



LR50 VEV

Electric All-Terrain Litter Vacuum

Product Overview



Nov 2023



www.madvac.com

Technical specs are subject to change without prior notice



Applications

From concrete to grass, the LR50 **Vocational Electric Vehicle (VEV)** can tackle all types of urban terrain with ease

- Parks and grass areas
- Sidewalks
- Bike and pedestrian lanes
- Parking lots
- Curb side
- Alleys
- Pathways
- Alongside buildings





Attributes

- LR50 replaces **6 to 8** manual litter pickers (equal quantity of litter removed within same time period)
- Can collect litter that is dry, humid, or wet
- All-terrain vehicle
- Easy to operate, no CDL required
- Street legal lighting package





Zero Emission

- If used 20 hours per week, (1000 hrs./yr.) each LR50 electric will reduce CO2 emissions by approximately **17 tons / year**





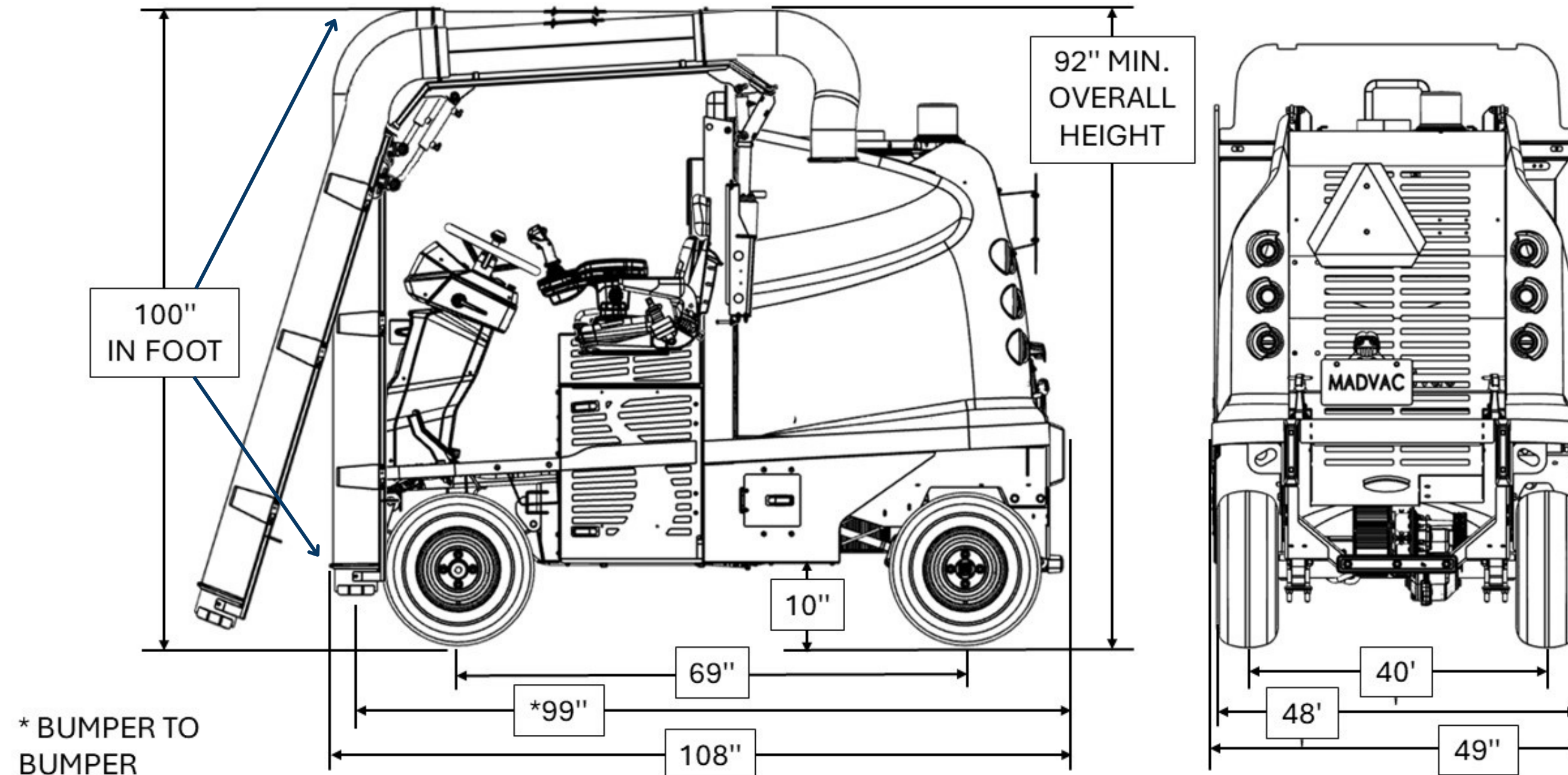
Customers



- Cities & municipalities
- Outdoor cleaning contractors
- Airports & seaports
- Transit authorities
- Healthcare services
- Distribution centers
- Shopping malls
- Educational & sports facilities
- Manufacturing facilities
- Amusement parks
- Casinos
- Military
- Correctional facilities



