



SELF-CLEANING TOILET – TECHNICAL DESCRIPTION

Mod. TCAB SERIES - January 2021



Table of contents

SELF-CLEANING TOILET TCAB SERIES.....	3
TCab HN	4
TCab 2H.....	5
TCab HO	6
TCab HU	7
TCab HD	8
TCab HG	9
TCab H2N	10
TOILET WITH WC-BOWL: SPECIFICATIONS.....	11
URINAL ROOM: specifications	12
SHOWER: specifications.....	13
STORAGE, locker, OR TICKET BOOTH: specifications	14
AVAILABLE MODELS	15
BASE MODEL.....	15
MILANO MODEL.....	16
VENEZIA MODEL.....	17
AMSTERDAM MODEL	18
INSIDE THE TOILET	19
TECHNICAL SPECIFICATIONS.....	20
INTERNAL FINISHING AND COMPLEMENTS.....	23
EQUIPMENT.....	27
WATER PLANT	27
ELECTRIC PLANT.....	27
DRAIN SYSTEM	28
HEATING PLANT.....	28



DEPLATION PLANT	29
PT FRESH PERFUMING DEVICE.....	29
SAFETY.....	31
USER DETECTION DEVICE	31
SLIDING DOOR (on request).....	32
➤ PT-CALL	33
➤ PT-LINE.....	33
WASH BASIN WITH ANTI-SYRINGES SAFETY SYSTEM	36
EMERGENCY BUTTONS (SOS).....	36
EMERGENCY LIGHT	36
INTERNAL FIRE-PROOF AND VANDAL-PROOF COMPONENTS	37
USE TIME LIMIT	37
PT-HELP.....	38
PT-HEALTH.....	39
SMART TECHNOLOGY®	42
WASHING SYSTEMS.....	43
➤ WASHING, HYGIENISING AND DRYING OF THE WC-BOWL.....	43
DYNAMIC WASHING OF THE WC SEAT	44
➤ WASHING OF THE WALLS	44
➤ WASHING INSIDE THE WASH BASIN WITH HIGH PRESSURE NOZZLE.....	45
➤ WASHING AND DISINFECTION OF THE FLOOR	46
USE CYCLE.....	47
OPTIONS AVAILABLE	49
ADDITIONAL KITS	49
OUTER FINISHING	49
ACCESSORIES	50
TECHNICAL DATA SHEET	51



SELF-CLEANING TOILET TCAB SERIES

The TCAB series is a range of **AUTOMATIC** and **SELF-CLEANING toilets for OUTDOOR**, conceived and build aiming at combining **reliability and duration**, thanks to a high-level technology that guarantees **safety** for the users and a **perfect hygiene** after every use. Every model of the TCAB series has been conceived to meet specific needs. For this reason, it is possible to combine to the H room (a self-cleaning room also fit for disabled), other rooms with specific functions, such as, for example, a second WC-room, a shower room, a urinal room – either open or closed, storage room or a porter's lodge, or a ticket's booth.

The cleaning and sanitation technology SMART® guarantees an **high-level cleaning and**



disinfection of the toilet, and is composed by a system which is unique on the market, and this, thanks to a hidden arm above the bowl, performs cleaning and washing, also washing the surrounding walls up to 80 cm; at the same time a set of nozzles ejects high-pressure water on the floor.

These toilets can be installed in area with specific destination of use such as: **market places, parking lots, interchange stations, rest areas.**

All toilets have been designed and tested in order to get an extra-easy maintenance procedure; its manufacturing and resistance specifications can guarantee efficiency and high performances for the whole life of the toilet.

The external dimension of the TCAB series toilet may change according to the number and type of the rooms, and the chosen design. Here after are some standard solutions from our range.

When required it is possible to embed the toilet room with an ATM booth, vending machines, ticket booths and other pieces of equipment.

