

# Motors and More



Electric motors are often considered a mature industry—one whose basic technology was invented more than a century ago and whose fundamental concepts haven't changed much since. But new applications continue to demand change. Engineers want greater efficiency, more precise control and improved reliability.

Over the years we've seen a number of advances that have greatly increased the range of applications for motors. Thanks to the proliferation of and improvement in electronics, we have servos, variable frequency drives and other ways to control motion.

These topics and more are covered this issue, as we focus on motors. Senior Editor Jack McGuinn's article (beginning on page 18) delves into the decision-making process regarding custom-designed motor and motion control solutions. In the article, experts weigh in on the relative merits of choosing a stock solution versus developing one from scratch.

We also check in on the cutting edge with our case study from Maxon about the motors being used in the European Space Agency's Solar Orbiter, planned for launch in 2018. These motors must withstand both extremely high and low temperatures, radiation bombardment and the vacuum of space. Plus, they have to be super lightweight, efficient and reliable. Read the article beginning on page 24 to see how engineers are meeting this challenge.

Finally, we have a technical article from ABB on the acoustic analysis of electrical motors in a noisy industrial environment. The authors have successfully demonstrated the use of acoustic signals to perform condition monitoring of electric motors, even in a noisy environment. Their solution involves the use of a 48-microphone acoustic camera, which helps localize the sounds generated by the equipment and isolate problems from the background noise.

In addition to these articles, there's a lot more information on motors on our website, including the "Motor Matters" blog written by our motor expert, George Holling. Holling's most recent piece deals with some of the basics of V/F drives, including what they do and why we need them. You can read these web-exclusive articles by visiting [www.powertransmission.com/blog](http://www.powertransmission.com/blog).

But that's not all. If motors aren't your thing, we also have a wide variety of content this issue on other power transmission topics. The BSA has provided this issue's *Bearing Briefs* column (p.26), which focuses on the various bearing requirements in a poultry processing facility. We also cover bearing installation in a fan application with this issue's *Field Notes* column (p.34).

News Editor Alex Cannella explores the new MedAccred standard, which brings the same kind of accreditation to suppliers of the medical devices industry that Nadcap has provided for aerospace. If you're involved with medical equipment, this important and timely article can be found on page 36.

To top things off, we also have articles on synchronous belt selection and replacement (p. 30), high ratio epicyclic gear drives (p. 40), alternative gear steels (p. 42), and leaky shaft seals (p. 52).

If you can't find what you're looking for, check in at [powertransmission.com](http://powertransmission.com). Just type what you're looking for into the search bar, and happy exploring!

As always, thanks for reading!

A handwritten signature in black ink that reads "Randy Stott". The signature is written in a cursive, flowing style.