Dimensions



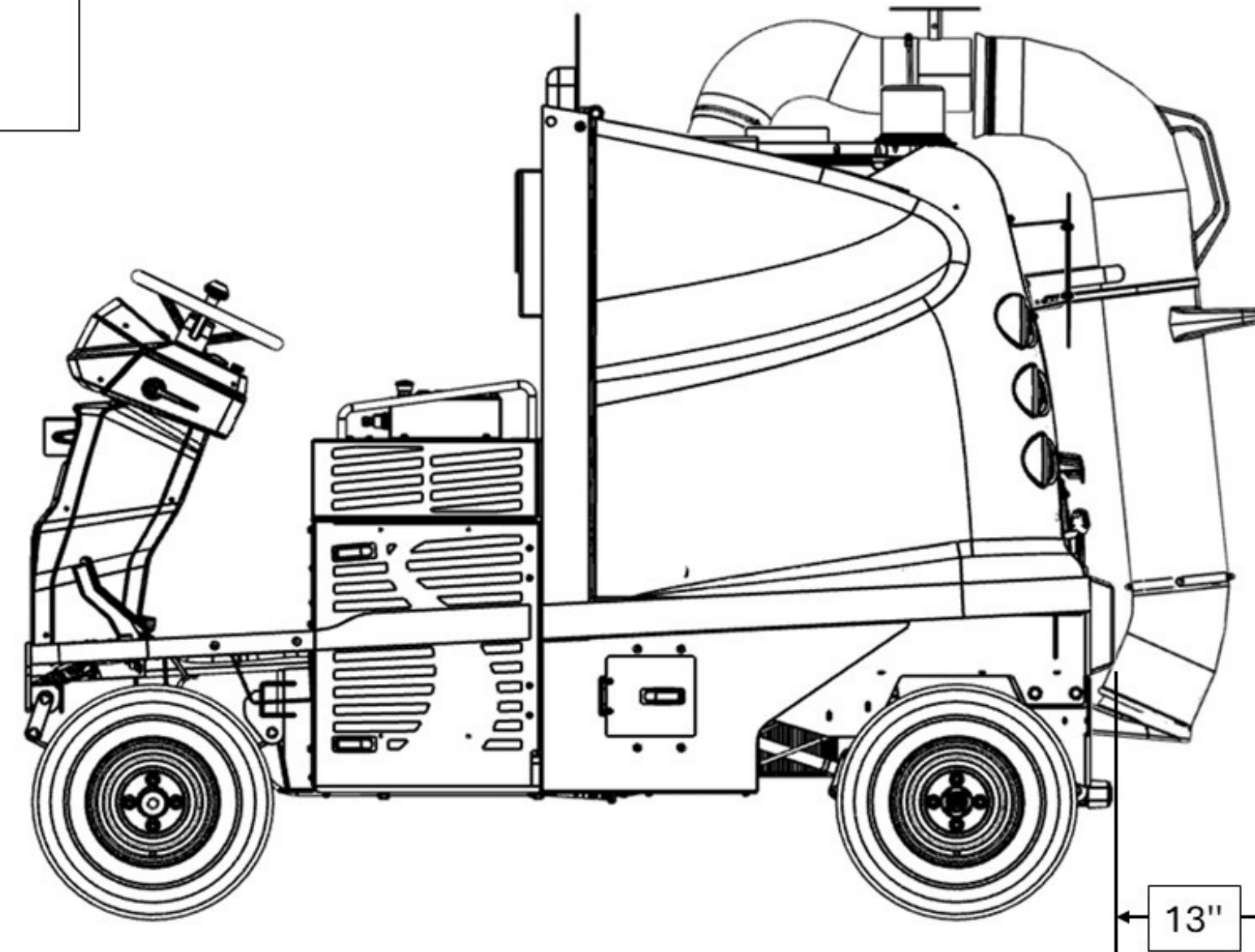
Inches to mm

10	254
40	1016
48	1219
49	1245
69	1753
92	2337
99	2515
100	2540
108	2743



Dimensions

WANDER
HOSE



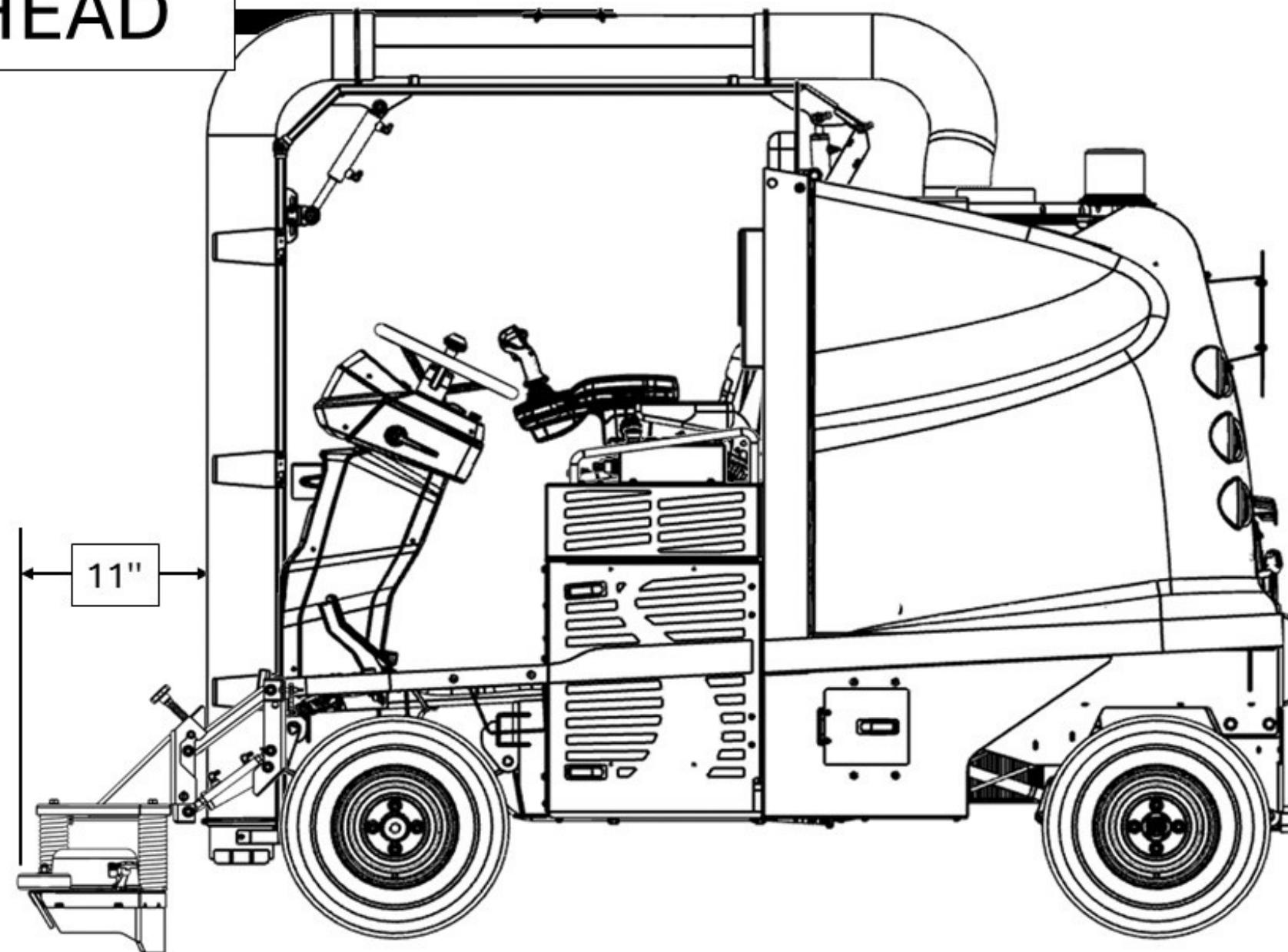
Inches to mm

13 330



Dimensions

VAC HEAD



