

Title (en)  
ELECTROMECHANICAL ACTUATOR STRUCTURE

Title (de)  
ELEKTROMECHANISCHE AKTUATORSTRUKTUR

Title (fr)  
STRUCTURE D'ACTIONNEUR ÉLECTROMÉCANIQUE

Publication  
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Application  
**EP 09835904 A 20091231**

Priority  
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Abstract (en)  
[origin: WO2011080532A1] An electromechanical actuator (100) comprising a ferromagnetic unit or a stator (10) which consists of opposite first (11 ) and a second (12) ferromagnetic elements that comprises ferromagnetic portions (16') and magnetic elements (15) that form together a open magnetic circuit. The electromechanical actuator (100) comprises also an electromagnetic unit (20) that is relatively movable with respect to the ferromagnetic unit (10), which comprises a first (21 ) and a second (22) winding integral to each other and arranged, with respect to the ferromagnetic unit (10), such that the respective open magnetic circuit are closed on the first (11 ) and the second (12) ferromagnetic elements. In particular, the first (21 ) and the second windings (22) comprise each a plurality of serially arranged elementary windings (23), which starts from an initial elementary winding (23i) up to a final elementary winding (23f), in particular the elementary windings have an increasing number of loops. The windings (21/22) are oppositely arranged with respect to each other and are respectively run through by opposite currents  $I_{ag}$  and  $I_{an}$  in such a way that opposite repulsive forces are generated. In particular, the forces are such that an agonist force ( $F_{ag}$ ), which is generated on one of windings, for example (21), that is run through by current  $I_{ag}$ , opposes to an antagonist force ( $F_{an}$ ), which is generated on the other winding (22), that is run through by current  $I_{an}$ , until a relative position of the electromagnetic unit (10) and of the ferromagnetic unit (20) is achieved in which the above described forces balance each other. The electromechanical actuator (100), comprises furthermore a means for independently controlling the intensity of the opposite currents  $I_{ag}$  and  $I_{an}$  that circulates within the first (21 ) and the second winding (22) in order to adjust the absolute value of the current intensity difference and therefore adjusting the relative position, where the forces balance each other.

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