

helix

# Advancing the future of automotive electrification



Powertrain Advantage



Performance is in our DNA.  
From Formula 1 to the open road.

# Evolved from motorsport

Helix is rewriting the rules of electric performance. With roots in motorsport and a legacy of record-breaking achievements, our powertrain technology now propels some of the most exclusive hypercars and supercars in the world.

As part of Middle Ground Capital, Helix combines cutting-edge motor and inverter technology with automotive and motorsport transmission expertise (Xtrac) and advanced control software (New Eagle), further strengthening our capability in the automotive electrification arena.



# Power, density, redefined

Helix electric motors are among the most power-dense in the world.



# Why Helix?

Delivering industry-leading power density and efficiency.

Our patented rotor design helps to achieve 98% efficiency in demanding conditions, and our motors are among the most power-dense globally.

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Powertrain performance advantages for hypercars and supercars.

They enable continuous peak output, instantaneous torque and acceleration, reduced weight for improved handling, and extended real-world range.

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Our motorsport heritage ensures performance and reliability.

Our technology is evolved from motorsport, powering champions in Formula 1 and Formula E and achieving record-breaking laps. This track-proven innovation drives the hypercars of tomorrow; regardless of whether they are hybrid or fully electric.

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Helix provide customised and fully integrated EDU solutions.

Our scalable core technology allows full customisation of factors like torque, length, motor windings, and cooling architecture. Helix can also provide the full suite of components to deliver any custom integrated drive unit.

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Systems that contribute to extended range and sustainability.

Optimal efficiency and lighter packaging reduce in-use emissions. Decoupler technology enables peak range with intelligent rear-axle disconnection, saving energy and weight.

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## Advantage: Helix

We are your partner in advancing the future of automotive electrification.

# Technology born on the track

We cut our teeth in motorsport.  
Our technology has powered:

- Formula 1 hybrids
- Formula E single-seaters
- The record-breaking VW ID.R (RAC Dewar Trophy Winner)
- Three of the seven fastest electric laps at the Nürburgring

Today, the same motorsport-proven innovation drives the hypercars of tomorrow.



Built for the circuit. Refined for the road.

# Performance, tailored to you

Our scalable core motor technology adapts effortlessly to your requirements. Whether designing for rear-axle peak output or front-axle efficiency, Helix systems allow full customisation of:

- Torque and length
- Motor windings
- Cooling architecture
- Inverter integration

One of the key enablers in our EDU's is the SPC242-100 high-performance motor.



Helix Motor Platforms

**SPC242-100**

Continuous Power kW

**300**

Continuous Torque Nm

**325**

Speed Range rpm

**17,000**

# Smarter control, cooler performance

Our inverters are designed in-house for maximum output and thermal efficiency.

Featuring:

- Automotive-qualified components
- 1200V Silicon Carbide power stage
- Proprietary inverter & motor control algorithm
- High velocity direct water cooling
- Aluminium housing.

They're engineered to optimise the total powertrain performance, delivering seamless integration and rapid responsiveness.

Sitting between the energy store and motor, the inverter is an essential component in any electric propulsion unit. Helix has developed its own high efficiency inverters.



Our latest CTI-4 800V Silicone Carbide inverter



# Max performance, minimal impact

Helix motors reduce in-use emissions through optimal efficiency and lighter packaging. Paired with renewable energy, they help manufacturers meet performance and sustainability goals.

The latest decoupler technology enables peak range with intelligent rear-axle disconnection – saving energy and weight.

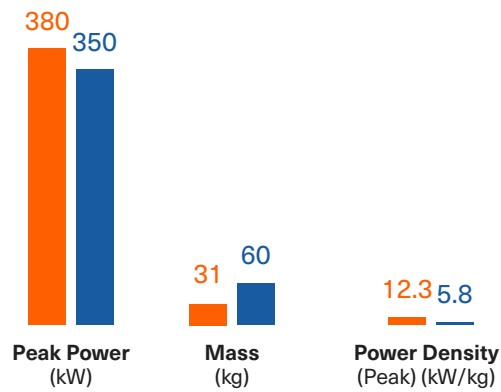
WLTP-cycle optimised front motors, while our advanced rear motors are engineered for power.

Rear motors engineered for power density and acceleration.

## Example: Helix SPX242-94 Performance Motor

380 kW output – ~50% lighter and 110% higher peak power density than a leading high-performance sports car brand rear motor.

## Comparison of Helix motors against current technology



Legend:  
Orange: Helix SPX242-94  
Blue: Leading high-performance car brand rear motor



# Your benefits with Helix

At Helix, we don't just build powertrains; we engineer a legacy of performance born from the demanding world of motorsport.

