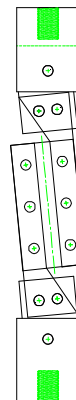


## TWO RAIL SHEAR FIXTURE TENSILE MODE (CS)



Specimen:	Width	3.0"
	Thickness	0.030" to 0.250"
	Length	6.0"
Fixture:	Construction	High strength steel with protective finish
	Temperature	-120 to 250°F (-85 to 122°C)
	Mounting	1"-14 threaded couplings
	Capacity	20,000 lbs (88 kN)
	Weight	25 lbs approximately
	Dimensions	Assembled 2" x 4" x 12"
	Standard	Manufactured in accordance with ASTM D4255

### Model No. ASTM.D4255.12 - Two Rail Shear Fixture (Tensile Mode)

Constructed from stainless steel. Includes two clamping rail set, two loading plates, two loading yokes and one specimen template. Constructed of high strength steel with a protective black oxide finish in accordance with ASTM D4255.

Width: 3.0"

Length: 6.0"

Mounting: 1"-14 threaded coupling

Capacity: 20,000 lb or (88kN)

Weight: 25 lbs (approximate)

Dimensions: Assembled 2" x 4" x 12"

# **MODEL NO. ASTM.D4255.12**

## **ASTM, IN-PLANE, SHEAR COMPOSITE,**

### **ACCESSORIES**

ACC.D4255.1001 - Specimen Alignment Jig

**Upper and lower fixture attachment is supplied with 1" -14 female coupling. (Common adapter sizes include:)**

Model No. M03S36 - 1.25" Male Clevis (Type D) to 1" -14 Threaded Stud

Model No. S42S36 - 1.25" -12 to 1" -14 Threaded Step Stud

Model No. S48S36 - 1.5" -12 to 1" -14 Threaded Step Stud

Model No. S60S36 - 2" -12 to 1" -14 Threaded Step Stud

Model No. LN36 - 1" -14 Threaded Locking Nut with Knurled OD

### **SPARE PARTS**

SPA.D4255.1201 - Extra Specimen Template

### **REFERENCE DOCUMENT AND TEST METHOD SCOPE:**

<http://www.astm.org/Standards/D4255.htm>

ASTM D4255 / D4255M - 15a

Standard Test Method for In-Plane Shear Properties of Polymer Matrix Composite Materials by the Rail Shear Method

1.1 This test method determines the in-plane shear properties of high-modulus fiber-reinforced composite materials by either of two procedures. In Procedure A, laminates clamped between two pairs of loading rails are tested. When loaded in tension the rails introduce shear forces in the specimen. In Procedure B, laminates clamped on opposite edges with a tensile or compressive force applied to a third pair of rails in the center are tested.

1.2 Application of this test method is limited to continuous-fiber or discontinuous-fiber-reinforced polymer matrix composites in the following material forms:

1.2.1 Laminates composed only of unidirectional fibrous laminae, with the fiber direction oriented either parallel or perpendicular to the fixture rails.

1.2.2 Laminates composed only of woven fabric filamentary laminae with the warp direction oriented either parallel or perpendicular to the fixture rails.

1.2.3 Laminates of balanced and symmetric construction, with the 0° direction oriented either parallel or perpendicular to the fixture rails.

1.2.4 Short-fiber-reinforced composites with a majority of the fibers being randomly distributed.

Note 1: Additional test methods for determining in-plane shear properties of polymer matrix composites may be found in Test Methods D3518/D3518M, D5379/D5379M, D5448/D5448M, and D7078/D7078M.

1.3 The reproducibility of this test method can be affected by the presence of shear stress gradients in the gage section and stress concentrations at the gripping areas. Test Methods D5379/D5379M and D7078/D7078M provide superior shear response in comparison to this test method, as their specimen configurations produce a relatively pure and uniform shear stress state in the gage section.

1.4 The technical content of this standard has been stable since 2001 without significant objection from its stakeholders. As there is limited technical support for the maintenance of this standard, changes since that date have been limited to items required to retain consistency with other ASTM D30 Committee standards, including editorial changes and incorporation of updated guidance on micrometers and calipers, strain gage requirements, speed of testing, specimen preconditioning and environmental testing. Future maintenance of the standard will only be in response to specific requests and performed only as technical support allows.

1.5 The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system are not exact equivalents; therefore, each system must be used independently of the other. Combining values from the two systems may result in nonconformance with the standard.

1.5.1 Within the text the inch-pounds units are shown in brackets.

1.6 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.

Standard Test Method for In-Plane Shear Properties of Polymer Matrix Composite Materials by the Rail Shear Method

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