

100% Electric

48 Volt **&** Volt

This is the only home we have



Pollution is an escalating global crisis, affecting both the environment around us and the quality of life for everyone. Its far-reaching consequences remind us daily of the urgent need for sustainable solutions.

For over 15 years, Tenax North America has been driven by this awareness, fostering innovation in the design and manufacture of eco-friendly, 100% electric street cleaning machines. Our mission is to provide technical solutions that not only address today's challenges but also help protect the future of our planet.

At Tenax, we are committed to safeguarding the Earth—our unique and irreplaceable home—for current and future generations.



E as ENVIRONMENTALLY FRIENDLY

Tenax North America embraces the "e" philosophy at every level of its operations, integrating eco-consciousness into every aspect of its business. With 35 years of expertise in street sweeping, Tenax continually leverages cutting-edge technologies to provide customers with a full range of highly effective, zero-emission solutions. In fact, as early as 2003, Tenax pioneered the world's first fully electric street sweeper, setting a new standard in environmentally friendly urban cleaning.



E as ETHICAL

Tenax North America minimizes its environmental footprint by producing without pollution, thanks to its 50 kW photovoltaic plant. Strategically located in Italy's Motor Valley, the heart of the automotive industry, Tenax sources the highest-quality components locally, ensuring both sustainability and excellence in every product.



E as EQUAL

At Tenax North America, all processes are optimized through Lean manufacturing principles and continuously refined using Kaizen methodologies. This commitment ensures not only the highest product quality but also an exceptional working environment for our collaborators. Our operations are fully aligned with ISO 9001 and 14001 certifications, guaranteeing strict adherence to quality and environmental standards. Even at the end of their lifecycle, Tenax products maintain a strong focus on eco-sustainability, with up to 90% of components being fully recyclable.



Tenax North America is an Italian company, and the world's first to specialize in the design and production of low-voltage, fully 100% electric road sweepers and street washers.

With over 35 years of experience, unmatched technical expertise, and more than 700 machines sold across 42 countries on five continents, we lead the way in developing cutting-edge, clean energy-powered machinery.





ecology efficiency economy

- SAFE 24/48 VOLT SYSTEM
- 100% ELECTRIC
- ZERO EMISSIONS
- RECYCLABLE UP TO 92%
- SILENT
- PLUG & PLAY POWERED BY GEL, LEAD ACID OR LITHIUM BATTERIES
- RECHARGEABLE EVERYWHERE
- 8 10 HOURS OF AUTONOMY
- RELIABLE AND POWERFUL
- INTUITIVE
- MINIMUM MAINTENANCE AND AUTO-DIAGNOSIS
- \$4.52 AVERAGE CHARGING COST





Map voltages

- 220 240V / 50Hz
- 220 240V / 60Hz
- 100 127V / 60Hz
- 100 127V / 50Hz









The set of choices and behaviors that generate the "e" philosophy enables Tenax to offer concrete and effective zero-impact cleaning solutions that improve the quality of life of users and citizens, while respecting the basic needs of our public and private customers, in terms of efficiency and economy.

The advantages are numerous and surprising:

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Elimination of CO2 emissions to reduce global pollution



Improve the quality of life of both the operator and the citizen



Reduction of over 30% of sound emissions



Improvement of urban environment



Simplicity of use and driving comfort



Ease of maintenance, thanks to self-diagnostics and the possibility of remote monitoring



No risk of leakage of hydraulic oil



Save more than 70% of maintenance costs



Save more than 90% of fuel costs (diesel or gasoline)



Reduction of Total Cost of Ownership (TCO), which allows a quick amortization of the investment

maxwind

The Tenax MaxWind is the world's first and only fully electric compact sidewalk sweeper. With its harmonious design, ergonomic features, and outstanding performance, it offers a quiet and efficient cleaning solution for city centers, pedestrian areas, cycle paths, and various indoor and outdoor small to medium-sized environments. Safe and intelligent, the Tenax MaxWind enhances the quality of life for both citizens and operators alike.