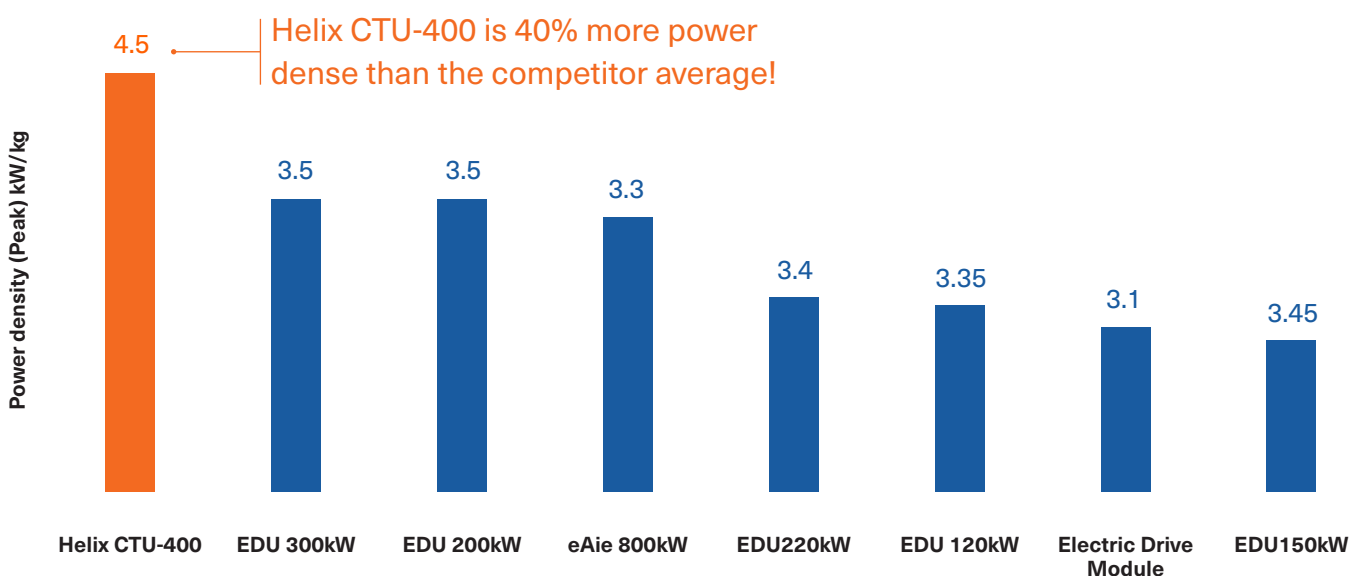
Choosing Helix means partnering with innovators committed to your success. We offer scalable, customisable electric drive units, providing complete, integrated solutions that go beyond mere components. Whether your need is for ultimate power, extended range, or a bespoke solution for extreme environments, our flawless precision and tailored collaboration ensure we meet your toughest challenges and push the limits of electric mobility together.

You benefit from:

- Scalable, modular core designs
- Integrated Electric Drive Unit (EDU) capability and OEM-grade validation
- Lightweight construction using premium materials such as high quality magnets
- Surface permanent magnet motor design
- Superior to axial-flux motor designs in scalability and packaging.

## How Helix compares

Automotive electric drive unit peak power density comparison





# Helix Powers a Hypercar Benchmark – The Lotus Evija

Helix provides the groundbreaking Electric Drive Unit (EDU) solution for the Lotus Evija, the world's first pure electric British hypercar.

The Evija's phenomenal performance – a target of 1,500 kW (2,039 PS), 1,700 Nm of torque, acceleration from 0-100 km/h (62mph) in under three seconds, and a top speed exceeding 349 km/h (217mph) – is a direct result of the advanced powertrain engineered by Helix.

At the heart of this performance are four individual high-power-density electric motors, one for each wheel. Each compact and lightweight EDU supplied by Helix integrates a motor, a high-efficiency silicon carbide inverter, and a transmission by motorsport specialist Xtrac® at each corner.

This four-motor configuration enables precise torque-vectoring, delivering an unparalleled dynamic response.

Helix's fully integrated and validated EDU solution was a key advantage for Lotus, ensuring optimal system performance and responsiveness.

The lightweight powertrain components are also critical to the Evija's low overall weight, reducing weight by 20% over traditional systems, therefore contributing significantly to its targeted 250-mile range. Its 98% efficiency, enabled by innovative cooling and optimised motor windings, blending track-ready power with real-world usability.

