
ALTIGREEN
DRIVE ELECTRIC

# ALTIGREEN neEV

Electric Cargo 3-Wheeler ▪ L5 Category

## ▪ MADE IN INDIA ▪ MADE FOR INDIA
## ▪ CARGO EV FOR THE MASSES

+ Quality
+ Affordability
+ Technology
+ Load & Range
+ Safety

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= neEV = Maximum Earning

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## Variants

NEEV - Electric 3-wheeler (L5 cargo) is available in different variants. Customer chooses models based on application.

** All distances on IDC cycle at ARAI*

181 km / charge*

**Flatbed**

151 km / charge*

**Low Deck**


151 km / charge*

**High Deck**

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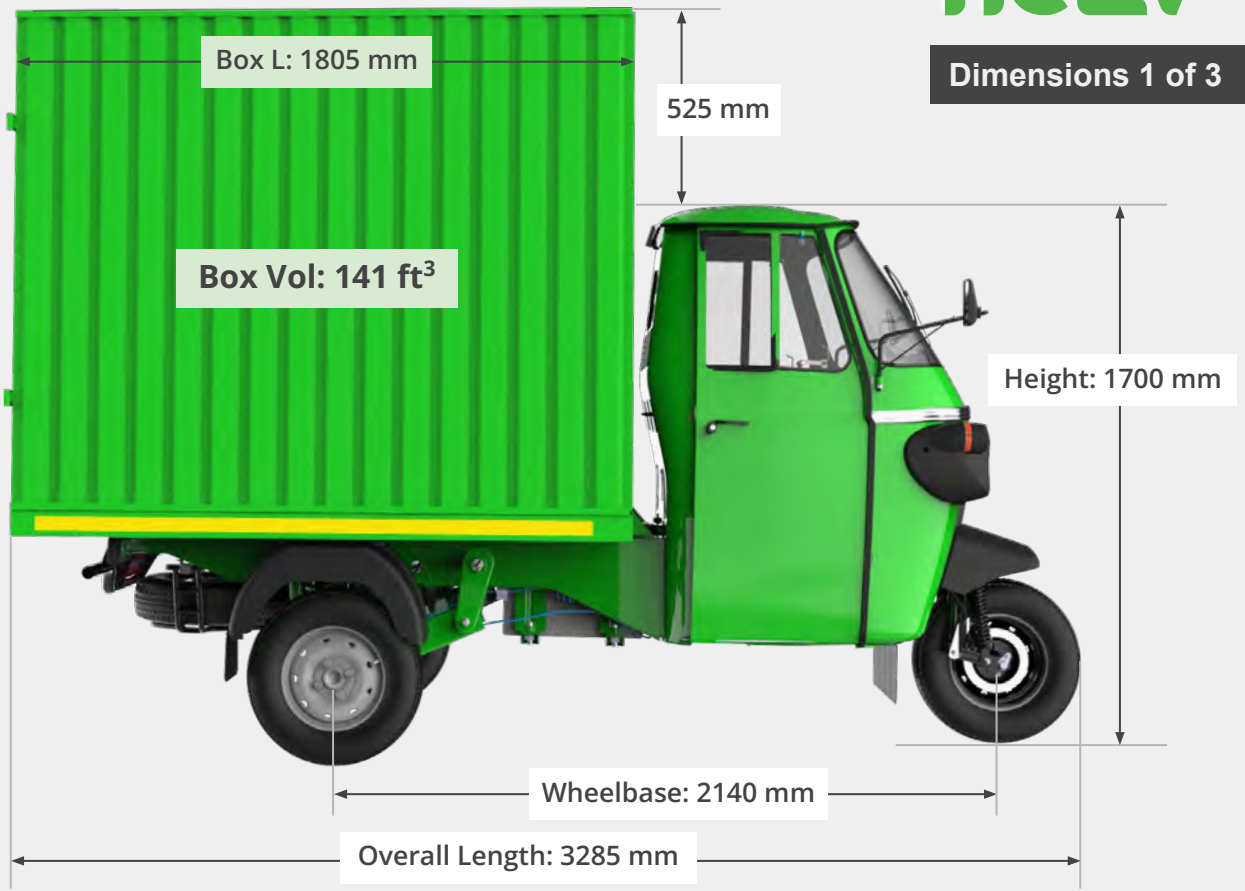
## Dimensions 1 of 3

