

elaphe™

SONIC X

In-wheel system | performance boost for hybrid & BEV performance vehicles



The Elaphe™ Sonic X is a direct-drive in-wheel system designed for supercar hybridization. It adds up to 800 kW per axle, enabling torque-vector performance boost on any existing ICE or BEV vehicle platform without modifications to the driveline, transmission or suspension geometry.

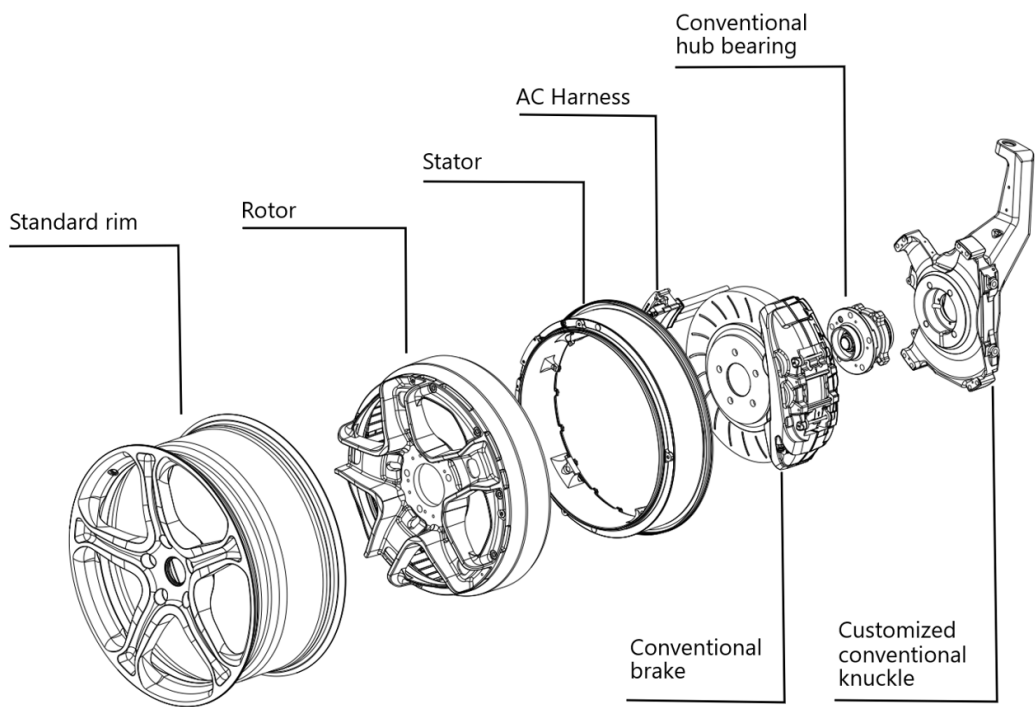
- Direct-drive — no gearbox, no driveshaft, no axle redesign
- Compatible with standard suspension, hub bearings & friction brakes
- Scalable in axial direction
- Dual winding: 400 V (parallel) or 800 V (series) — customer-selectable
- Orders of magnitude faster torque response than ABS and ESC (@10 kHz)
- 500 Nm/ms torque rate - 20x faster than drive-shaft based eAxes
- Integrated SW: Elaphe Slip Control, brake blending, emulation of mech systems
- Elaphe Vibroacoustics - authentic in-wheel motor sound and feel
- Power manager enables peak performance beyond battery SoC limits
- IP67 + IP69K — road and track certified sealing

Target: high-performance vehicles



TORQUE (@100°C mag T)		ELECTRICAL		PHYSICAL	
Peak torque	1500 - 2000 Nm	DC bus voltage	240 – 900 V DC	Unsprung mass	25 - 29 kg per corner, depending on IWM size
Peak torque duration	≈ 10 s (2000 Nm)	400 V config.	Parallel	Complete axle weight	72 - 80 kg
Motor rotor inertia (@ 21")	0.62 kg·m ²	800 V config.	Series or parallel	Wheel fitment	20 – 23 inch OEM hub bearing PCD and bolt spec
		Logic supply	9 – 16 V @ 2.3 A	Brake disc range	350 – 420 mm
		Communication	CAN2 (VCU) + CAN1 / CAN3	IP rating	IP67 + IP69K
		HV interface	3x70mm ² /35mm ² , up to 2m	Knuckle	Clocking configurable interface 8xM8
POWER		COOLING		ENVIRONMENT	
Peak power @ 700 V	410 / 200 kW	Coolant flow	8 – 15 l/min	Operating temperature	–40 ... +85 °C
Hypercar at Nürburgring - 7min lap time	No derating for multiple laps	Coolant type	50% water / 50% glycol	Humidity	10 – 95 %, non-condensing
Max wheel speed	up to 3000 rpm	Inlet temperature	Full perf.: –20 ... +40 °C	Rotor plate material	Aluminium/*Carbon SMC
Switching frequency	16 kHz	Max overpressure	2 bar		
		Cooling port	G3/8" Clocking configurable		

Compatible with standard rim, hub bearing, friction brake & knuckle geometry



CAN2: VCU communication | CAN1: Diagnostics | CAN3: Real-time data

