

ASTM D395 TESTING FIXTURE

RUBBER COMPRESSION SET



ASTM D395 Testing Fixture

This test methods is useful for the test of rubber that should be used in applications in which the rubber will be subjected to compressive stresses in air or liquid media. For example in machinery mountings, vibration dampers, and seals.

Two test methods are provided and covered in the standard :

Method A - Compression Set under Constant Force;

Method B - Compression Set under Constant Deflection.

The Fixture in object is a Test Method B test fixture and consists of three plates, with three spacers between each pair of plates.

The spacers conserve a fixed deflection of the specimens when the four bolts are tightened.



ASTM D395 Testing Fixture - Drawing

Specimens:

Type	1	2
Thickness, mm (in.)	12.5 ± 0.5 (0.49 ± 0.02)	6.0 ± 0.2 (0.24 ± 0.01)
Diameter, mm (in.)	29.0 ± 0.5 (1.14 ± 0.02)	13.0 ± 0.2 (0.51 ± 0.01)

Type 1 specimen is used in Test Methods A and B while Type 2 specimen is used in Test Method B.

The standard fixture can sustain up to four Type 1 specimens or eight Type 2 specimens, although, if needed, fewer specimens can be tested. After the specimens disposing in the accommodations of the fixture, the screws are tightened to bring the plates against the spacer bars.

The fixture is then placed in an oven at specified temperature for a specified time.

In order to calculate the compression set using the Equation set expressed in the designation, the specimens are then removed from the apparatus and let cool for a certain time (30 minutes); then measurements are taken.

Compression set tests are intended to measure the property of rubber compounds to retain elastic properties after protracted compressive stresses. The stress can be realized by maintaining a definite deflection or the constant application of a known force, or the rapidly repeated deformation and recovery resulting from intermittent compressive forces. Tests are frequently conducted at elevated temperatures.



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Fixtures configurations can be suitably designed and produced to fully satisfy customer's needs.

Test Standard	ASTM D 418 / no ISO equivalent
Maximum Load	90 kN
Temperature Range	da -80 °C a 149 °C
Specimen Thickness	6-12.5 mm
Diameter	100 mm
Mass	3.6 kg



ASTM D395 Testing-Fixture - Assembly



ASTM D395 Testing Fixture - Application

Additional Information:

ASTM Standard D 395-03 (2003), "Standard Test Methods Rubber Property - Compression Set," American Society for Testing and Materials, West Conshohocken, Pennsylvania (first issued in 1934).

ASTM Standard D 3574-11 (2011), "Standard Test Methods for Flexible Cellular Materials - Slab, Bonded, and Molded Urethane Foams," American Society for Testing and Materials, West Conshohocken, Pennsylvania (first issued in 1977).

Referenced Documents

ASTM Standards:

D 1349 Practice for Rubber—Standard Temperatures for Testing

D 3182 Practice for Rubber—Materials, Equipment, and Procedures for Mixing Standard Compounds and Preparing Standard Vulcanized Sheets

D 3183 Practice for Rubber—Preparation of Pieces for Test Purposes from Products

D 3767 Practice for Rubber—Measurement of Dimensions

D 4483 Practice for Determining Precision for Test Methods Standards in the Rubber and Carbon Black Industries



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E 145 Specification for Gravity-Convection and Forced-Ventilation Ovens