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### **Development of standardised and integrated shape memory components in "one-module"-design**

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#### **Abstract**

Actuator systems based on shape memory alloys are nowadays mainly characterized by the alignment to specific applications. However, there is a considerable interest in shape memory actuator systems with complex and variable functions. One way to represent the realisation of such a system is a modular system. Modular systems do not only enable the adoption of the solutions for other applications, but also lead to a reduction of the diversity of variants and to a reduction of the development risk. An unsolved problem of modular systems is the increasing system complexity. Responsible are additional functions, like the mechanical and electronic coupling of the modules.

Beyond the conventional form of a modular system there is the possibility to create a variable shape memory actuator system only by using the material configuration of one single SMA-component ("one module" modular system). Apart from the conventional point of view there is a new perspective with extreme integral and standardised set up. Therefore, the SMA-component can be programmed functionally for the scheduled utilisation. The purpose of the present study is to show options and the creation of such a universal SMA-component. Thus, an object of investigation is the analysis of designs, properties and capabilities. Structuring modular systems differently and re-arranging the production process represents a new way of thinking in the field of mechanical engineering.