

ASTM D695 (BOEING BSS 7260) TESTING FIXTURE

COMPRESSIVE PROPERTIES OF RIGID PLASTICS

The fixture is used for testing composite materials under uniaxial compression. The flat piece is a load plate made of hardened steel, to be interposed between the upper protrusion of the specimen and the load floor of the test machine, to protect the load plate. There is actually no ASTM standard governing the Modified D 695 Compression Test Method. ASTM Standard D 695, originally published in 1942, is intended primarily for unreinforced plastics, as its title implies), using an untabbed, dog-boned, flat specimen. The Modified D 695 Compression Test Method is defined in Boeing documents, and in SACMA Recommended Test Method SRM 1R-94. The straight-sided test specimen is 3.18" long and 0.5" wide, the thickness depending upon the material being tested. Is typically used, for a unidirectional composite, a thickness on the order of 0.040". Specimens used to determine compressive strength are tabbed on each end, typically with glass fabric/epoxy tabbing material. The gage length (distance between tabs) is specified to be 0.188". Because of this very short gage length, it is impractical to mount instrumentation to measure strains.

Sources of Additional Information:

ASTM Standard D 695-10 (2010), "Compressive Properties of Rigid Plastics," American Society for Testing and Materials, West Cohshohocken, Pennsylvania (first issued in 1942).

Boeing Specification Support Standard BSS 7260, "Advanced Composite Compression Tests", The Boeing Company, Seattle, Washington (originally issued February 1982, revised December 1988).

Boeing Document D888-10026, "Test Methods for Advanced Composites, Revision A, Section C.2, The Boeing Company, Seattle, Washington, January 1996.

SACMA Recommended Method SRM 1R-94, "Compressive Properties of Oriented Fiber-Resin Composites," Suppliers of Advanced Composite Materials Association, Arlington, Virginia, 1994.

D.F. Adams and E.Q. Lewis, "Influence of Specimen Gage Length and Loading Method on the Axial Compressive Strength of a Unidirectional Composite Material," *Experimental Mechanics*, Vol. 31, No. 2, March 1991, pp. 14-20.

D.F. Adams, "Current Status of Compression Testing of Composite Materials," *Proceedings of the 40th International SAMPE Symposium*, May 1995, pp. 1831-1843.

J.S. Welsh and D.F. Adams, "Current Status of Compression Test Methods for Composite Materials," *SAMPE Journal*, Vol. 33, No. 1, January 1997, pp. 35-43.

Test Standard	ASTM D 695 / no ISO equivalent
Maximum Load	200 kN
Temperature Range	da -80 °C a 149 °C
Specimen Thickness	1 mm
Specimen Width	80, 77 mm
Specimen Length	12,7 mm
Mass	