

RAVO 5 **E**SERIES

THE NEXT GENERATION

FAYAT
SOLUTIONS

RAVO 5 eSeries • 01/2020



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RAVO
FAYAT GROUP



| MID-SIZE COMPACT



THE RAVO 5 ESERIES

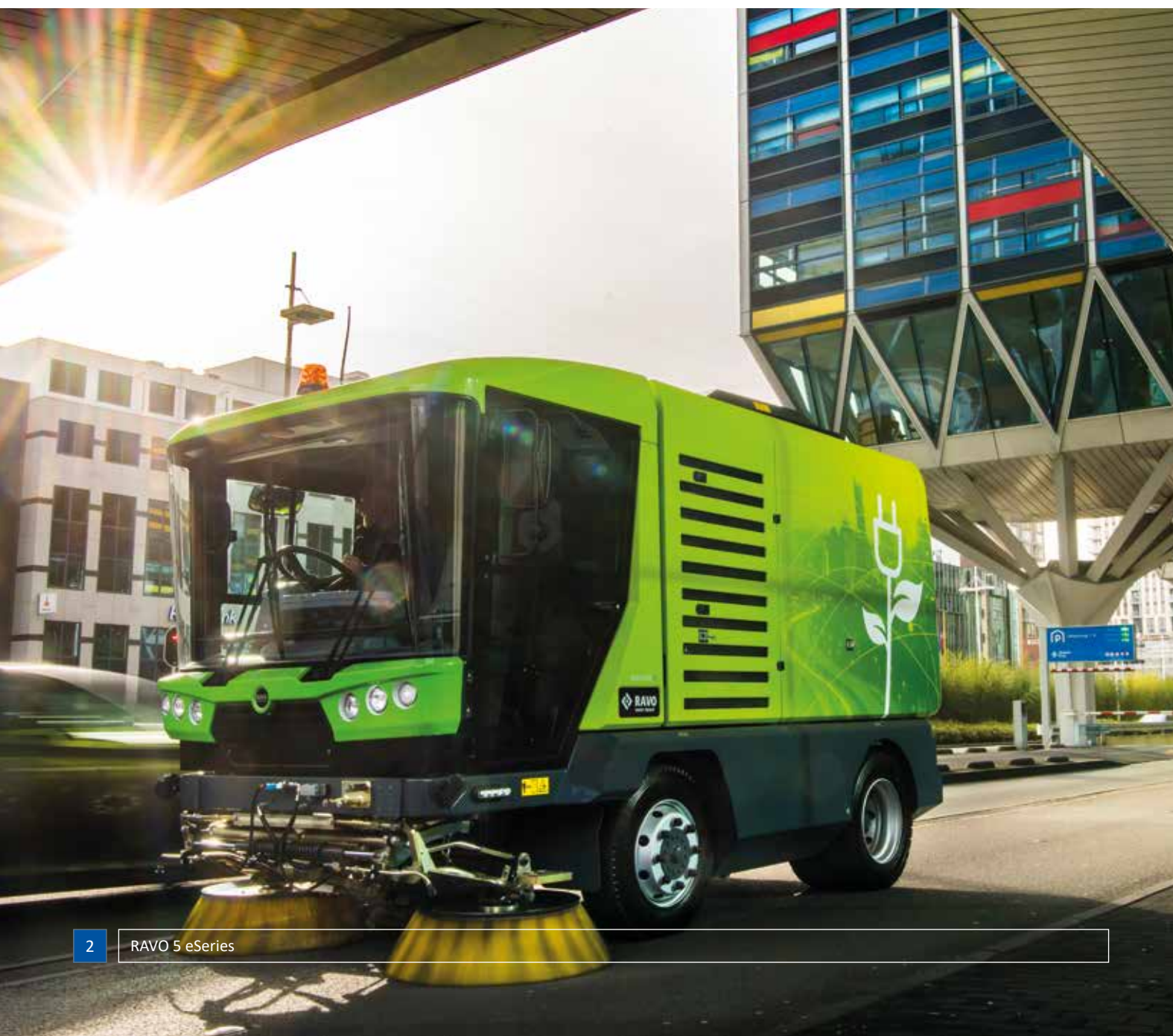
THE NEXT GENERATION - FOR A CLEAN AND HEALTHY FUTURE

Did you know that half of the world's population currently lives in an urban environment? And that this percentage is rapidly increasing? This urbanization has far-reaching consequences for the way we will live and work in the cities of the future.

