Designation: D3076 – 18

Standard Practice for Effective Crimping on Outside Crimped Valves of Aerosol Containers[1]

This standard is issued under the fixed designation D3076; 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 practice covers the effective crimping on outside crimped valves within the wide parameters of containers and valves available.

1.2 Practices appear in the following order:

	Sections
Optical Comparator Practice	4 to 7
Caliper Practice	8 to 12

1.3 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.4 *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.*

1.5 *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.*

2. Referenced Documents

2.1 *ASTM Standards:*[2]

D996 Terminology of Packaging and Distribution Environments

D3064 Terminology Relating to Aerosol Products

3. Terminology

3.1 General definitions for packaging and distribution environments are found in Terminology D996.

3.2 General definitions of terms relating to aerosol products are found in D3064.

OPTICAL COMPARATOR PRACTICE

4. Summary of Practice

4.1 This practice involves drawing a projected, enlarged profile of the container and valve, then removing the valve and drawing the projected profile of the container finish. Measuring the resultant void and subtracting the dimensions of the essentially noncompressed components from this value results in the value representing the compressed thickness of the valve sealing gasket.

5. Significance and Use

5.1 This practice provides information for the establishment of quality control procedures on filling lines.

6. Apparatus

6.1 *Optical Comparator.*

6.2 *Clamping Jig,* fastened to the comparator bench.

6.3 *Grinder,* electric, small enough to be hand held.

7. Procedure

7.1 Crimp a valve on an empty bottle with the line crimper set at normal operation, and clamp the bottle in the jig on the comparator bench.

7.2 Draw the projected, enlarged image on tracing paper.

NOTE 1—Grid ruled tracing paper makes the tracing much easier.

7.3 Without disturbing the paper or bottle, cut a wedge out of the valve with the electric grinder, and remove the valve.

7.4 Trace the projected image of the container alone on the same paper.

7.5 Measure the void between the two silhouettes (Fig. 1 and Fig. 2). Subtract the dimensions (multiplied by the enlargement factor of the essentially uncompressed components of the valve) from this value to obtain the thickness of the compressed gasket multipled by the enlargement factor, and convert this reading into percent compression.

[1] This practice is under the jurisdiction of ASTM Committee D10 on Packaging and are the direct responsibility of Subcommittee D10.33 on Aerosol Products. This practice was originally developed by the Chemical Specialties Manufacturers Assn.

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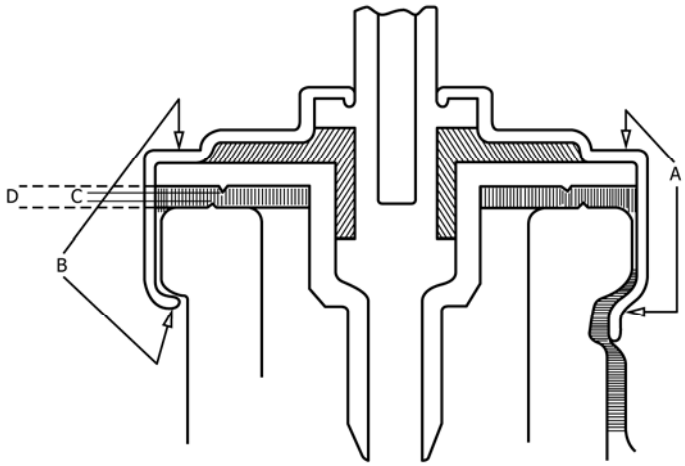
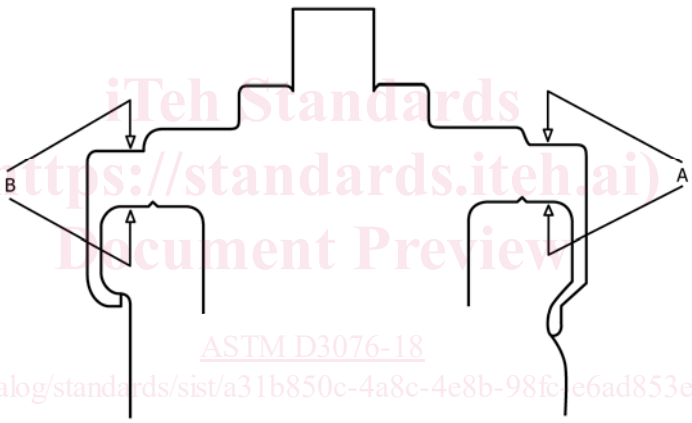
[2] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.



A—points between which effective crimp height measurement should be made (these points are self-determining when the calipers are held parallel to the side of the valve).
B—points between which a relative measurement may be established for nondestructure quality control use from optical comparator data.
C—effective compression.
D—flat compression.

FIG. 1 Effective Crimp Height



A—representation of a plastic-coated bottle.
B—representation of an uncoated bottle.

NOTE 1—*A* and *B* represent points between which measurements should be made after drawing the projected profiles.

FIG. 2 Optical Comparator Profile

CALIPER PRACTICE

8. Summary of Practice

8.1 This practice involves a measurement of the height of the uncrimped portion of the valve. The points between which the measurement is made are self-determining when the calipers are held parallel to the side of the valve. Mean dimensions are used in calculating the effective crimp height.

9. Significance and Use

9.1 This practice provides information for the establishment of quality control procedures on filling lines.

10. Apparatus

10.1 *Calipers,* vernier or dial.

11. Procedure

11.1 Select a filled bottle from the filling line at random.

11.2 Mark off three points, 120° apart, on the valve ferrule, carefully avoiding areas where stake marks occur.

11.3 Holding the calipers parallel to the side of the valve, place the inner jaw on the top of the valve.

11.4 Slide the outer jaw up the valve skirt until it stops, due to the abrupt directional change in the skirt.

11.4.1 In collect-crimped bottles a line appears at the top of the crimped skirt area. This is made by the top of the collect segment, and is the point at which direction changes abruptly and the caliper will hang up.

11.4.2 Roll-capped bottles will also produce this horizontal line at the top of the crimped area. Depending upon the facial