

Customised slide and damper actuator for extreme operating conditions

Development of a unique and efficient slide valve and butterfly valve actuator in a highly demanding environment. From the motor and gearbox to the drive control system, ATEX, IECEx, CE and UL certification, and series production – all from a single source.



The challenge

The end customer required a drive that met the following criteria:

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- Use in ATEX and IECEx Zone 22
- Ambient temperatures from 5 to 50°C
- Very long service life with over 10 million cycles
- High continuous and acceleration torques at low speeds
- Minimal self-heating, maximum energy efficiency
- Most compact design for installation in an existing device
- Global approvals (ATEX, IECEx, CE, UL)

No such drive system was available on the market at that time. **Only Antrimon succeeded in economically realising these requirements from concept to certified series solution.**

The solution of Antrimon

Antrimon developed a completely customised brushless external rotor motor with integrated 2-stage planetary gearbox. The focus was on maximum torque at minimum speed, high energy efficiency and absolute reliability in tough continuous operation.



Typical areas of application

- Dosing and filling systems in the food and chemical industries
- Valve, flap and mixing drives in hazardous areas
- Robotics and handling systems with limited installation space
- Replacement for pneumatic actuators (energy-efficient, precise, quiet)

Technical highlights

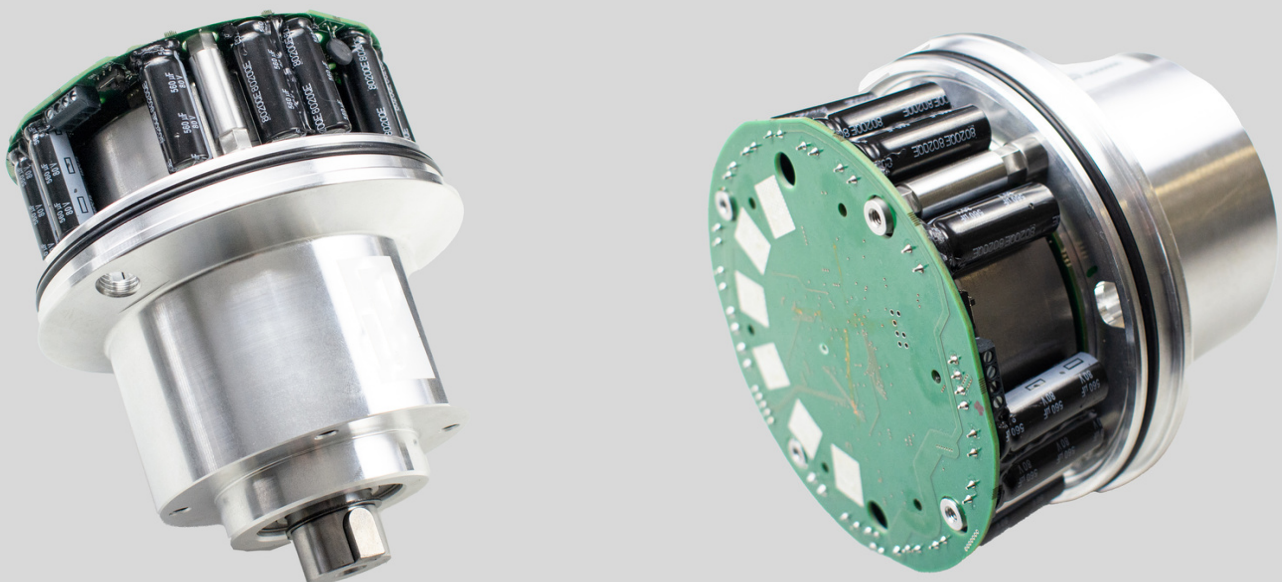
- Planetary gear: < 0.4° backlash
- Service life: > 10 million cycles
- Self-heating: < 10 °C in normal operation
- Robust aluminium/stainless steel construction
- Maintenance-free: no brushes, no oil changes

From concept to series production

Antrimon handled the entire development process in strict accordance with the safety and quality requirements of the relevant standards:

1. Feasibility analysis & concept development
2. Mechanical, motor and electronic design
3. Prototyping & validation under real extreme conditions
4. Certification process (ATEX, IECEx, CE, UL)
5. Industrialisation & series production

The interdisciplinary team and complete in-house development significantly reduced development time, costs and technical risks.



The result

The new drive is now a key performance component in the customer's end device.

It enables:

- Significantly lower energy consumption compared to pneumatic solutions
- Long maintenance intervals
- Higher process reliability
- Full certification for worldwide markets
- A significant competitive advantage in global plant engineering

This makes Antrimon the only supplier worldwide that can economically realise such a motor in this form – from concept to certified series solution.