DIMENSIONS		BRAKING SYSTEM
Length without chariot	6' 4.4"	Electric brake on electric motor
Length with standard chariot	8' 2"	
Length with two wheeled chariot	9' 5.4"	TIRES
Width	3' 3"	15" x 3" front run-flat tires
Height	3' 6.5"	9" x 2.5" rear run-flat tires
Steering radius without chariot	3' 6.3"	
		SUSPENSIONS
WEIGHTS		On rear pivoting wheels
Weight standard chariot	41 lb	
Weight two wheeled chariot	114 lb	WASTE HOPPER
Weight with AGM batteries 240 Ah	985 lb	Hopper capacity 24.2 -26.4 G
Weight with AGM batteries 320 Ah	1,117 lb	Waste collection with standard plastic bag
Weight with lithium batteries 150 Ah	835 lb	
Weight with Lead Acid batteries 240 Ah	985 lb	DUST CONTROL SYSTEM
		PM10 dust suction Filter Surface 43.05 ft ²
TRACTION		Electric filter shaker
Electric traction w/ differential gearbox		2 nozzles on front side brushes
Traction engine	900 W	Water tank capacity 3.3 G
Fan/suction engine	800 W	Additional water tank 4.83 G
90Right side brush gear motor	90 W	
Left side brush motoreductors	90 W	PERFORMANCES
		Speed 0 - 5 mph
AUTONOMY	6/8 hours	Working climbing ability 20%
AGM batteries 240 Ah	24 V	Hourly efficiency 107.639 - 113.667 ft ² /h
AGM batteries 320 Ah	24 V	Central brush sweeping width 23.6"
Lithium batteries 180 Ah	24 V	Sweeping width w/ side brushes 49" - 52"
Lithium batteries 240 Ah	24 V	Suction hose 9' 10" - 4.72" D.
Lithium batteries 320 Ah	24 V	

Smartwind

In summary, the Tenax SmartWind street sweeper is a groundbreaking, 100% electric solution designed for both streets and sidewalks, featuring a high dump capability. Equipped with an innovative "steer-by-wire" motion system controlled by a joystick, it offers a safe and user-friendly experience. Ideal for indoor and outdoor cleaning in small to medium-sized areas, the SmartWind is both eco-friendly and versatile. As the only ride-on sweeper of its kind, it enhances the quality of life for both citizens and operators by completely eliminating CO2 emissions and reducing noise emissions by 40%.



DIMENSIONS

Length	6' 4.4"	
Width	4' 6.7"	١
Height with cabin	6' 10.3"	
Steering radius	5'	

WEIGHTS

Weight with AGM batteries 400 Ah	1,706 lb
Weight with lithium batteries 320 Ah	1,435 lb
Weight with Lead Acid batteries 320 Ah	1,494 lb

TRACTION

3.050 W electric traction with 2 electric gear motors and asynchronous motor

AUTONOMY	8 hours
AGM Batteries	24 V - 400 Ah
Lithium batteries	24 V - 320 Ah

BRAKING SYSTEM

Electric brake on electric motor

TIRES

Front	20.3" x 4.7"
Rear	9.84" x 3.3"

SUSPENSIONS

On rear pivoting wheels

WASTE HOPPER

,	Hopper capacity	46 G
,	Waste collection with standard plastic bag	
,	High rear dumping	5' 1.8"

DUST CONTROL

PM10 dust suction filter surface	43 ft ²
Electric filter shaker	
2 nozzles on front side brushes	
Water tank canacity	11 G

Speed	0 - 6 mph
Working climbing ability	22%
Hourly efficiency	150.695 ft ² /h
Central brush sweeping width	1' 11.6"
Sweeping width with side brushes	s 4' 7"
Suction hose	9' 10" - 4.72" D.

maxwind hydro

MaxWind hydro is the world's first and only fully electric compact sidewalk sweeper. With its harmonious design, ergonomic features, and outstanding performance, it offers a quiet and efficient cleaning solution for city centers, pedestrian areas, cycle paths, and various indoor and outdoor small to medium-sized environments. Safe and intelligent, the MaxWind hydro enhances the quality of life for both citizens and operators alike.













