

Protoscar LAMPO²

pure battery EV - specifications

Unique features

Four different charging modes:

- 1) standard **single-phase** with up to **3,3kW** on board charger for typical overnight home-charge
- 2) "control-pilot" equipped and (EDF provided) PLC **single-phase** with **6,6kW** on board charger typical for public charging
- 3) standard **three-phase 9,9kW** on board charger typical for charging at industrial plugs (fleet-owners)
- 4) an interface for **DC fast charging** (able to transmit a max. power of 80kW), where up to 100 km of additional range can be charged within just 10 minutes, by an off-board system (CHAdeMO standard)

Four wheels drive designed in order to allow the maximum regeneration and to ensure more driving safety

Intelligent charging system: some charging parameters like the earliest charging time/last charging stop, max. charging yield and charging status to be achieved by the end of charging command the on board chargers

External charging status LED, integrated charging cable

Range estimator: GPS based device calculating different parameters like the remaining range (considering elevations etc.) and the notification of the closest charging stations

Motorization

Electric vehicle (2 electric motors and Li-ion batteries), fixed transmission ratio (1/6.4)

Electric motors

Type: Brusa HSM1-10.18.13 hybrid synchronous with transaxle gearbox, powered by a Brusa DMC534 inverter
 Quantity: 2, one on front axle, one on rear axle
 Total max. power kW (HP) 300 (408)
 Total max. shaft torque 0 – 4'500 rpm (Nm): 640
 Cooling water

Batteries

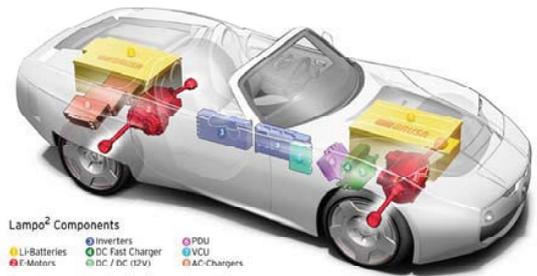
Type: Brusa EVB1 Li battery packs based on prismatic Kokam cells (Li-ion with polymeric electrolyte);
Quantity 2
 Total rated energy (kWh) 32
 Full charge (EU domestic plug) (h) 12
 Total capacity 0.5C (Ah) 80
 Nominal voltage (V) 400
 Max. continuous discharge current (A) 200
 Max. peak discharge current (A) 400
 Max. charging current (A) 80
 Total number of cells 216
 Total weight (kg) 280
 Cooling water
 Estimated life time @ 80% DOD (cycles/km): >800 / >160'000

Battery chargers (on board)

Type: Brusa NLG513; quantity: 3
 Total power (kW) 9.9
 Cooling air

DC/DC converter for the on board devices

Type: Brusa BSC624-12V



Performances and consumption

Max. speed (km/h)	approx. 200
Acceleration 0 – 100 km/h (sec.)	approx. 5
WtW emissions (g CO2)	0
Max torque on the wheels (Nm)	4'100
Range (km)	200
Energy consumption (Wh/km-ton)	99
Cost of energy (CHF/100km)	approx 2.40

Developed and manufactured by

Protoscar

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Vehicle Structure

Tubular steel chassis, composite material body

Dimensions and weight

Length (mm)	4'280
Width (mm)	1'880
Height (mm)	1'203
Wheelbase (mm)	2'415
Number of seats	2
Weight (empty, kg)	1'580
Tires	245/45 R18

Interior equipment

- Multifunction touch screen for the control of the car functions
- Driving style settings
- Sport steering wheel
- Electrically heated and cooled seats (Peltier effect)
- Electric heating
- Cruise control
- Central locking system
- Electric brake button on steering wheel
- Boost button on steering wheels
- GPS based range estimator
- Intelligent charging system
- GPS navigation system

Remote photovoltaic plant

Type: photovoltaic laminate by United Solar Ovonic with amorphous silicon cells

Surface (m ²)	260
Rated power (kW)	16
Energy production per year (kWh/year)	16'800

Price

Prototype, not for sale



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