Horse Powertrain reveals Future Hybrid System, an all-in-one hybrid powertrain

- Horse Powertrain reveals details of Future Hybrid System powertrain at IAA Summit 2025 – a significant iteration of the Future Hybrid Concept showcased at Auto Shanghai – which can hybridize BEV platforms
- The 1.5-liter, four-cylinder unit is a uniquely compact all-in-one powertrain design that integrates engine, motor, and transmission
- Future Hybrid System allows conversion of BEVs into HEVs, PHEVs, or REEVs with minimal modification to vehicle platform
- Performance (P1 + P3 motor configuration) powertrain is 740mm wide, with Ultra-Compact (P2 motor configuration) unit just 650mm wide
- Enables AWD and FWD range extended electric vehicles in compact car classes
- Horse Powertrain investigating three-cylinder variant to follow for even smaller applications

Munich, Germany (4 September 2025) – Horse Powertrain, a leader in innovative and low-emission powertrain systems, will reveal detailed specifications of its Future Hybrid System powertrain – enabling OEMs to hybridize Battery Electric Vehicle (BEV) platforms – at IAA Summit 2025.

Future Hybrid System is a revolutionary "all-in-one" hybrid powertrain that combines an engine, transmission, motor, and power electronics into a single system. A significant iteration from the "Future Hybrid Concept" first shown this year at Auto Shanghai, it replaces the front electric drive unit of BEV, offering an affordable and effective way to convert BEVs into hybrid EVs (HEVs), plug-in hybrid EVs (PHEVs), and range-extended EVs (REEVs).

Future Hybrid System is a flagship offering within Horse Powertrain's X-Range family, a category of solutions designed to enrich EV platforms with combustion and hybrid technology.[1] At IAA, Horse Powertrain has revealed two variants:

- **Performance**: a 740mm-wide variant which employs two motors in a P1 + P3 configuration (one at the engine output shaft, and another at the transmission output shaft).

- **Ultra-Compact**: a 650mm-wide variant which uses a motor in a P2 configuration (between the engine and transmission).

Both variants use a 1.5-liter, four-cylinder engine and dedicated hybrid transmission. They also contain the full suite of power electronics required for hybrid powertrains and can also seamlessly integrate with systems like a DC/DC converter, on-board charger, and an 800V charging booster to maximize performance at low voltages.

Matias Giannini, Chief Executive Officer of Horse Powertrain, says: *"Future Hybrid System is a perfect representation of what we are about as a company: freeing up the resources of automakers and OEMs that would otherwise be spent on reinventing powertrain categories. By providing a frictionless way to broaden their line-ups on existing architectures, we allow OEMs to continue to dedicate all their resources on accelerating EVs while offering a way to maximize the return on their investment in EV vehicle platforms, reducing complexity and focusing on their differentiators in today's market – design, software, and full electrification."*

Horse Powertrain is actively investigating additional Future Hybrid System variants that could increase the system's compactness. These include three-cylinder variants that could reduce the unit's width by a further 70mm.

Future Hybrid System in detail

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Fitted in an East/West orientation, Future Hybrid System features a 'slimline' top with a wider profile at the bottom, ensuring compliance with the latest crash test requirements. The unique integration of the sub-systems enables reduction of the front overhang by as much as 150mm, versus a conventional hybrid powertrain.

Like BEV-native electric drive units, the powertrain is mounted directly to the vehicle's subframe. This maximizes re-use of BEV components and streamlines manufacturing, eliminating costly retooling and change processes.

The packaging advantages offered by Future Hybrid System make it particularly well-suited to converting BEVs into all-wheel drive (AWD) REEVs. Traditionally, AWD REEVs would require placing an engine and generator on top of the front electric drive unit, which make the powertrain too tall or long for the front compartment.

By contrast, Future Hybrid System allows the easy conversion of a BEV platform into an AWD REEV in conjunction with a P4 motor (located near the rear axle), with no modifications required to the front compartment's other components or its shape. Further, Future Hybrid System's Performance variant can independently propel a vehicle on its own, providing a cost-effective front-wheel drive (FWD) hybrid solution.

Its compactness allows a vehicle to retain subsystems that are packaged in the front of a BEV platform but typically would not fit in the front of a hybrid. These include HVAC and air conditioning systems, particularly PFAS-free systems that require more packaging space than previous-generation air conditioning systems. This stands to significantly reduce the environmental impact of hybrids.

Ingo Scholten, Chief Technology Officer at Horse Powertrain, says: *"Compared to traditional solutions, Future Hybrid System achieves an unprecedented degree of compactness: it's shorter and narrower than any equivalent system on the market. Critically, this allows Future Hybrid System to pack a full hybrid powertrain into spaces originally designed for electric drive units, mounted via the vehicle's subframe. It also unlocks new opportunities for OEMs, such all-wheel drive range-extended EVs in compact vehicles, or the use of PFAS-free air conditioning systems."*

Future Hybrid System has been designed to be used and operated anywhere in the world. It features a pre-chamber ignition system that supports a range of fuels, including gasoline, E85 ethanol flex fuels, M100 methanol fuel, and synthetic fuels.

Future Hybrid System will be coming in 2027. Horse Powertrain will be showcasing the system at IAA Mobility 2025, as part of its stand in Hall A2, Booth B40. The company will be hosting a press conference showcasing its strategic vision and hero products at the IAA Summit press day on 8 September 2025, at 11:40am CEST.

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[1] The X-Range family of systems enables automotive OEMs to use their BEV platforms as foundations for hybrid vehicle line-ups with minimal modification, leveraging Horse Powertrain's expertise over the full powertrain component stack to create tightly integrated systems that achieve best-in-class thermal, mass, and space efficiency.

Along with its X-Range product family, Horse Powertrain will reveal its Fusion and One family of systems at IAA Mobility 2025, a range of complete plug-and-play hybrid powertrains that feature full combustion and electric propulsion.

About Horse Powertrain

Horse Powertrain is a new global leader in hybrid and combustion powertrain solutions, supporting automotive OEMs with a range of systems including engines, transmissions, power electronics, and integrated hybrid platforms. Consisting of two divisions, Aurobay Technologies and Horse Technologies, Horse Powertrain operates 17 plants and 5 R&D centers globally, serving a range of OEMs including Renault Group, Geely Auto, Volvo Cars, Proton, Nissan, and Mitsubishi Motors Corporation. Horse Powertrain is headquartered in London, UK, and employs 19,000 people globally. The company's three shareholders are Renault Group (45%), Geely (45%), and Aramco (10%).

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