



DEPURECO TECHNOLOGY



ECOISLAND

WHY IS IT BORN?

Ecoisola was born of the need to replace (or flank, supplement) the "door-to-door" household waste collection system, as well as the need to overcome the critical issues related to the use of wheeled bins that create degradation and dirt in the urban environment.

The modern design and customizable graphics make it an aesthetically pleasing product that can be customized as needed.

THE NEED FOR MANAGEMENT



Each city, municipality and area there of has its own specific needs in waste collection management due to the different materials collected in each area, the different category of resident

Types of materials

Each material brings with it different needs in the collection and disposal of the same in terms of: space required, possible issues related to hygiene and/or decorum levels, and in some cases, even possible contamination of public areas.

Examples of the collection materials:

- Plastic
- Paper Organic
- Glass
- PET (plastic food bottles)
- Pruning clippings
- Bulky materials (mattresses, etc.)
- WEEE (large size)
- Small WEEE
- Textile materials
- Residual dry waste from household separate collection

User categories

Each utility produces waste materials in different quantities and types. This affects what is the schedule in collection management.

Examples of utility categories:

- Residents
 - "Resident" tourists temporarily
 - Occasional tourists
 - Accommodation facilities (camp sites, RVs, etc.)
 - Commercial users (restaurants, stores, etc.)

Morphology of the territory

Spatial characteristics of the territory influence the possible ways of waste collection.

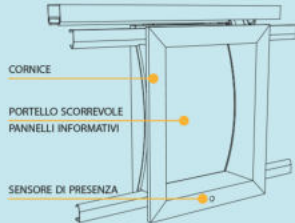
Examples of different areas:

- Old Town
- Harbor
- Commercial area
- High-density residential area
- Hamlets
- Scattered houses
- Industrial areas
- Areas with a high presence of restaurant activities

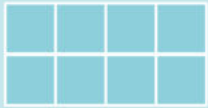


PRODUCT LINES MODELS ECO-ISLAND

- ▶ Modular structure, with the possibility of inserting from 1 to 8 delivery mouths (1 for each module, holding capacity per single module of 1100 lt).



- ▶ Possibility of Monolated or Bilated configuration.



8 moduli bilato



5 moduli monolato

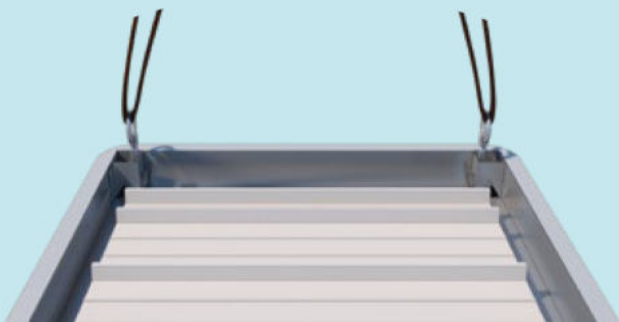


6 moduli bilato

- ▶ Possibility of configuration for emptying through side doors or front door, which allows emptying of the single bin without the need to move the others.



- ▶ Possibility of stationary configuration, but movable by hook-and-loop systems, or unloadable (with hook and beam system at the base that allows easy and fast movement)



- ▶ Special care is given to aesthetics with perfectly smooth walls, rounded corners and the absence of hinges, tracks or other visible opening system.



- ▶ Possibility of customizing the graphics affixed to the exterior surfaces to integrate them with the landscape context.



- ▶ Water drainage system inserted into the channels and flashings of the roof finish.
- ▶ Multilayer interior flooring, treated with water-repellent paints by autoclave processes.
- ▶ Equipped with insulated outer walls, which allow a stable internal temperature to be maintained, preventing weather conditions from affecting the usability of the collection or retreat.



