BODINE ELECTRIC COMPANY

engineered solutions

from Bodine Electric Company

Minimizing Brush Noise in PMDC Gearmotors

Pharmaceutical Dissolution Testing Instrument

An OEM manufacturer of pharmaceutical dissolution testing instruments incorporated a Bodine130 Volt permanent magnet DC gearmotor in their design (**click here** for more about dissolution testing, which measures the time required to dissolve tablets in liquid).

Our gearmotors work flawlessly in their instruments. Naturally, the manufacturer turned to Bodine for a gearmotor in a new application. This new dissolution test instrument was a complete redesign of an existing model with a major emphasis on powering all electrical components by 24 Volts DC to allow for a more global instrument.

When the OEM tested our 24 Volt gearmotor, they noticed slightly higher brush noise. All brush-type motors emit noise because of the contact between the brushes and the commutator (**click here** for more about brushes from our *Handbook*). However the noise they heard was somewhat elevated compared to that of our original 130 Volt gearmotor.

Understanding that brush noise from a 24 VDC system is typically louder than that of a 130 VDC system, the engineers at Bodine quickly presented both an explanation and a solution. For our customer's new test instrument, the Bodine engineers recommended changing to less abrasive electro-graphite brushes.

With the new brushes installed, the difference was obvious. Our customer was now satisfied that our 24 Volt gearmotor was just as quiet as our 130 Volt gearmotor.

Bodine brings over 100 years of problem solving experience to a wide range of applications in industries as diverse as laboratory instruments, medical, packaging, industrial automation, and solar powered outdoors equipment. We look forward to working with you on your next fractional-horsepower gearmotor design challenge.

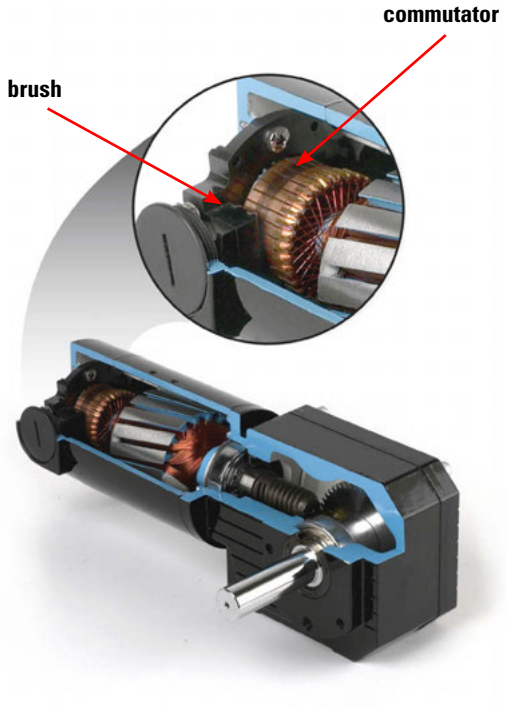
application insights

The Design Requirement

Maintain same motor noise level when switching the design from a 130VDC to a low-voltage 24VDC gearmotor.

The Solution

An analysis of the application's load revealed a standard low-voltage brush could be replaced by a better suited, less abrasive electro-graphite brush.



Location of brush and commutator in a Bodine type 33A-GB DC right angle gearmotor,.

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