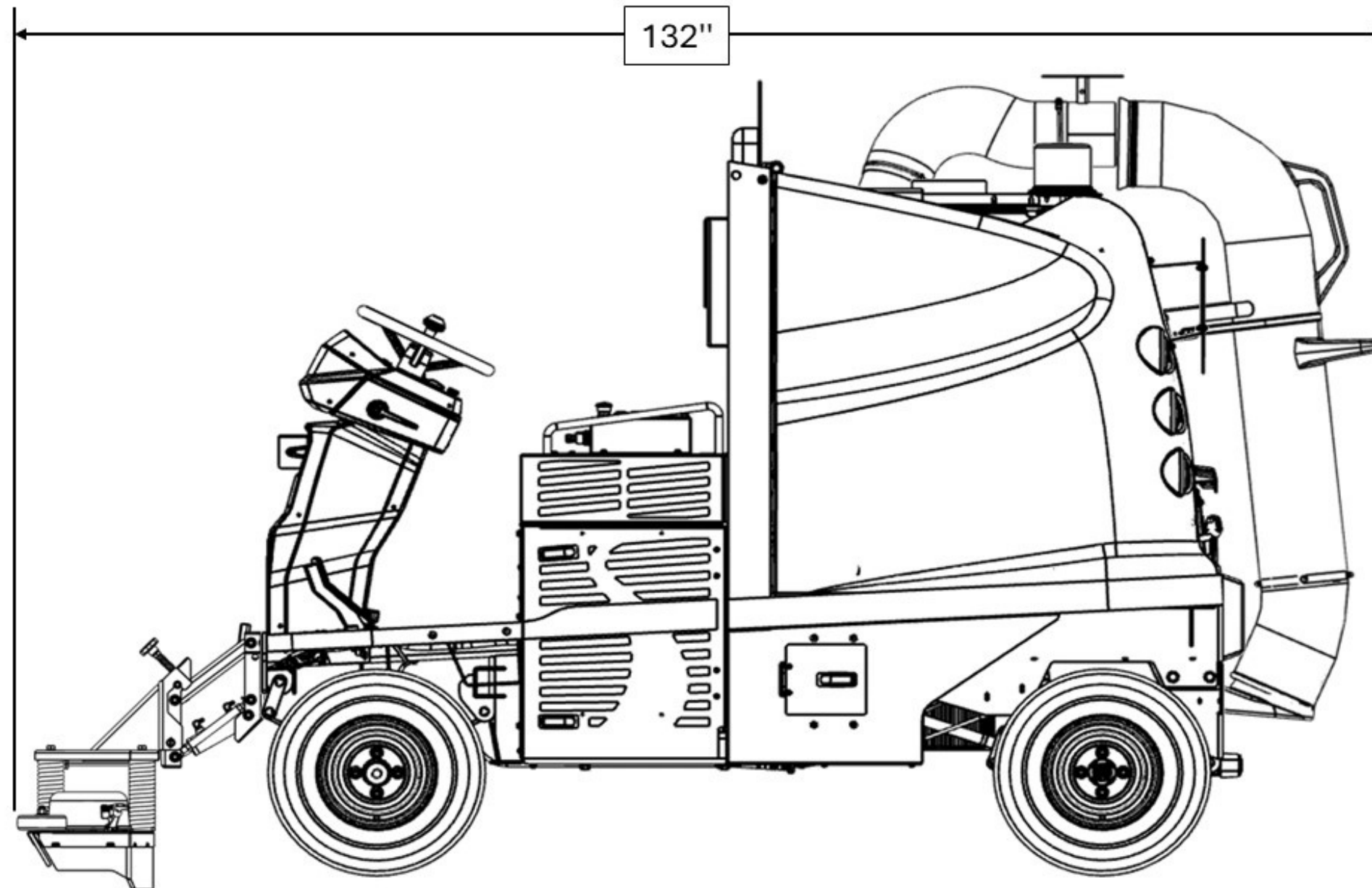
Inches to mm

11 279



Dimensions

WANDER
HOSE
+
VAC
HEAD



Inches to mm
132 3353



Weight



- Net/dry weight: 2716 lbs (1232 kg)
- Gross vehicle weight rating: 3292 lbs (1493 kg)
- Axle rating:
 - front 1980 lbs (898 kg)
 - rear 1980 lbs (898 kg)



