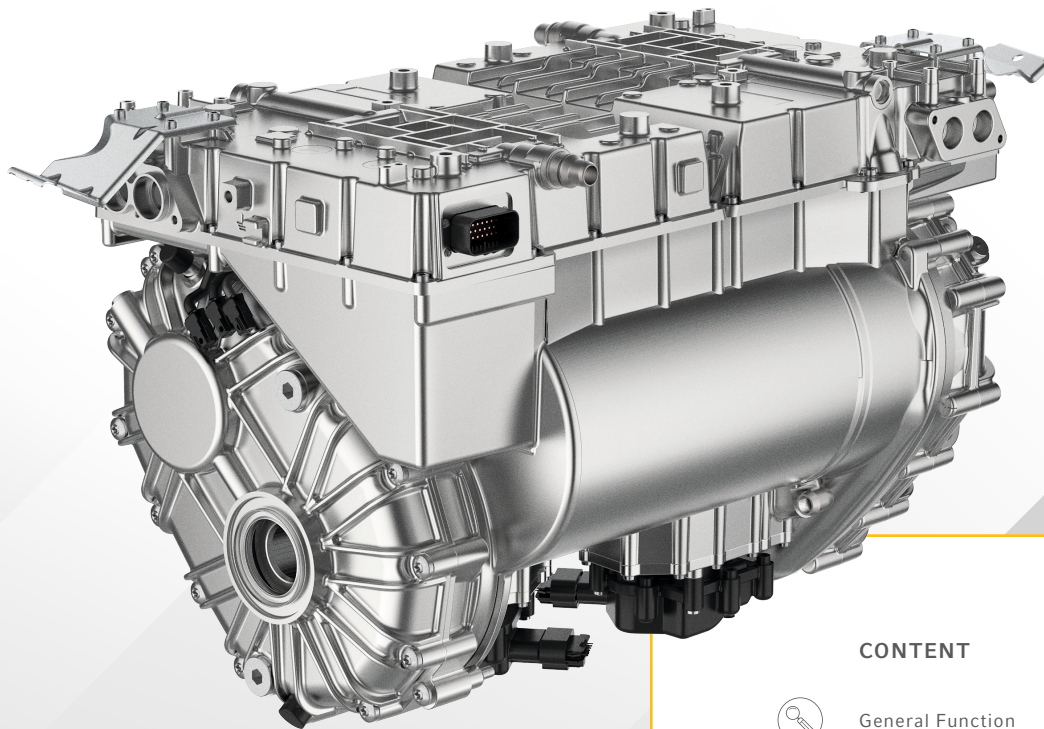


>>>> FACT SHEET

HIGH COMPACT TORQUE VECTORING EDU



CONTENT



General Function



Technology



Benefits



Performance

ACTIVE TORQUE VECTORING CAPABILITY

BUILT UP WITH TWO SIMILAR SINGLE EDU

Due to the fact that each of the single EDUs is controlled like a standalone EDU active torque vectoring is possible. This means that each wheel of the vehicle can accelerate or slow down individually and independently its speed according to the driving situation. The smart combination of a planetary and a spur gear

set allows a very compact EDU design with a high power density. Thanks to its compact and adjustable design, the EDU can be easily integrated into various vehicle platforms. This EDU version is primarily used in high-powered vehicles or all-wheel drive systems.

TECHNOLOGY

The cutting-edge Electric Drive Unit (EDU) is powered by two highly efficient Permanent Magnet Synchronous Motors (PMSMs). These motors provide exceptional torque density and ensure optimal performance under a variety of driving conditions.

One of the notable advancements in this EDU is in its innovative cooling system. By integrating the cooling of the electric motors with a water jacket enveloping the transmission, an ingenious thermal management solution is achieved. This design eliminates the need for additional cooling modules and oil pumps, which reduces the overall weight of the EDU. This weight reduction results in improved vehicle dynamics, enhancing both acceleration and handling characteristics.

