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A FERROFLUIDIC ACTUATOR FOR ELECTROPNEUMATIC CONVERTERS

BY

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Abstract. The paper studies an actuator based on magneto-fluidic forces acting on a non-magnetic disc plunged into a ferrofluid, caused by the effect of a magnetic field gradient generated by magnetic inductor(s). The expression of the force is determined analytically for the two actuators, simple and differential. The obtained results shows the superior performance of the differential actuator. The latter was tested as current to displacement transducer into electropneumatic converter.

Key words: ferrofluidic actuator; actuator; electropneumatic converter.