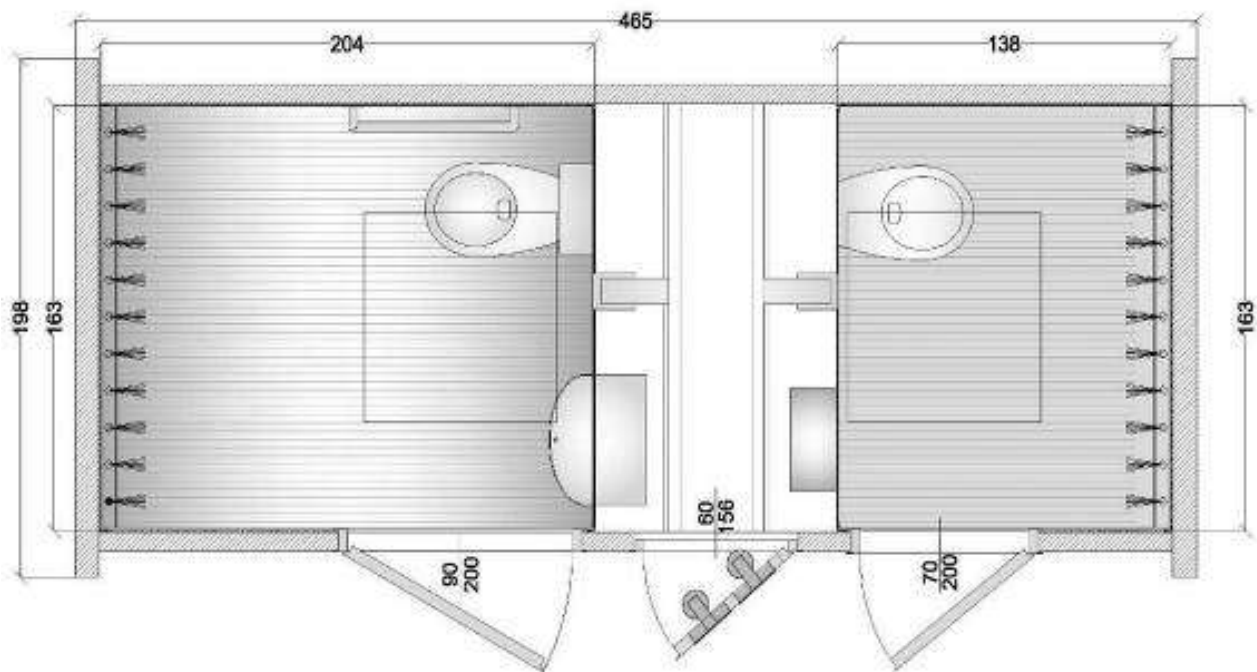


TCAB HN

This solution is equipped with two rooms with WC-bowls, one of the rooms is fit for disabled users and one has standard sizes.

The external size of the block are about 4,65 m. x 1,98 m. peak height 2,60 m.

Room for disabled: the internal size (1,63 m. x 2,04 m.), the setting of the hygienic facilities and of the accessories, allow the use of the toilet to disabled people using a wheelchair. They fully comply with the prescriptions provided by the Ministerial Decree issued on 14th June 1989, no. 236, confirmed by the Decree of the President of the Republic, issued on 24th July 1996, no. 503.



TCab HN: the toilet has a swinging door; on request it is possible to install a sliding door.

Both rooms are equipped with Smart® technology and with: hanging ceramic bowl, stainless-steel wash-basin, vandal proof, with automatic ejectors of water, soap and hot water (NO TOUCH type), embedded toilet paper manual distributor, shatter-proof stainless-steel mirror, coat-hanger, handles for disabled people, waste-bin with stainless-steel lid, flame retardant, embed in the wall and external illumination with low-consumption lights.