ISECO

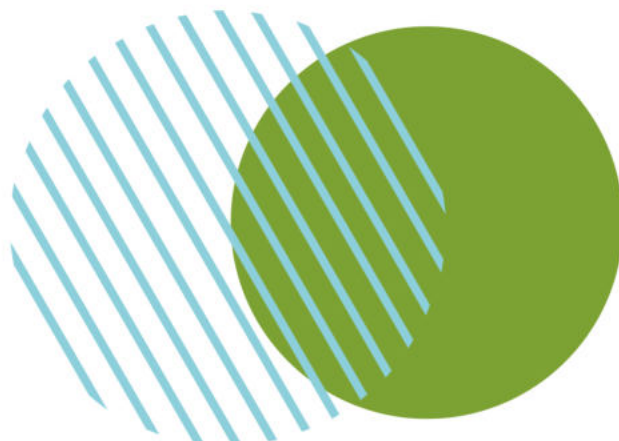
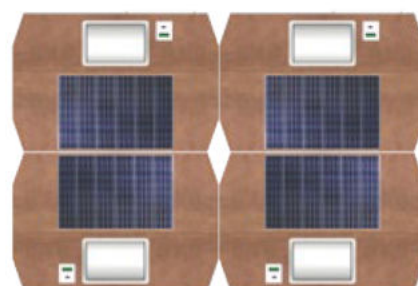
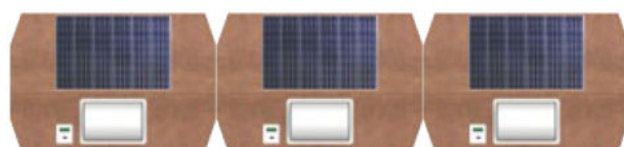
- ▶ Single structure, for 360-liter or 1100-liter containers, for making eco-island that can be modulated by the number of single or side-by-side structures as needed.



- ▶ Structure made of galvanized steel and door made of stainless steel. all treated with epoxy powder paint to ensure another weather resistance.
- ▶ The height of only 1550 mm makes it less impactful located in urban settings.



- ▶ Octagonal shape that allows modules to be placed side by side even in a nonlinear manner, adapting to the morphology of the locations where they will be placed (curve, star, serpentine, etc.)



MATERIAL STORAGE ROOMS WITH ELECTRONIC ACCESS

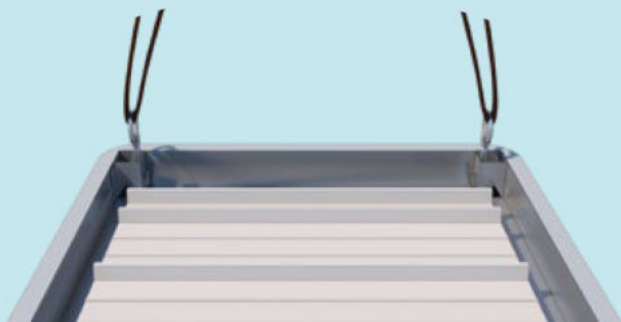
- ▶ Modular structure, for delivery of bulky or hazardous materials.



- ▶ Access via sliding, computerized, automatic door.



- ▶ Possibility of stationary configuration, handling by hook-and-loop or unloadable system at the base allowing easy and fast movement.



- ▶ Particular care was given to aesthetics, with perfectly smooth walls, wonky corners, and the absence of visible hinges, tracks or other opening system.



- ▶ Possibility of customizing the graphics affixed to the exterior surfaces to integrate them with the landscape context.



- ▶ Water drainage system inserted into the channels and flashing of the roof finish.
- ▶ Interior plywood flooring treated with water-repellent paints by autoclave processes.
- ▶ Equipped with insulated outer walls, which allow a stable internal temperature to be maintained, preventing weather conditions from affecting the usability of the collection or retreat.

MULTIFUNCTIONAL FACILITIES

Following the modularity of the product lines, compacting equipment (eco-compactors) for bulk storage of food-grade PET, or machines for automated collection of used oil, are placed within the same facilities. Likewise, the facilities proposed by Depureco Technology, in addition to covering all collection needs, offer the possibility of distributing environmentally friendly products with the desire to be part of a circular economy discourse.



