

NIJ Standard - 0101.03 BULLET RESISTANCE OF PERSONAL BODY ARMOR								
Armor Type	Test Round	Test Ammunition	Nominal Bullet Mass	Minimum Required Bullet Velocity	Required Fair Hits Per Armor Part at 0° Angle of Incidence	Maximum Depth of Deformation	Required Fair Hits Per Armor Part at 30° Angle of Incidence	
II-A	1	357 JSP Magnum	10.2g	381 m/s (1250 ft/s)	4	44mm (1.73in)	2	
	2	9 mm FMJ	8.0g	332 m/s (1090 ft/s)	4	44mm (1.73in)	2	
II	1	357 JSP Magnum	10.2g	425 m/s (1395 ft/s)	4	44mm (1.73in)	2	
	2	9 mm FMJ	8.0g	358 m/s (1175 ft/s)	4	44mm (1.73in)	2	
III-A	1	44 Lead SWC Gas Checked Magnum	15.55g	426 m/s (1400 ft/s)	4	44mm (1.73in)	2	
	2	9 mm FMJ	8.0g	426 m/s (1400 ft/s)	4	44mm (1.73in)	2	
III		7.62 mm (308 Winchester) FMJ	9.7g	838 m/s (2750 ft/s)	6	44mm (1.73in)	0	
IV		30-06 AP	10.8g	868 m/s (2850 ft/s)	1	44mm (1.73in)	0	

PURPOSE AND SCOPE

The purpose of this standard is to establish minimum performance requirements and methods of test for the ballistic resistance of police body armor intended to protect the torso against gunfire. This standard is a revision of NIJ Standard-0101.02, dated March 1985, clarifying the labeling requirements, acceptance criteria, and backface signature measurement procedure. The scope of the standard is limited to ballistic resistance only; the standard does not address threats from knives and sharply pointed instruments, which are different types of threat. In addition, the standard does not address armor that incorporates inserts, or variations in construction of the ballistic panel over small areas of the torso, for the purposes of increasing the basic level of protection of the armor (whether ballistic or blunt trauma) on localized areas.





NIJ Standard - 0101.04 BULLET RESISTANCE OF PERSONAL BODY ARMOR (REVISION A - JUNE 2001)

Armor Type	Test Round	Test Ammunition	Nominal Bullet Mass	Reference Velocity	Hits Per Armor Part at 0° Angle of Incidence	BFS Depth Maximum	Hits Per Armor Part at 30° Angle of Incidence	Shots Per Panel	Shots Per Sample	Shots Per Threat	Total Shots Req'd
II-A	1	9 mm FMJ RN	8.0g 124 gr.	332 m/s (1090 ft/s)	4	44mm (1.73in)	2	6	12	24	48
	2	40 S&W FMJ	11.7g 180 gr.	312 m/s (1025 ft/s)	4	44mm (1.73in)	2	6	12	24	
II	1	9 mm FMJ RN	8.0g 124 gr.	367 m/s (1205 ft/s)	4	44mm (1.73in)	2	6	12	24	48
	2	357 Magnum JSP	10.2g 158 gr.	427m/s (1400 ft/s)	4	44mm (1.73in)	2	6	12	24	
III-A	1	9 mm FMJ	8.2g 124 gr.	427 m/s (1400 ft/s)	4	44mm (1.73in)	2	6	12	24	48
	2	44 Mag SJHP	15.6g 240 gr.	427 m/s (1400 ft/s)	4	44mm (1.73in)	2	6	12	24	
III	1	7.62 mm NATO M80 FMJ	9.6g 148 gr.	838 m/s (2750 ft/s)	6	44mm (1.73in)	0	6	12	12	12
IV	1	30 caliber M2 AP	10.8g 166 gr.	869 m/s (2850 ft/s)	1	44mm (1.73in)	0	1	2	2	2

PURPOSE AND SCOPE

The purpose of this standard is to establish minimum performance requirements and test methods for the ballistic resistance of personal body armor intended to protect the torso against gunfire. This standard is a general revision of NIJ Standard-0101.03, dated April 1987, updating the labeling requirements, acceptance criteria, test ammunition, procedures, and other items throughout the standard. Revision A of NIJ Standard-0101.04, dated June 2001, provides clarification to the text, methodology and test procedures of NIJ Standard-0101.04.

The scope of the standard is limited to ballistic resistance only; this standard does not address threats from knives and sharply pointed instruments, which are different types of threat.



