



Designation: D7257 – 06

Standard Test Method for Automated Shelling Two-Piece Child-Resistant Closures That Are Activated by Two Simultaneous Dissimilar Motions¹

This standard is issued under the fixed designation D7257; 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 (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This test method covers the measurement of the force required to separate (or “shell”) the snap-fitted outer cap from the inner cap of Type IA, IB, or IC child-resistant closures. See Practice D3475.

1.2 This test method is an alternative to Test Method D3481, a manual test procedure.

1.3 This test method does not measure the force required to separate parts of a child-resistant closure system that were originally “screwed-on” instead of “snapped-on” (for example, pull a cap over or through continuous or multi-start threads when the cap was originally screwed on).

1.4 The values stated in inch-pound (lbf) units are to be regarded as standard.

1.5 *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 and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:²

D3474 Practice for Calibration and Use of Torque Meters Used in Packaging Applications

D3475 Classification of Child-Resistant Packages

D3481 Test Method for Manual Shelling Two-Piece Child-Resistant Closures That Are Activated by Two Simultaneous Dissimilar Motions

E105 Practice for Probability Sampling Of Materials

E122 Practice for Calculating Sample Size to Estimate,

With Specified Precision, the Average for a Characteristic of a Lot or Process

3. Terminology

3.1 *Definitions:*

3.1.1 *shelling fixture or bracket*—a metal bracket that attaches to a two-piece, child-resistant closure and pries an outer cap from an inner cap. The bracket is shaped to simulate the prying action of a child’s teeth. See Fig. 1.

3.1.2 *drive cable*—a non-extensible cable attached from the shelling fixture to a tensile strength measuring device to provide the cap shelling force.

3.1.3 *lifting notch*—indentation on the shelling fixture that lifts the outer cap off the inner cap during the test. See detail A in Fig. 1.

4. Summary of Test Method

4.1 This test method measures the force required to pry the outer cap off the inner cap using a fixture having a contact point under the tip of the skirt of the outer cap and leverage being placed on that point and the top of the cap. This procedure is used where a pivotal prying force can be successfully used to separate the components of the closure system, thereby disabling the child-resistant function.

5. Significance and Use

5.1 This test method of applying force may be used as a standard test to compare the characteristics of a given design of container/child-resistant closure system with a standard or to compare the characteristics of container/child resistant closure systems differing in construction.

5.2 It may be used to simulate certain manipulations that may be expected to occur in protocol testing (such as, prying with the teeth, or objects in the room, biting, and pulling with the teeth).