As a result, local governments are increasingly challenged to look for sustainable solutions to reduce noise and environmental pollution in order to keep cities liveable. In line with RAVO's vision of its societal role and the trend

towards environmentally friendly, sustainable, responsible business practices, and as an innovator in the field of city cleaning, RAVO understands the challenges you face and is constantly seeking sustainable solutions to improve the quality of life of your urban residents.

RAVO is therefore proud to introduce its latest development: the RAVO 5 eSeries, a reliable, fully electric, exceptionally quiet, 100% emission-free sweeper. This is yet another step in the company's continuous drive to ensure the well-being of your residents and contribute to a healthy, clean future for everyone in the community.



ESERIES



100% PERFORMANCE



100% ELECTRIC



0% EMISSION

TRUSTED PERFORMANCE, 100% ELECTRIC

RAVO PERFORMANCE

With the RAVO 5 eSeries you are not only choosing the most sustainable solution for keeping your urban environment clean, but also the highest quality and reliability, based on proven technology, derived from years of experience in the sweeper world. The RAVO 5 eSeries offers the expected sweeping performance, a powerful suction system, as well as a high load capacity and range. In other words, everything you would expect from a RAVO sweeper, plus an exceptionally environmentally friendly, low-noise design – that is the RAVO 5 eSeries in a nutshell.

A RELIABLE BATTERY

The RAVO 5 eSeries has a lithium iron phosphate (LiFePO4) battery. This battery type has a number of major advantages, such as:

- **SAFETY**
The battery has the highest quality battery cells and the safest technology available today.
- **CONSTANT POWER**
During use of the sweeper the voltage remains constant. As a result, the battery is almost always capable of delivering the desired power.
- **LONG SERVICE LIFE**
The high-quality battery retains a high capacity for a very long time, even after many cycles.



BATTERY MANAGEMENT SYSTEM

The high-tech battery package consists of a large number of individual battery cells that are monitored and controlled by an intelligent Battery Management System. This smart system ensures that the individual cells are properly charged and discharged, ensuring long battery life and optimum performance. As such, you can always rely on the RAVO 5 eSeries to deliver the desired result.

CHARGING

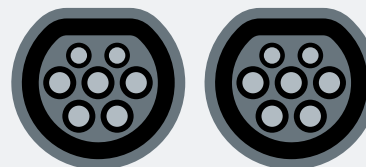
The RAVO 5 eSeries gives you three charging options. Type 2 (IEC 62196-2) plugs are standard, and these charge the battery via an internal charger at a maximum rate of 22 kW/h. With this charging method a full charge takes less than 4.5 hours, after which the machine is fully ready for use again. An advantage of this system is that the machine can also be charged for a shorter period of time without any negative impact on battery life.

QUICK CHARGING

And if you want to have a fully charged battery again in no time? Then you can choose to use the quick charge option. * With a CCS Combo 2 (IEC 62196-3) connection, the battery is charged at 50 kW/h via an external charger, fully recharging the battery in your machine in about two hours.

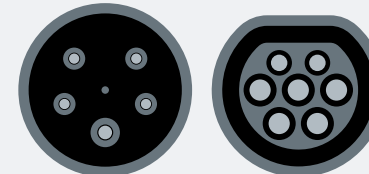
CHARGING TIMES

TYPE 2 - TYPE 2
Max 22 kW/h
(depends on charging point)



AC CHARGING
Full battery ~ **4.5 hours**

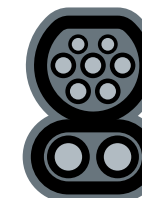
380V - TYPE 2
Max 22 kW/h
(3 options: 6.9 kW, 11 kW, 22 kW)



AC CHARGING
Full battery ~ **4.5 hours**

OPTIONAL

CCS COMBO 2
Max 50 kW/h
(*Optional)



DC CHARGING
Full battery ~ **2 hours**



BENEFITS OF ELECTRIC SWEEPING

REGENERATIVE BRAKING

A big advantage of the RAVO 5 eSeries is that it recovers energy on its own. When the accelerator pedal is released, the machine automatically brakes slowly and the electric motor functions as an alternator. This generates power that is used to charge the battery. This regenerative braking increases the efficiency of the machine and results in lower running costs.

