

ZERO EMISSIONS

ECOLOGICAL SOLUTIONS
FOR THE OUTDOOR CLEANING



TSM TOWARDS A CLEANER WORLD

The air we breathe becomes every year more toxic due to the CO₂ increase. Worldwide municipalities are placing more and more attention to the environment, understanding the urgency of reducing pollutants agents to protect the territory and the quality of life.

Research and development of new technologies with low environmental impact have been accelerated worldwide to meet the increasingly felt need to limit CO₂ emissions in the air.

From the very beginning, TSM has imagined the “green” future of the professional cleaning sector, investing continuously in research and development of solutions that were unique in the market and with ZERO ENVIRONMENTAL IMPACT.

The outdoor vacuum ARIA 240 and the sweeper ITALA 135 are proof of this. 100% ELECTRIC SOLUTIONS for the cleaning of our cities.

TSM, acronym of Technological Systems by Moro is a company located in the town of Fiume Veneto in the north east of Italy, in the same territory which tells the passion, the knowledge and the achievements of a dynasty of manufacturers of industrial and urban cleaning machines, which lasts since 5 generations.



~100 dBa



~2 Ton/year



~70 dBa



0 Ton/year



>> WORLDWIDE



MALAYSIA

- UKRAINE
- OMAN
- TAIWAN
- GERMANY
- SINGAPORE
- CHINA
- NIGERIA
- INDONESIA
- COLOMBIA
- PHILIPPINES
- BAHRAIN
- SAUDI ARABIA

Designed and developed in Italy, TSM products are setting new standards worldwide - available in more than 60 countries.

>> HOW IT WORKS

itala

135

ITALA 135 is the electric outdoor sweeper by TSM which stands out for having ZERO ENVIRONMENTAL IMPACT. It doesn't produce CO₂ emissions and thanks to its powerful filtering system, fine particles remain trapped and are not released into the environment during the sweeping tasks.

All functions are electric therefore the noise emissions are reduced only to the noise of the brushes on the ground, offering the possibility to work at any time of day or night. The advantages of ITALA 135 are related to its high productivity. The mechanical system allows to collect even voluminous materials, which combined with the suction system with water spray on the front brushes allows a total reduction of fine particles.

FRONTAL BRUSHES

The frontal brushes convey the waste to the center of Itala 135, and are equipped with an anti-impact re-entry system



CONSOLE

The electric traction of Itala 135 is controlled by the handlebars. To move forward simply push the lever forward, otherwise by pushing it backwards Itala 135 will reverse. The speed is established by the operator, directly on the console

FILTERING SYSTEM

The dust raised by the brushes is sucked in by the vacuum and held back by the filter. The air that is released into the atmosphere is completely purified and free of fine dust

HOPPER

CENTRAL BRUSH

The conveyed waste by the frontal brushes is collected by the central brush and thrown inside the hopper



>> HOW IT WORKS

ARIA 240 is the electric outdoor vacuum by TSM which stands out for having ZERO ENVIRONMENTAL IMPACT. It doesn't produce CO₂ emissions and thanks to its powerful filtering system, fine particles remain trapped and are not released into the environment during the tasks.

ARIA 240 is equipped with an electric traction system that allows the operator to move easily in the city center, leaving ample freedom of movement in the aspiration of any waste.

aria

240



VACUUM HOSE

The waste is sucked through the hose supported by the operator and flows to the hopper



FILTERING SYSTEM

The filter mounted vertically allows a complete and optimal use of the same, guaranteeing the operator long suction performance. The air that is released into the atmosphere is completely purified and free of fine dust

WHEELIE BIN

CONTROL LEVER

The electric traction of Aria 240 is controlled by the front lever. To move forward, simply push the lever forward, otherwise by pushing it backwards Aria 240 will reverse. The speed is established by the operator, directly on the console



NO NOISE

Itala 135 and Aria 240 can take advantage of both night and early morning hours to clean city centres, without interruption to people.

>> UNSTOPPABLE WORKERS



1960



1980



2000



BROOM AND SHOVEL

VS

TRADITIONAL VEHICLE



OBSOLETE TOOLS, WITH MANUAL ACTIVITIES
EFFECTIVENESS DEPENDS ON THE OPERATOR
NON-UNIFORM QUALITY BETWEEN OPERATORS
TIME INCREASES BECAUSE ARE TASKS ARE TOUGH
NO LIMITS IN THE TIME OF USE
NO LIMITS IN THE USE
ACCESS TO CENTRAL AREAS
NO LIMITS OF DIMENSIONS AND WEIGHT
ANTIGENIC, DO NOT PROTECT FROM THE DIRT
DO NOT REQUIRE EXPERIENCE
DO NOT REQUIRE BIG INVESTMENTS
DEMEAN THE OPERATOR
DO NOT GIVE REFERENCE

