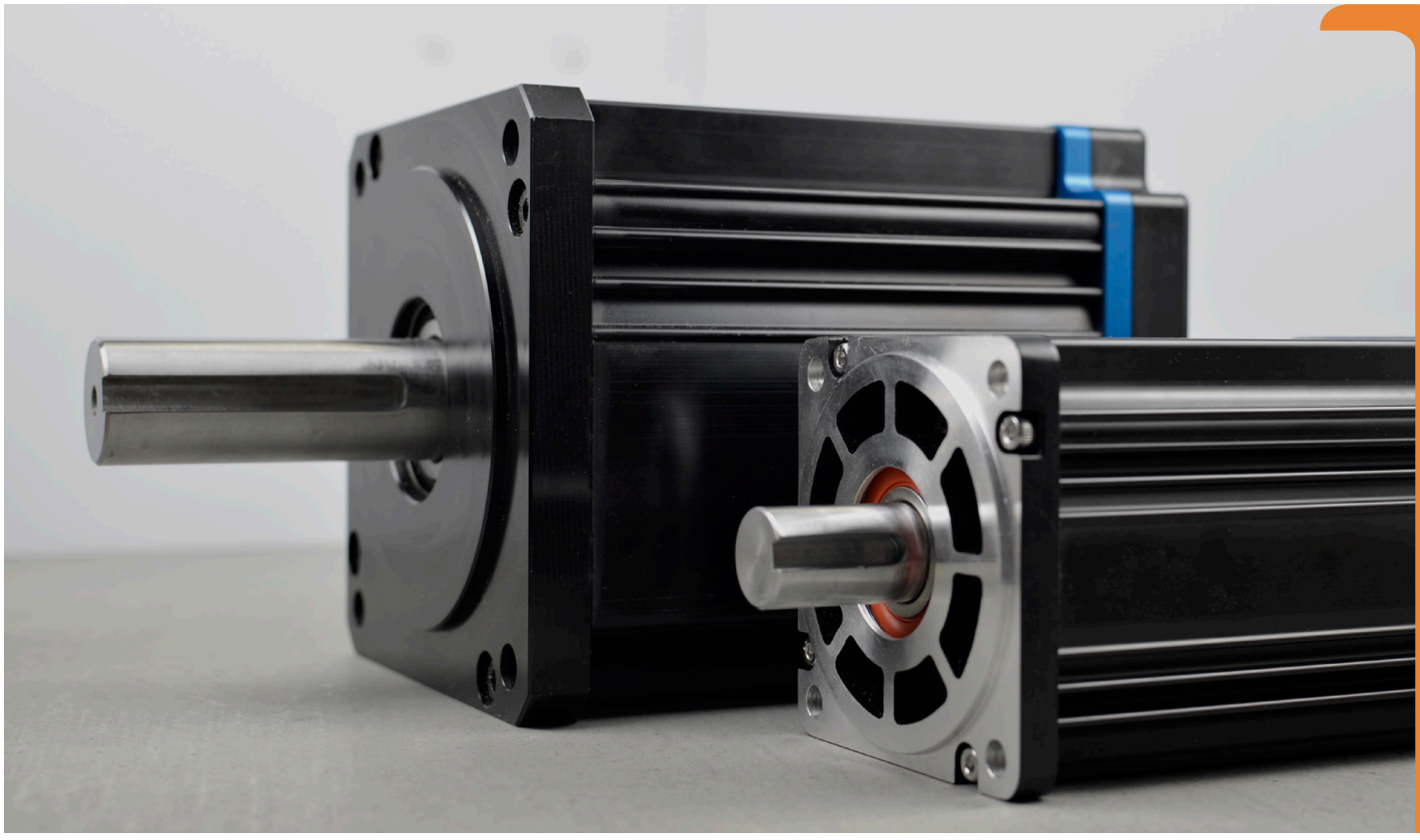
Höganäs

Savings with Somaloy®



Somaloy enables more efficiency in a smaller package for Electric Torque Machines Inc.

