



# TECHNICAL DOCUMENT

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TEKNOFEST 2024

ROBOTAXI AUTONOMOUS VEHICLE COMPETITION

READY VEHICLE CATEGORY

## BEE1 | TECHNICAL SPECIFICATIONS

Manufacturer	:	Beemobs
Model	:	Bee 1
Tip	:	L7e-CU
Variant	:	Closed Safe
Body Colour	:	White (RAL9003)
Case Type	:	Double clamshell on the back
Number of Axles and Wheels	:	2, 4
Traction Type	:	Rear Wheel Drive
Number of Passengers	:	1 (driver)
Body Material	:	ST37-ST52 Steel
Driver Location	:	In the centre
Power System Layout	:	On the rear axle
Maximum Vehicle Speed	:	55 km/h
Nominal Motor Power	:	6 kW
Nominal Motor Torque	:	40 Nm
Peak Motor Power	:	7.5 kW
Peak Motor Torque	:	80 Nm
Empty Vehicle Weight	:	625 kg (including case, battery)
Maximum Vehicle Weight	:	1000 kg
Load Capacity	:	300 kg + 75 kg (driver)
Length	:	2740 mm
Width	:	1060 mm
Height	:	1785 mm
Wheelbase	:	1860 mm
Rear Track Width	:	850 mm
Front Track Width	:	886 mm
Back Extension	:	470 mm (vehicle)
Front Extension	:	410 mm
Vault Volume	:	1.200L
Power System Voltage	:	76.8 V (60-88V)
Accessory System Voltage	:	12 V
Electric Motor Type	:	PMSM
Battery Type	:	LFP
Battery Capacity	:	10.36 kWh
Charging Power (Duration)	:	220 Vac - 25 A (5 s)
Rear Axle Type, Gear Ratio	:	Rigid Axle, 1:8.1
Front Axle Type	:	MacPherson
Suspension Type	:	Coil spring / Oil shock absorber
Steering Wheel Type	:	Rack and Pinion
Theft Protection Type	:	Mechanical steering wheel lock
Steering Wheel Support	:	Electrically assisted, electronically controlled
Service Brake Type	:	Front: Ø200mm Disc, Rear Ø210mm Drum
Parking Brake Type	:	Electric, rear axle

Auxiliary Brake Type	:	Regenerative braking (with drive motor)
Brake Support	:	Electrically assisted, electronically controlled
Bend Stabiliser Bar	:	Front and rear axle
Air Conditioning System	:	--
Windscreen Type	:	Laminated glass
Door Glass Type	:	Tempered glass
Door Glass Mechanism	:	Sliding opening glass on both sides
Windscreen Resistor	:	189W, 12V
Wiper System Type	:	2 speed, 1 sleeve
Indicator Type	:	5" TFT
Indicator Language	:	English, Metric
In-Cabin Accessory Outlet	:	USB type-C , x2
Front Lighting System	:	Halogen headlamp LED position/signal
Rear Lighting System	:	Combined lighting
External Mirror Type	:	Manual adjustment
Driver Seat Type	:	Front-back and back angle adjustable, Material: Leather
Safety Belt Type	:	3-point
Tyre Type	:	145/70 R13, 155/65 R13, Summer Tyre
Rim Type	:	13", 5J, Steel
Exterior Cladding Material	:	DCPD
Interior Cladding Material	:	ABS
Towing Attachment	:	In front
Warranty Coverage	:	2 years or 80,000 km - vehicle 5 years or 3,000 cycles - battery