This collaboration solidifies Helix's position as a leader in translating motorsport-proven innovations into sophisticated, high-performance solutions refined for the road.





# X-Division

## Beyond Scalable Core Technology

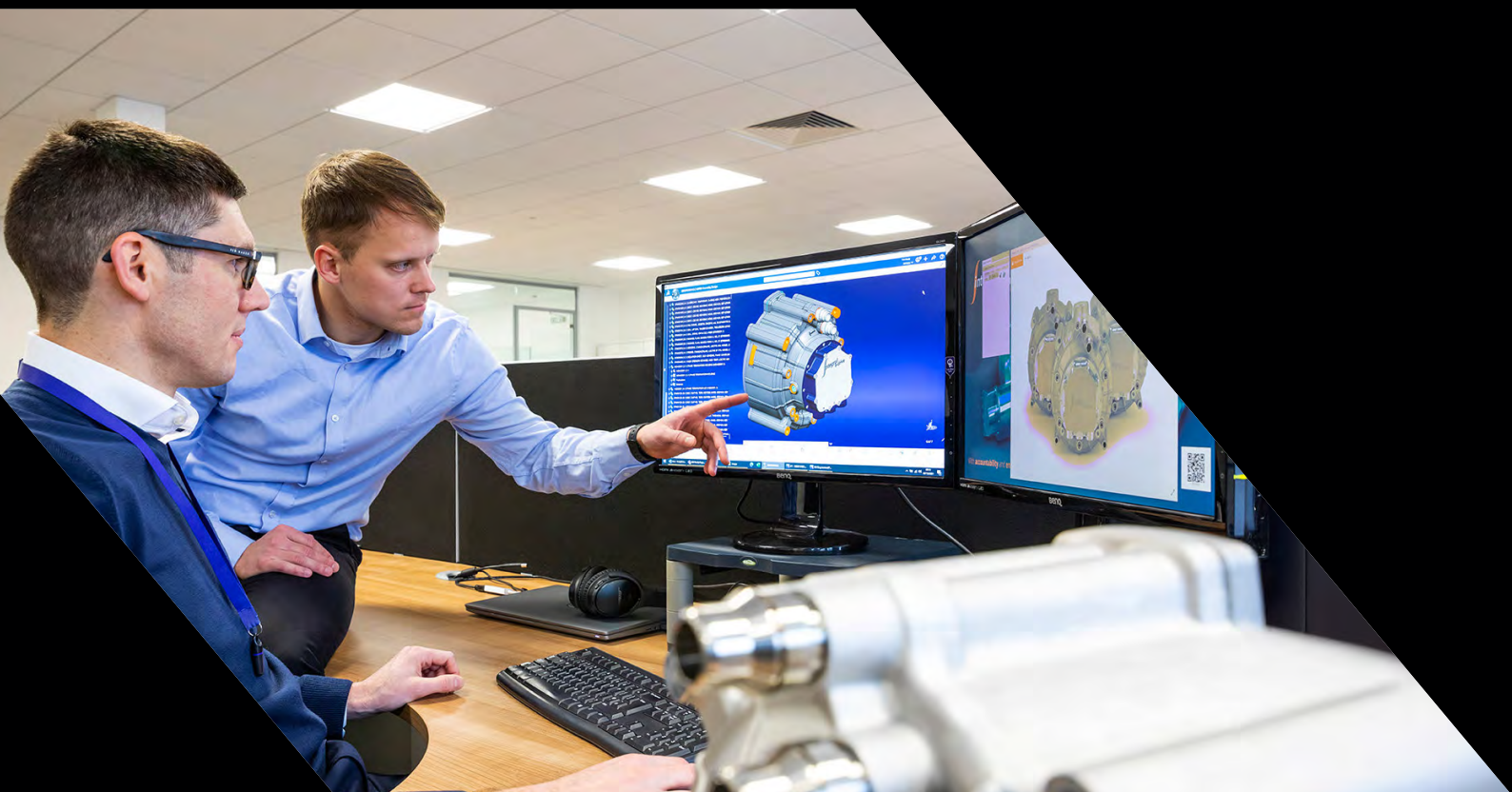
With Helix X-Division, you're not just acquiring a powertrain; you're gaining an undeniable edge.