Electric Torque Machines, Inc. (ETM) designs, develops and manufactures unique electric motors based on transverse flux technology. The Arizona based company has developed efficient, high performance motors containing Somaloy, which solved their customers challenges. Several years of development and optimisation of the technology in conjunction with world leading customers resulted in performance characteristics that make the motors unbeatable for certain applications, such as industrial fans.

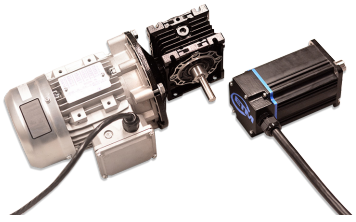
”This is an excellent motor topology using all the benefits of Somaloy and Soft Magnetic Composite (SMC) technology - it is a compact and cost-efficient design with very high performance” says Lars Sjöberg, Application Development Manager at Höganäs.

ETM motors

The motors are developed for any application that is gear reduced, where a transition to direct drive is desired. Main applications are industrial and commercial fans (particularly High Volume, Low Speed (HVLS) fans) and materials handling equipment such as conveyor systems. The motors has exceptionally high torque densities, particularly at lower operating speeds, enabling smaller and lighter direct drive capability in currently geared systems. Low manufacturing costs can be obtained, generally competitive with standard AC induction gear motors of similar output ranges. Low costs are enabled by high efficiency (direct drive motors can be over 92% efficient) in combination with reduced motor/gear inventory costs for OEM customers. For example; one ETM direct drive motor can replace a number of motor/gear combinations for customers' product lines. That is possible thanks to the unique ability to produce high continuous or peak torque across a wide range of speed and torque loads. This is particularly beneficial at lower operating speeds where most motors can't produce torque without a gearbox or transmission. All motors are designed as direct drive, though they can also be paired with gear reductions.

Customer solutions

Two of ETM´s customers had challenges to overcome, which was solved with direct drive systems containing Somaloy. First, a conveyer company was in need of a solution that reduces the overall drive system cost. The goal was to eliminate the need for the gear-box due to its poor reliability and lower efficiency impact on the customer experience. The result was that one direct drive motor could replace 8 conventional motors and 42 motor/gear combinations, which is not only more efficient, but also cost-saving.



Conventional motor *ETM direct drive motor*

Second, a HVLS company's challenge was to get rid of a noisy, heavy, inefficient gearbox. The company wanted to stand out on the market by becoming the first HVLS fan manufacturer to offer direct drive solutions for sizes five meters in diameter, and above. The ETM direct drive solution resulted in a smaller, quieter and more efficient system.

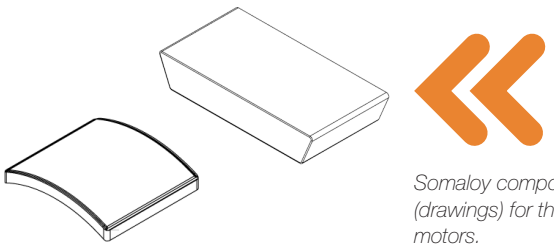
Before *After*

"We chose Somaloy primarily for its unique isotropic flux properties and ability to form it into 3D shapes. Höganäs was the only supplier of powdered materials that met our specifications. We use SMC for formed (pressed) components used as axial flux conductors, which enables us to simplify assembly compared to laminations".

Michael Christopher
Electric Torque Machines Inc.

Somaloy® components

The motors that contain components made of Somaloy, are so called Transverse Flux Machines (TFM's). ETM found Somaloy to be the optimal material choice for their motors. With its unique 3D properties, formability and simplified assembly, Somaloy opens up opportunities for compact, high performance and cost-efficient solutions.



Somaloy components (drawings) for the ETM motors.

For more information about Somaloy please visit
www.hoganas.com/somaloy