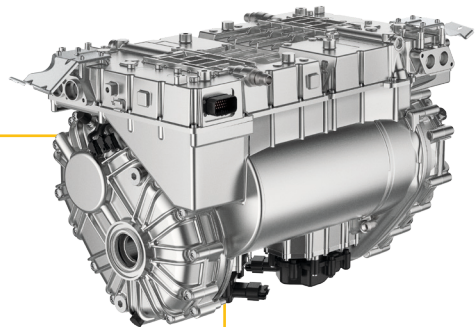
In addition, the integration of a water jacket cooling mechanism brings substantial benefits in terms of system efficiency. This enhanced efficiency contributes to improved energy utilization, extending the range of electric vehicles, and optimizing overall system performance.

Moreover, the transmission architecture of this EDU offers remarkable versatility, allowing adaptation to different vehicle environments and customer requirements. This flexibility enables car manufacturers to optimize the driving experience, ensuring seamless integration of the EDU into various vehicle platforms.



BENEFITS

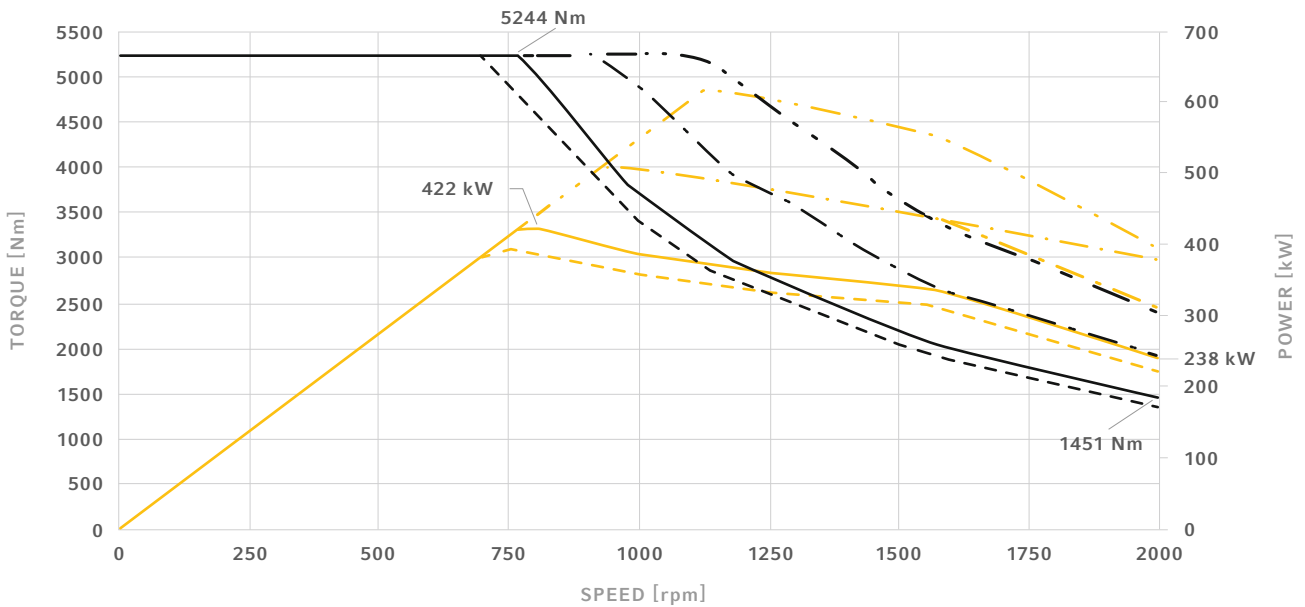
- + Active Torque Vectoring
- + Very compact EDU-design with a high power density
- + High system performance and efficiency
- + Many years of competence in system integration at hofer powertrain



PERFORMANCE

EDU ARCHITECTURE		HCTV EDU	
VEHICLE APPLICATION		Rear axle	
NOMINAL VOLTAGE	U	540	[V]
VOLTAGE CLASS	U	800 V	[V]
EM TYPE		2 x PMSM	[-]
INVERTER TYPE		800V SiC Dual Inverter	[-]
PEAK AXLE POWER (10S)	P_{max}	2 x 200	[kW]
CONT. AXLE POWER (30 MIN)	P_{cont}	2 x 100	[kW]
PEAK AXLE TORQUE (10S)	M_{max}	2 x 2600	[Nm]
CONT. AXLE TORQUE (30 MIN)	M_{cont}	2 x 1300	[Nm]
MAX. AXLE SPEED	n_{opax}	2000	[rpm]