## BEE1 | ADDITIONAL AUTONOMOUS DRIVING ELEMENTS

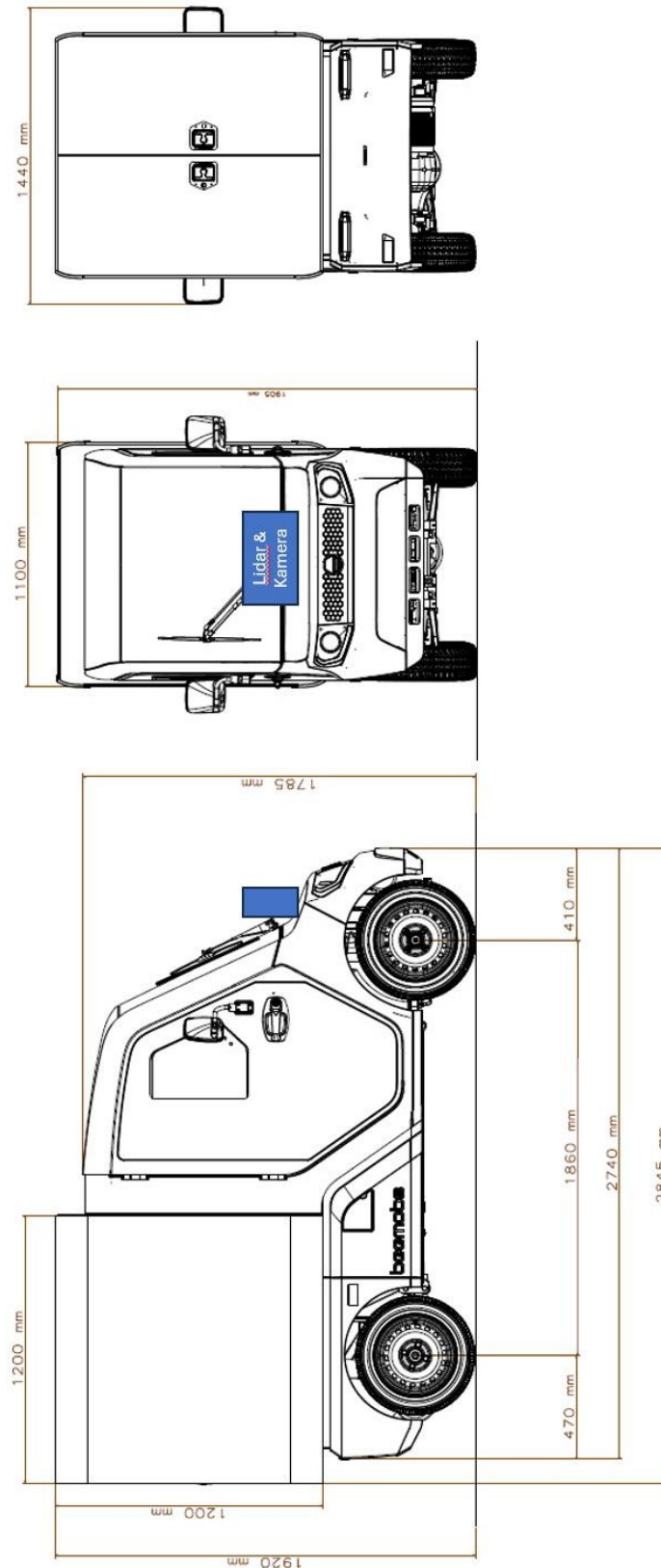
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Brake Actuator	:	Stepper Motor with Encoder 86BHH114-450p-40Mp
Brake Reducer	:	40 Housing Worm Gearbox 1:10 Ratio
LIDAR Sensor	:	Velodyne Puck Hi-Res 16
Camera	:	ZED2 Stereo
GPS/IMU	:	XSENS MTI-680-DK
Vehicle Computer	:	BOXER-6842M-A2-1010 ASUS ZOTAC - AAEON or NVIDIA - Geforce RTX3060
Wifi Adapter	:	WAVLINK AC1200 2.4 + 5 Ghz 1.2 Gbps
Operating System	:	UBUNTU 18.04
ROS Version	:	ROS1 or ROS2
Vehicle Communication Infrastructure	:	CANBus

## BEE1 | DIMENSIONS and APPEARANCE

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**Sensor and Vehicle Computer Layout:** LIDAR and CAMERA units are located in front of the windscreen, parallel to the ground, so as not to be affected by road vibrations. will be positioned. Other autonomous driving units, including the internal power supply, will be positioned in the body of the vehicle, protected from external influences.