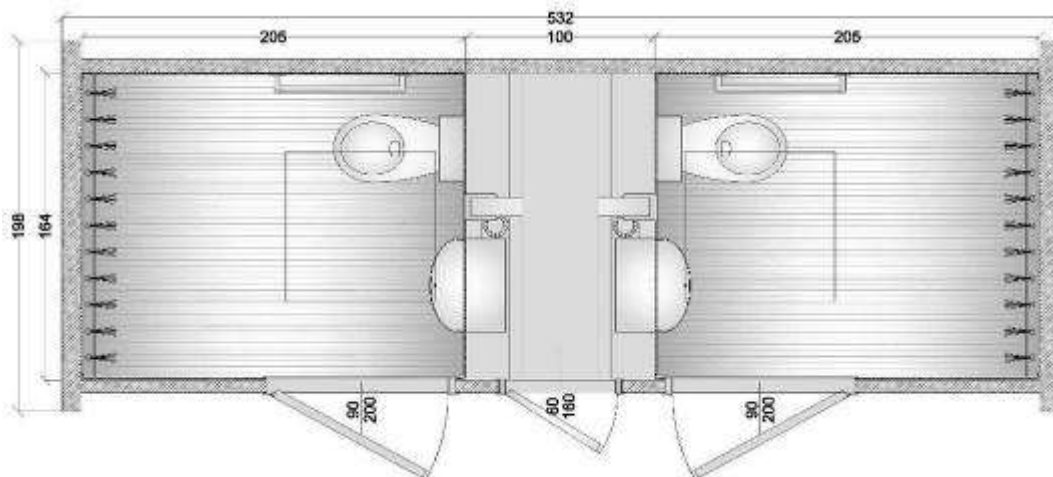


TCAB 2H

This solution is designed with two rooms with WC-bowl, also fit for the access of disabled people.

The external dimension of the block is approx. 5.32 m. x 1.98 m. peak height 2,60 m.;

Room for disabled: the internal size (1,63 m. x 2,04 m.), the setting of the hygienic facilities and of the accessories, allow the use of the toilet to disabled people using a wheelchair. They fully comply with the prescriptions provided by the Ministerial Decree issued on 14th June 1989, no. 236, confirmed by the Decree of the President of the Republic, issued on 24th July 1996, no. 503.



TCab 2H: the toilet has a swinging door; on request it is possible to install a sliding door

Both rooms are equipped with Smart® technology and with: hanging ceramic bowl, stainless-steel wash-basin, vandal proof, with automatic ejectors of water, soap and hot water (NO TOUCH type), embedded toilet paper manual distributor, shatter-proof stainless-steel mirror, coat-hanger, handles for disabled people, waste-bin with stainless-steel lid, flame retardant, embed in the wall and external illumination with low-consumption lights.



TCAB HO

This solution has been conceived with a room also fit for disabled users with a WC-bowl, and a urinal room (open or closed) with a urinal wall or hanging urinals.

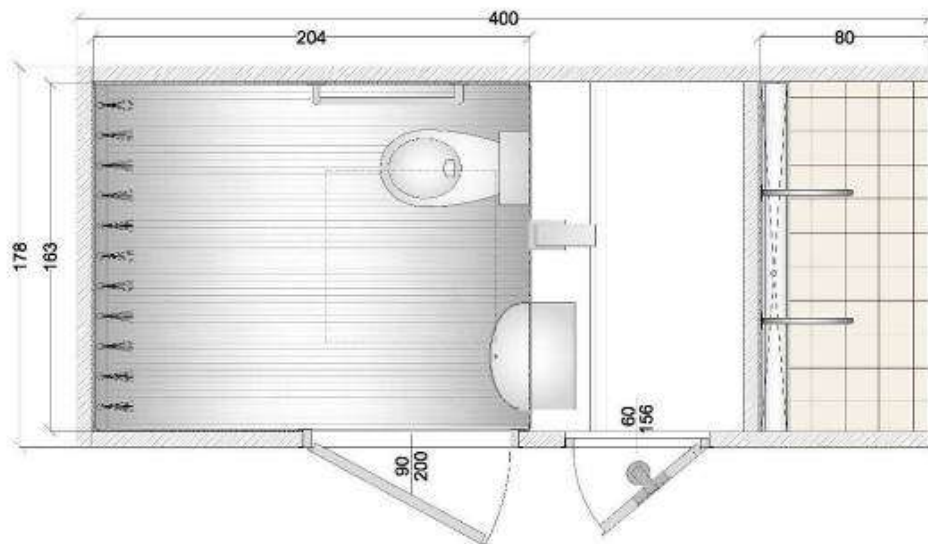
The external dimension of the block is approximately 4,00 m. x 1,78 m. peak height 2,60 m.

