

The aim of this paper is to present an original architecture for a linear electric actuator; a multi-air gap actuator for aeronautical applications. This linear actuator is designed to replace pneumatic or hydraulic devices functioning as a cylinder. One particularity of this actuator is the friction of movable parts on fixed parts, allowing the use of active parts with very small dimensions, thereby increasing performance. We present the definition of this concept, its operating principle, the study performed, and experimental results from a prototype. Experimental results confirm the high performance of this structure (1000 N/kg and 5000 N/dm³).