

VERTICAL AEROSPACE AND MOLICEL PARTNER TO POWER THE VX4

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Vertical Aerospace announced a strategic partnership with E-One Moli Energy Corp (Molicel) to supply high power cylindrical cells for Vertical’s VX4 eVTOL aircraft. Vertical has now secured the supply of market leading battery cells to develop the VX4 through to certification and entry into service, working with Molicel to increase supply as the VX4 is brought into mass production. Vertical reviewed the capabilities of dozens of cell manufacturers before selecting Molicel as its battery partner as it believes Molicel is uniquely placed to meet the performance and safety requirements of the VX4 and to continue to deliver innovation and improved performance over time.

With more than 40 years’ experience in energy research and development, Molicel has established itself as one of the world’s leading supplier of high-power battery cells. Specialising in high power, low impedance and fast charge, Molicel deliberately focuses on demanding, high-performance applications of its batteries, with its technology already in use across space, advanced automotive and power tool applications. Partners include NASA and William’s Advanced Engineering.

Battery cells, and the wider battery system, are critical components for the safety, performance and economics of the VX4.

Safety – Safe flight is a non-negotiable and critical for our aircraft. Part of Vertical’s certification compliance journey is proving the management of thermal runaway events and Molicel’s high power cylindrical cell format is key this.

Performance – The VX4 needs high-performance cells to enable the range and payload Vertical’s customers demand. Molicel have the highest power and energy cylindrical cell in the world.

Economics – The VX4 battery system needs to be economic both as a component of the product and in second-life applications. Molicel will help optimise the life cycle of the battery cell for eVTOL as well as other second-life applications.

Vertical and Molicel have established a joint working group to ensure the battery cells result in a system for the VX4 that is a safe, reliable and high-performance. The battery system will be certified concurrently with the European Union’s Aviation Safety Agency (EASA) and the UK’s Civil Aviation Authority (CAA) with Vertical targeting 2025 for entry into service.

In addition to their existing production annual capacity (1.6GWh), in Taipei, Molicel will open their second Gigafactory in Kaohsiung, Taiwan in 2023 (2GWh). The advanced manufacturing technology at these new plants will not only enable mass production of cells for Vertical Aerospace, but its cell traceability approach will guarantee the consistency and quality required to meet aerospace standards.

Stephen Fitzpatrick, Founder & CEO, Vertical Aerospace commented: “The future of electric aviation is dependent on safe, high-performance battery systems and fundamental to this is the battery cells themselves. That’s why I am delighted to be partnering with Molicel, producer of the world’s highest power cells. Molicel has a rich history of innovation and pushing the boundaries of what’s possible in energy storage. We see many similarities between ourselves and Molicel and we couldn’t think of a better partner to bring the VX4 to market.”

Dr Limhi Somerville, Head of Battery, Vertical Aerospace said: “It has been a privilege to work alongside the excellent Molicel team in testing, evaluating and analysing their lithium-ion cells. Both here and in Taiwan. Through years of development their low resistance, high-power cells give us additional weight saving, charging and safety opportunities for the VX4 with minimal compromise to energy and lifetime. We look forward to working with them for many years to come in enabling certified propulsion battery systems in aerospace.”

Casey Shiue, President, E-One Moli Energy Corp (Molicel) added: “We have long been known as the pioneers of high power, low impedance, fast charge battery cell technology and have vast experience across a range of applications. We are on a mission to produce outstanding cells to drive the electric evolution and are very excited to enter this strategic partnership with Vertical Aerospace. We work with some of the best engineers in the world and have been immensely impressed by Vertical’s technical and engineering pedigree. We see our technology is a key enabler of safe and efficient flight, and we look forward to working with Vertical Aerospace to bring their revolutionary VX4 aircraft to the skies.”

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