PRODUCTS THAT CAN BE DISTRIBUTED BY FACILITIES:



DISTRIBUTORE D'ACQUA MICROFILTRATA
WATER DISTRIBUTOR



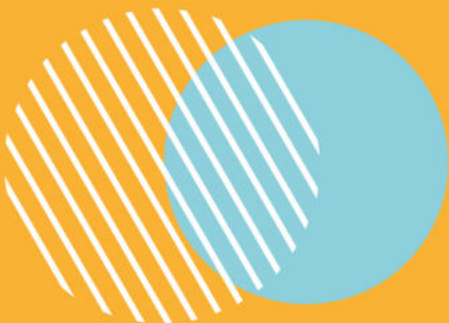
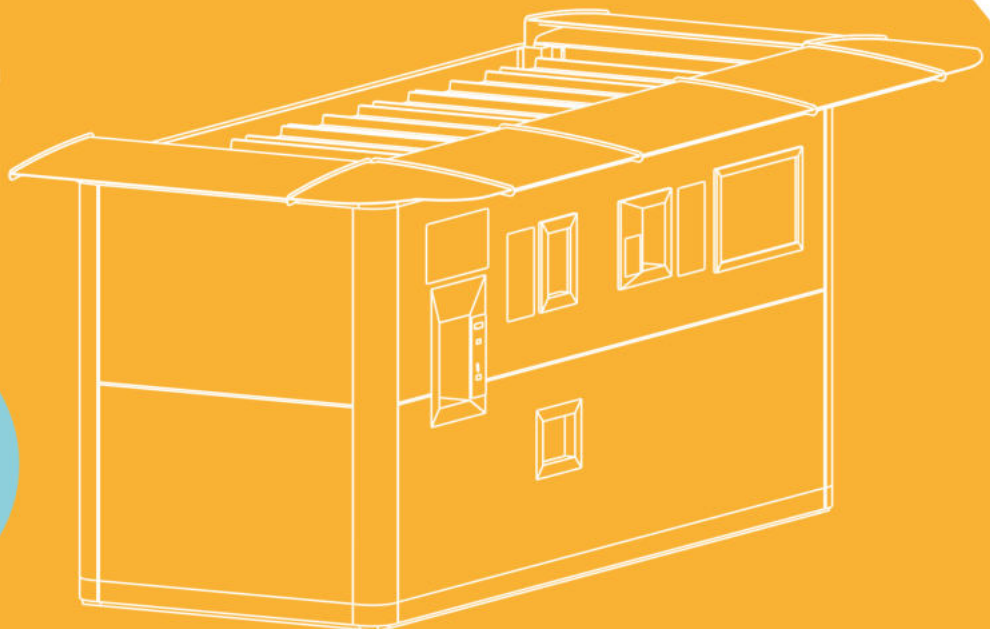
DISTRIBUTORE DI SAPONE BIO
SOAP DISTRIBUTOR



EROGATORE DI SACCHETTI
WASTE BAG DISTRIBUTOR



ECO BOTTIGLIE
ECO BOTTLE



TRAINING AND INFORMATION

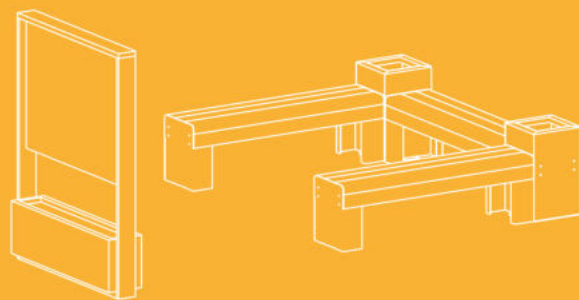
ECOSQUARE

At the base of any innovation operation, the main actor always turns out to be the user, in this case the citizen who must first be informed, then educated about what he sees developing around him. In thinking about an **ecological and educational** area for the citizen, Depureco proposes Ecosquare, an **ecopark** that aims to enhance a disused area of the city; this space is equipped with an educational area, smart benches, gathering spaces and multiservice (a multifunctional structure for recycling collection and distribution of products and services). The meeting point between Ecosquare and education on recycling and circular economy, is precisely the Multiservice, in which school projects can be reflected with **"10 and praise for plastic"**, where through identification cards matched to the class, each individual student can give plastic bottles (PET) obtaining points for his or her group, for a healthy and simple "best recycling" competition.