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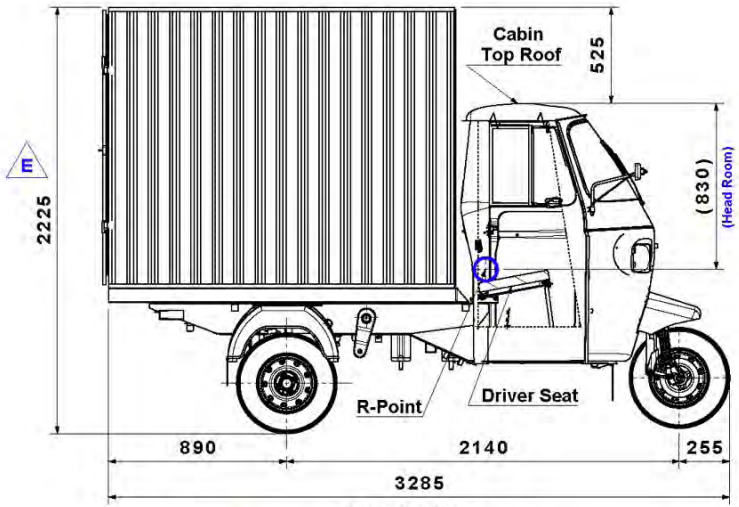
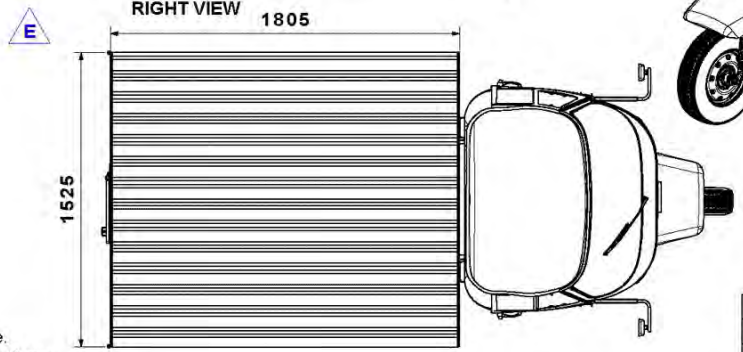
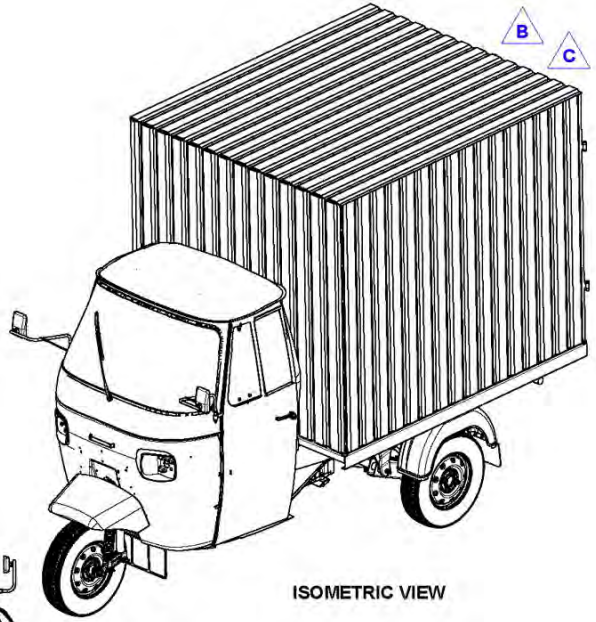
## Dimensions 2 of 3




RIGHT VIEW




TOP VIEW




ISOMETRIC VIEW

NOTE:
1. All Dimensions are in millimetre.
2. Assembly dimensions can vary ±2 mm.
3. Weight of Cargo Box is Approx. 90 KGs. (Including Base Platform)
4. Net additional weight of Base Platform is Approx. 30 - 40 KGs.

