



Hybrid Stepper Motors

Ophthalmic & Optometry Equipment Business Case

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Custom Stepper Motors for Optical & Optometry Equipment

NEMA 17, 23 and 24 Hybrid Stepper Motors for Applications in
Medical Imaging Equipment | 42Q Series

Background

As a global leader of optical imaging scanner manufacturer, our client was looking for a stepper motor manufacturer whose expertise, efficiency, and accommodation would make for a valuable long-term partner as they developed new devices and expanded their product range.

Challenges

An award-winning optometry and ophthalmic medical equipment manufacturer needed a custom stepper motor supplier for their new product developments; a new supplier had to meet their current stepper motor quality made by a Japanese manufacturer at lower cost.

Further, the optical device manufacturer had many R & D projects, which required engineering support and customization from a stepper motor manufacturer. However, their stepper motor supplier at the time was unwilling to support the client's R & D projects.



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<https://www.uskoreahotlink.com/products/manufacturing/2-phase-rotary-hybrid-stepper-motor/>



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LPR Solutions

Initially our 2-phase hybrid stepper motors, NEMA 17 from our 42Q series, were selected as a replacement for their existing hybrid stepper motors. The client was able to inspect and test our stepper motors in their own equipment and production facilities.

We were successful in replacing the client's stepper motor needs on our first attempt, which helped gain our client's trust in our quality and experience.

New Product Design & Collaboration for Medical Imaging Precision Equipment

Our subsequent solutions were more interesting, as our engineers collaborated with the client to design and develop new precision optometry equipment. Due to our experience in the application of stepper motors in the medical field, this collaboration has been prolific in producing over 10 ophthalmic and optometry equipment for the client.

Moreover, our involvement from the design stage helped our client save time and costs in their product development funnel. Our custom 2-phase hybrid stepper motor solution for this client expanded to include our **NEMA 17, NEMA 23, and NEMA 24 stepper motors.**



This relationship has since evolved into a **20-year long-term partnership** that continues to produce a range of industry-leading optometry equipment for this client, who is the leading and most trusted brand by medical professionals in 114 countries.



Stepper Motors vs. Servo Motors for Medical Imaging Equipment and Devices

Our client chose hybrid stepper motors over servo motors for their ophthalmic and optical devices for multiple reasons:

Superior Position Control

Stepper motors provide the unique capacity to control motor position without a separate encoder or position sensor, which lowers production costs. In contrast, servo motors require an additional encoder or sensor to identify the motor position, which makes them the less cost-efficient option. Finding high-quality, cost-efficient custom motors was important for this client, as they produced end-user medical devices.

High Holding Torque

Stepper motors have superior holding torque, especially when compared to servo motors. As a result, they are ideal for applications in precision equipment and vision system positioning such as our client's ophthalmic equipment, which require standstill stability.

Smooth, Consistent Motion

Our hybrid stepper motors operate in half-step rotations and work with micro-stepping drivers for smoother motion and more consistent torque production.



Custom Stepper Motors for Optical & Optometry Equipment

With decades-long expertise in stepper motor applications in the medical field, we offer efficient custom solutions for your equipment development. We are happy to help you find the right stepper motor for your equipment, **even in small order volumes.**

Please contact us with specifications for your own custom hybrid stepper motor needs.

Check out NEMA 17 Stepper Motor [42Q Series product datasheet](#) to get more information about its ranging torque speed curve.

Or, contact us for more information on placing an order for custom hybrid stepper motors.



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