Room for disabled: the internal size (1,63 m. x 2,04 m.), the setting of the hygienic facilities and of the accessories, allow the use of the toilet to disabled people using a wheelchair. They fully comply with the prescriptions provided by the Ministerial Decree issued on 14th June 1989, no. 236, confirmed by the Decree of the President of the Republic, issued on 24th July 1996, no. 503.

The room is equipped with Smart® technology and with: hanging ceramic bowl, stainless-steel wash-basin, vandal proof, with automatic ejectors of water, soap and hot water (NO TOUCH type), embedded toilet paper manual distributor, shatter-proof stainless-steel mirror, coat-hanger, handles for disabled people, waste-bin with stainless-steel lid, flame retardant, embed in the wall and external illumination with low-consumption lights.

Urinal room: the interior is equipped with a stainless-steel urinal wall and automatic proximity sensors (150 cm) or, as an alternative, with stainless-steel hanging urinals, separated by a stainless-steel dividing panel. The internal illumination is provided by low consumption lights.

TCab HO: the toilet has a swinging door; on request it is possible to install a sliding door. The urinal room is



open.



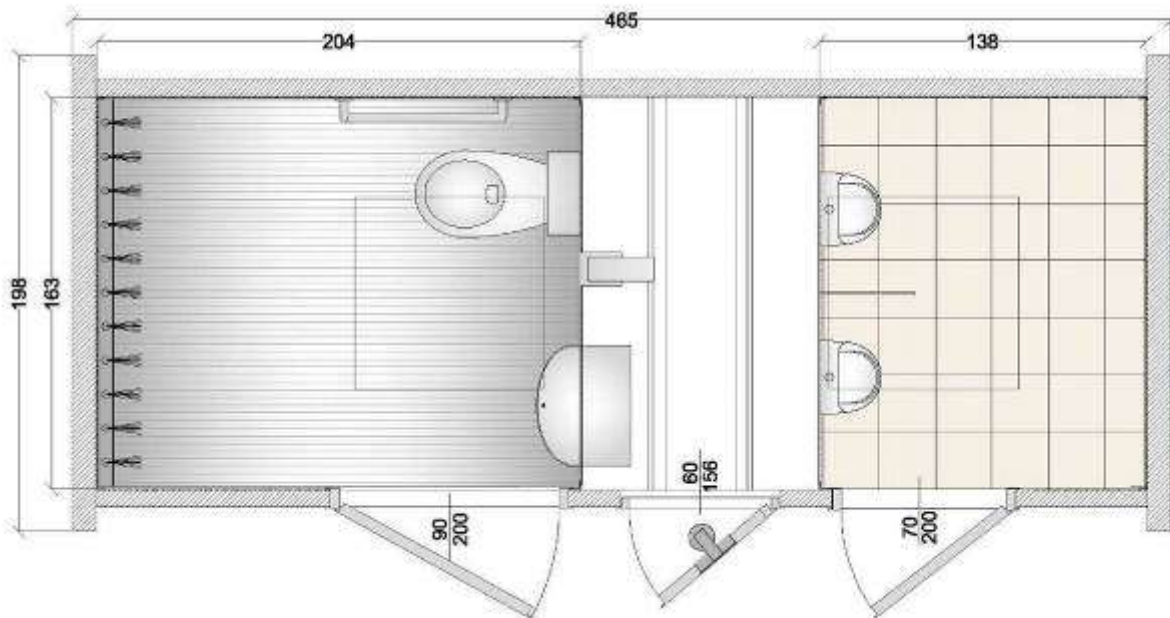
TCAB HU

This solution has been conceived with a room also fit for disabled users with a WC-bowl, and a closed urinal room.