DRIVING COMFORT

The RAVO 5 eSeries has a very powerful electric motor with exceptionally high torque, which makes the machine fast, smooth and steady to drive. All this, in combination with its exceptionally quiet cabine, ensures a higher level of driving comfort for the driver.

LED LIGHTING

During development of the RAVO 5 eSeries, sustainability was a constant focus. That is why the machine is fully equipped with LED lighting; even at the brushes and suction nozzle.

QUIET

Not just the environmental friendliness but also the low noise emission (93 dB) of the RAVO 5 eSeries increases the quality of life for people in the city. This silent machine maintains streets, squares and cycle paths without disturbing your residents in their daily activities, creating a sense of security. As a result, the machine can also be used early in the morning or at night without causing a disturbance. Finally, the very low noise level inside the cabin (61 dB) ensures a comfortable working environment for the driver.



CLEAN AIR

The RAVO 5 eSeries does not use fossil fuels and therefore does not emit CO2 or oxides of nitrogen. This is an especially important benefit in city centres and along busy roads. In short, electric driving is better for keeping the air on your streets clean and is the best solution for reducing your ecological footprint.

LOW MAINTENANCE COSTS

The RAVO 5 eSeries truly delivers on the promise of low maintenance costs. The number of moving parts is minimal, which means that relatively little maintenance is required on the machine. This keeps the maintenance and running costs per hour of operation low.



A VERSATILE ALL-ROUNDER



Furthermore the RAVO 5 eSeries can be customized to your needs by selection various optional add-ons and technologies. An overview of the many options:

THIRD BRUSH

Remove weeds without the use of chemicals and make your urban environment a finer place to live with a third brush on your RAVO 5 eSeries. The third brush makes your sweeper extremely versatile. It increases the sweeping width of the machine to 3400 mm and the maximum range from the front bumper to 1960 mm. The brush features hydraulically controlled side-to-side movement. Swivelling, lifting and lowering of the brush and brush drive are also controlled hydraulically.

CLOSABLE SUCTION TUBE

This hydraulically closable suction tube opens and closes automatically when the fan is switched on and off and is located between the hopper and the cabin. During transport mode, it automatically closes off the suction hose. This prevents dirt in the hopper from flowing back into the suction tube. This option is particularly useful in combination with the wander hose, as it diverts all the suction power to the wander hose, providing it with maximum power.

WANDER HOSE

The wander hose is ideal for sucking up leaves and emptying gulleys and collection bins.

The RAVO 5 eSeries is a user-friendly, compact sweeper that meets very demanding requirements. The sweeper has a hopper capacity of up to 5 m³, an exceptionally high compaction rate and combines an extremely long service life with low operating costs. Thanks to the hydropneumatic suspension system and automatic level control, working with the machine is comfortable, precise and clean.

PERFECT PERFORMANCE

To meet all your requirements, the RAVO 5 eSeries comes with all of the following as standard:

- An ergonomically designed cabin with adjustable steering wheel and dashboard, adjustable armrests and a central door locking system
- A stainless steel hopper, up to a maximum of 5 m³
- Load capacity of up to 4900 kg
- High manoeuvrability
- A unique brush lift system: Constant brush pressure extends brush life
- Hydraulic front suspension with automatic levelling system
- PM2.5 and PM10 particulate control system
- The Horizon smart data system

CONTAINER DUMP

This option allows the collected waste to be deposited directly into a container. The dumping height is 1550 mm.

HEAVY DUTY PACKAGE

Equip your sweeper with a coated suction system, which reduces wear and tear. This further extends the life of your RAVO 5 eSeries.

SUSTAINABILITY

WATER RECYCLING

The sustainable solution for sweeping your city clean. The water is reused so the machine can sweep longer. During sweeping, the water is circulated from the hopper to the suction nozzle and back again. This results in more efficient use of the water during sweeping, as now fresh water is only needed for the nozzles near the brushes. Another positive effect of this option is the reduction of dust coming out of the hopper.

CLEANING

Living in the city is all about sharing common spaces: streets, squares, bus stops etc. This is part of everyday life, taking the cleanliness of the urban environment to a whole new level beyond just sweeping it clean. RAVO offers the following options for this:

SWASHER

Sweep and clean streets and pavements in one go with the Swasher. With this option, your sweeper has a front spray bar and a high-pressure water gun, which enables cleaning services to clean the most difficult to reach areas, street furniture and road signs.