MECHANICAL VEHICLES, WITH PETROL ENGINES +
EFFECTIVENESS NOT RELATED TO THE OPERATOR ++
UNIFORM RESULTS, NOT RELATED TO THE OPERATOR ++
LESS TIME, BUT WITH FUEL REFILL +
LIMITS IN THE TIME OF USE DUE TO THE NOISE
LIMITATIONS OF USE DUE TO CO₂ EMISSIONS
LIMITED ACCESS TO CENTRAL AREAS
LIMITS ON DIMENSIONS AND WEIGHT
NEGATIVE IMPACT ON ENVIRONMENT AND PEOPLE
LIMITED TO EXPERT OPERATORS WITH DRIVING LICENSE
REQUIRE BIG INVESTMENTS
INCREASE MOTIVATION +
DO NOT GIVE REFERENCE





PRESENT AND FUTURE

VS



itala
135



aria
240

- INNOVATIVE VEHICLES, WITH ECOLOGICAL MOTORS ++
- CONSTANT EFFECTIVENESS, NOT RELATED TO THE OPERATOR ++
- UNIFORM RESULTS, NOT RELATED TO THE OPERATOR ++
- NO STOPS. AUTONOMY OF A COMPLETE WORKING SHIFT ++
- NO NOISE >>> NO LIMITS IN THE TIME OF USE ++
- ZERO CO₂ EMISSIONS >>> NO LIMITS IN THE USE ++
- TOTAL ACCESS TO CENTRAL AREAS ++
- COMPACT DIMENSIONS AND REDUCED WEIGHT ++
- ZERO IMPACT ON ENVIRONMENT AND PEOPLE ++
- EASY TO USE. DRIVING LICENSE NOT NEED ++
- ECONOMICAL WITH LOW MAINTENANCE COSTS ++
- INCREASE MOTIVATION AND VALUE CLEANING TASKS ++
- GIVE REFERENCES TO THE COMPANY RESPONSIBLE FOR CITY CLEANING ++



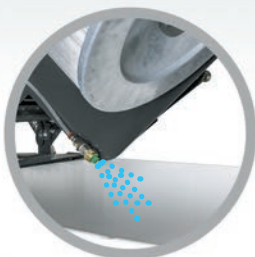
>> DISTINCTIVE FEATURES

aria

240

NEBULIZER IN THE BIN

for dust suppression, deodorize, disinfect and prevent any combustions



WATER TANK

30 Lt of water to be used also with the addition of chemical for sanitizing and perfuming the bin



EXTRA BAGS HOLDER

Extra bag compartment to ensure the continuity of cleaning tasks during the day



4 WHEELS

Wheels of the same size between front and rear guarantee high stability on any type of surface. Aria 240 easily overcomes obstacles and kerbs without risk of overturning



WASHABLE POLYESTER FILTER

to filter fine particles up to 0.5 microns, returning a completely cleaned air



ERGONOMIC CONTROL

MIN/MAX vacuum
Nebulizer
Warning buzzer



ULTRA LIGHT HOSE

The hose in carbon fiber allows a total freedom of movements



NEBULIZER ON THE HOSE

Nebulizer on the hose to extinguish any cigarette butts still lit.



FREE MAINTENANCE BATTERIES

GEL batteries has an autonomy off >10 hours depending on the use.
The on-board charger allows easy charging



aria

240

SAFETY DEVICES

Fire extinguisher, horn, reverse buzzer, reflectors, parking brake, automatic stop with filter opened, functions auto-switch off with minimum autonomy to transfer Aria 240 to the nearest power socket

USER FRIENDLY CONSOLE

Hour counter
Battery indicator
Speed regulator
Vacuum On/Off
Working light

* REAR DISPLAY

The rear display for advertising purposes

* WORKING LIGHTS

Powerful LED lighting to work at any time of day

* FULL BIN SENSOR

Warning buzzer and led on when the bin is full of emptying to keep working

* TOOLS KIT

Broom, litter picker and bucket to collect the waste that does not pass through the suction hose

WHEELIE BIN

The standard urban bin with a capacity of 240 liters. Can be used without or with bag, using the convenient quick-draw holder

"": optional*



>> INNOVATIONS

THE POWER OF THE S VERSION

aria

240 **S**uper

The **S** stands for “**SUPER**” for the **outstanding** and **innovative features** mounted that make the TSM ARIA 240 incredibly efficient. **TSM ARIA 240 Super** comes equipped with a **mechanical support for the hose** which both facilitate the movements during the tasks and eliminates curves of the hose so the suction is always powerful even with voluminous waste. It has also the **on board automatic filter cleaning system**, which is automatically timed to clean the filter and the operator avoids to stop frequently to clean it manually throughout the day. **TSM ARIA 240 Super** is the only urban vacuum designed to reduce the operator’s efforts during prolonged cleaning activities.