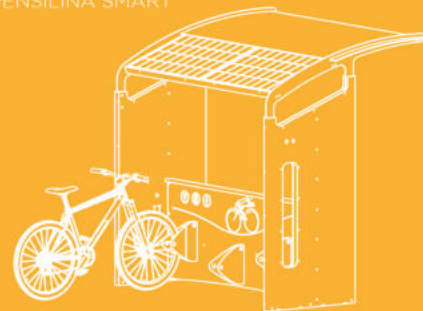
10e lode
per la plastica



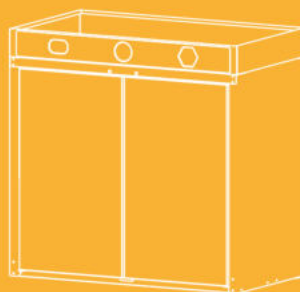
PANCHINA INCLUSIVA



PENSILINA SMART



FIORIERA CESTINO



TAVOLO SMART





MANAGEMENT SYSTEM

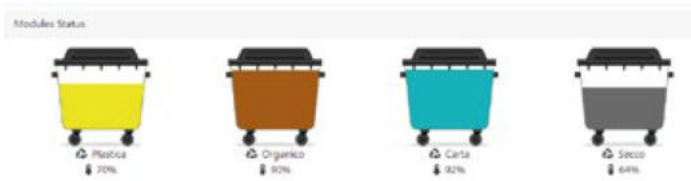
WHAT IS IT FOR?

The management system, offers the possibility to remotely manage all Depureco eco-facilities in every feature, and at the same time to collect all data from their activities. These features, taken together, make it possible to apply a system of timely pricing.

From here on, the extensive functionality of the system will be presented, answering questions and concerns that may arise.

WHAT DO I FIND IN THE SYSTEM?

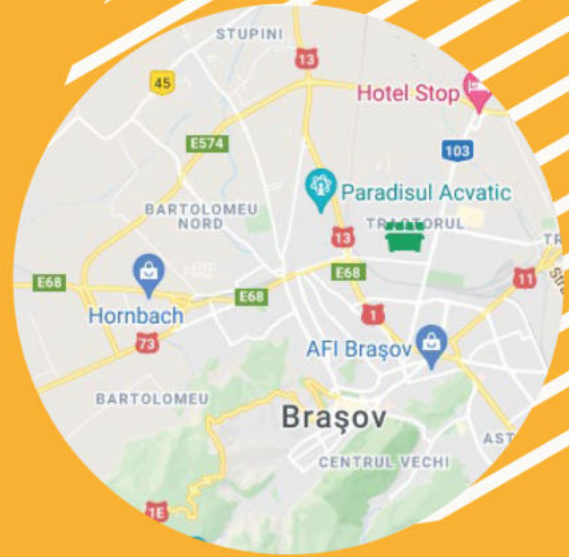
In the management system, all **eco-islands** installed in the territory are entered, each with its own identification code, the location of each facility will be tracked through **GPS** detection, and it will also be possible to know: status of **filling of internal containers**, status of product operation. In addition, the **number of deliveries** for each material, **quantity** of the material itself delivered, and **which individual citizen** or user performed the delivery will be detected.



HOW IS CITIZEN/USER CONTRIBUTION TRACKED?

In addition to the remote monitoring and control of the eco-facilities, within the Depureco management system, all the utilities and/or **citizens qualified to deliver** to them are also entered. Each citizen or Utility, is assigned an identification code, which can correspond to its **tax code**, to the **QR-code present on the personal bags** previously associated with the user himself, and which must be used for the recognition of the latter. The choice to select one or more recognition systems is at the discretion of the customer.

Delivery will be allowed only in the case of **recognition**, by the management system (which communicates with the centralized servers thanks to the gsm cards present in each machine), of the citizen who attempted to authenticate himself. In addition, in the case of bags with QR-codes (which are distinguished by color according to the waste they are to contain), only the door related to that particular material will open automatically.



HOW DOES PERSONAL BAG RECOGNITION TAKE PLACE?

When the bag is distributed to a user (a process that can take place either through a vending machine provided by Depureco Technology, or through a physical operator) the QR-code printed on the bag packet in question is **associated** and automatically uploaded into the management system, resulting from that moment on in the possession of the citizen who made the withdrawal.