HIGH-PRESSURE WATER PUMP

The high-pressure water pump is ideal for quickly cleaning the inside of the hopper, the brush and suction system or street furniture with a spray lance.

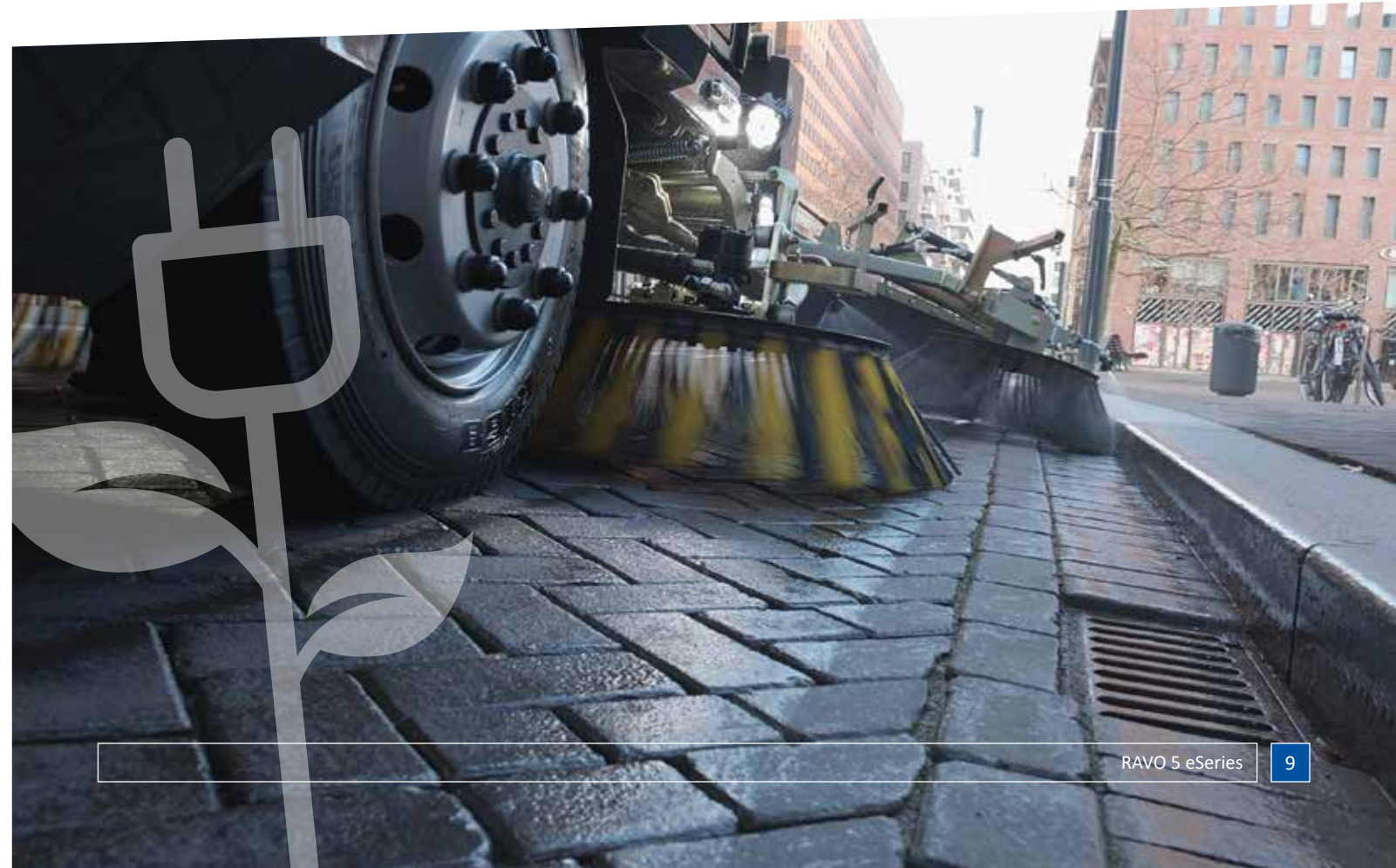
SAFETY

360 DEGREE CAMERA

Safety comes first at RAVO. With this camera, the driver has an optimum view of the traffic situation and the environment around the sweeper.

CRUISE CONTROL

Set the desired speed during sweeping so the driver can fully concentrate on the road and their work.