The external dimension of the block is approximately 4,65 m. x 1,98 m. peak height 2,60 m.

Room for disabled: the internal size (1,64 m. x 2,05 m.), the setting of the hygienic facilities and of the accessories, allow the use of the toilet to disabled people using a wheelchair. They fully comply with the prescriptions provided by the Ministerial Decree issued on 14th June 1989, no. 236, confirmed by the Decree of the President of the Republic, issued on 24th July 1996, no. 503. The room is equipped with Smart® technology and with: hanging ceramic bowl, stainless-steel wash-basin, vandal proof, with automatic ejectors of water, soap and hot water (NO-TOUCH type), embedded toilet paper manual distributor, shatter-proof stainless-steel mirror, coat-hanger, handles for disabled people, waste-bin with stainless-steel lid, flame retardant, embed in the wall and external illumination with low-consumption lights

Urinal room: the interior is equipped with stainless-steel hanging urinals, separated by a stainless-steel dividing panel. The internal illumination is provided by low consumption lights.



TCab HU: the toilet has a swinging door; on request it is possible to install a sliding door. The urinal room is open.



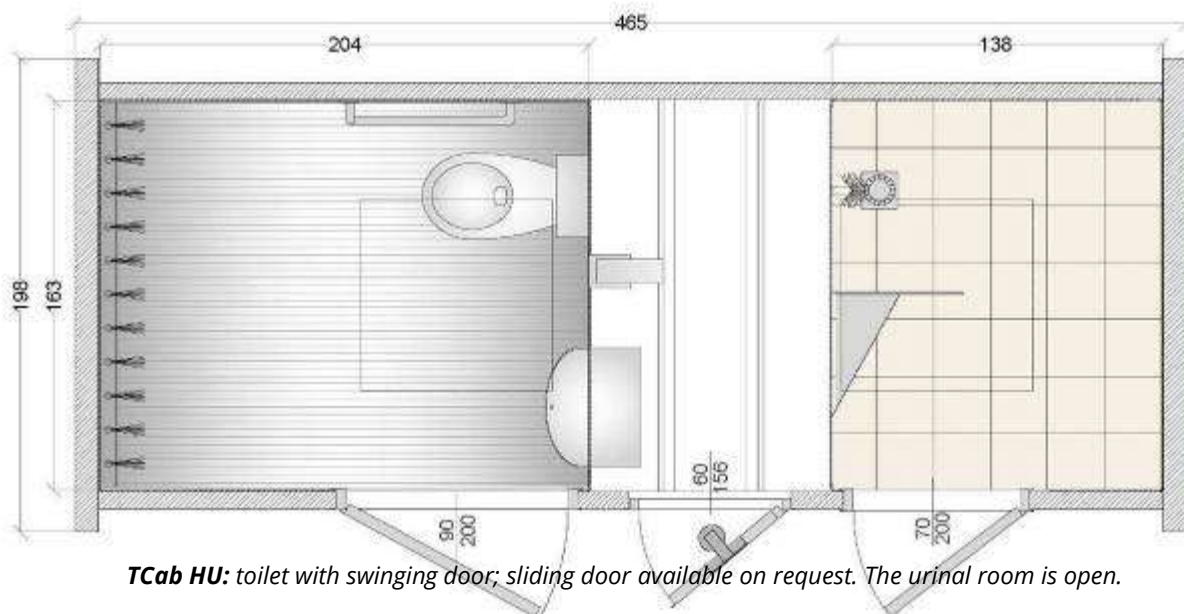
TCAB HD

This solution has been conceived with a room also fit for disabled users with a WC-bowl, and a shower room (without self-cleaning technology) per normal people with dressing space.