Frame and Body



- Heavy gauge steel body on a welded 1/4 in. (6.35 mm) structural steel frame
- Electrostatic powder-coated paint





Cabin



Enclosed cab with either heated or non-heated windshield, and vinyl doors



Lighting

- Strobe beacon
- LED headlight
- LED turn signals
- LED brake lights
- LED flashers
- LED backup lights
- License plate holder with light
- SMV emblem





Cabin

- Cab size: 48 cu. ft. (1.36 cu. m.)
- Seating: 40.5 in. (1029 mm) above ground
- One adjustable seat with integral armrest, headrest, backrest
- Optional – heated seat for operator comfort
- One safety lap belt
- Grab-handle and cup holder
- Storage compartment





Steering Wheel



- Automotive-type steering wheel with steering ball for ease of handling
- Rocker switches (from left to right):
 - Heated seat / headlight
 - Washer fluid / hazard
 - Windshield wiper
 - Beacon
 - Parking brake
 - Forward / neutral / reverse
 - Flasher left / right



Instrument Panel

* **Metric or Imperial**

- Speed
- Hourmeter
- Energy recuperation
- Battery charge level
- Forward / reverse
- Power consumption and vacuum consumption
- Operator presence indicator
- Parking brake indicator
- Left / right signal indicator
- Hazard light switch
- Key ignition for starting and stopping the vehicle





Power



- Exprolink is OEM partner with **Zero Motorcycles USA** – the 'Tesla' of the motorcycle industry and offer 3x better 'energy per weight and volume' ratio in the industry
- Zero components in LR50: battery pack, on-board charger, vacuum fan and propulsion motors, DC-DC converter, DC-AC inverter

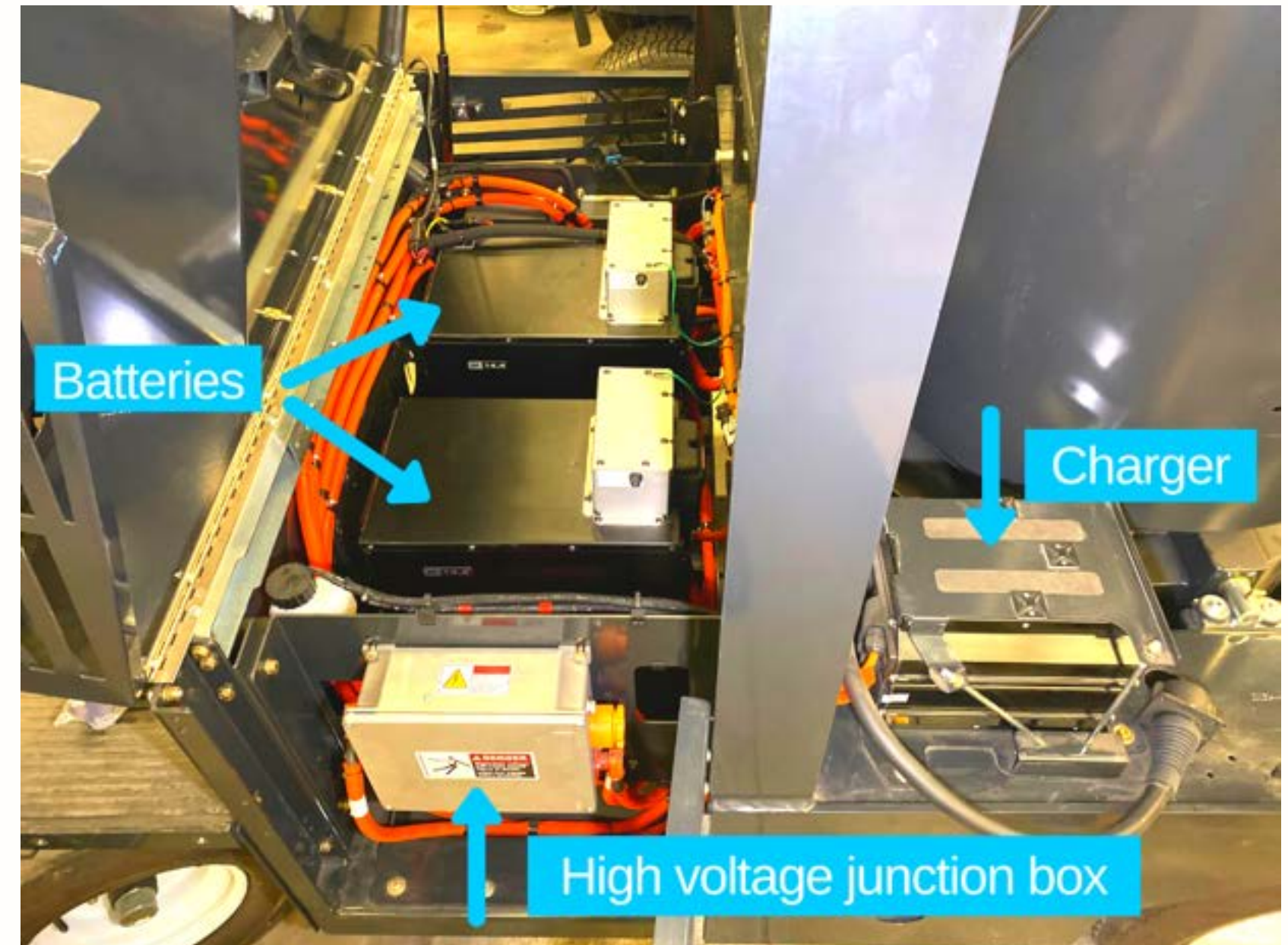
	Acid	LiFe Po	Li NMC*
Energy avail (kwh)	24	24.5	28.8
Weight (lbs)	1620	661	353
Energy (wh/lb)	15	37	82
Energy (wh/cu.in.)	1.31	2.13	5.74