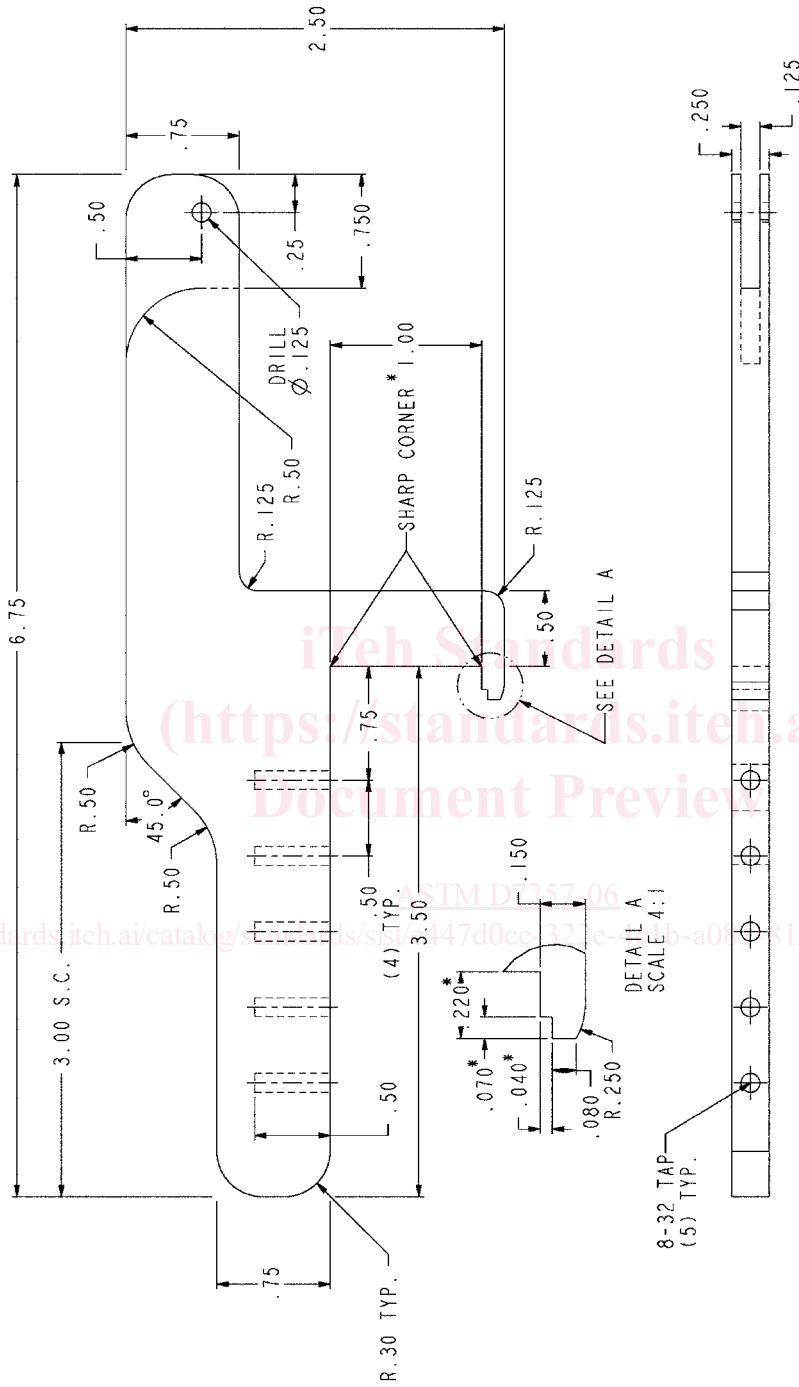
5.3 This test may be used to establish performance specifications. Shelling force may vary with cap application torque, bottle design, and other factors. Consequently where precise comparative results are desired, these factors must be carefully controlled.

¹ This test method is under the jurisdiction of ASTM Committee D10 on Packaging and is the direct responsibility of Subcommittee D10.32 on Consumer, Pharmaceutical and Medical Packaging.

Current edition approved April 1, 2006. Published May 2006. DOI: 10.1520/D7257-06.

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.

LET	REVISION	DATE	NAME	APP.



* - INDICATES KEY DIMENSION

TOLERANCES	DRAWN BY	BCH 9/16/04
DECIMAL	DRAWN BY:	
.XX = ± .01	CHECKED BY:	
.XXX = ± .005	APPROVED BY:	
.XXXX = ± .0005		
FRACTIONAL	SCALE	1 OF 1
± 1/64"	MATERIAL	STAINLESS
ANGULAR	PART NAME	INSTRON SHELL ARM
± 0° 15'	CUSTOMER	KERR
		040178-C
		REV.

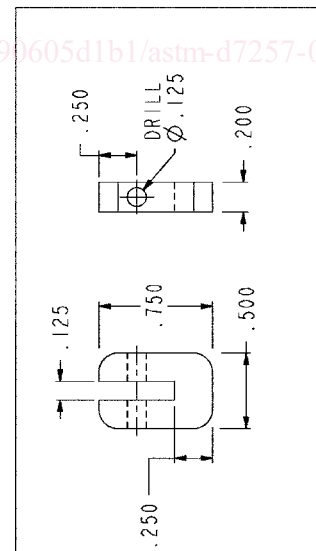


FIG. 1 Shelling Bracket