| Vehicle Model |
| --- |
| NEEV - HD |

| | | | NAME | DATE |
| --- | --- | --- | --- | --- |
| SCALE | NTS | DRAWN | JD | 16/12/2020 |
| MATERIAL | N.A. | CHECKED | CS | 17/12/2020 |
| WEIGHT | N.A. | APPROVED | SB | 18/12/2020 |
| NEXT ASSY. NO. | - | DWG TITLE | Vehicle And Cargo Box Layout_NEEV HD | |
| USED ON | - | SIZE | A3 | |
| | | DWG. NO. | 8053V0074 | |
| | | REV | R5 | |
| | | SHEET 1 OF 4 | | |

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DEVIATION ON NON TOLERANCED LINEAR MACHINED DIMENSION (mm): ±0.1 | ±0.2 | ±0.3 | ±0.5 | ±0.8

SURFACE ROUGHNESS IN MICRONS: 0.63 | 6.30 | 25-125 | 125-315 | 315-1000

25-250 | 6-25 | 1.6-6 | 0.025-1.6 | <=0.025

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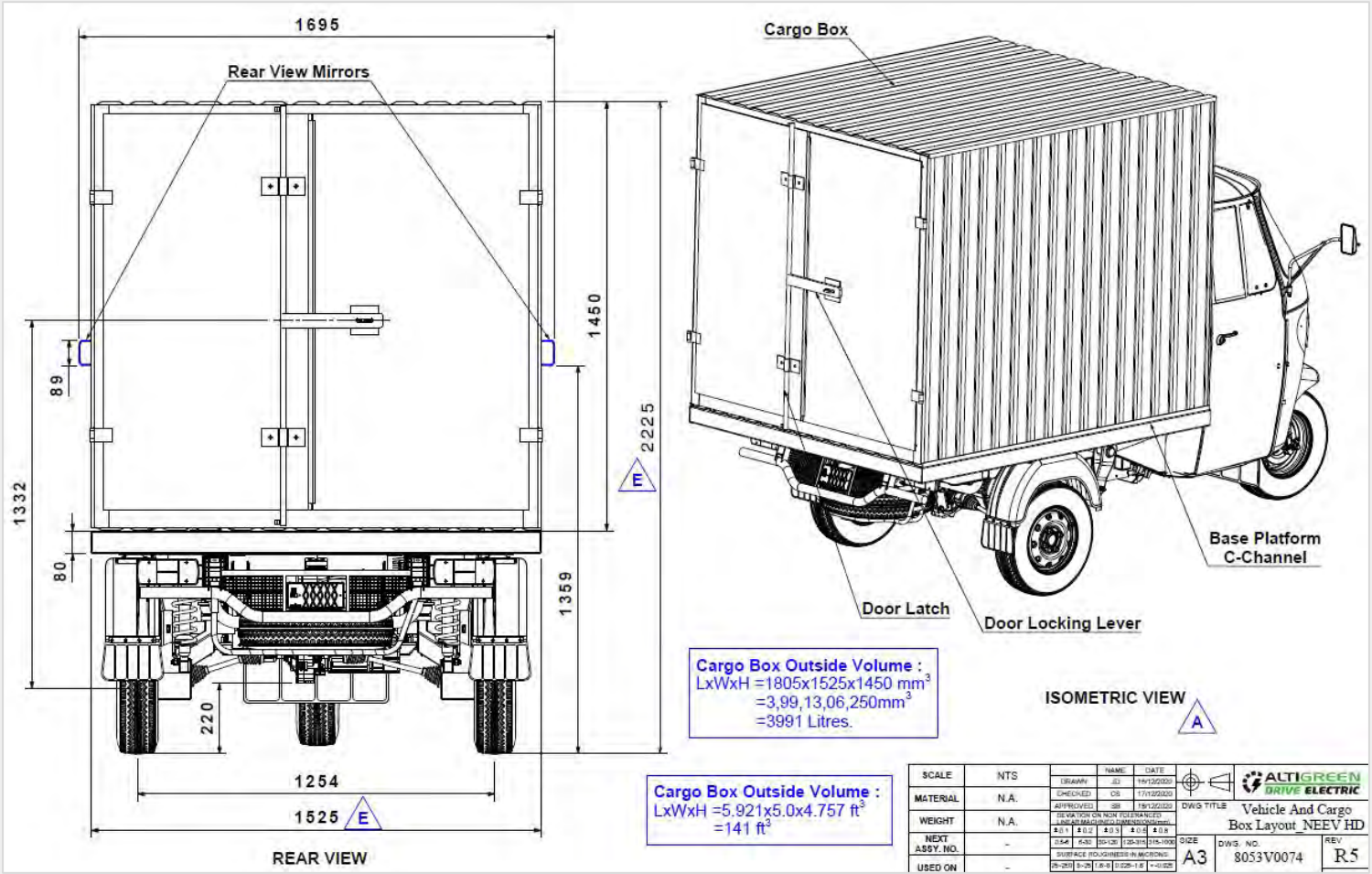
## Dimensions 3 of 3