Power



- Power pack : Lithium-Ion nickel manganese cobalt (Li NMC) high energy capacity, up to 28.8 kWh (2 batteries)
- Voltage: 104 volts battery pack
- Autonomy : up to **9** hours on a single charge





Power

- Battery life span **8 to 10 years** under normal operating conditions
- Battery pack powers two 3-phase motors: **vacuum fan** and **propulsion system**
- All other electric components including cabin controls, displacement of vacuum hose, optional front vacuum head, operate on a 12-volt circuit
- Diagnostic cables provided for factory remote access / troubleshooting





Charger



- Integrated on-board charger 6 kW
- Charger outlet: J1772 level 2, 240V/24A
- Charging time: up to 5 hours (15–18 hours if 120V wall socket is used instead)
- Charging status on diagnostic screen



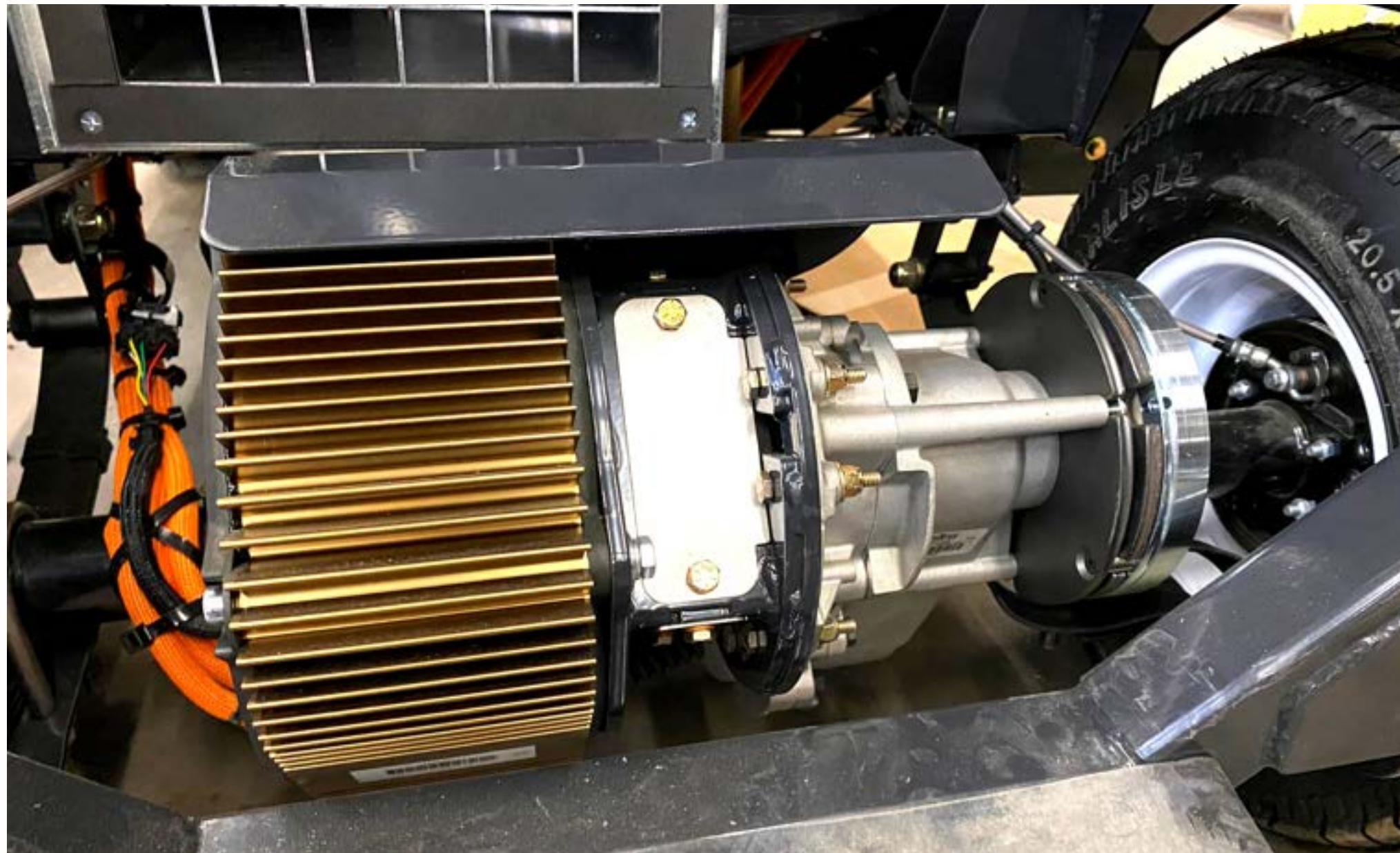
Zero ZF75-5 Motor

MOTOR:	ZF75-5
PEAK MOTOR TORQUE (FT-LB / N-M)	78 / 106
PEAK MOTOR HORSEPOWER (HP / KW)	46 / 34
PEAK MOTOR HORSEPOWER RPM	4300
PEAK EFFICIENCY	>94
MAX CONTINUOUS-RATED 30-MIN POWER (HP / KW)	21 / 15.4
MAX OPERATING RPM	7500
MAX OPERATING TEMP (DEG C)	150
MIN OPERATING TEMP (DEG C)	-40
WEIGHT (LBS / KG)	33/15