Washing lance with adjustable pressure 725 - 1,450 psi









On board battery charger (OPT)



2 x 23 G water tanks



1 G disinfectant tank

DIMENSIONS

Length without chariot	5' 11.3"	BRAKING SYSTEM	
Length with two wheeled chariot	8' 11.68"	Electric brake on electric motor	
Width	2' 11.43"		
Height	3' 4.31"	TIRES	
Steering range (without chariot)	4' 1.21"	Front run-flat tires	15" x 3.5"
		Rear run-flat tires	9" x 2.8"
WEIGHTC			

WEIGHTS

Empty weight without batteries	573 lb	SUSPENSIONS
Empty weight with		On rear pivoting wheels
AGM batteries 4 x 6 V 240 Ah	855 lb	

TRACTION

TRACTION		Capacity	2 x 23.09 G
Traction engine	1.940 W	Disinfectant tank	1.09 G
Water pump engine	3.050 W		

WATER TANK

AUTONOMY	6/8 hours	Speed	0 - 5 mph
AGM Batteries 4 x 6 V	24 V - 240 Ah	Working climbing ability	20%
AGM Batteries (on request)			77,500 ft ² /h
Lithium batteries (on request)	24 V - 150 Ah	Washing width with front washing bar	2' 11.43"
Lead acid batteries (on request)	24 V - 260 Ah	3	

Electro 1.0

The Electra 1.0 is the world's first and only fully electric compact street sweeper. With its harmonious design, ergonomic features, and outstanding performance, it offers a quiet and efficient cleaning solution for city centers, pedestrian areas, cycle paths, and various indoor and outdoor small to medium-sized environments. Safe and intelligent, the Electra 1.0 enhances the quality of life for both citizens and operators alike.



Removable DIN waste container of 79 G





Fiberglass tilting body



2 steering wheels



Removable DIN waste container of 53 G





Side roll bars





DIMENSIONS

Length	9' 9.71"	Foot drum brakes on 4 wheels	
Width	3' 4.55"	Electro-mechanical negative parking bra	ke on
Height without rotating beacon	6' 2.80"	rear wheels	
Wheel base	4' 10.26"	Tires	5 - 10"

WEIGHT

WEIGHT		SUSPENSIONS
Empty weight	3968 lb	Independent on 4 wheels: front with traverse
Total weight	4,739 lb	leaf spring interconnected rear suspensions with
Loading capacity	772 lb	polyurethane shock absorbers

TRACTION

With electric motors on rear wheels Motor type: asynchronous alternate current Motor power: 18.2 kW on continuous duty Electronic control by inverter with regeneration during braking and torque control

WORKING AUTONOMY 8/9 hours Lead acid batteries type "waterless" 48 V, 620 Ah Lead acid batteries

type "Ironclad Air Mix"48 V, 688 Ah Lead acid batteries type "nexsys" 48 V, 560 Ah

STEERING SYSTEM

Electric on the 2 front wheels

DUST CONTROL 2 spraying nozzles on brushes 22 G Stainless steel water tank cap.

PM10 polyester filter with electric filter shaker

BRAKING SYSTEM/WHEELS

WASTE HOPPER

79 G Removable DIN waste container cap. Removable DIN waste container cap.(opt) 53 G 4' 7" high rear dumping through the smart tipper system

Maximum speed	0 - 10.6mph
Work climbing ability	35%
Hourly efficiency	161,458 ft ² /h
Sweeping width with 2 brushes	4' 11.05"
Suction hose (Opt)	9' 10.11" – 3.54 D

Electro 2.0 ev s

Electra 2.0 Evos is constructed using high-quality materials and components, with a particular focus on weight distribution. This design maximizes capacity while allowing customers to choose the battery type that best suits their needs—be it Acid, Gel, or Lithium. Furthermore, all functions of the sweepers are powered exclusively by electric motors, eliminating the inefficiencies and vulnerabilities associated with traditional hydraulic systems.

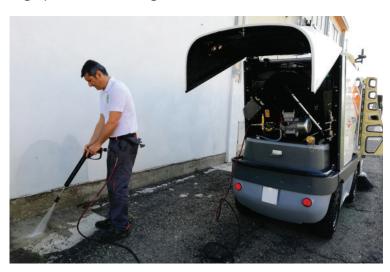






Manual and automatic independent "turn & follow" movement of brushes controlled by joystick







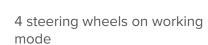
Aluminum tilting cab

New intuitive and programmable console with standard self-diagnosis



High rear dumping







Full-electric third brush

DIMENSIONS

Length	12' 6.39"
Length with third brush	14' 0.5"
Width	3' 11.24"
Height without rotation beacon	6' 6.74"
Wheel base	5' 6.14"

WEIGHT	Lithium	Acid "Waterless"	
Empty weight	5,291 lb	6,724 lb	
Total weight	9,480 lb	9,480 lb	
Loading capacity	4.189 lb	2.756 lb	

TRACTION

With electric motors on rear wheels Motors type: asynchronous alternate current Motors power: 38 kW on continuous duty Electronic control by inverter with regeneration during braking and torque control

