



Designation: F2456 – 04 (Reapproved 2016)

## Standard Specification for Youth-Resistant Firearms Containers (YRFCs)<sup>1</sup>

This standard is issued under the fixed designation F2456; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

### 1. Scope

1.1 This specification covers youth-resistant firearms containers (YRFCs), which are lockable containers that completely contain firearm(s) (2.2.1) to prevent unauthorized access to firearm(s). This specification:

1.1.1 Establishes a moderate security level for firearms storage intended to prevent youths from gaining unauthorized access to firearm(s); and

1.1.2 Establishes a consistent standard for testing and compliance certification.

1.2 This specification contains functional, operational, safety, and performance requirements for YRFCs.

1.3 This specification does not apply to transport-type weapons carrying cases (WCCs), full-sized light gun cabinets (LGCs), gun safes (GSs), or high security gun safes (HSGSs).

1.4 This specification is intended to prevent unauthorized access to children up to and including age eleven.

1.5 This specification is not intended to:

1.5.1 Ensure theft resistance of the YRFC or the contents of the YRFC; or

1.5.2 Ensure quick access to a firearm or assure long-term reliability of the YRFC operation to provide quick access to a firearm.

1.6 The values stated in SI units are to be regarded as the standard. The values in parentheses are for information only.

1.7 The following precautionary caveat pertains only to the test method portions of this specification: *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 practices and to determine the applicability of regulatory limitations prior to use.*

### 2. Terminology

#### 2.1 Definitions:

2.1.1 *combination lock, n*—mechanical locking device designed to provide controlled opening of an YRFC by entry of a combination known only by an authorized user(s).

2.1.2 *compromised, adj*—circumstance in which the opening element may not be disabled, yet allows removal of the firearm block from the container by hand without the use of tools.

2.1.3 *digital lock, n*—electromechanical lock that provides controlled opening of a YRFC by entry of a combination known only by an authorized user(s), or provides a means to read and validate a unique user attribute (as in biometric recognition devices), or both.

2.1.4 *disable, v*—defeating and opening the YRFC so as to allow removal of the firearm block, which is classified as a failure to comply.

2.1.5 *fail secure, adv*—rendering the YRFC inoperable (unable to open) as a result of damage caused by testing, thus preventing access to the firearm(s).

2.1.6 *key, n*—object intended by the manufacturer to be inserted into the keyway as a means to lock or unlock the container.

2.1.7 *key lock, n*—mechanical or electromechanical locking device that requires a unique key or token to provide controlled opening of a YRFC.

2.1.8 *keyway, n*—opening in a lock cylinder that is shaped to accept a key bit, blade, or other unique device used to lock or unlock the device.

2.1.9 *manipulation, n*—process of code testing a combination-locking device in an attempt to cause the lock to open.

2.1.9.1 *Discussion*—Manipulation can represent random or methodical code entry attempts or mechanical interpretation of lock reaction to code entry, or both, in which the lock may provide measurable or tactile feedback to code input.

2.1.10 *opening element, n*—component of the container that is opened (door, lid, and so forth) to access and remove the firearm contained inside.

2.1.11 *plug, n*—part of a lock cylinder that contains the keyway.

2.1.12 *properly installed, v*—YRFC is installed according to the instructions that accompany the YRFC and are provided by the manufacturer.

<sup>1</sup> This specification is under the jurisdiction of ASTM Committee F15 on Consumer Products and is the direct responsibility of Subcommittee F15.55 on Firearm Security Containers.

Current edition approved Oct. 1, 2016. Published October 2016. Originally approved in 2004. Last previous edition approved in 2009 as F2456 – 04 (2009). DOI: 10.1520/F2456-04R16.

2.1.13 *token, n*—small portable key-like electronic device that provides a unique digital serial number or signature and acts as a suitable secure substitute for conventional mechanical keys.

2.1.13.1 *Discussion*—Tokens can transmit a signature by direct electrical connection or via wireless communications techniques (light transmission, radio frequency transmission, vibration, magnets, and so forth).

2.1.14 *youth-resistant firearms container (YRFC), n*—lockable security container designed to contain firearm(s) completely and to prevent youths from gaining access to firearm(s).

## 2.2 Definitions of Terms Specific to This Standard:

2.2.1 *firearm, n*—limited to firearms not to exceed a length of 508 mm (20 in.).

2.2.2 *youth, n*—child eleven years old or younger.