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## Exterior 1 of 2


Large 141 ft$^3$ type approved box. Fits 80 delivery boxes

Curved windshield with 180° view of the road

Large, extended, adjustable side mirrors

LED indicators

Full metal body. Rugged, yet inexpensive to tinker/repair

Customisable facia

Branding opportunity on five sides of the box

Lockable cabin with doors and windows. Safety for valuables. No down time in harsh weather

Dual front suspension and helical springs for stable, smooth ride

Front disk brakes for better braking

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## Exterior 2 of 2


Transaxle with individual suspensions and helical springs for rear wheels provide excellent stability

4.5 x 12 - 8PR Wide tubeless radial tyres for superior road-grip

Large, closed container loadbay with 141 $ft^3$ volume

Full LED tail lamp cluster with reverse buzzer

Best-in-class ground clearance (220 mm)

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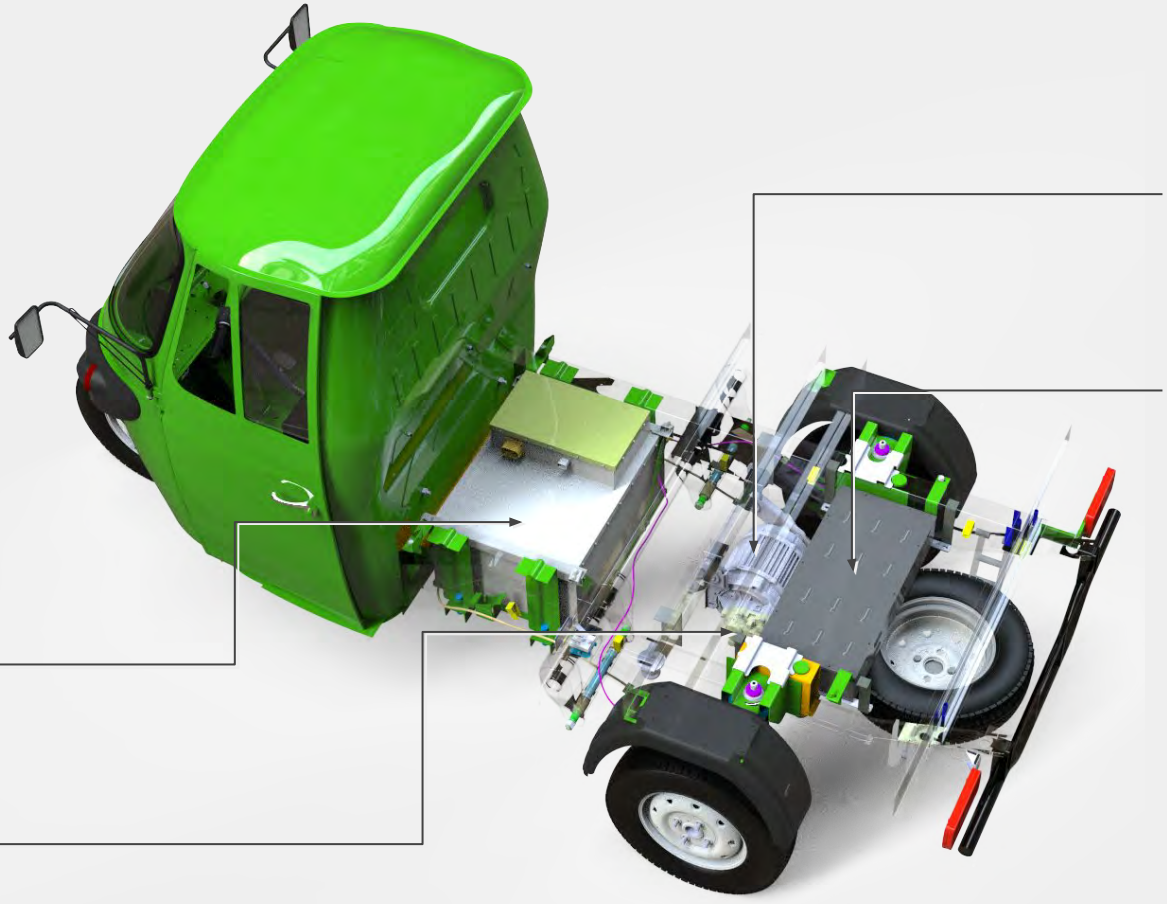
## Electric Drivetrain