WORKING AUTONOMY	8/10 hours
Lead acid type "waterless" or	
litium batteries	48 V, 1000 Ah
Lead acid batteries	
type "IRONCLAD® Air Mix"	48 V, 1104 Ah
Lead acid batteries	
type "Nexsys"	48 V, 875 Ah

STEERING SYSTEM

Electric on 4 wheels

BRAKING SYSTEM/WHEELS

Foot brakes on 4 wheels
Front drum brakes - rear oil disc brakes
Electro-mechanical parking brake on rear wheels
Tires 6.50 - 10" - 12 PR

SUSPENSION

Independent hydraulic on 4 wheels

DUST CONTROL

2 spraying nozzles on brushes Spraying nozzles on mouth and suction hose Water tank cap. 88 G

WASTE HOPPER

Stainless steel cap. 440 G - high rear dumping

Speed	0 - 15.53 (STD) mph
	0 - 20 (OPT) mph
Work climbing ability	35%
Hourly efficiency	273,403 ft ² /h
Sweeping width	
with independent brushes	6' 2.8" - 7' 5.37"
Sweeping width with third bru	ush 8' 4"

Electro 2.0 hydro

The Tenax Electra 2.0 is the world's first and only fully electric compact street sweeper. With its harmonious design, ergonomic features, and outstanding performance, it offers a quiet and efficient cleaning solution for city centers, pedestrian areas, cycle paths, and various indoor and outdoor small to medium-sized environments. Safe and intelligent, the Tenax Electra 2.0 enhances the quality of life for both citizens and operators alike.



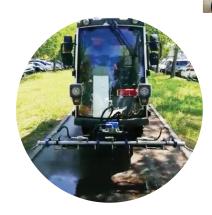
Intuitive and programmable console with standard self-diagnosis





4 steering wheels on working mode

360° high pressure washing rotating arm with 32.9' hose



Front washing bar with pump 11 G/min - 507 psi or 4.6 G/min - 870 psi



High pressure cleaning unit

Joystick for the manual control of the front washing bar

DIMENSIONS

Length	13' 5.41"	Foot brakes on 4 wheels	
Width	4' 5.14"	Front drum brakes - rear oil disc brake	es
Height including washing arm	7' 2.61"	Electro-mechanical negative parking	brake on
Wheel base	5' 6.14"	rear wheels	
		Tires	6.50 - 10

Lithium	Acid
5,070 lb	6062 lb
8,487 lb	9,479 lb
3,417 lb	3,417 lb
	5,070 lb 8,487 lb

TRACTION

With electric motors on rear wheels Motor type: asynchronous alternate current Motor power: 38 kW on continuous duty Electronic control by inverter with regeneration during braking and torque control

WORKING AUTONOMY	8/10 hours
Lithium batteries 48 V	1000 Ah
Lead acid batteries	
type "IRONCLAD® Air Mix"	48 V 828 Ah
Lead acid batteries	
type "Nexsys" 48 V	750 Ah

STEERING SYSTEM

Electric on 4 wheels

BRAKING SYSTEM/WHEELS

,	Front drum brakes - rear oil disc brakes
,	Electro-mechanical negative parking brake on
,	rear wheels
	Tires 6.50 - 10

SUSPENSION

Hydraulic on 4 wheels

HIGH WASHING SYSTEM

Clean water tank cap. 341 G High pressure pump performances: 11 gallons/ minute - 507 PSI or 4.6 gallons/minute - 870 PSI

Maximum speed	0 - 15.5 mph
Work climbing ability	35%
Hourly efficiency	327,222 ft ² /h
Standard washing rig width	4" 5.14"
Maximum washing width	
with standard rig	4' 10.26"
Washing open reusable rig width	5' 11.92"
Maximum washing width	
with resealable rig (in open mode)	7' 10.48"
Maximum washing width	
with extensible rig	9' 11.7"

Winter equipment for



The Electra 2.0 Evos electric sweeper and the Electra 2.0 hydro electric street washer can be equipped with the 33 G electric salt spreader, installed on the rear part of the machine. The salt spreader, managed by a special control in the cabin, can be easily refilled at any time.



The salt spreading system is easily installable and removable, allowing for seasonal adjustments and perfect customization to meet the customer's needs.