The external dimension of the block is approximately 4,65 m. x 1,98 m. peak height 2,60 m

Room for disabled: the internal size (1,64 m. x 2,05 m.), the setting of the hygienic facilities and of the accessories, allow the use of the toilet to disabled people using a wheelchair. They fully comply with the prescriptions provided by the Ministerial Decree issued on 14th June 1989, no. 236, confirmed by the Decree of the President of the Republic, issued on 24th July 1996, no. 503. The room is equipped with Smart® technology and with: hanging ceramic bowl, stainless-steel wash-basin, vandal proof, with automatic ejectors of water, soap and hot water (NO TOUCH type), embedded toilet paper manual distributor, shatter-proof stainless-steel mirror, coat-hanger, handles for disabled people, waste-bin with stainless-steel lid, flame retardant, embed in the wall and external illumination with low-consumption lights.

Shower room: the internal dimension of the shower room is 1.38 m x 1.63 m. The floor is covered with non-slip ceramic tiles, the walls are covered with HPL. The shower is equipped with external timed tap, type Presto, which ejects pre-mixed water; the room is supplied with HPL shelf, HPL protection wall, and lighting.



TCab HU: toilet with swinging door; sliding door available on request. The urinal room is open.



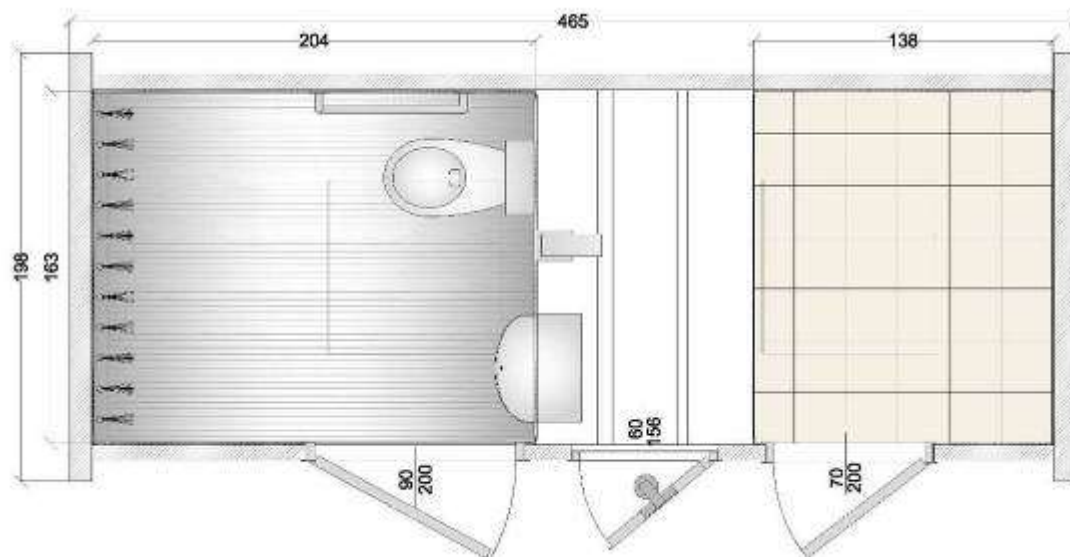
TCAB HG

This solution has been conceived with a room also fit for disabled users with a WC-bowl, and a smaller room that can be used as storage, ticket booth or lodge.

The external dimension of the block is approximately 4,65 m. x 1,98 m. peak height 2,60 m

Room for disabled: the internal size (1,64 m. x 2,05 m.), the setting of the hygienic facilities and of the accessories, allow the use of the toilet to disabled people using a wheelchair. They fully comply with the prescriptions provided by the Ministerial Decree issued on 14th June 1989, no. 236, confirmed by the Decree of the President of the Republic, issued on 24th July 1996, no. 503. The room is equipped with Smart® technology and with: hanging ceramic bowl, stainless-steel wash-basin, vandal proof, with automatic ejectors of water, soap and hot water (NO TOUCH type), embedded toilet paper manual distributor, shatter-proof stainless-steel mirror, coat-hanger, handles for disabled people, waste-bin with stainless-steel lid, flame retardant, embed in the wall and external illumination with low-consumption lights.