Traction



- Drive: propulsion with 17 to 1 ratio
- Standard tires: 20.5 x 8 x 10 in. / 520x203x254 mm (205/65-10)
- Turf MV17094: 20 x 8 x 10 in. / 508x203x254 mm (205/60-10)
- Tire load capacity: 1323 lbs / 600 kg per tire
- Brakes: drum service brakes with electromagnetic parking brake
- Suspension: leaf spring front & rear



General Machine Performance



- Max. forward speed: 12 mph (20 km/h)
- Max. reverse speed: 6 mph (10 km/h)
- Min. aisle turn: 180 in. (4572 mm)
- Internal turning radius: 60 in. (1524 mm)
- External turning radius: 90 in. (2286 mm)
- Cleaning speed:
up to 84,480 sq. ft. per hour
- Curb climbing: 7 in. (178 mm) tall
- Gradeability: 11.3 deg. (20%) with full & empty hopper



Drive



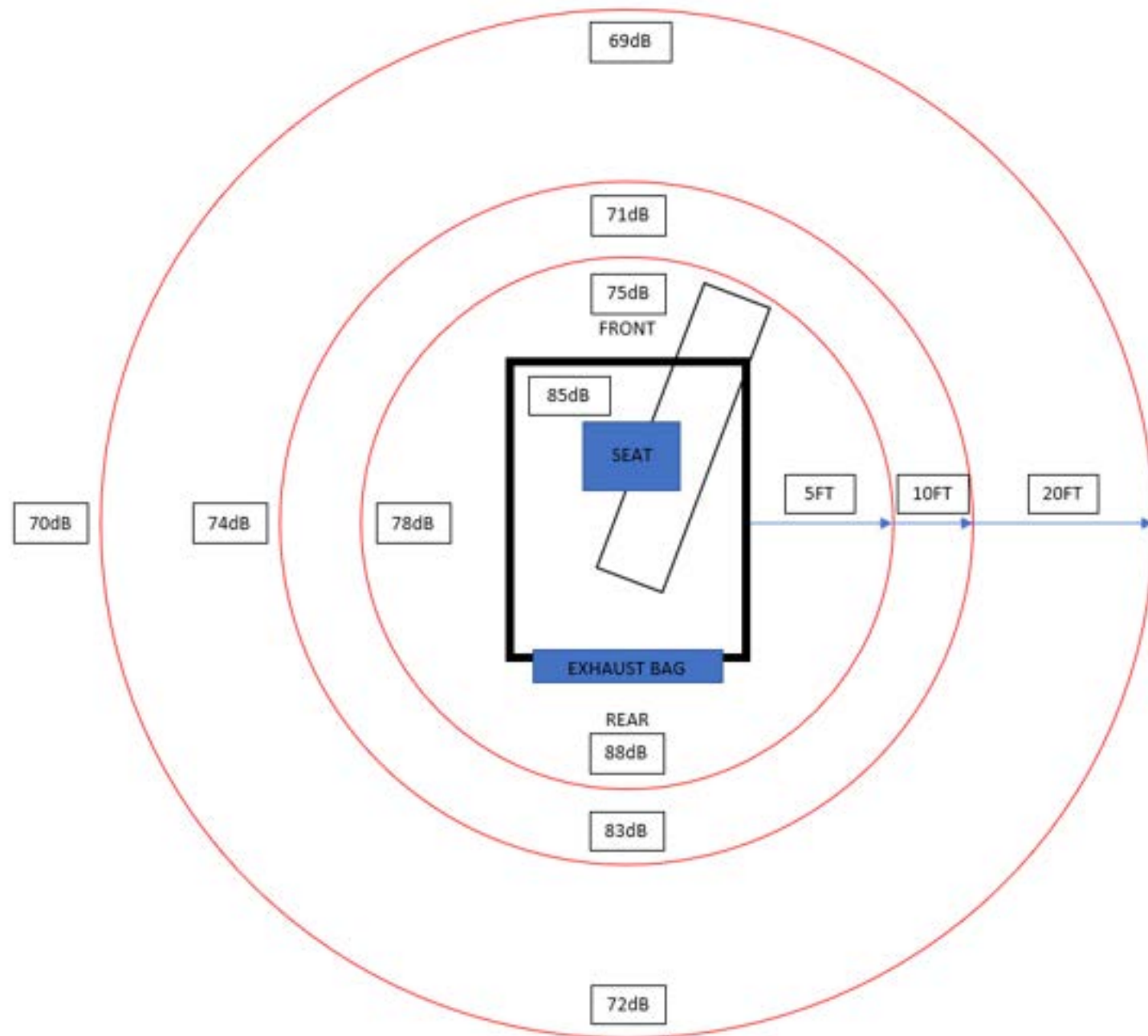
- Steering: power assisted
- Propulsion: forward, neutral, reverse push button shifter



