

Off-Highway Electrification Capabilities



Electrodrive Powertrain Solutions Pvt. Ltd., or Electra EV, is India's leading electric vehicles powertrain solutions company, focused on accelerating the future of electric mobility in India. As India's first independent, pure-play EV powertrain company, we partner with select global OEMs in specific markets to provide high-value EV solutions with our products and services. We focus on shaping the future of electric mobility by innovating, developing, adapting, and integrating cutting-edge electric powertrain technologies for challenging applications with stringent product safety, regulatory compliances, and other market criteria.

Supporting Full
EV Programs

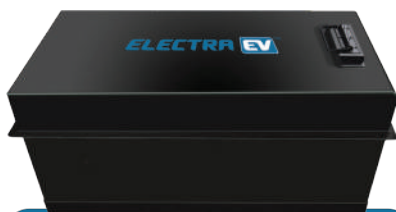
Flexible
Engagements

Robust
Performance

Strong Supply
Chain

Unique Manufacturing
Advantages

Tractors



Battery Pack– 24-29.56 kWh

Cell Type	LFP / NMC
Pack Voltage	76 V/ 96 V/ 320 V
Homologation	AIS 156, ECE R100 (Export) In progress

PMSM Motor		
Voltage	96 VDC	320 VDC
Power	30 kW	25 kW
Torque	120 Nm	120 Nm
Speed	3000 rpm	6000 rpm



Controller

Rated Voltage	96 VDC	320 VDC
Continuous Current	200 A	80 A
Short-time Current	450 A	115 A
Protection Grade	IP67	IP67



OBC-DCDC

Rated Voltage	96 VDC	320 VDC
OBC- Power	3.3/6.6 kW	6.6 kW
DCDC- Power	1 kW	1 kW
Protection Grade	IP67	IP67

Excavators

	Excavator 3T	Excavator 5T
Battery Pack	44 kWh, 96 Vdc, 460 Ah Running time: 3.0 Hrs	100 kWh, 308 Vdc, 326 Ah Running time: 6.0 Hrs
Traction Motor	AC IM - 12 kW, 96 V Max Torque 130 Nm, 2000 RPM	PMSM - 30 kW, 336 V, Rated Torque 150 Nm, 2200 rpm
Motor Controller	AC Induction	PMSM
Charger	6.6 KW with optional DC fast charging	22 KW with optional DC fast charging
DC-DC Converter	1kW Operating Voltage 96 V to 12 V	2 kW Operating Voltage 336 V to 12 V
VCU	12Vdc	12Vdc
Charging System	Type 2	Type 2, CCS2 (Optional)
HV & LV Harness	Integration, Design & Development	Integration, Design & Development
Battery Cooling	Air Cooled	Liquid Cooled
Traction Cooling	Air Cooled	Liquid Cooled



Battery Pack



Traction Motor



Motor Controller



25+ Years of Management Pedigree in the Off-Highway Industry

- Leadership involvement in full-vehicle and landmark off-highway projects (e.g. new product development for backhoe loaders and tractors).
- Teardown and benchmarking for ICE and EV off-highway products.
- Instrumental in founding industry-wide initiatives such as the Construction & Heavy Engineering (C&HE) Special Interest Group (SIG) within the NASSCOM Engineering Council.



Speed-to-Market Electrification Partner for OEMs

- Sourcing at scale - affordable solutions leveraging a strong local supplier base and extended office in China.
- Ready sub-systems for modular use in overall architecture.
- Strategic partnership with leading EV technology players.
- Utilising a systems approach to arrive at range and torque requirements in real use-case scenarios.



Cutting-Edge Technology Expertise for Electric Traction Drivetrain, Battery, and Power Electronics

- Access to advanced LFP, NMC and Metal-Air chemistries for optimum use case range and fast charging capabilities.
- Liquid & Air-cooled Battery Packs ranging from 48V to 650V, - 250 kWh, particularly useful for tropical climatic conditions.
- Proprietary integrated Battery Management System (BMS) - designed to redefine power output and durability for off-highway vehicles.
- Complete EV System Integration of Hardware and Software (Induction Motor and PMSM Traction Motor, Motor controller, OBC, DC-DC, Power Electronics).



Price Parity Understanding of ICE vs Off-Highway Vehicle Use Cases

- Unmatched experience in assessing TCO and net impact of factors such as duty cycles, payback periods, green regulations, pricing challenges, technology adoption criteria, and other factors impacting off-highway electrification efforts.
- Designing for Affordability and Value Addition and Value Engineering (VAVE) as a way of life.

Full Cycle Support to OEMs & T1 Suppliers



Brings Deep Ecosystem Understanding and Agility in Innovation



Successfully commercialised multiple powertrains across commercial vehicle and off-highway segments.

Testing services adhering to ARAI standards for AIS 048, AIS 004, AIS 037 and AIS 038
100% FAME compliant localised solutions for the Indian market

ELECTRA EV™

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