

### Dental Research

Research to develop improved dental devices and implants requires mechanical, frictional and wear testing of components, restorative materials and adhesives, to assess durability.

Dental testing applications also commonly perform flexural, tensile and shear bond strength tests on wires, components and cements.

### Orthodontics

Considerable research is done into the efficacy of new dental adhesives in orthodontics. Shear bond strength of orthodontic brackets to the enamel surface, resistance to dislodgment, shear-peel band retention and other mechanical strength tests are used. Orthodontic wires are tested in tensile tests for strength as well.

Evaluation of friction forces between bracket surface and wires during orthodontic tooth movement. The arch wire inserted into the bracket constantly guides the tooth movement during application of the orthodontic force. The rate of tooth movement depends both on biological aspects as well as mechanical ones such as the friction created between the arch wire and the bracket.

Cement and bonding quality for orthodontic brackets is an area of interest. Direct bonding of orthodontic brackets is a significant development and requires high bond strength.

### Test Systems

TestResources offers several tabletop systems for these applications, depending on the force capacity requirements and software analysis features.

Consider the 100P and 650M Series for mechanical tensile and peel strength tests.

Capturing the load – displacement curves is required for product development and even simple research – the 100Q and M Series includes data capture software.

For research – consider the 100R and other R models for full PC based control and measurements.

For dynamic fatigue tests – the L series controller is required.