Brake pedal on opposite side of steering column



Noise Reduction



Front decibel

- Cabin: 85 dB
- 5 feet away: 75 dB
- 10 feet away: 71 dB

dB rating approximately 15% lower than LR50 diesel



Vacuum Fan and Suction System

- Vacuum passes through a fibrous bag and is collected inside the bag
- Vacuum rating: up to 1800 CFM using boost mode (4000 RPM)
- Straight-through suction system compacts litter 2:1 ratio
- Vacuum fan diameter: 14 in. (356 mm)
- Vacuum fan position: bottom mounted
- No litter comes in contact with the fan





Vacuum Arm

- 170-degree arm movement with 24 sq.ft. (2.2 sq.m.) working area
- Diameter: 7 in. (178 mm)
- Right-side support for hose storage in transport mode





Vacuum Arm



- Maximum reach away from the machine 72 in. (1829 mm)
- Bottom of suction hose maximum lift above ground surface: 52 in. (1321 mm)





Vacuum Arm Control



- Robotic arm controlled by hydraulic proportional valves
- Ergonomic 6-position robotic joystick allows effortless displacement of the boom



Vacuum Hose Support Arm



For operator safety and easy displacement of the boom | removable plate to access top hose



Vacuum Head



- Optional – for effortless vacuuming
- Width: 48 in. (1219 mm)
- 2 operating positions, one on each side of the vacuum head





Wander Hose



- Optional – for additional litter removal capability
- Length: 15 ft. (4.57 m)
- Hose diameter: 6 in. (152 mm)





Rear-View Vision



Two convex mirrors
mounted on each side of cab



Rear-View Camera



Optional – in cab 7 in. (178 mm)
rear-view camera system
with TFT color monitor





Litter Container and Bag

- 16-gauge powder-coated steel container
- Air cylinder power-assist tilt container
- Litter capacity
 - Volume: 75 gal. (284 L)
 - Weight: 150 lbs (68 kg)
- Bag size: 42 x 51 in. (1066 x 1295 mm)





Bagless Debris System: Kevlar Bin



Optional – Kevlar bin can be emptied into off-the-shelf bag, or directly into dumpster



Dust Control - Exhaust Bag

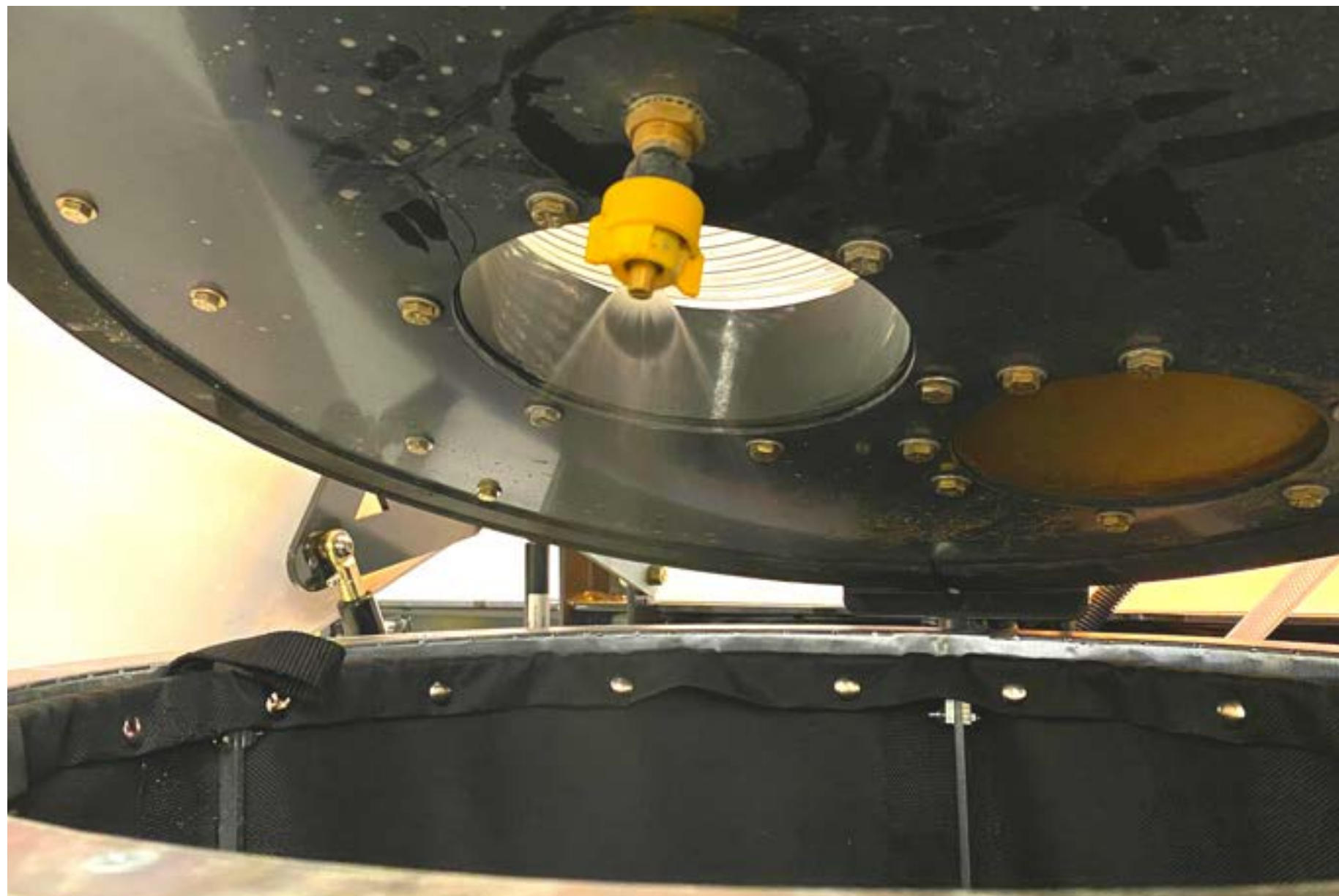


Exhaust bag reduces dust particles that can escape from minute holes of special Madvac collector bags (or Kevlar bin)





