VERTEX®
EC MOTORS
The First of its Kind

The Vertex® EC Motor Series is the first of its kind. This motor has been developed with composite material for optimized geometry, competitive pricing, and lower weight. Interior permanent magnets (IPMs) – which are less likely to detach due to centrifugal force – allow for higher torque/speed and significant energy savings.

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The Most Innovative Motor Yet

East West manufacturers over two million motors each year, and there are more than 10 million motors in the field. Our motors business unit specializes in designing custom motors geared specifically to any customer application.

YOUR SINGLE SKU SOLUTION

This ideal single SKU motor offers an extremely wide peak efficiency range with maximum efficiency of 88%. One motor SKU can be used to cover a range of application duty points while optimized electro-magnetics enable maximum output power to be achieved from 1,200 to 2,000 RPM covering both standard 4-pole and 6-pole applications. Vertex 1/2 HP can be used for 120/208-277 VAC, 50/60 Hz input with consistent performance throughout the nominal voltage range without manual configuration.

We offer a range of solutions to meet your unique motor needs. Each Vertex model is available in three efficiency tiers. Key motor features of all efficiency tiers include:

- Over-temperature protected electronics including motor derating
- Control interface is SELV (Safety Extra Low Voltage)
- Soft start allowing for controlled ramp-up to full speed (programmable)
- Over current protection
- Locked rotor protection
- Control method – torque control, speed control
- Direction of rotation – programmable and reversible
- Internal fusing
- Sensorless motor – uses FOC (Field Oriented Control)
- Approvals – UL 1004-7, UL 60730-1, UL CCN LZGH2/8, CAN CSA E60730-1, CSA C22.2 NO. 77-14, CSA C22.2 NO. 100-14

PATENTED ACTIVE COOLING

East West's patented active cooling system (illustrated above) helps the motor achieve a significant increase in power density. For the Vertex 1/2 HP, this means providing the same performance as a typical 48-frame EC motor but in a 42-frame package size.*

*S. Andrew Semidey, "Electronically commutated DC motor," U.S. Patent 11552 520, Jan. 10, 2023.

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Learn more about Vertex

FEATURES

- High voltage inputs (120/208–277 VAC) for 3-speed/torque operation
- Low voltage inputs (12–30 VAC or 3.3–30 VDC) for 4-speed/torque operation
- 0–10 VDC/PWM (pulse width modulation) for variable speed/torque operation
- Tachometer output/diagnostic output (1-pulse/rev)
- 3.3 VDC output (50 mA max) to power digital inputs when external controller does not have this output as an option
- Motor configuration via serial communication for PC and Bluetooth dongle for smartphone
- Possible elimination of interface modules when connecting to 3rd party controllers
- Soft start allowing for controlled ramp-up to full speed
- Control interface is a SELV (Safety Extra Low Voltage) system
- Over-temperature protected electronics

MOTOR SPECIFICATIONS

Tri Voltage	120/208–277 VAC 50/60 Hz
Speed Range	300 to 2000 RPM
Insulation	Class F
Bearing Type	Sealed ball bearing
Controller	Integrated
Direction of Rotation	Reversible via user configuration Default direction is CCWDE
Electronic Safety Features	Locked rotor Over-current Over-temperature protection
Mounting Options	Belly band: single shaft Resilient mount: dual shaft Custom mounting: upon request
Approvals	UL 1004-7, UL 60730-1, UL CCN LZGH2/8 CAN CSA E60730-1, CSA C22.2 NO. 77-14, CSA C22.2 NO. 100-14

MOTOR MATERIALS

Motor Casing, Electronics Housing & Over-molded Stator	PET composite with flammability rating UL94-5VA
Mounting Bracket	G30 zinc plated steel
Shaft	#45 steel coated with SR70 rust proof oil

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No one solution fits all

That's why we designed our Vertex motors in three efficiency tiers, which offer you the flexibility to choose the option best suited to your needs.

