

Swiss SME offering soft artificial muscle transducer for robotics, automation, wellbeing and prosthesis seeks commercial agreement

- [Scheda](#)
- [Approfondimenti](#)

Identificativo proposta: TOCH20200224001 **RICHIEDI MAGGIORI INFORMAZIONI**

A Swiss SME specialized in elastomeric components for the global automotive industry has developed and produced a proprietary dielectric elastomer actuator technology made of a single elastic part which creates linear displacement upon applying a voltage. The actuator excels in a high operating range, small size and low weight. Applications include grip control, soft robotics, haptic feedback. The company offers commercial agreement with technical assistance and technical cooperation agreements.

The Swiss company develops and produces high precision elastomeric sensors and actuator solutions for applications such as active feedback, shape-changing surfaces (morphing), immersive stimulation, user's posture monitoring and force sensing. It has specialized in the dielectric elastomer actuator allowing fully 3D design thanks its flexibility and light weight. Compared to conventional actuators, this elastomer actuator generates high force (up to 10N) and displacement (up to a few mm), paving the way to system miniaturization. Moreover, the proposed actuator is made of a single piece that operates in a large temperature range of -40°C to 85°C (>100°C when inactive) making it suitable for rough environment (industry, power generation). It can withstand mechanical shocks and icing conditions (no blocking of mechanical parts). The actuator is primarily made of silicone and actuated by electrostatic forces generated by an electric supply. It can facilitate mechanical setups since it allows for direct linear actuation avoiding e.g. gears. It moves without noise and can hold a certain position at virtually no power. It thereby minimizes power consumption and self-heating. Since the transducer is made of soft material, it can be easily integrated into foams and textiles and can adapt to some extent to curved surfaces such as robot grippers or the human body (e.g. finger tips, limbs). It has a low weight, making it ideal to be used in portable devices and wearables. The company has made initial durability tests in accordance to automotive standards on prototypes of actuators to validate the technology and ensure its functionality during the life cycle of potential applications (e.g. more than 50 million actuation cycles at ambient conditions, 1 million actuation cycles at 85°C and 85% relative humidity). It also has several ongoing projects in the automotive industry in the context of new user interfaces such as "buttons-on-demand" in the vehicle interior. Moreover, as the technology has high potential for miniaturization, initial evaluation tests are done in collaboration with consumer electronics equipment manufacturers. The SME is interested in applications to diversify into e.g. automation, robotics, augmented & virtual reality (AR&VR), gaming, wearable and medical industry. The company seeks original equipment manufacturers (OEM) and tier suppliers from these sectors which want to co-develop and commercialize new products and services integrating its actuator. A technical cooperation agreement is sought for co-development projects, especially to adapt the technology for the specific use case. A commercial agreement with technical assistance is envisaged for partners willing to complete their offer with this technology. The Swiss SME can provide first generation samples including electronics driver and software to build proof-of-concepts. It can prepare high volume production of the actuator to ensure commercialization.

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