

**The analysis on effect of thrust constant, spring constant, electrical time constant, mechanical time constant to oscillation displacement of slot-less linear oscillatory actuator**

**ABSTRACT**

This paper presents the analysis on effect thrust constant  $k_f$ , spring constant  $k_s$ , electrical time constant  $T_e$  and mechanical time constant  $T_m$  to oscillation displacement of slot-less linear oscillatory actuator (LOA) using Permeance Analysis Method (PAM). The results show that the LOA geometrical structure has high impact on the thrust constant  $k_f$ , spring constant  $k_s$ , electrical time constant  $T_e$ , mechanical time constant  $T_m$  and as a result affect the oscillation displacement  $x$ . Finally, the analysis presents in this paper can be used to determine the best LOA structure based on the desired thrust constant  $k_f$ , spring constant  $k_s$ , electrical and mechanical time constant  $T_e$  and  $T_m$ , and oscillation displacement.

**Keyword:** Linear oscillatory actuator; Thrust constant; Electrical time constant; Mechanical time constant; Spring constant; Oscillation displacement