Dust Control - Water Mist



Optional – intermittent water mist system with 10.17 gal. (38.5 L) water tank: controls dust and reduces risk of cigarette butt fire inside the container



Operator safety



R.O.P.S.
rollover protection system



Optional – fire extinguisher
2.2 lbs (1 kg) dry powder



Emergency stop button



Convenience



Foot step helps operator climb on board easily and safely



Foot activated horn gives operator more ease and convenience than pressing the turn signal lever



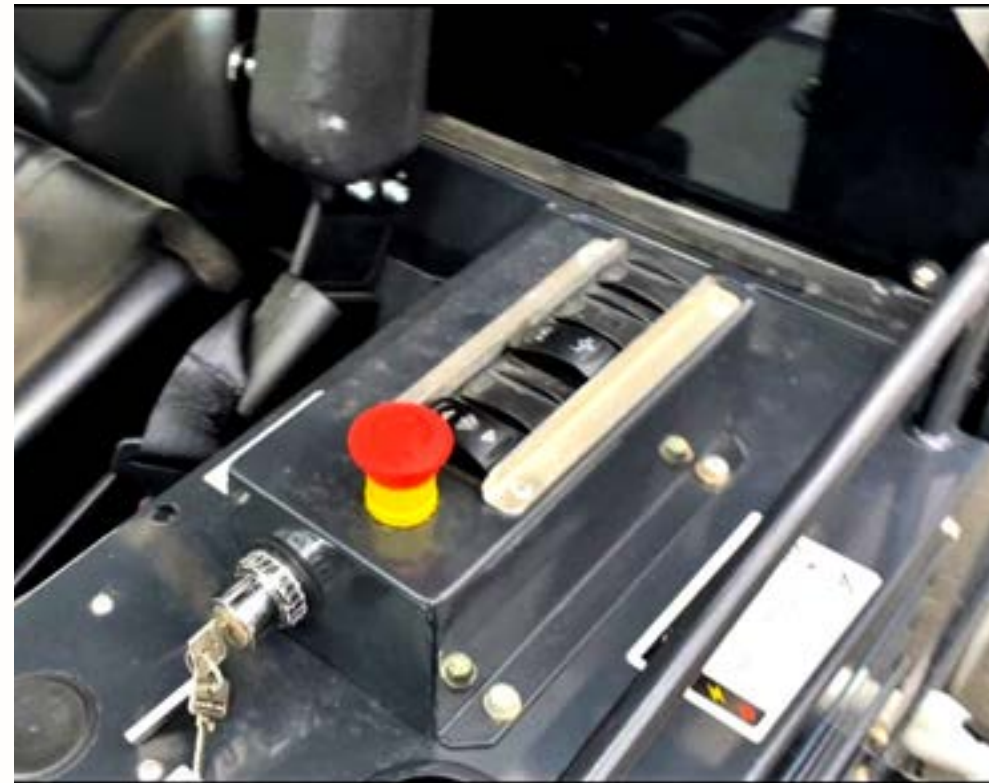
Optional – fan for operator comfort



Convenience



Optional -tire flat proofing
(liquid sealant)



Console accessory box with USB /
12V aux outlet and rocker switch
for optional water mist system
and 48" wide vacuum head



Broom and rake holder

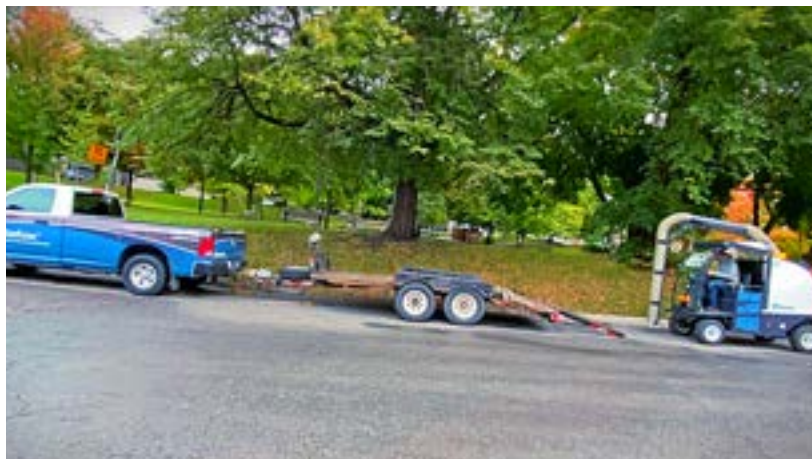


Convenience

Easy access to critical components of the machine

- Hinged power-assisted air cylinder tilt seat for access to battery compartment
- Hinged side door for HVJB (high voltage junction box) access





Contact

To schedule a demo, request a quote, or for more information on the MADVAC LR50 electric all-terrain litter vacuum:



855-651-0444 (USA/Canada)
1-450-651-0444 (International)



info@exprolink.com



www.madvac.com



2 Brands, ONE Great Company



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