HORIZON STATE-OF-THE-ART TECHNOLOGY

eSERIES

As a result of global urbanization, local governments are facing ever greater and more complex challenges when it comes to keeping their city clean and liveable. As a reliable partner in the field of city cleaning, RAVO acknowledges this and is happy to help you use your sweeping machines as efficiently and productively as possible. How do they do this? Meet RAVO's latest solution: Horizon.

TOTAL CONTROL

With Horizon, you collect all the relevant data about your RAVO sweeper, which is clearly displayed via a dashboard on the online platform. It presents at-a-glance, real-time data – including location tracking and driving times – that allows you to optimize your planning and increase the efficiency of your team. This gives you complete control over your fleet of machines.

Another advantage of the data-driven approach made possible by Horizon is that you know exactly when the next service is due and which wear parts need replacing. The platform monitors various technical data from the

machine, making maintenance quick and easy. This prevents downtime and extends the service life of the machine.

These are just a few of the benefits. With Horizon you are no longer in the dark about the machine. Access to valuable data provides new insights that work to your advantage. Improve your planning and increase efficiency. With Horizon, you have the perfect solution for tackling the increasingly challenging task of city cleaning. Start benefiting from data-driven decision-making today!



A RELIABLE PARTNER

RAVO ACADEMY

RAVO places great importance on training and education. This includes both training our employees and dealers and training your drivers and technicians. The RAVO Academy offers various training programmes, both online and on-site. At the RAVO Academy we teach dealers, technical staff and drivers how to use and maintain the RAVO sweepers as efficiently as possible. Our online training management programme enables you to easily monitor your employees' progress as they complete the training courses.



ACADEMY

LEARNING TOGETHER

THE RIGHT PARTS AND TRANSPARENT SERVICE

RAVO understands that reliability and parts availability are crucial criteria for getting the job done. Therefore, original RAVO parts, such as brushes, fans or cabin air filters, are produced to the highest quality and sustainability standards and are designed to maintain the optimum performance of the RAVO sweeper.

Based on years of experience, RAVO knows what the market needs to make machine maintenance fast, easy and cost-effective.

TOGETHER WE CAN CREATE
A HEALTHY, CLEAN FUTURE

RAVO 5 eSeries TECHNICAL SPECIFICATIONS

Suction system	
Airflow capacity	10200 m3/h
Suction nozzle dimensions l x w	120 x 630 mm
Suction nozzle material	Corten steel (optional wear-resistant coating available)
Suction tube diameter	225 mm
Suction tube material	Stainless steel (optional wear-resistant coating available)

Brush system	
Type	RAVO maintenance-free brush system
Operation	Hydraulic with joystick
Available brush diameter	900 mm (option: 750 mm)
Maximum brush rotation speed	210 rpm

Motor and drive system	
Emission level	zero
Battery capacity	100 kWh / 480 volt
Battery type	Lithium iron phosphate (LiFePO4)
Max. torque / power	765 Nm / 150 kW (peak) - 70 kW (nominal)
Chargers (included with machine)	22 kW AC internal
Plug	Type 2 connector (IEC 62196-2) / Combo 2 connector (IEC 62196-3) available as an option
Performance	Completes a full working day*
Powertrain	Electric three-phase permanent magnet motor
Speed (per hour)	40 km**

Well-being	
Noise emission (2000/14/EC)	In the cabin: 61 dB (Outside: 93 dB)

Water system	
Water tank capacity	600 L

Lights	
All lights are LED for longer life and energy efficiency	

Brakes	
Front axle brakes	Hydraulic disc brakes
Rear axle brakes	Hydraulic drum brakes / Electrically regenerative
Front suspension	Independent hydropneumatic suspension
Rear suspension	Rubber cone springs

Maintenance	
Hopper material	Stainless steel inside / ABS coating outside
Number of lubrication points	15
Battery warranty (with AC charging)	5 years or 3000 cycles

Optional equipment	
Max. brushing width incl. third brush	3400 mm
Wander hose diameter	200 mm
Third brush diameter	750 mm
High-pressure water pump	15 L per min. @ 150 bar
Camera	Suction nozzle and side
Charger	50 kW external