AUTOMATIC CLEANING

8 bar of power with the extra air gun for the cleaning finishing



...WHAT OFFERS MORE

- ✓ MECHANICAL SUPPORT FOR THE HOSE
- ✓ ON BOARD AUTOMATIC FILTER CLEANING
- ✓ AIR GUN FOR FINISHINGS

+ BENEFITS

- > REDUCTION EFFORTS FOR THE OPERATOR
- > MORE SUCTION POWER
- > CONTINUOUS POWER SUCTION
- > TIME SAVINGS IN THE FILTER MAINTENANCE

EFFICIENCY & PERFORMANCE



240

240 **S**

ARIA 240



240

240 **S**

ARIAMATIC 240

ariamatic

240 **S**uper

THE 1ST OUTDOOR VACUUM

(((AUTONOMOUS DRIVEN)))



+ BENEFITS

- > ZERO EFFORTS FOR THE OPERATOR
- > FREEDOM OF MOVEMENTS
- > FOCUS ON THE ONLY CLEANING TASK
- > TIME SAVINGS IN THE CLEANING TASKS



ARIAMATIC IS THE FIRST AUTONOMOUS DRIVEN OUTDOOR VACUUM

equipped with the innovative **FOLLOW ME system** able to follow the operator's movements, offering **absolute versatility** and working autonomy. ARIAMATIC **detects obstacles**, ensuring the safety of people and things that surround in the environment, leaving to the operator the sole task of directing the vacuum hose to the waste and ARIAMATIC will promptly follow its operator.

>> DISTINCTIVE FEATURES

itala

135

CONTROL LEVERS

Comfortable and ergonomic brush management. The red lever of the central brush, if pressed, adjusts the pressure of the same to the ground



WASHABLE POLYESTER FILTER

to filter fine particles up to 0.5 microns, returning a completely cleaned air



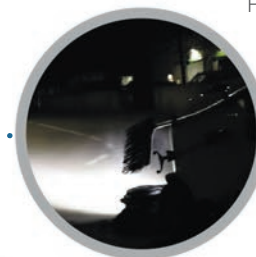
* ON BOARD RAMPS

To easily overcome obstacles and kerbs



WORKING LIGHTS

Powerful LED lighting to work at any time of day



ULTRA LIGHT WANDER HOSE

The carbon hose allows the cleaning finishing in areas difficult to reach like flowerbeds, benches and between racks of bicycles



ANTI-DUST SYSTEM

Nebulizers on the frontal brushes for suppressing the dust during sweeping



* OPERATOR'S CHARIOT

It is added to Itala 135 with a "click". It is really useful when the operator is requested to clean an extended area



FREE MAINTENANCE BATTERIES

GEL batteries has an autonomy of >7 hours depending on the use. The on-board charger allows easy charging



itala

135

SAFETY DEVICES

Fire extinguisher, horn, reverse buzzer, parking brake, automatic stop with hood opened, functions auto-switch off with minimum autonomy to transfer Itala 135 to the nearest power socket



* GLOVE COMPARTMENT

Lockable compartment to safely store personal belongings, such as gloves, water bottles, etc.



WATER TANK

30 Lt of water to be used with the anti-dust system



FRONTAL EXTRA BIN

It allows to collect the voluminous waste that the operator may find on the way



HOPPER

The 135 Lt hopper has the shape of an ergonomic wheelbarrow, which allows an easy and fast transfer. It can be used without or with bag, using the convenient quick-draw holder



* TOOLS KIT

Handy broom and litter picker to avoid touching the voluminous waste with hands



REAR RED LIGHTS

To be visible at any time of the day



**: optional*



ECOLOGICAL SOLUTIONS FOR ANY ENVIRONMENT

designed to be leaders in the urban cleaning with
ZERO ENVIRONMENTAL IMPACT, thanks to their
exceptional ratio between performance,
purchasing and operating costs

CAMPUS

MALLS

SCHOOLS

SLIPWAYS

HOSPITALS

LOGISTIC CENTERS

NURSING HOMES

TRANSFERABLE
ANYWHERE IN A BIT

easily transportable to strategic
points of the city



TRAIN STATIONS

AIRPORTS

TRADE CENTERS



PARKS
& GARDENS



INDUSTRIAL
FACILITIES



CITY CENTRES



BATHING
ESTABLISHMENTS





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