EDU PEAK PERFORMANCE 10S

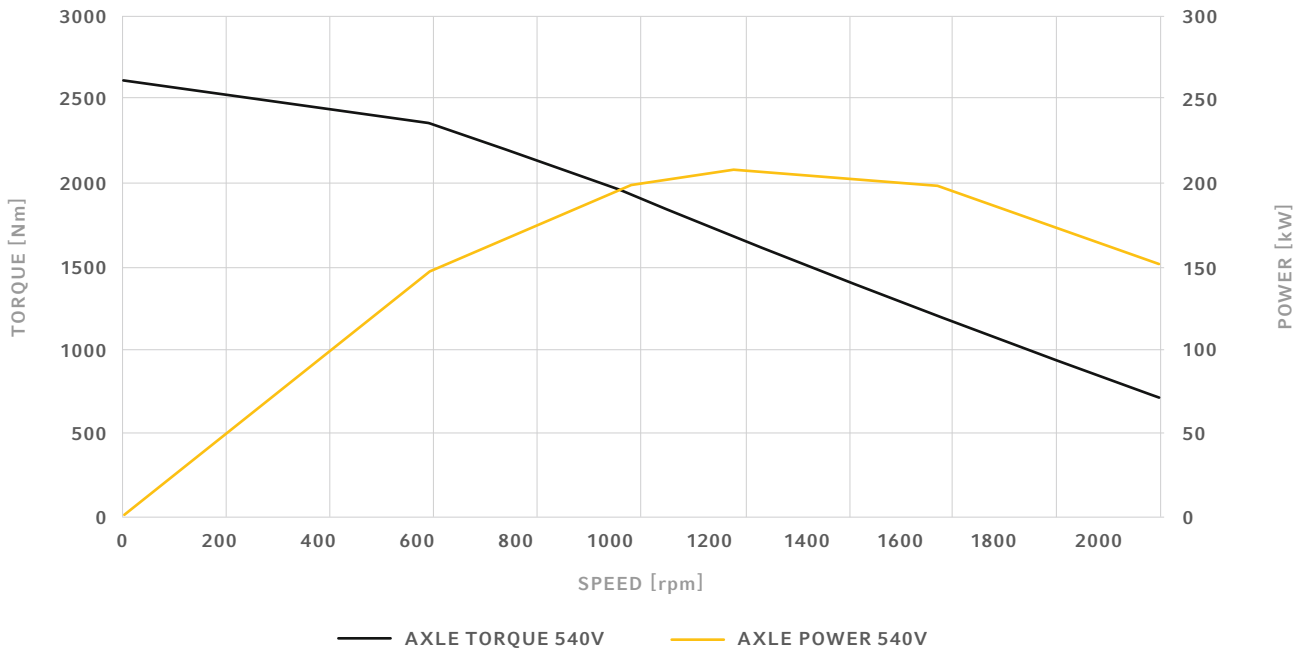


- AXLE TORQUE 500V — AXLE TORQUE 540V - · - AXLE TORQUE 650V - · · AXLE TORQUE 780V
- · - · AXLE POWER 500V — AXLE POWER 540V - · - · AXLE POWER 650V - · · AXLE POWER 780V

BOUNDARY CONDITIONS

- + Motor Typ: PMSM
- + Stator outer diameter: 160 mm
- + Active part length: 160 mm
- + Voltage utilization: 0.95
- + Stator temperature: 120°C
- + Rotor temperature: 90°C
- + Current density: 36.7 Arms/mm²
- + Transmission eff.: 97%
- + peak time: 10s

EDU CONTINUOUS PERFORMANCE 30MIN



BOUNDARY CONDITIONS

- + Voltage: 540V_{dc}
- + Motor typ: PMSM
- + Stator outer diameter: 160 mm
- + Active part length: 160 mm
- + Voltage utilization: 0.95
- + Stator temperature: 180°C
- + Rotor temperature: 170°C
- + Current density: 36.7 Arms/mm²
- + Transmission eff.: 97%
- + Simulation duration: 30 min
- + Coolant Water: Gylcol: 50:50
- + Coolant flow: 9 l/min
- + Inlet Temperatur EDU: 65°C

YOUR CONTACT

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