N.B: The QR-code printed on the bundle of bags, is also the same as the one printed on each individual bag in that bundle.

WHAT ARE THE ADVANTAGES OF THE PERSONAL BAG RECOGNITION AND CONTRIBUTION METHOD?

Once set up within the management system the method of recognition and access to the conferment via the QR-code of the bag, the possibility of human error is greatly reduced, and there is also an opportunity to carry out practical, fast and effective spot checks. In fact, thanks to the semi-transparent nature of the bags provided by Depureco, it will be possible with a few simple glances to scrutinize the content conferred, and in the case of a **detected infraction**, it will be enough to read the QR-code on the bag, obtaining the code of the corresponding user, thus being able to **trace back to the user** who soiled the collection.



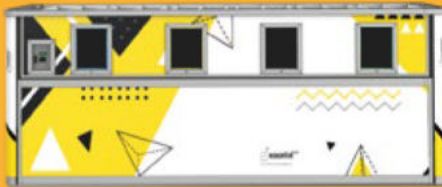
CAN I TAKE ADVANTAGE OF THE MANAGEMENT SYSTEM TO SCHEDULE COLLECTION?

Yes. As mentioned above, the management system allows remote control of all facilities, therefore, it also allows **limits to be set on each user's deliveries** and/or limits on the hours or type of materials to be delivered.



Using a recognition system through **user-associated bags** we could assume the following scenario*:

- An eco-island with a multi-module structure is placed, depending on the number of utilities to be covered.



- 1 Module is designated for organic material delivery for the entire week; the others are designated for the remaining materials in daily rotation. E.g.:

 UMIDO	 SECCO RESIDUO	 CARTA CARTONCINO	 VETRO	 PLASTICA
GIORNI DI CONFERIMENTO	GIORNI DI CONFERIMENTO	GIORNI DI CONFERIMENTO	GIORNI DI CONFERIMENTO	GIORNI DI CONFERIMENTO
DAL LUNEDÌ ALLA DOMENICA	SABATO DOMENICA	MARTEDÌ GIOVEDÌ	MERCOLEDÌ	LUNEDÌ VENERDÌ

- The planned rotation schedule is entered into the management system so that, the counter opens only upon recognition of the right bag, on the corresponding material day.
- The dedicated organic counter, on the other hand, will be accessible through the 'special bag' every day.

Also through the management system, it is possible to indicate a time frame in which no referral will be allowed at that facility. This is to allow the operator to perform the pickup and emptying of the internal dumpster so that the materials are not contaminated by the next ones scheduled in the schedule.

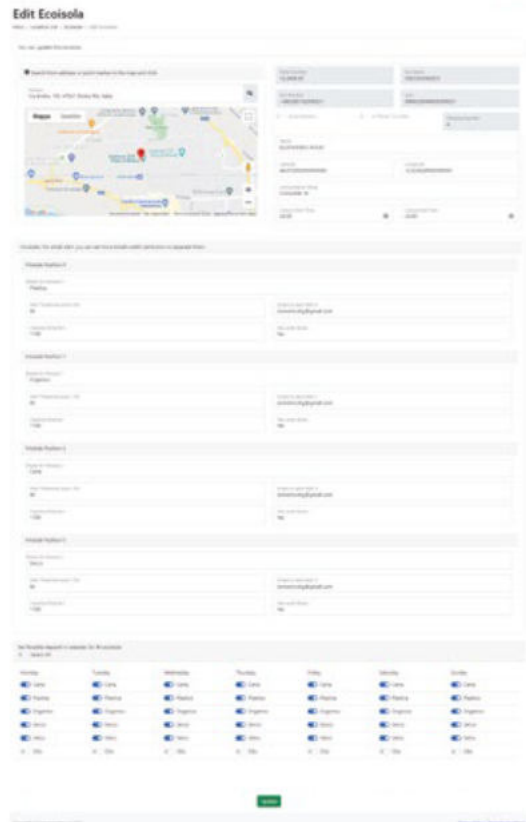
With the listed features and additional ones, the management system provides full **coverage of the needs for tracking of deliveries and data collection**.

