

System	Line item / basis	Supplier / class	Make	Low (EUR)	High (EUR)
Battery pack — cells	~15 kWh usable of Molicel P42A/P45B high-power 21700 (~970 r	Molicel (Taiwan)	COTS cells	4,000	8,000
Battery pack — build	BMS, contactors, welded sealed IP67 liquid-cooled enclosure, co	Bespoke integrator	Bespoke	6,000	12,000
Traction motor	EMRAX 228 or 268 axial-flux PMSM, liquid-cooled IP65/66; use	EMRAX (Slovenia)	COTS	3,500	6,500
Traction inverter	Cascadia CM200DX-class HEV/off-road inverter, 450A cont / 30C	Cascadia Motion (US)	COTS	5,000	9,000
Range-extender genset — hardv	Single-cyl ~450-690cc EFI four-stroke + PM generator + rectifier	LC4/701-class + PM gen	Bespoke	8,000	16,000
Frame — material & fabrication	Steel trellis, rally geometry; tube, weld, finish (design + jig in NRE	Bespoke fabricator	Bespoke	4,000	9,000
Suspension	WP XACT/XPLOR PRO-class ~300mm rally fork + piggyback shc	WP / Ohlins / KYB	COTS	5,000	8,000
Wheels & tyres	Spoked 21in front / 18in rear rally rims + hubs; rally knobby tyr	Rally-raid COTS	COTS	2,000	4,000
Brakes	Off-road/rally disc brakes, calipers, master cylinders, lines	Brembo / J.Juan class	COTS	1,200	2,500
By-wire throttle & VCU	Throttle-by-wire twist-grip sensor + vehicle control unit hardware	Bosch / M-Marelli class	COTS	2,000	5,000
Stability / traction ECU (HW)	IMU + stability/TC control unit hardware (desert calibration is dev	Bosch MSC class	COTS	1,500	4,000
Cooling hardware	Two liquid loops: radiators, pumps, fans, cold-plate, hoses, dust-	Motorsport cooling	COTS	2,000	4,500
Sealed connectors & harness	IP67 HV + signal connectors, bespoke sealed wiring harness	Amphenol / TE Deutsch	COTS+build	2,500	5,500
Bodywork & fuel system	Bodywork/panels, seat, sealed tank near mass centroid, exhaust,	Bespoke	Bespoke	3,000	7,000
Fasteners, bearings, misc	Sealed bearings, hardware, brackets, small parts, consumables	COTS	COTS	1,500	3,500
Total				51,200	104,500

Engineering / test line	What it is	Driver	Low (EUR)	High (EUR)
Frame design & fabrication engineering	Trellis frame design, packaging around pack+genset, jig/tooling for a	Cost driver	40,000	90,000
Battery pack engineering & test	Pack design (cell-to-module-to-pack), BMS integration & tuning, sealing	Cost driver	50,000	120,000
Range-extender genset integration	Constant-speed genset engineering: engine-to-generator coupling, reconfig	Cost driver (longest pole)	60,000	140,000
Vehicle control & by-wire integration	VCU torque-map software, ride-by-wire integration, HV-bus power management	Development	30,000	70,000
Desert traction-control calibration	Bespoke slip-target calibration software for controlled wheelspin in sand	Development	20,000	50,000
Assembly & integration labour	Prototype assembly, wiring, plumbing two cooling loops, fit-out, shakedown	Build	25,000	60,000
Instrumentation & test program	Sensors, data logging, bench + dyno time, desert test days (40-50C, sand)	Test	25,000	70,000
Contingency (integration risk)	Integration-execution risk reserve on a first-of-kind two-energy-system	Reserve	40,000	90,000
Total			290,000	690,000

Bucket	Note	Low (EUR)	High (EUR)
Components (hardware)	Sum of the Component BOM — parts on the machine, no engineeri	51,200	104,500
NRE, integration, test	Sum of NRE & Test — the engineering that makes a first-of-kind prc	290,000	690,000
Total		341,200	794,500