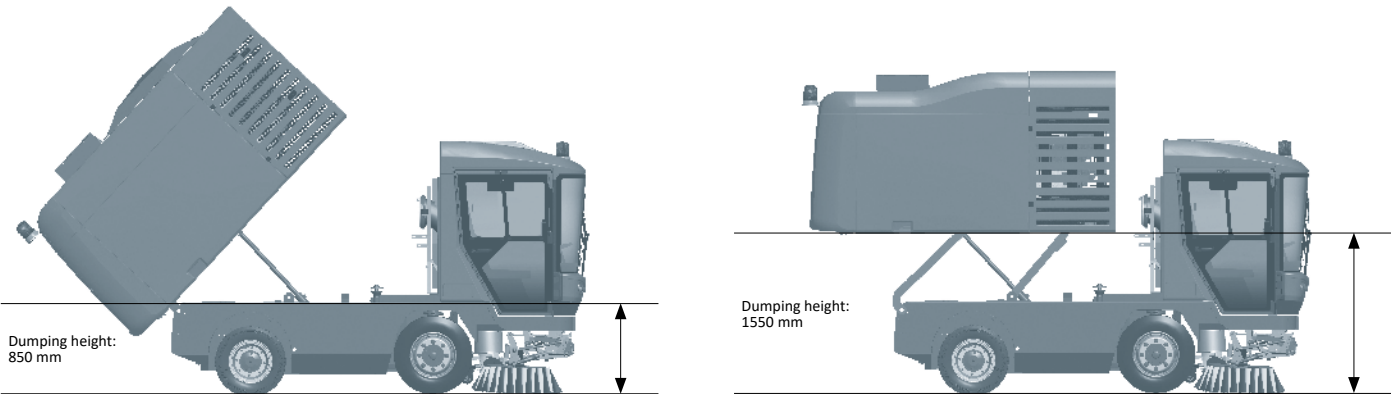


RAVO 5 eSeries DIMENSIONS, WEIGHT, CAPACITIES

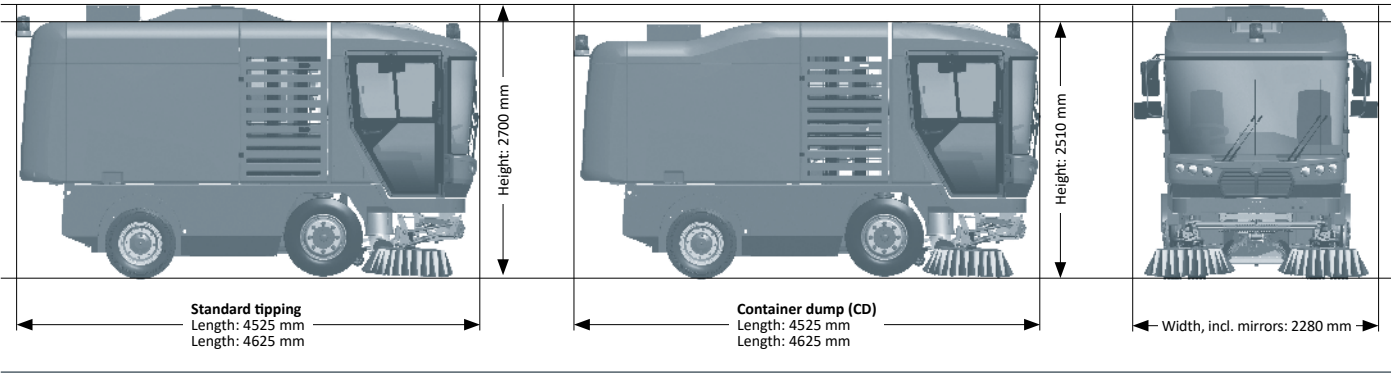
Dimensions	Standard (STH)	Container dump (CD)
Volume	5 m ³	4 m ³
Length	4625 mm	4625 mm
Height	2710 mm	2520 mm
Width, incl. mirrors	2280 mm	2280 mm
Wheelbase	1916 mm	1916 mm
Brushing width	2400 mm	2400 mm
Climbing ability	Up to 30% grade	Up to 30% grade
Vehicle weight	11400 kg	11400 kg
Min. total kerb weight***	6500 kg	6710 kg
Max. load capacity***	4900 kg	4690 kg

* Depending on user profile/use of opportunity charging | **Depending on local legislation | *** Depending on model

Standard tipping (STH) / Container dump (CD)



Dimensions



Every effort has been made to ensure that the information in this brochure is correct. RAVO B.V. is not responsible for printing errors or administrative errors.