



Standard Specification for Air Soft Gun Barrel Blocking Devices¹

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INTRODUCTION

This standard is intended to outline basic performance requirements for barrel blocking devices. A barrel blocking device is a critical piece of safety equipment used in the sport of air soft.

Air Soft tactical games are an activity that, like all sports, has intrinsic hazards. These hazards include being hit by air soft projectiles. Protective equipment cannot eliminate all injuries but will substantially reduce their severity and frequency. A barrel blocking device is an additional safety device that, when meeting this standard and properly used, can substantially reduce the severity and frequency of injuries. Air Soft gun barrels are not all the same inside diameter, thus necessitating performance specifications for barrel blocking devices that match the barrel blocking device to a barrel diameter. This specification is written within the current state-of-the-art of air soft gun barrel and air soft barrel blocking device technology. The intent is to revise this specification whenever substantive information becomes available which justifies revising existing requirements or adding new requirements.

1. Scope

1.1 This specification covers air soft gun barrel blocking devices that may be inserted or otherwise function to prevent an airsoft projectile from leaving the muzzle or the confines of the barrel blocking device.

1.2 The values stated in SI units are to be regarded as the standard. The inch-pound units given in parentheses are provided for information only.

1.3 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.4 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

¹ This specification is under the jurisdiction of ASTM Committee F08 on Sports Equipment, Playing Surfaces, and Facilities and is the direct responsibility of Subcommittee F08.27 on Airsoft.

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2. Referenced Documents

2.1 *ASTM Standards*:²

F2654 Specification for Airsoft Gun Warnings

F2679 Specification for 6 mm Projectiles Used with Airsoft Guns

F2748 Specification for Airsoft Guns

3. Terminology

3.1 *Definitions of Terms Specific to This Standard—Air Soft Gun Terms:*

3.1.1 *air soft gun, n*—a device specifically designed to discharge air soft projectiles conforming to Specifications F2654 and F2748.

3.1.1.1 *Discussion*—These devices may operate in a combination of discharge modes depending on the design.

3.1.2 *air soft projectile, n*—a spherical ball, commonly with a diameter of approximately 6 mm made of a molded polymer and designed to be expelled from an air soft gun and conforming to Specification F2679.

3.1.3 *barrel, n*—that portion of an air soft gun through which the 6 mm projectile is discharged.

² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

3.1.4 *barrel blocking device, n*—a safety device that prevents an air soft from being accidentally discharged from the muzzle of the air soft gun or leaving the confines of the barrel blocking device.

3.1.5 *clearing rod, n*—a device used to assist in freeing air soft projectiles jammed or trapped inside an air soft gun barrel.

3.1.6 *discharge mode, n*—a mode that controls the number of air soft projectiles discharged per trigger cycle.

3.1.7 *fully-automatic air soft gun, n*—an air soft gun that discharges when the triggering device is actuated and continues to discharge until the trigger returns to its reset or recycle position.

3.1.8 *muzzle, n*—the end of the barrel at which the air soft projectile exits the barrel.

3.1.9 *muzzle diameter, n*—the inside barrel diameter as measured at the muzzle.

3.1.10 *semi-automatic air soft gun, n*—a semi-automatic air soft gun discharges one time with each trigger cycle.

3.1.11 *single shot air soft gun, n*—an air soft gun that requires the operator to manually cock or engage the sear of the air soft gun before each shot by a means of a pump, bolt, lever, cocking handle, or similar device.

3.1.12 *standard ambient temperature (SAT), n*—used to describe a substance at a temperature of $25 \pm 2^\circ\text{C}$ ($77 \pm 4^\circ\text{F}$).

4. Significance and Use

4.1 This specification establishes performance requirements and test methods to provide a reasonable degree of safety in the normal use of barrel blocking devices in air soft guns.

5. Conformance

5.1 Barrel blocking devices shall not, either by label or other means, indicate conformance with this specification unless they conform to all applicable requirements contained herein.

6. General Requirements

6.1 *Performance*—Upon any discharge of an air soft projectile from an air soft gun with an appropriate barrel blocking device properly installed according to the manufacturer's instructions, the barrel blocking device must remain inserted or over the muzzle and prevent an air soft projectile from exiting the muzzle or the confines of the muzzle blocking device. Tests shall be conducted in accordance with 7.2.

6.2 All barrel blocking devices shall completely cover or block the exit orifice of the barrel. Some barrel blocking devices make use of a vent port that allows the release of excess pressure in the barrel of the air soft gun. The total calculated area of all ports of this type in any barrel blocking device must less than 2.5 mm^2 .

7. Test Methods

7.1 No precision statement on any of the following test methods is available at this time.

7.2 Barrel Blocking Device Retention Test:

7.2.1 *Significance*—This method is performed to ensure that the barrel blocking device will remain in or over the barrel and

prevent an air soft projectile from exiting the muzzle or the confines of the barrel blocking device.

7.2.1.1 Any barrel blocking device designed to be used or included with a specific air soft gun shall be tested with that device.

7.2.1.2 Any barrel blocking device not designed or sold for use with a specific air soft gun shall be tested with an air soft gun capable of firing an air soft projectile weighting 0.25 g at a speed of $152.4 \pm 9 \text{ m/s}$ ($500 \pm 30 \text{ f/s}$).

7.2.2 Apparatus:

7.2.2.1 *Air Soft Gun*, capable of hurling air soft projectiles per Specification F2748.

7.2.2.2 *Air Soft Projectiles*—The projectile used in this test will be the heaviest gram weight recommended by the manufacturer for use in the subject air soft gun as discussed in Specification F2654 or as defined in 7.2.1.2. All projectiles will meet the requirements listed in Specification F2679. The weight of the projectile used in the test shall be recorded.

7.2.2.3 Barrel Blocking Device.

7.2.2.4 Appropriate Backstop.

7.2.2.5 Equipment employed to measure the speed of the test air soft projectiles shall be used in accordance with the manufacturer's instructions to measure the velocity of the air soft projectiles and shall be accurate to within $\pm 0.5 \text{ m/s}$ ($\pm 1.6 \text{ ft/s}$) muzzle velocity.

7.2.3 Conditioning:

7.2.3.1 All testing shall be done using air soft projectiles manufactured according to Specification F2679.

7.2.3.2 Air Soft projectiles storage and the non-test handling shall be done at a relative humidity below 65 % and at SAT.

7.2.3.3 Air Soft Projectiles shall be conditioned in their original sealed container for at least 4 h at the humidity and temperature specified in 7.2.3.2.

7.2.3.4 The air soft gun shall be conditioned for at least 4 h at SAT.

7.2.3.5 The testing shall be conducted at the temperatures specified in 7.2.3.2 and shall be completed within 10 min after removal of the air soft projectile from the sealed container. The air soft projectile container shall be resealed immediately after each group of air soft projectiles is removed.

7.2.3.6 The barrel blocking device to be tested will be conditioned for at least 4 h at SAT.

7.2.4 *Test Specimen*—The test specimen shall consist of a barrel blocking device properly installed into or over the muzzle.

7.2.5 Retention Test Procedure:

7.2.5.1 Conduct the test at SAT.

7.2.5.2 The air soft gun is to be operated in accordance with the air soft gun manufacturer's instructions.

7.2.5.3 The discharge velocity of the air soft gun shall be measured prior to as well as after completing the test, shall be checked within 1 m (3.3 ft) of the muzzle and shall be recorded.

7.2.5.4 Install a new unused barrel blocking device according to manufacturer's instructions.

7.2.5.5 Placing the end of the barrel and blocking device into a clean container that is devoid of any air soft projectiles discharge air soft projectiles into the barrel blocking device,