m

Test Standard: Modified / Abbreviated NIJ Standard 0106.01 for Ballistic Helmets  
 December 1981

Test Method: IAW Paragraph 5.2 Ballistic Penetration Test  
 Test Ammunition: IAW NIJ Standard 0108.01, September 1985  
 Threat Level: IIIA  
 Conditioning: Ambient  
 Submersion: No

Headform Size: 7 1/4  
 Witness Plate: 2024-T3 Alum.  
 Barrel Length: 25.4 cm

Sample Tested Description	Test / Ammunition Description					Chronograph		Test Results
	Shot No.	Impact Location	Degree Obliquity	Caliber	Bullet Weight (gr.) / Type	TIME sx-5	VELOCITY m/s	Penetration No Penetration
Manufacturer: Sestan Busch	1	Front	0°	.44 Mag.	240 / LSWC GC	358.5	425.1	No Penetration
Model No.: BK-ACH-HC	2	Back	0°			355.7	428.5	No Penetration
Size: L	3	Right	0°			357.3	426.5	No Penetration
Serial No.: C134110	4	Left	0°			352.5	432.3	No Penetration
Production Date: 01/2025								
Weight (kg.): 1.270								
Protection Level: NIJ IIIA								

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**Notes:**

•Helmet tested as received from customer with retention / suspension system, chinstrap and pads.

**Test Ammunition / Velocity Information:**

Test Round: .44 Magnum 240 gr. Lead Semi-Wadcutter Gas Checked (LSWCGC)  
 Test Velocity: 426 +/- 15 m/s (1400 +/- 50 ft/s)

Technician (s): Cisneros / Castillo

# ELEMENT MATERIALS TECHNOLOGY WICHITA

## V50 BALLISTIC LIMIT TEST

Date Received: January 21, 2025  
 Via: DHL  
 Returned Via: DHL

Record No.: SB025001-12  
 Test Date: February 3, 2025  
 Customer: Sexton Busch

**Sample Tested**  
 Manufacturer: Sexton Busch  
 Size: I  
 Model: BK-AC-4HD  
 Style: Finished Helmet Shell  
 Serial No.: C134111  
 Weight (kg): 1.014  
 Protection Level: NIJ IIIA  
 Conditioning: Ambient

**Threat**  
 Projectile: Fragment Simulating Projectile  
 Type: Type 1 (30 +/- 2 HRC / Non-Tumbled)  
 Weight: 1.1 g (17 gr.)  
 Powder: Bullseye  
 Barrel (cm): 51.96  
 Obliquity: 0°  
 Yaw: ≤ 5°

**Range 2**  
 Muzzle to Screen 1: 1.25 m  
 Screen 1 - 4: 1.50 m  
 Screen 2 - 3: 1.24 m  
 Screen 4 - Target: 1.79 m  
 Target to Witness: 15 cm  
 Midpoint to Target: 2.50 m  
 Witness: 2024-T3 Aluminum  
 Range Temperature: 20.9 °C  
 Range Humidity: 42 %

**Test Standard**  
 STANAG 2920 Edition 3,  
 NATO STANDARD AEP-2920  
 Edition A, Version 2  
 September 2016  
 Classification: EAR

Shot No.	Powder Charge (gr.)	CHRONOGRAPHS 1-4		CHRONOGRAPHS 2-3		AVERAGE VELOCITY m/s	LOSS VELOCITY m/s	STRIKING VELOCITY m/s	TEST RESULTS		
		TIME s	VELOCITY m/s	TIME s	VELOCITY m/s				Shot Location	Shot Included	Complete Partial
1	4.5	209.0	729.2	171.1	727.6	728.4	36.4	692.0	Crown	Y	C
2	4.0	233.7	652.1	190.3	654.2	653.2	32.6	620.5	Front	N	P
3	4.3	213.8	712.8	175.1	711.0	711.9	35.9	676.1	Right	Y	P
4	4.5	209.2	728.5	170.3	731.1	729.8	36.6	693.1	Back	Y	C
5	4.4	214.6	710.1	174.7	712.6	711.4	35.6	675.7	Left	N	P
6	4.5	212.1	718.5	172.7	720.9	719.7	36.0	683.7	Crown	Y	P
7	4.6	208.9	729.5	170.0	732.3	730.9	36.5	694.4	Front	Y	P
8	4.8	203.2	750.0	165.2	753.6	751.8	37.8	714.0	Right	Y	C

This test was performed in accordance with the specification requirements and the results properly reflect the ballistic performance of the listed sample.	V50 VELOCITY	HIGH PARTIAL	LOW COMPLETE	RANGE OF RESULTS	RANGE OF MIXED RESULTS
	692.2 m/s	694.4 m/s	692.0 m/s	37.9 m/s	2.4 m/s

**Notes:**

- Muzzle to target measured for each shot to calculate loss.
- Helmet tested as received from customer with retention / suspension system, chinstrap and pads removed prior testing.

**Projectile Used:**

.22 Caliber, 1.1g +/- 0.03g (17 gr.) Chisel Nose Fragment Simulating Projectile (FSP) as described in MIL-DTL-46593 launched without a sabot (30 +/- 2 HRC / Non-Tumbled) @ a starting velocity of: 650.0 m/s

**V50 Calculation:**

- V50 based on (3) partial and (3) complete penetrations with a range of results ≤ 40 m/s

Technician(s): Cisneros / Castillo