

Precision Microdrives Motor Case Study

Precision Gear Motor with Encoder For Electronic Inhaler

THE APPLICATION & SOLUTION

Many companies are developing intelligent consumer medicine dosing devices, which enables monitored patients to take correctly dosed medicines, at home. Previously this industry designed purely mechanical dosing devices such as insulin epipens. The challenge with pure mechanical devices, is that the patient can easily overdose, which can be more dangerous than not taking medicine in the first place. However, that is actually the second problem – that patients can forget to take medicine, and forget what they have taken, and when. Electronic medicine dispensing devices are therefore very helpful for healthcare providers and patients alike.

In this example our customer was designing a new respiratory medicine dispensing device. The product design was done by the customer's in-house engineering team, and they provided us a detailed performance, lifetime and environmental specification for a gear motor with integrated encoder. Taking the design inputs we developed a drive solution from our 212-XXX platform of precision spur gear motors. Being a medical application, the validation and testing requirements were extensive, both to ensure product conformity within batches, and batch conformity between production lots.

TECHNICAL SPECIFICS

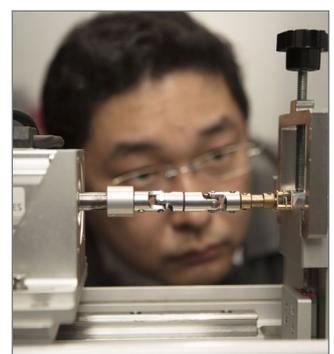
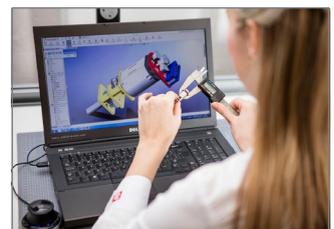
The motor was designed with a customised winding for 6v operation, and an unusual 7.5 degree commutator advancement, to enhance the drive torque in the forward direction. This was a specific requirement due to the application having an asymmetric load. Another unusual requirement was an inertia specification, which couldn't be met with the motor rotor alone. We implemented that in combination with the encoder requirement, by using a 'chunky' steel encoder wheel. The optical quadrature encoder was implemented on a PCB back-pack that also carried a local EMI suppression with an X2Y filter, and a Molex connector for the wiring harness interface.

HOW PRECISION MICRODRIVES CAN HELP YOU

Modern motor / mechanism design and manufacturing, is a highly challenging multi-discipline engineering activity.

Precision Microdrives can save you time, money and stress. With so many applications engineered successfully, we have a huge amount of experience and know-how. We also have a first class manufacturing infrastructure, and an industry leading testing and validation capability.

[Call](#) or [email](#) today and our engineers will set-up a call to review your application.



FIND OUT HOW WE CAN SUPPORT YOUR APPLICATION

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