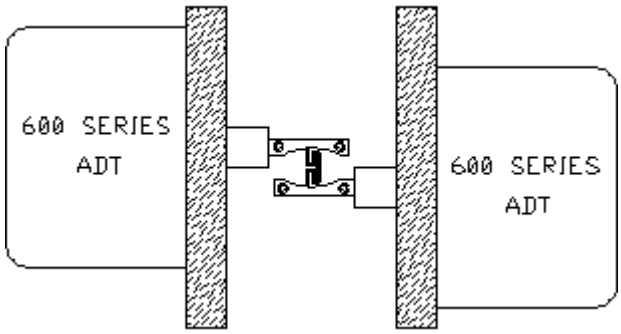
Angular Displacement Transducer Use in Orthodontic Fixtures



A specific application using a Trans-Tek ADT involves an experiment conducted by the Department of Orthodontics at the University of Connecticut Health Center. The test is designed to measure uniplanar forces and moments delivered by orthodontic appliances. Two mounting chucks, each one coupled to a Series 600 ADT, are used to hold the appliance in place. The movable member of the chuck is restrained by a torque element so that angular displacement sensed by the transducer is proportional to the torque applied to the appliance.

The data is then inputted into a PLC which controls displacements and calculates forces and moments. By plotting this data for interpolation, a mathematical formula is constructed which can be used for design improvement. This information is eventually used to design appliances that will deliver predetermined force systems in order to optimize performance