

## THEORETICAL AND EXPERIMENTAL STUDY OF TORQUE DAMPING IN NON LINEAR ELASTICITY COUPLINGS

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**Abstract:** The paper is dealing with the study of damping characteristics specific to driving torque transmitted through couplings, considering as variables elasticity and damping. The first part describes a mathematical model for a pin and bush coupling with an intermediate non-metallic disk. The variation of elasticity and damping is produced by means of material removing of different diameters according to pin dimensions. Theoretically, the elasticity curve was parabolic. The second part presents the experimental results of testing – elasticity and hysteresis- performed on a Schenck test bench (PTO005). The dynamic tests performed were coupling behaviour without pretension torque and coupling behaviour with pretension torque.

During dynamic tests it was determined the damping of torsional vibrations calculated as ratio between the amplitude of oscillation of the driving semi-coupling and the amplitude of oscillation of the driven semi-coupling. The results allow problem solving for optimum operation of a given system.

**Key words:** coupling, damping, elasticity, vibrations.