



Designation: D6179 – 20

Standard Test Methods for Rough Handling of Unitized Loads and Large Shipping Cases and Crates¹

This standard is issued under the fixed designation D6179; 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 These test methods cover testing the integrity of unitized loads and large shipping cases and crates as well as the ability of the contents to endure rough handling. Not all of the test methods are applicable to all products, containers, and loads. These test methods are applicable to common means of material handling as follows:

1.1.1 *Test Method A, B, C, D, and E—Drop Test*—For measuring the ability of the case or crate or unitized load to withstand rough handling impacts and provide information useful in improving the design of the container. Normally, Test Methods A and B are not applied to unitized loads.

1.1.2 *Test Method F—Tip Test*—For determining if filled tall or top heavy cases, crates, or unitized loads will tip over when tilted to a predetermined angle.

1.1.3 *Method G—Tipover Test*—For determining the ability of filled large shipping cases or crates to resist the impacts associated with tipover hazards, and for determining the ability of the packaging and packing methods to provide protection to the contents, when the case or crate is tipped over.

NOTE 1—Test Method G fulfills the requirements of ISO 8768. ISO 8768 may not meet the requirements for Test Method G.

1.1.4 *Test Method H—Rolling Test*—For determining the ability of complete, filled large shipping cases or crates to withstand the effects of rolling.

NOTE 2—Test Method H fulfills the requirements of ISO 2876. ISO 2876 may not meet the requirements for Test Method H.

1.2 Additional Test Procedures:

1.2.1 Test methods for mechanical handling of unitized loads and large shipping cases and crates are set forth in Test Method [D6055](#). Additional tests that apply to mechanical handling of unitized loads and large cases and crates include incline impact tests, described in Test Method [D880](#) and horizontal impact tests, described in Test Methods [D4003](#) and Test Method [D5277](#). Test Methods [D4003](#) includes a special

pallet marshaling test and Test Methods [D1185](#) provides test methods for pallets and related structures.

1.2.2 Practice [D4169](#) provides a series of options for selecting and running performance tests on all types of shipping containers and systems.

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

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

[D880](#) Test Method for Impact Testing for Shipping Containers and Systems

[D996](#) Terminology of Packaging and Distribution Environments

[D1185](#) Test Methods for Pallets and Related Structures Employed in Materials Handling and Shipping

[D4003](#) Test Methods for Programmable Horizontal Impact Test for Shipping Containers and Systems

[D4169](#) Practice for Performance Testing of Shipping Containers and Systems

[D4332](#) Practice for Conditioning Containers, Packages, or Packaging Components for Testing

[D5276](#) Test Method for Drop Test of Loaded Containers by Free Fall

[D5277](#) Test Method for Performing Programmed Horizontal

¹ These test methods are under the jurisdiction of ASTM Committee [D10](#) on Packaging and are the direct responsibility of Subcommittee [D10.21](#) on Shipping Containers and Systems - Application of Performance Test Methods.

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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.