## 3. General Qualification and Testing Requirements

3.1 Removal of the contents of the YRFC shall be prevented, except by use of a qualified lock or other unique qualified methods, or both, as defined by the instructions accompanying the YRFC.

3.2 All YRFC locks shall meet the following minimum requirements and pass the testing section of this specification (see Section 4).

3.3 Key locks shall be constructed to operate when the intended key(s) are used and pass testing procedures described in Section 4.

3.3.1 Key locking devices shall have a minimum of 130 actual key codes.

3.3.2 The operability of each YRFC shall be limited to only one key code.

3.3.3 Master keying is prohibited, as it provides more than one key code to operate the key lock.

3.4 A combination lock or digital lock shall meet the following additional requirements and pass testing procedures in Section 4.

3.4.1 A qualified combination lock dialing or input of a combination shall provide a minimum of 1000 possible combinations with at least three numbers or keys.

3.4.2 A qualified digital lock that requires the dialing or input of a combination shall provide a minimum of 1000 possible combinations with at least four numbers or keys.

3.4.2.1 Digital locks that support multiple users shall provide 1000 possible combinations per user.

3.4.2.2 Digital locks shall provide a penalty lockout feature to prevent rapid code testing. The minimum penalty lockout period is 2 min for every five incorrect entry attempts.

3.4.2.3 Token locks shall provide a minimum of 10 000 possible codes or signatures.

3.4.2.4 Biometric recognition locks shall provide ample identification data points or resolution to allow access to no more than 1 in 10 000 possible users.

3.4.2.5 Digital locks may provide a “back door” for service, but this combination shall provide a minimum of 1 in 100 000 possible combinations.

3.5 When used in the manner designed and intended by the manufacturer, the YRFC shall be capable of repeated use and shall pass the cycle testing procedures described in this specification.

3.6 All tests shall be conducted within the following tolerances as applicable:

3.6.1 All tests shall be conducted at temperatures between 16 and 27°C (61 and 81°F).

3.6.2 All tests shall be conducted with relative humidity between 30 and 95 %.

3.7 Test specimens shall mechanically represent the exact product intended for sale to the public.

3.7.1 Cosmetic product modifications or changes are allowed, provided they do not alter the product’s mechanical attributes.

3.8 One technician conducts testing for any single test.

3.9 The testing technician or laboratory staff, or both, shall not open the test specimens for inspection before any testing.

3.10 The testing technician shall not consult with other laboratory staff or observers as it relates to the techniques and methods used in the testing.

3.11 Test specimens shall not be anchored, clamped, or otherwise immobilized to conduct testing, except where specified.

3.12 A wooden firearm block shall be used to represent a firearm for placement inside the YRFC. The manufacturer shall produce and install these blocks in each specimen before submission for testing.

3.13 Test specimens shall be delivered to the testing laboratory in a locked condition with a firearm block inside each specimen.

3.14 Forces to cause the YRFC to be disabled or compromised shall be limited to not more than 220 N (50 lb).

3.15 If a test results in disabling or compromising a test specimen, the testing technician shall not inspect the failed specimen to gain knowledge for use in subsequent tests.

3.16 Retesting of a single failed test is allowed to complete a certification of compliance. Retesting does not require rerunning tests previously resulting in a passing result.

## 4. Test Methods

### 4.1 Cycle Test:

4.1.1 One YRFC shall be subject to a cycle test intended to cause the specimen to become inoperable.

4.1.2 The test specimen shall be provided with the key, token, digital code, or combination for cycle testing.

4.1.3 The container shall be opened and closed fully 100 times without failure to open or lock.

4.1.4 Failure occurs if the YRFC does not open or lock according to the manufacturer’s intended means of operation.

### 4.2 Picking Test:

4.2.1 One YRFC shall be subject to a picking test intended to cause the specimen to become disabled by disabling the lock.

4.2.2 This test does not apply if the YRFC does not have a keyway or access point(s) that provide tool insertion.

4.2.3 The lock shall resist picking with the use of paper clips (jumbo size), paper clips (#1 size), and a small screwdriver that fits in the keyway or opening.

4.2.4 The test duration is 2 min.

4.2.5 Time shall be counted only while tools are in contact with the lock.

4.2.6 The total time for this test shall not exceed 5 min.

4.2.7 Failure occurs if the lock mechanism is disabled, causing the YRFC to open and allowing removal of the firearm block.