1/2 HP EFFICIENCY TABLE

	PREMIUM	HIGH	STANDARD
Peak Efficiency	**88%**	87%	85%
Max. Output Power	**450 W**	373 W	373 W
Max. Power Input	570/560–544 W	480/477–466 W	510/508–492 W
Current Draw	6.5/4.0-3.0 A	5.5/3.4-2.5	5.6/3.6-2.9 A
Operating Temp.	-20 °C to **60 °C** **	-20 °C to 50 °C **	-20 °C to 40 °C **
Rated Torque	3.6 Nm @ 1200 RPM 2.2 Nm @ 2000 RPM	3 Nm @ 1200 RPM 1.8 Nm @ 2000 RPM	3 Nm @ 1200 RPM 1.8 Nm @ 2000 RPM
Winding Material	Copper	Copper	Aluminum
Magnet Material	Neodymium-Ferrite	Ferrite	Ferrite

1/3 HP EFFICIENCY TABLE

	PREMIUM	HIGH	STANDARD
Peak Efficiency	**87%**	85%	84%
Max. Output Power	**299 W**	249 W	249 W
Max. Power Input	341/335–334 W	300/296–295 W	320/314–313 W
Current Draw	4.1/2.6-2.0 A	3.6/2.3-1.8 A	3.8/2.4-1.9 A
Operating Temp.	-20 °C to **60 °C** **	-20 °C to 50 °C **	-20 °C to 40 °C **
Rated Torque	2.4 Nm @ 1200 RPM 1.4 Nm @ 2000 RPM	2 Nm @ 1200 RPM 1.2 Nm @ 2000 RPM	2 Nm @ 1200 RPM 1.2 Nm @ 2000 RPM
Winding Material	Copper	Copper	Aluminum
Magnet Material	Neodymium-Ferrite	Ferrite	Ferrite

1/4 HP EFFICIENCY TABLE

	PREMIUM	HIGH	STANDARD
Peak Efficiency	**86%**	84%	81%
Max. Output Power	**225 W**	187 W	187 W
Max. Power Input	253/256–250 W	238/234–233 W	261/255–254 W
Current Draw	3.2/2-1.6 A	2.9/1.8-1.5 A	3.0/2.0-1.6 A
Operating Temp.	-20 °C to **60 °C** **	-20 °C to 50 °C **	-20 °C to 40 °C **
Rated Torque	1.8 Nm @ 1200 RPM 1.1 Nm @ 2000 RPM	1.5 Nm @ 1200 RPM 0.9 Nm @ 2000 RPM	1.5 Nm @ 1200 RPM 0.9 Nm @ 2000 RPM
Winding Material	Copper	Copper	Aluminum
Magnet Material	Neodymium-Ferrite	Ferrite	Ferrite

**Higher max. ambient temperature possible depending upon application requirements. Consult with your EW Account Manager for further details.

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VERTEX®
DATA MANAGEMENT
Real Data in Real Time

The Vertex app's real-time control capability provides real data in real-time, empowering users to fine-tune performance and make decisions with speed and precision. This ensures engineers can focus on optimizing motor performance without unnecessary complexity.

Vertex®
EC MOTOR SERIES

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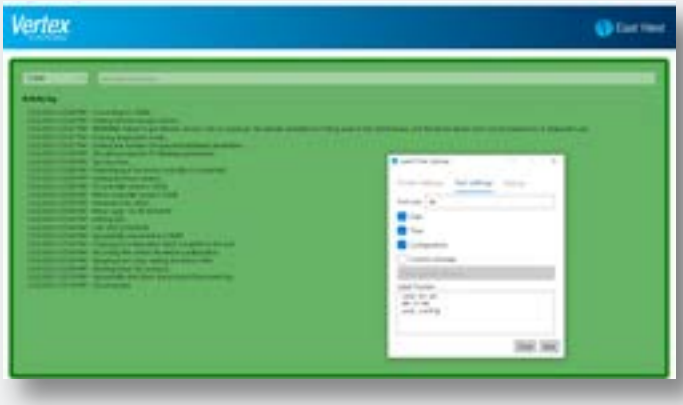
Effortless User Experience

EFFORTLESS DATA CAPTURE

Our app collects wireless data via Bluetooth, allowing for seamless testing in the application and eliminating the need for cumbersome wiring. By enabling an unobstructed performance analysis, our app enhances usability and ensures accuracy under real-world conditions.



SIMPLIFY YOUR WORKFLOW

Easily migrate final setpoints from the lab to production-ready files, generate barcodes for seamless production line scanning, and automatically trigger label printing - all through a user-friendly interface with supervisor controls.

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