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NIJ Standard - 0108.01 BALLISTIC RESISTANT PROTECTIVE MATERIALS

Armor Type	Test Ammunition	Nominal Bullet Mass	Suggested Barrel Length	Required Bullet Velocity	Required Hits Per Armor Specimen	Permitted Penetrations
I	22 LRHV Lead	2.6g - 40gr	15 to 16.5cm / 6 to 6.5in	320 ± 12m/s (1050 ± 40ft/s)	5	0
	38 Special RN Lead	10.2g - 158gr	15 to 16.5cm / 6 to 6.5 in	259 ± 15m/s (850± 50ft/s)	5	0
II-A	357 Magnum JSP	10.2g - 158gr	10 to 12 cm / 4 to 4.75in	381 ± 15m/s (1250 ± 50ft/s)	5	0
	9mm FMJ	8.0g - 124gr	10 to 12cm / 4 to 4.75in	332 ± 12m/s (1090 ± 40ft/s)	5	0
II	357 Magnum JSP	10.2g - 158gr	15 to 16.5cm / 6 to 6.5in	425± 15m/s (1395 ± 50ft/s)	5	0
	9mm FMJ	8.0g - 124gr	10 to 12cm / 4 to 4.75in	358 ± 12 m/s (1175 ± 40ft/s)	5	0
III-A	44 Magnum Lead SWC Gas Checked	15.55g - 240gr	14 to 16cm / 5.5 to 6.25in	426 ± 15m/s (1400 ± 50ft/s)	5	0
	9mm FMJ	8.0g - 124gr	24 to 26cm / 9.5 to 10.25in	426 ± 15m/s (1400 ± 50ft/s)	5	0
III	7.62mm 308 Winchester FMJ	9.7g - 150gr	56cm /22in	838 ± 15 m/s	5	0
IV	30-06 AP	10.8 g - 166 gr	56 cm /22 in	868 ± 15m/s (2850 ± 50ft/s)	1	0

PURPOSE AND SCOPE

The purpose of this standard is to establish minimum performance requirements and methods of test for ballistic resistant protective materials. This standard supersedes NIJ Standard-0108.00, Ballistic Resistant Protective Materials, dated December 1981. This revision adds threat level III-A and establishes threat level classifications that are consistent with other NIJ standards for ballistic protection.

This standard is applicable to all ballistic resistant materials (armor) intended to provide protection against gunfire, with the exception of police body armor and ballistic helmets, which are the topic of individual NIJ performance standards [1,2]1. Many different types of armor are now available that range in ballistic resistance from those designed to protect against small-caliber handguns to those designed to protect against high-powered rifles. Ballistic resistant materials are used to fabricate portable ballistic shields, such as a ballistic clipboard for use by a police officer; to provide ballistic protection for fixed structures such as critical control rooms or guard stations; and to provide ballistic protection for the occupants of vehicles. The ballistic resistant materials used to fabricate armor include metals, ceramics, transparent glazing, fabric, and fabric-reinforced plastics; they are used separately or in combination, depending upon the intended threat protection.



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Australian and New Zealand Standards - AS/NZS 2343:1997 Standard						
Classification of Panel	Calibre	Ammunition *3	Measure Velocity within 2.5m of Target (m/s) *2	Minimum Range (m) *3	Number of Strikes	Pattern of Strikes
Class G0	9mm Military Parabellum	MK 2Z Standard 9mm 7.4g Metal Case Bullet	405 ± 15	3	3	Shot centres 100mm, (+10, -10mm) apart forming an equilateral triangle within square of 200mm per side centrally located on panel.
Class G1	357 Magnum	10.2g Soft point semi-Jacketed, Flat nose	405 ± 15	3	3	
Class G2	44 Magnum	15.6g Soft Point semi-Jacketed, Flat nose	480 ± 15	3	3	
Class R1	5.56mm	M 193 5.56mm 3.6g full metal case bullet	980 ± 15	10	3	Shot centres 100mm, (+10, -10mm) apart forming an equilateral triangle within square of 200mm per side centrally located on panel.
Class R2	7.62mm	NATO Standard 7.62mm 9.3g full metal case bullet	850 ± 15	10	3	
Class S0	12 Gauge (Full Choke)	12 Gauge 70mm high velocity magnum 32g SG Shot	400 ± 20	3	2	Shot Centres 100mm (+20-0mm) apart with a square of 200mm per side centrally located on panel.
Class S1	12 Gauge (Full Choke)	12 Gauge 70mm 28.35g single Slug	450 ± 20	3	2	
* Class G - Simulated attack by handgun * Class R - Simulated attack by rifle * Class S - Simulated attack by shotgun						

PURPOSE AND SCOPE

This Standard specifies requirements for bullet-resistant panels and elements according to their performance in preventing penetration by projectiles discharged from firearms under controlled conditions. This Standard applies to transparent, opaque and translucent panels and other components including but not restricted to frames, mullions, voice transfer louvres and pass-through devices (elements).