Control panel fitted in the cabin

The 33 G salt spreader system is managed by a specific control panel placed inside the cabin on the top-end above the passenger seat. According to the specific needs and the vehicle speed, it is possible to adjust the quantity of material

as well as the spreading

distance.

Winter equipment for

Electro².0 evus Electro³ 2.0 hydro

The Electra 2.0 Evos electric sweeper and the Electra 2.0 hydroelectric street washer can be fitted with either a 5' 3" snow plow or a 4' 7" (13" diameter) snow rotating broom, which can be easily installed at the front of the machine in place of the washing bar. This allows for efficient snow removal and road clearing. The snow plow is operated using a dedicated control within the cabin for convenient adjustment.



The electric snow plow system is managed by a specific joystick placed inside the cabin.

The 5' 3" snow plow fitted with anti-shock system.



The Tenax Group offers an extensive selection of 100% electric sweepers that can be customized with a modular range of batteries and chargers, delivering the most energy-efficient solutions tailored to our customers' needs.

the energy supply for each road sweeper, adapting to the diverse environmental challenges faced by our customers every day.

As the world's first company to provide a complete lineup of 100% electric sweepers, Tenax is uniquely positioned to fully customize



Tenax's 100% electric sweepers are designed to enable operators to complete a full work shift with ease. Equipped with either LiFePO4 lithium-ion batteries or IRONCLAD® Air Mix lead-acid batteries, these sweepers offer over 10 hours of operational autonomy*.



Tenax's 100% electric sweepers are equipped with batteries designed for longevity, offering an estimated lifespan of up to 1,560 cycles (at 60% Depth of Discharge) with AGM (TPPL, Thin Plate Pure Lead) NexSys® batteries, and up to 3,500 cycles with LiFePO4 lithium-ion batteries. This lifespan translates to an average operational life of 3 to 8 years.



Tenax's 100% electric sweepers feature batteries that can be recharged indoors (LiFePO4 - NexSys®) or in well-ventilated areas (Waterless® - IRONCLAD® Air Mix). They support recharging with either 110 V-220 V single-phase or 220 V-400 V three-phase power using single or double chargers. Charging times range from 3 to 12 hours, depending on the setup.



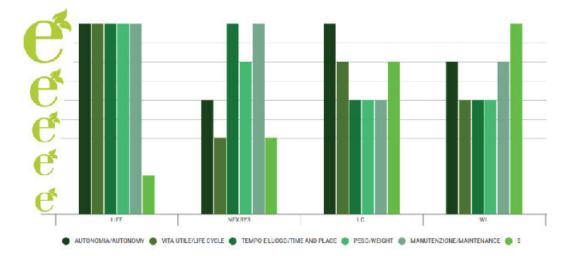
The Tenax 100% electric sweepers are equipped with batteries that are perfectly aligned with our customers' budgets and expected depreciation periods, enabling significant cost savings based on their performance needs. Additionally, Tenax's "plug & play" energy solutions allow for local battery type changes throughout the sweeper's useful life, providing flexibility and adaptability.



The Tenax 100% electric sweepers feature low-maintenance sealed batteries (LiFePO4 - NexSys®) or batteries with maintenance intervals ranging from every 3 weeks (IRONCLAD® Air Mix) to every 8 weeks (Waterless®). Additionally, all Tenax electric sweepers are equipped with centralized electrolyte charging systems and intelligent battery chargers that continuously monitor battery health and performance.



Tenax 100% electric sweepers are available for rental with options for Acid-Lead and AGM (TPPL, Thin Plate Pure Lead) batteries. Rental periods range from 36 to 60 months. For a customized solution tailored to your needs, please contact your nearest authorized Tenax dealer.





This sealed, maintenance-free battery is lightweight and can be quickly and frequently recharged in various environments. It boasts a minimum lifespan of 3,500 cycles and comes with a 36-month warranty, providing an impressive autonomy of up to 10 hours*. (Compatible with Electra 2.0 Neo and Hydro models.)



This AGM (TPPL, Thin Plate Pure Lead) sealed battery requires no water topping up and can be quickly and frequently recharged in various environments. It offers 1,560 cycles (at 60% Depth of Discharge) and comes with a 24-month warranty, providing an autonomy of up to 8 hours*. (Compatible with Electra 1.0, Electra 2.0 Neo, and Hydro models.)