Powerful motor easily climbs steep gradients, flyovers, and basement ramps with a loaded vehicle, especially from stationary state

Electronics

Centrally placed 11kW-h Li-ion battery for very low CG and stability. Provides exceptional 151 km range per charge

Gearbox

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## Cabin Interior


Wiper: Heavy-duty DC-motor based

Large 5 inch digital display with all critical information

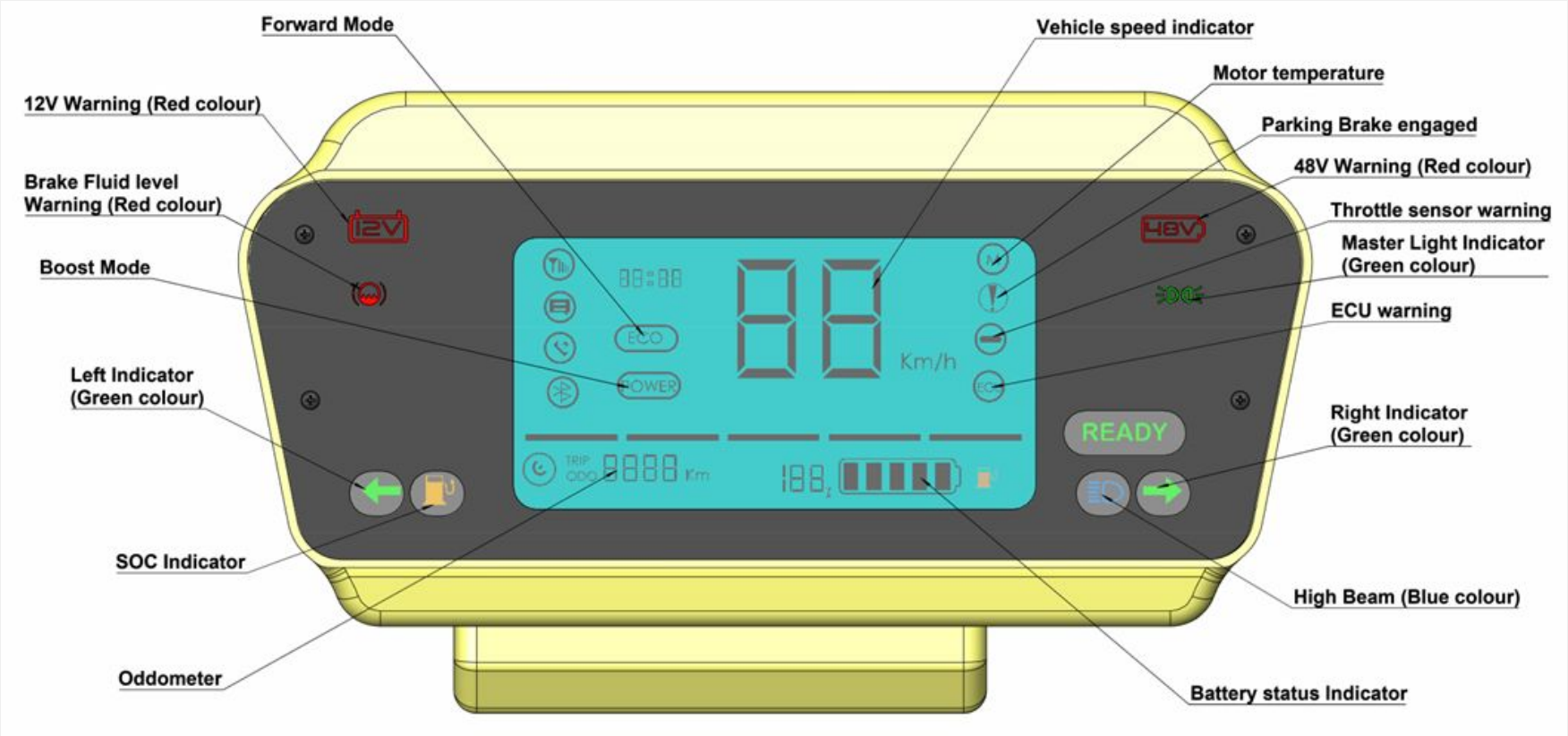
Lockable glove box

Conveniently located Boost / Reverse / Drive mode selector

Ergonomic controls

Handbrake: dual-channel

# Large Dashboard with All Critical Info



# Vehicle Specs 1-of-3

| Spec | Value | Benefit |
|---|---|---|
| Motor Peak power | **8.25 kW** | Higher power = more speed. Allows easier overtaking |
| Motor Peak torque | **45 NM** | Diesel 3W have 23 NM |
| Transmission | **Single Speed, Fixed Ratio 18:1** | Single speed reduces driving complexity. No clutch, no gear change. EVs provide high torque. 810 NM on wheels is best-in-class. Pull high loads on steep gradients with ease. |
| Controller type | **Closed loop FOC** | High efficiency (96%) with in-built safety, and fine control. |
| DCDC Converter (48V-12V) | **300 W** | Adequate for full electrical load of vehicle. Ensures 12V battery is never drained. |
| Gradeability (GVW for moving vehicle) | **17%** | Highways, bridges and flyovers range 3.3% to 6%. 11% allows for ease of climbing even up building basements |
| Max. speed | **53 kmph** | High speed enough for city roads and suburban traffic-free stretches |
| Battery type | **Lithium / LFP** | Spec for adverse conditions incl higher temperature (60°C) of operation |
| Battery Voltage | **48 V** | 46V-56V |
| Battery capacity | **11 kWh** | Best in class, ensuring no range anxiety |

# Vehicle Specs 2-of-3

| Spec | Value | Benefit |
|---|---|---|
| IDC Distance per charge | **181 km** | Standard Indian Drive Cycle, with vehicle and 150Kg load |