EN Standard - European Standard EN 1063: 1999 Security Glazing Ballistic Standard							
Armor Type	Projectile Calibre	Cartridge Type	Velocity Range	No. Shots	Shot Spacing	No. Samples	Test Temp
BR1	.22 LR	40 grain Lead Round Nose	1048 to 1214 ft/sec	3	4.3 to 5.1in Triangle	3	55 - 73F
BR2	9mm Luger	124 grain Full Steel Jacket Round Nose Soft Core	1280 to 1345 ft/sec	3	4.3 to 5.1in Triangle	3	55 - 73F
BR3	.357 Magnum	158 grain Full Steel Jacket Conned Soft Core	1378 to 1444 ft/sec	3	4.3 to 5.1in Triangle	3	55 - 73F
BR4	.44 Magnum	240 grain Full Copper Jacket Flat Nose Soft Core	1411 to 1476 ft/sec	3	4.3 to 5.1in Triangle	3	55 - 73F
BR5	5.56 x 45 NATO (.223 Remington)	62 grain type SS109 (Steel Penetrator)	3084 to 3150 ft/sec	3	4.3 to 5.1in Triangle	3	55 - 73F
BR6	7.62 x 51 NATO (.308 Winchester)	147 grain Full Steel Jacket (M80)	2690 to 2756 ft/sec	3	4.3 to 5.1in Triangle	3	55 - 73F
BR7	7.62 x 51 NATO (.308 Winchester)	150 grain Full Copper Jacket Steel Hard Core	2657 to 2723 ft/sec	3	4.3 to 5.1in Triangle	3	55 - 73F
SG1	12 Gauge	478 grain Solid Lead Brenneke Slug (1.09 ounce)	1312 to 1444 ft/sec	1	n/a	3	55 - 73F
SG2	12 Gauge	478 grain Solid Lead Brenneke Slug	1312 to 1444 ft/sec	3	4.3 to 5.1in Triangle	3	55 - 73F

PURPOSE AND SCOPE
Information not available.



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NATO AEP-55 STANAG 4569 - Protection levels for Occupants of Logistic and Light Armoured Vehicles

Level	KE Threat	Bullet	Distance	Velocity*
I	Rifle	7.62 x 51 NATO Ball (Ball M80) 5.56 x 45 NATO SS109 5.56 x 45 M193	30 Metres	833m/sec (M80) 900m/sec (SS109) 937m/sec (M193)
II	Infantry Rifle	7.62 x 39 API BZ	30 Metres	695m/sec
III	Sniper Rifle	7.62 x 51 AP (WC core) 7.62 x 54R B32 API (Dragunov)	30 Metres	930m/sec (51 AP) 854m/sec (54R)
IV	Heavy Machine Gun	14.5x114AP / B32	200 Metres	911m/sec
V	Automatic Cannon	25mm APDS-TM-791 or TLB 073	500 Metres	1258m/sec

Velocity tolerance is ± 20m/sec.

PURPOSE AND SCOPE

This AEP describes the system qualification and acceptance procedure for determining the Protection Level of logistic and light armoured vehicles (LAV) for KE and artillery threats. The threats to be considered are small and medium caliber kinetic energy (KE) ballistic projectiles and fragment simulating penetrators (FSP) representing artillery shell fragments, as defined in STANAG 4569 Annex A (summarised in Annex A of the AEP-55).

This process includes standard techniques and reproducible test procedures for evaluating the ballistic resistance of vehicle armour components (integral, add-on, opaque and transparent) as well as the required vehicle Vulnerable Area assessment.





NIJ Standard - 0115.00 STAB RESISTANCE OF PERSONAL BODY ARMOR				
Protection Level	"E1" Strike Energy		"E2" Overtest Strike Energy	
	J	ft. lbf	J	ft. lbf
1	24 ± 0.50	17.7 ± 0.36	36 ± 0.60	26.6 ± 0.44
2	33 ± 0.60	24.3 ± 0.44	50 ± 0.70	36.9 ± 0.51
3	43 ± 0.60	31.7 ± 0.44	65 ± 0.80	47.9 ± 0.59

PURPOSE AND SCOPE

The purpose of this standard is to establish minimum performance requirements and methods of test for the stab resistance of personal body armor intended to protect the torso against slash and stab threats. This standard is based on technical work performed by many organizations: in the United Kingdom by the Police Scientific Development Branch, and in the United States by the National Institute of Standards and Technology and its subcontractors.

The scope of the standard is limited to stab resistance only. The standard does not address ballistic threats, as those are covered by NIJ Standard-0101.04, Ballistic Resistance of Personal Body Armor. The standard does not directly address slash threats; however, testing has shown that stab threats are by far the more difficult to defeat, and that body armor capable of defeating stab threats will perform satisfactorily against slash threats.

