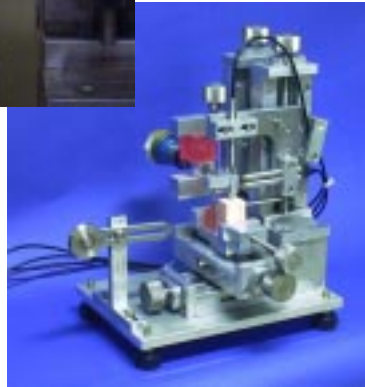

Compact Gaging LVDTs Fit Around Tooth

The Dept. of Orthodontics at Yonsei University, Seoul, Korea, has developed a sophisticated test rig to perform in-depth dental experiments. The combination of this cutting edge hardware and innovative test procedures brings testing in this field to a new level. While previous setups used finite element methods or double exposure laser interferometry to make static measurements, this system, designed by Dr. Kwangchul Choy, monitors minute tooth movements non-invasively and in real time.



In designing this system for optimal results, it was important to establish multiple points of data collection. The unique configuration of the Model 0351-0006 DC-DC Gaging LVDT - with its compact 3/8" OD gaging head - allowed for placement of three individual units in close proximity to each other. Each spring-loaded tip makes contact with a metal block fixture, which is attached to the crown of an extracted upper canine.

The tooth is embedded in a dental stone through a thin layer of silicone, thereby simulating the physiological mobility of the tooth. A horizontal load is created by attaching a fixed pulley and weight assembly to the block. A torque gauge is used to apply a known force to the block through a flexible coupling. This is equivalent to varying the location of the force system or moving a dead weight up and down. The LVDTs measure the angle of rotation of the block - and hence the tooth - as it changes with location of the applied force.



The signal from each transducer is fed into a computer via an analog-to-digital converter. That information is stored, calculated and plotted to show the axis and angle of rotation of the tooth in real time.

As Dr. Choy discovered, the Model 0351-0006 offers the equally important benefits of precision linear feedback in a small, manageable package.