

Composites Test Fixtures

Climbing Drum Peel, ASTM D 1781

ASTM D 1781 describes a method of measuring the strength of the adhesive bond between the core and the facing of a honeycomb core panel. The Instron® climbing drum peel fixtures meet the requirements of ASTM D 1781. Designed with a standard fitting, they can be used on any standard Instron machine. The fixtures are robust and durable, and can be used inside an environmental chamber over a wide temperature range.

Principle of Operation

The climbing drum peel fixture consists of a flanged drum assembly, flexible loading straps mounted in a lower adapter, an upper clamp to grip the specimen, and a drum clamp to hold the outer skin against the face of the drum. Two different fixtures are available, one with a drum clamp suitable for use with flexible facings (e.g. thin gauge aluminium) and one with a drum clamp suitable for use with rigid facings (e.g. CRFP sheet).

During testing the loading straps pull on the drum assembly, forcing it to rotate and climb along the length of the honeycomb panel. This motion peels the outer skin away from the core structure. The peel force recorded by the testing machine's load measurement system can then be used to derive the bond strength. The drum assembly is counterbalanced to compensate for off-center loading and ensure accurate testing.

Features

- Conforms to ASTM D 1781
- Versions for both rigid and flexible facing materials
- Suitable for non-ambient temperatures



Specifications

Catalog Numbers	-	S4680A	S4680C
Test Standard	-	ASTM D 1781	
Facing Type	-	Flexible	Rigid
Drum Clamp Type	-	Eccentric roller	Bolted Clamp
Maximum Load	kN	3.2	3.2
	kgf	300	300
	lbf	700	700
Temperature Range	°C	-30 to +120	-30 to +120
	°F	-22 to +248	-22 to +248

Specimen Size¹

Specimen Width	mm	25 - 76	25 - 76
	in	1 - 3	1 - 3
Specimen Length (H)	mm	305	305
	in	12	12

Mechanical Connection

Upper Interface	-	½ in clevis pin (type Dm)	½ in clevis pin (type Dm)
Lower Interface	-	½ in clevis pin (type Dm)	½ in clevis pin (type Dm)

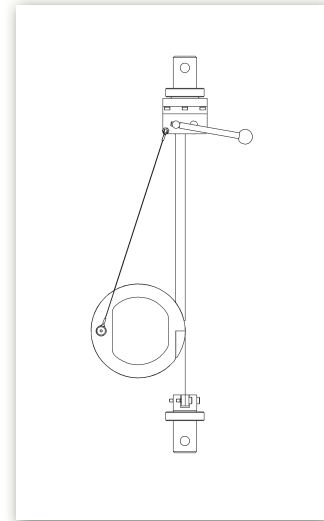
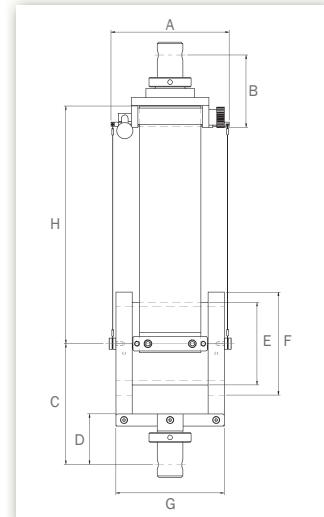
Dimensions – Upper Clamp

A (Overall Width)	mm	146	146
	in	5.7	5.7
B (Effective Length)	mm	89.5	89.5
	in	3.5	3.5

Dimensions – Drum and Attachment

C (Shown at start of test)	mm	149.5	149.5
	in	5.9	5.9
D (Lower pin to top of strap mounting)	mm	62.5	62.5
	in	2.5	2.5
E (Drum Diameter)	mm	102.00	102.0
	in	4.000	4.000
F (Drum Flange Diameter)	mm	127.40	127.40
	in	5.000	5.000
G (Lower Width)	mm	134	134
	in	5.3	5.3

Materials	-	Stainless Steel, Aluminium	Stainless Steel, Aluminium
Weight (Approximately)	-	3.5 kg (7 lb)	3.5 kg (7 lb)



Notes:

1. See ASTM D 1781 for details

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