

BEM Unveils SYNCHRO-SYM™, a Magnet-Free E-Motor Solution to Rare-Earth Shortages

Amid global rare-earth shortages, BEM launches SYNCHRO-SYM™, a proven magnet-free E-Motor that doubles performance-to-price and is open for early-adopter orders

BEDFORD, MA, UNITED STATES, August 20, 2025 /EINPresswire.com/ -- Best Electric Machine (BEM) today announced availability of SYNCHRO-SYM™, the only E-Motor system that eliminates rare-earth permanent magnets (RE-PMs) while more than doubling performance-to-price in the same package.

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SYNCHRO-SYM™ is ready today as a proven, magnet-free E-Motor alternative that more than doubles performance-to-price for early adopters, delivering real innovation amid global rare-earth shortages.”

Fred Klatt, CTO, Best Electric Machine

Recent global disruptions in RE-PM supply—already impacting automakers in the U.S., Europe, India, and Japan—underscore the urgent need for E-Motor alternatives.

By contrast, SYNCHRO-SYM E-Motor replaces passive rotors of permanent magnets, slip-induction windings, reluctance saliencies, or DC field windings with a brushless,

symmetric, dual-active design that physics dictates will inherently double the constant torque speed range for a given frequency and voltage. This results in more than twice the power density, half the loss, lower cost, and no dependence on geopolitically concentrated RE-PMs. SYNCHRO-SYM also avoids common issues like cogging, high inductive reactance, and core saturation—delivering peak torque more than eight times nominal without compromise.

BEM’s proprietary MOTORPRINTER™ 3D printing process ensures rapid, secure, and scalable manufacturing of axial-flux designs. Together with its brushless and sensorless Real-Time Emulation Control (BRTEC), SYNCHRO-SYM provides direct AC-to-AC conversion while controlling only half the current—making it more efficient and reliable than traditional inverter-based controllers—reducing the per kW cost of WBG semiconductors.

BEM invites early-adopter partners in EV, wind turbine, and aerospace markets to secure SYNCHRO-SYM units at competitive pricing—accelerating deployment of this next-generation, magnet-free technology and supporting its path to broader market readiness.

About Best Electric Machine:

Best Electric Machine, a division of Engineering Devices Inc. (founded 1979), develops advanced motor and generator systems based on more than 50 years of innovation in electric machine technology. With proprietary CAD tools, patents, and rapid 3D Printing setup, BEM offers disruptive alternatives to legacy RE-PM-based systems.

Learn more at

www.bestelectricmachine.com

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Best Electric Machine Logo – Developer of SYNCHRO-SYM™ E-Motor

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