| On-road range per charge | **120 km** | Based on pilot testing with loaded vehicle in slow moving traffic. |
| Charger | **3000 W** | Able to charge from the household 220V/16A socket. Full battery charge in 3.5 hours. |
| Regenerative braking | **Yes** | Conserves energy, increases range. Reduces brake pad wear. Required for FAME. |
| Suspension | **Twin coil-spring with damper (Front). Independent suspension with coil-spring (Rear).** | 3-Wheelers are prone to tipping over during a high speed turn or on uneven roads. Independent suspension, instead of rigid axle, reduces that risk. Improves safety. |
| Wheel base | **2150 mm** | Good distribution of weight between front and rear |
| Closed Load body volume* | **141 $ft^3$** | Approx 80 packets for delivery. Can be increased with rear overhang. |
| Turning radius | **3000 mm** | Tight U-turns on narrow roads |

** Vehicle can be purchased without load body. Suitable load body fabricated as aftermarket.*

# Vehicle Specs 3-of-3

| Spec | Value | Benefit |
|---|---|---|
| Vehicle gross weight | **950 kg** | |
| (Official) Permissible Load | **550 kg #** | |
| Parking brake | **Handle Lever Type** | Sturdy throttle with adjusted tension |
| Instrument cluster | **Digital** | Large display. LED indicators. Mode switches. Proactive alerts. |
| Telematics | **Mobile and web-based** | • GPS tracking, cradle to grave<br>• Per second recording of speed, battery, temperature and other critical parameters<br>• Proactive alerts to driver during faulty operation<br>• Service guidance and recovery to-dos<br>• View of all vehicles aggregated in a fleet<br>• Recording and reporting of historical data |
| Doors | **Lockable doors with windows** | Safeguard valuables (documents, cash, phone). Avoid downtime even in harsh, rainy conditions. |
| Brake Lights, Indicators | **LED** | High intensity yet low power consumption |
| Windshield Type | **Laminated glass** | For a 180° view of the road. Large, extended/adjustable wing mirrors. |

