

Using Extensometers for Lap Shear Testing

Best practices selecting and using extensometers for lap shear testing

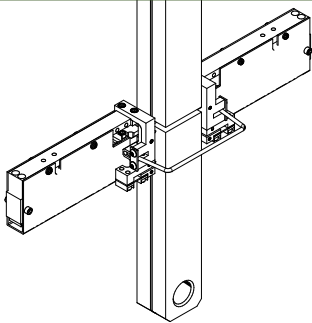
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Epsilon offers a variety of extensometer solutions for various shear applications, including lap adhesive, bearing, and sandwich panel shear testing. While the applications seem quite similar *prima facie*, the recommended solutions for extensometry vary.

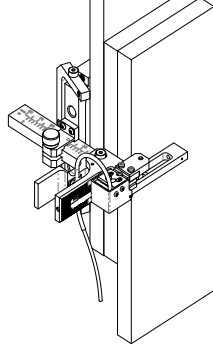
Recommended solutions

- [Model 4013](#) (averaging, edge-mounted) is designed specifically for ASTM D5656 adhesive shear testing.
- [Model 3421](#) (face-mounted, front-to-back) is recommended for thick-adherend testing of sandwich panels, e.g. ASTM C273, ASTM C394, ISO 1922, DIN 53294, and EN 12090.
- [Model 3542](#) (standard axial extensometer) is recommended for face-mounted testing under ASTM D7248 bearing/bypass, ASTM D5961 bearing response, etc. *Three-point contacts for flat specimens are recommended.*
- Other solutions may be recommended for specific applications.

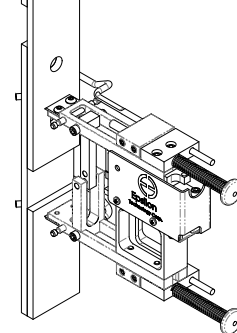
Model 4013 edge-mounted
ASTM D5656 adhesive shear



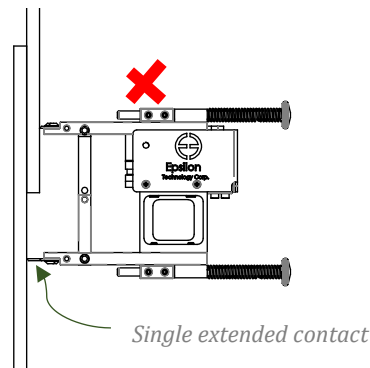
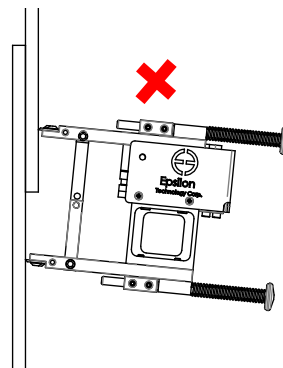
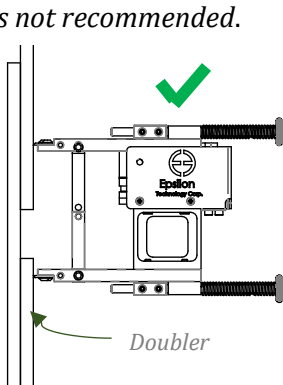
Model 3421 sandwich
panel shear



Model 3542 face-mounted
bearing shear



When using a standard axial extensometer for face-mounted shear, it is recommended to use a specimen doubler or backer if necessary, to bring the two contacts into the same plane. Without a doubler, sine errors (increasing with specimen thickness) will result. While using a single, longer contact on one arm seems simple, this method requires customization and recalibration for each specimen thickness – *it is not recommended.*



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