

MATERIALS AND STRUCTURES SYMPOSIUM (C2)
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FUTURE ACTUATOR DEVELOPMENT - A NEW APPROACH AND FIRST RESULTS

Abstract

RUAG Space in Zürich has a significant footprint in the aerospace business and especially in the field of space mechanisms. The RUAG mechanisms portfolio covers a wide range from actuators, solar array drive mechanisms, antenna and thruster-pointing mechanisms up to multi-functional mechanisms for scientific instruments.

The increasing commercial pressure in the space business results in the necessity to have attractive products and to adapt development strategies to remain competitive in the future. In this context RUAG is exploring a new industrial development approach for space mechanisms. The approach has three cornerstones. The first is the early and deep involvement of the suppliers in the development, the second is the set-up of a dedicated development logic and the third is to have an extensive and well-structured concept phase. A core element of the development logic is to set up a team, which is enabled to develop a unconventional solution without being influenced and limited by existing rules.

At the same time this idea for an alternative development approach came up, RUAG started to think about a successor of the established SARA21 actuator, which is successfully used in many space applications as e.g. antenna pointing mechanisms. Consequently, the two objectives were combined and the “Future Actuator Project” was born. The technical requirements for the next generation actuator were derived from market survey, customer feedback and performance parameter evaluation. In brief the main targeted improvements were: • Higher torsional stiffness • Higher detent torque • Smaller step size • Same or smaller mass and dimensions than the currently available SARA21 actuator while keeping an attractive price for the customer. This paper describes the new development approach and first breadboard (BB) testing results of the Future Actuator (FA) development performed by RUAG Switzerland.