This lead-acid battery features a high-capacity positive square plate and is designed as an open vented battery, requiring scheduled maintenance every 3 weeks. It can be recharged in standard mode within a ventilated environment. The battery boasts a minimum expected lifespan of 1,800 cycles and comes with a 36-month warranty, providing an autonomy of up to 10 hours*. (Compatible with Electra 1.0, Electra 2.0 Neo, and Hydro models.)



This open-vented battery requires scheduled maintenance every 8 weeks. It can be recharged in standard mode and in a ventilated environment, offering an expected lifespan of 1,500 cycles and a 36-month warranty.

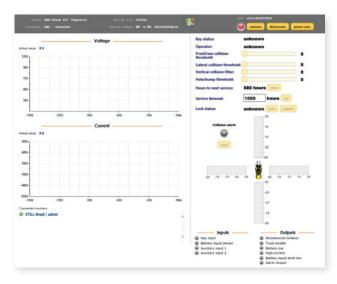
*The autonomy of the sweeper is calculated on the standard sweeping shift with a temperature of 77 °F. The data may vary according to the slopes and to the working speed of the brushes and the suction turbine.

(E) Solutions	LiFeP04	NexSys	Iron Clad	Waterless
Model	MW, SW, E2E, E2H	MW, SW, E1, E2E, E2H	E1, E2E, E2H	MW, SW, E1, E2E, E2H
Ah	150/320/1000/1000	240/320/560/875/875	688/1104/828	240/ 320/ 620/ 1000/1000
Weight	1,322	1,973/2,888	2,138/3,108/2,403	2,072/3,042
Autonomy	6, 8, 10, 10	8, 8, 7, 8, 8	9, 10, 10	8, 8, 8, 9,9
Partial charge	YES	YES	NOT FREQUENT	NOT FREQUENT
Life cycles	3,000	1,560	1,800	1,500
Fast charge	3	3.5	5.5	5.5
Standard charge	6	5	7	7
Maintenance	NONE	NONE	3 WEEKS	8 WEEKS
Warranty	36	24	36	36
Rent	YES*	YES	YES	YES
Price	\$\$\$\$\$	\$\$\$	\$\$	\$
CHARGERS	LiFeP04	NexSys	Iron Clad	Waterless
220 V	YES	YES	YES	YES
220 + 220 V	YES	NO	NO	NO
400 V	YES	YES	YES	YES
400 V fast	YES	NO	NO	NO
110 V (USA)	YES	YES	YES	YES
50/60 Hertz (USA)	YES	YES	YES	YES

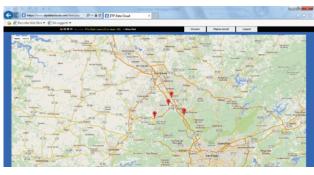
^{*} In specific countries

TENAXlink

Tenax Link is the cutting-edge remote monitoring system designed specifically for Tenax's 100% electric sweepers. This software, developed exclusively for our sweepers, utilizes multiple integrated sensors and CAN communication to provide real-time monitoring of usage, functionality, and maintenance status.



Tenax Link directly connects with the Tenax operations center and can be accessed in the cloud with default access levels for authorized Tenax workshops and end customers via WiFi or GPRS.

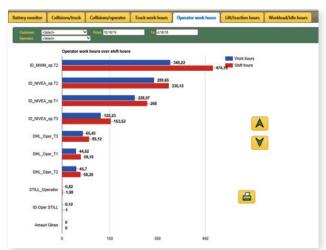




Key features of Tenax Link include continuous monitoring and recording of the following data:

- Battery Status: Monitors charge levels, maintenance needs, and identifies malfunctions of individual battery components.
- Energy Absorption and Regeneration: Tracks motor functionality and peak energy absorption.
- Impact Tracking: Records impacts categorized by intensity and operator (optional).
- Alarm System: Enables remote identification of operational anomalies.
- Usage and Operator Tracking: Utilizes a special badge system to recognize individual operators, ensuring compliance with antiterrorism standards while recording work shifts and usage timing.
- Geolocation: Employs GPS to provide realtime updates on the sweeper's location.
- Work Statistics: Gathers data on user activity, sweeping hours, transfer hours, distance traveled, and maximum speed reached.

With Tenax Link, operators can ensure optimal performance and maintenance of their electric sweepers, enhancing efficiency and reliability.





In addition to carrying out a real-time control, Tenax Link collects and manages the in "cloud" data and allows the creation of a statistical sample of use of the single machine, the work shift or the entire sweepers fleet.