*# Multiple variants available with lower kerb weight and higher payload*

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Assurance

- **Warranty** — 36 months OR 100,000km *(whichever is earlier)*
  - All Electrical and Electronics Parts
  - Excluding Consumables
  - Includes Li-Battery
- **Vehicle Insurance** — All India Coverage
- **Detailed Guides** — for Drivers / Owners
  - Owner's Manual
  - Service Manual
  - Do's and Dont's Videos for new Drivers
  - Quick User Reference Guide for Drivers

# Altigreen

## The Company

- Bangalore-based
- Champion of carbon-free transportation
- Designs world-class Electric Vehicles and drivetrains
- Special focus on emerging markets

Founded by a team of experienced global professionals passionate about EVs.

Deep expertise across technologies.

Altigreen aims to make EVs economical, and accessible for the masses.

# Altigreen Strength

- 26 global patents
- 6 in the US
- More in India, Europe, Australia, South and Southeast Asia, Africa

# Everything Designed & Developed In-house

**Designed / Developed / Tested over 8 years.**
**No component imports.**

- ✔ **Drivetrain:** Built for the specific needs of India
- ✔ **Motor:** With complete test facilities
- ✔ **Power Electronics:** All EV components
- ✔ **Lithium Battery:** Battery design, and Management System
- ✔ **R&D:** Expertise in Motors, Controls, Transmissions, Telematics, BMS
- ✔ **Vehicle Assembly:** With complete RLS Vehicle Dyno testing facilities

*All components, and completed vehicle is homologated and approved by ARAI.*
*Fully compliant with FAME-II guidelines.*

# The Founders

Experts in the fields of motors, controls, and software.

Based in India and the US.

## Amitabh Saran

PhD (Computer Science) from UCSB; 27 years' of software, technology and corporate leadership roles with TCS, Philips, NASA, HP, and TriVium. Last Founder/CEO of Buzzintown, acquired by Yatra.com in 2012.

## Lasse Moklegaard

PhD (Control Engg) from UCSB; 18 years' experience in building and integrating control systems, including for Ford, Mack Trucks, military vehicles, John Deere and Cessna/Lear jets. Worked with Cambridge University, Pacific Scientific, Aker and DISTek.

## Shalendra Gupta

MBA from IIM (A); 28 years' experience in finance, commercial, business development and manufacturing. Worked with SBI Capital Markets, Deutsche Bank, Siemens and BCH Electric.

## John Bangura

PhD (Electrical Engg) from Marquette; 21 years in high performance motors and electronics in aerospace and hybrids for Kawasaki, Rolls Royce, Goodrich, Boeing, Airbus, Bombardier and military. Worked with Black & Decker, Alltrade, Pacific Scientific, Hamilton Sundstrand/UTC

# Leadership Team

Core team's expertise is drawn from organisations known for their excellence

| Team Head Area | Exp / Yrs | Key Companies |
|---|---|---|
| Sales & Marketing | **28** | Hindustan Motors, Kirloskar, Toyota, Mercedes Benz, Greaves |
| Electronics | **21** | V Guard, Larsen & Toubro |
| Control Systems | **14** | Larsen & Toubro, John Deere |
| Vehicle Integration | **11** | Rane, Mitsubishi Diesel Engines, Force Motors |
| Transmission | **23** | Hindustan Motors, Hero Motors, Magna Steyr, Force Motors |
| Software & IT | **40** | Intel, Sequent/IBM, Hewlett-Packard, Trivium Systems |
| Product Validation | **21** | Hindustan Motors, Tata Motors, M&M, Daimler, General Motors |
| Homologation | **42** | ARAI (retired as Sr Deputy Director) |
| Operations | **30** | Indian Army, Tejas Networks, Maverick Projects |
| Service & Support | **25** | Bajaj Auto, Honda Motors, TVS, Bounce |
| Production | **14** | Suzlon, Crompton Greaves, Kirloskar Electric, GE, Moog Controls |
| Supply Chain | **24** | Dumore, Seussen, TRW, Pricol, Faiveley, Tara Motors, Olectra |
| QA | **23** | JBM, Subros, Siemens, Renault-Nissan, Tata Motors |

# Thank You!

Sales Queries: sales@altigreen.com

Website: altigreen.com