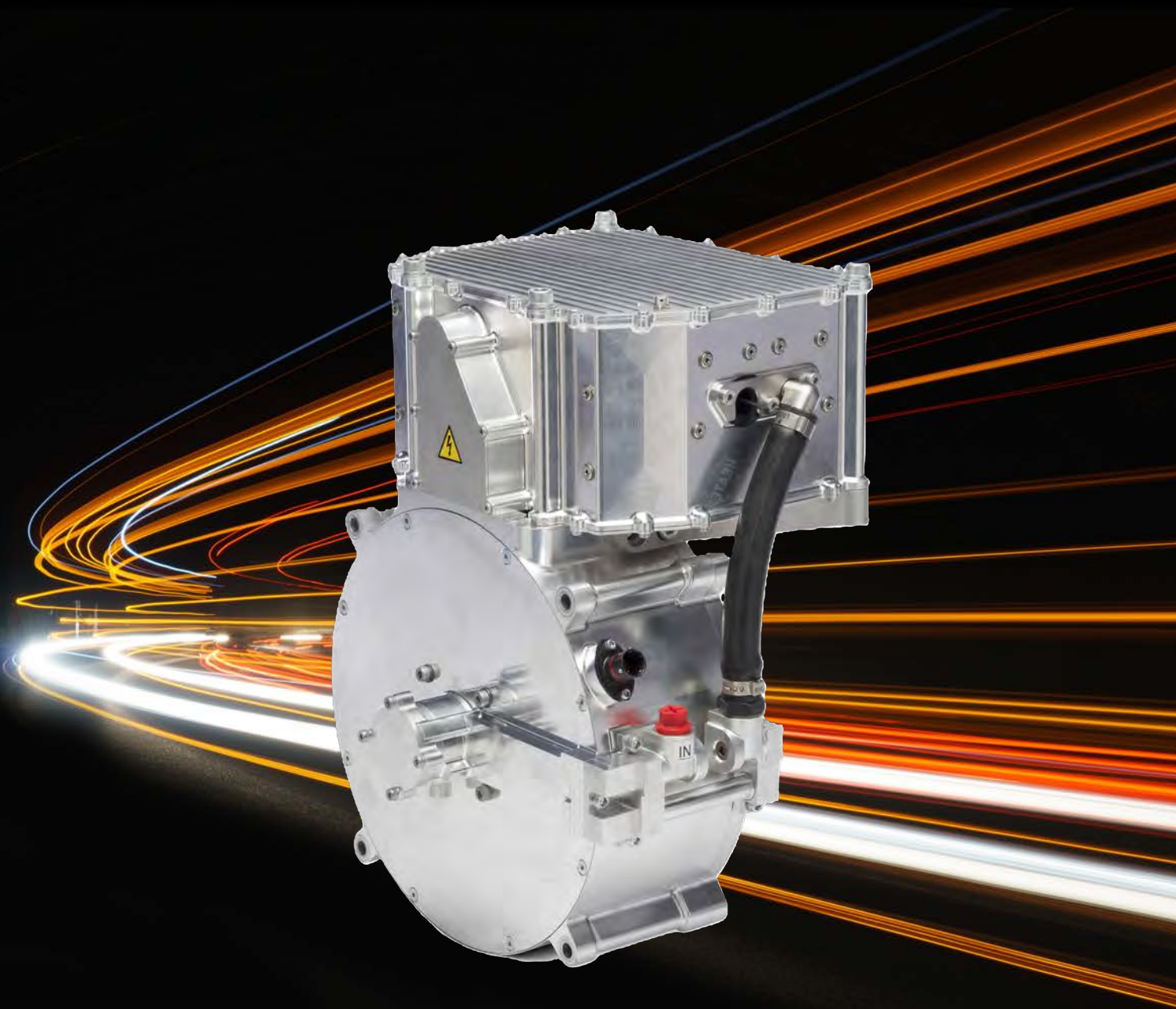
We engineer bespoke, cutting-edge electric powertrain solutions that push the absolute limits of performance, enabling you to confidently launch products that lead the future of electric mobility and redefine industry benchmarks.

Partner with us to transform your vision into market-leading reality, knowing your solutions are powered by the pinnacle of innovation.

Our capabilities include:

- **Unmatched Technology:** Developing cutting-edge electric powertrain technology, including advancements in Scalable Integrated Motor and Inverter (SIMI).
- **Tailored Collaboration:** From complex integration to compatibility with extreme environments, we partner with you to meet your toughest challenges.
- **Flawless Precision:** Achieving ultimate control mastery through innovative techniques like Dynoless testing.
- **Competitive Edge:** Maintaining and advancing technological leadership through internal projects and partnerships with forward-thinking clients.





Volkswagen ID.R Pikes Peak Winning 17,000 RPM motor

# Helix: Performance Electrified

The logo for Helix, featuring the word "helix" in a lowercase, bold, orange sans-serif font.

## Powertrain Advantage

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