#### 4.3 *Plug Torque Test:*

4.3.1 One YRFC shall be subject to a plug torque test, intended to cause the specimen to become disabled by disabling the lock by means of twisting the key lock plug.

4.3.2 This test does not apply if the YRFC does not have a keyway or access point(s) that provide tool insertion.

4.3.3 The test specimen may be immobilized by any means, provided the anchoring technique shall not distort, deform, or reinforce the container in any way.

4.3.4 A torque of 10 N-m (89 lbf-in.) is to be applied along the center axis of the lock cylinder using a flat-blade screwdriver or similar instrument.

4.3.4.1 The blade of the torque instrument shall be sized to fit snugly in the keyway and not slip or twist within the keyway.

4.3.5 Failure occurs if the lock mechanism is disabled, causing the YRFC to open and allowing removal of the firearm block.

#### 4.4 *Manipulation Test:*

4.4.1 One YRFC shall be subject to a manipulation test, intended to cause the specimen to become disabled by causing the lock to open by means of code testing and apparent techniques.

4.4.2 This test does not apply if the YRFC does not have a combination or digital lock mechanism.

4.4.3 Manipulation is limited to the combination locking mechanism.

4.4.4 No tools shall be used to aid in manipulation testing.

4.4.5 The YRFC shall resist manual manipulation for 2 min.

4.4.6 The total time for this test shall not exceed 5 min.

4.4.7 Time shall be counted only while hands are manipulating the lock.

4.4.8 Failure occurs if the combination lock is disabled during the 2 min of manipulation, causing the YRFC to open and allowing removal of the firearm block.

#### 4.5 *Handle Torque Test:*

4.5.1 One YRFC shall be subject to a handle torque test, intended to cause the specimen to become disabled by forcing the handle to bypass or break the lock and disable the container.

4.5.2 This test does not apply if the YRFC does not have a handle.

4.5.3 The test specimen may be immobilized by any means, provided the anchoring technique will not distort, deform, or reinforce the container in any way.

4.5.4 A torque of 10 N-m (89 lbf-in.) shall be applied along the center axis of the handle using pliers or a similar instrument.

4.5.5 Failure occurs if the lock mechanism is disabled, causing the YRFC to open and allowing removal of the firearm block.

#### 4.6 *Drop Test:*

4.6.1 One YRFC shall be subject to drop tests intended to cause the specimen to become disabled by dropping the test specimen, causing damage to the opening element or the body element to the extent that it can be opened by hand.

4.6.2 Products that weigh more than 25 kg (55 lb) shall not be subject to drop testing.

4.6.3 The YRFC shall be dropped from a height of 1.0 m (39.4 in.) onto a slab of concrete. The drop distance shall be measured from the lowermost portion of the YRFC to the top surface of the slab.

4.6.4 The YRFC shall be dropped from a fixture or by hand ten times on varying faces and edges. Drops shall be conducted on each of six faces (six drops) and on four corners (four drops).

4.6.5 Failure occurs if the YRFC is disabled or compromised, or can be opened or compromised without tools (by hand) within 1 min after the test is completed and the drop fixture is removed.

#### 4.7 *Tensile Strength Test:*

4.7.1 One YRFC shall be subject to a tensile strength test intended to cause the specimen to become disabled by pulling the opening element open or damaging the opening element to the extent that it can be opened by hand.

4.7.2 The YRFC is exempt from tensile strength testing if the opening entity has no points of attachment or exposed lips to pull upon.

4.7.3 Anchoring, clamping, or holding fixtures applied to the body of the container are allowed and may be required to withstand application of the required force to the opening element.

4.7.3.1 The anchoring technique shall not distort, deform, or reinforce the container in any way.

4.7.3.2 If the best anchoring method is facilitated by use of integral anchoring provisions of the product, the product may be opened to use such attachment methods.

4.7.3.3 The anchoring shall be sufficiently strong enough to withstand the tensile test without failing before the load is fully applied. If the anchoring fails first, another test shall be conducted with a new sample.

4.7.3.4 Where the body materials are too weak to withstand the pulling forces (thin metal or plastic walls) without breaking, anchoring may be enhanced by use of a reinforcement plate(s) to distribute the load, provided it does not enhance the test specimen's strength as it relates to the locking of the opening element.

4.7.3.5 Anchoring may be facilitated by drilling holes in the body element to bolt the test specimen as necessary, provided it does not enhance the test specimen's strength as it relates to the locking of the opening element.