*effective where there is sufficient space for larger facilities, such as in areas of high concentration.

HOW CAN I TAKE ADVANTAGE OF THE MANAGEMENT SYSTEM FOR AN ECO-ISLAND WITH "EVERYTHING ALL THE TIME" DELIVERY OPTIONS?

Just as it is possible to schedule the collection, similarly, it is possible to allow **conferring at each eco-island counter** in an unlimited manner by allocating it to a single material. In any case, if necessary, a **maximum number of weekly or monthly deliveries** can be set for each user or category of users.

In the case where there are no problems at the level of occupiable spaces, this solution is the most convenient for the user and, at the same time the most effective for cities with a high tourist vocation, where it would not be possible to harness the citizen in a calendarized scheme. In this area, in order to best configure and organize the collection of materials by the manager, the management system allows setting a **threshold fill level**, beyond which it proceeds with sending an **"alarm" via e-mail** to a preset contact.



DATA TRANSMISSION

The **data collected** by the management system can be accessed through the use of credentials (username and password). These can be **exported** to an excel sheet, and on request it is possible to interface with other systems by means of **API** (Application Programming Interface) prepared.



UTILITY ENTRY TEMPLATES

Below is a further point-by-point summary of what and how the customer can classify and enter waste and utilities to be managed in the management system:

- Classify the various types of waste to be managed
- Classify the different categories of utilities, and the number of cards authorized for delivery for each utility
- For each user category (or for a specific user) it is possible to:
 - Determine the maximum number of weekly deliveries possible
 - Determine the types of material to be conferred
 - Determine the time slots in which contributions are permitted
 - Determine the eco-islands enabled for conferment
 - Limits of types and quantities of bags provided
- It has a utility entry system containing:
 - The contact reference rati
 - Master data of the user
 - Location of the user's property
 - Categories to which the user belongs
 - Date of tari utility activation
 - Date of tari utility closure
 - Primary access authorization code
 - Secondary access authorization codes, with any usage limit dates
 - Echo islands authorized to the specific user

SYSTEM 4.0

They meet the label of 4.0, those systems that develop industrial automation, integrating new technologies to **improve working conditions** and increase plant productivity and quality.

The system is **certified 4.0**, falling within the following parameters and developing the following characteristics:

- Real-time intelligent connection of humans, machines and devices for systems coordination
- Connection between devices with integrated Software and Hardware (Cyber-PhysicalSystems) interacting in a network
- Data collection and processing to enable increased efficiency by improving process analysis and control
- Assisting the employee by presenting and/or displaying appropriate information anywhere, anytime, quickly and simply in situations where it is needed, facilitating human-machine interaction
- They create a constant flow of data and information within and between companies from the sensorist level fono to high levels of process management

- They create the basis of decentralized approaches to process management by realizing a high level of automation versatility and flexibility
- They help with the integration of concepts for self-configuration, self-parameterization and self-optimization of systems realizing al base for rapid and autonomous reaction to unforeseen events

WHAT IS RIPREMIA?

RIPREMIA is a project that was created to provide citizens with public utility services and incentivize them to separate waste collection by implementing a **reward mechanism**. The goal is not to make money, but to do good deeds for the protection of the environment.

By carrying out proper waste sorting, the citizen will receive in return **Ecopoints**, to be used at MULTISERVICE POINTS, or discount coupons that Ripremia users will be able to spend at affiliated stores.

Each user will be provided with a **QR-CODE**, inside the app, which is unique to them and which they can scan at the reader for identification, necessary for crediting the Ecopoints (or coupons).



ASSISTANCE

The computerization of the system, in addition to an already mentioned and comprehensive data collection, allows a **remote control** of all the functions of the facilities, enabling **maintenance interventions** even remotely, without the need for the displacement of an operator.

Whenever, on the other hand, the physical intervention of an operator is necessary, it will still be possible to remotely guide and monitor the operator with the use of **a specific application made for CAT** (Technical Assistance Center) located throughout the country.



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Via Primo Maggio 5
37012 Bussolengo (VR)- Italy
+39 3925427881
info@depurecotechnology.com