Storage room/ticket booth/lodge: internal 1,38 m. x 1,63 m. The floor is covered with tiles, equipped with internal lighting and service plug, swinging door (if the room shall be used as lodge, the upper part of the door will be equipped with breach prevention tempered glass). The room can be equipped with air conditioning or heating system according to the request of the customer.



TCab HG: toilet room with swinging door; sliding door available on request



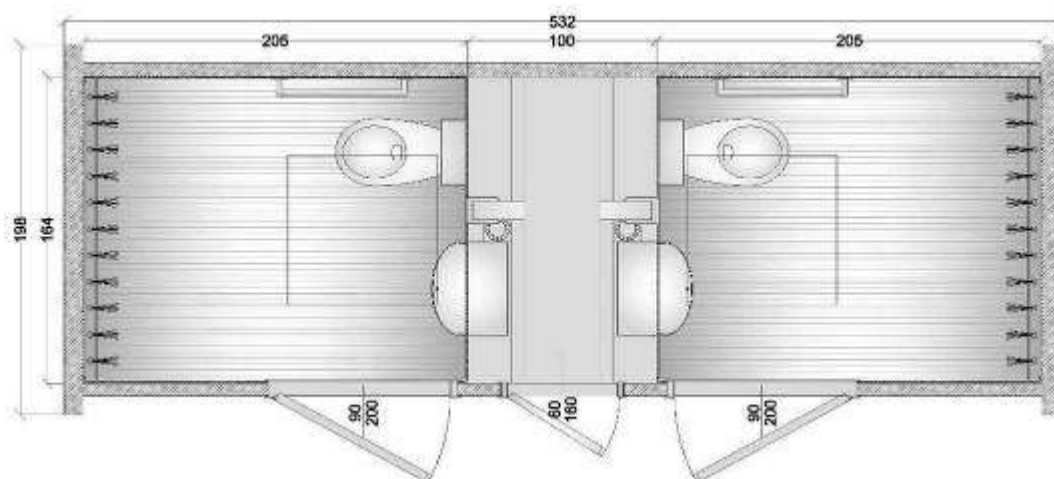
TCAB H2N

This solution is designed with a room, with WC-bowl, also fit for the access of disabled people and two rooms with normal size or other combinations according to specific needs of the customer, for example a toilet room H (for disabled), a toilet room N (with normal sizes) and a shower room.

Toilet room for disabled: the internal size (1,64 m. x 2,05 m.), the setting of the hygienic facilities and of the accessories, allow the use of the toilet to disabled people using a wheelchair. They fully comply with the prescriptions provided by the Ministerial Decree issued on 14th June 1989, no. 236, confirmed by the Decree of the President of the Republic, issued on 24th July 1996, no. 503. The room is equipped with Smart[®] technology and with: hanging ceramic bowl, stainless-steel wash-basin, vandal proof, with automatic ejectors of water, soap and hot water (NO TOUCH type), embedded toilet paper manual distributor, shatter-proof stainless-steel mirror, coat-hanger, handles for disabled people, waste-bin with stainless-steel lid, flame retardant, embed in the wall and external illumination with low-consumption lights.

Toilet room with regular size: internal size 1.05 m x 1.50 m. The toilet is equipped with ceramic hanging bowl, stainless-steel built-in washbasin, anti-vandal, with automatic ejectors for water, soap, and hot air for hand drying, type NO TOUCH, in-built toilet paper manual distributor, shatter-proof stainless-steel mirror and internal illumination with low consumption lights.

TCab H2N: toilet room with swinging door; sliding door available on request.





TOILET WITH WC-BOWL: SPECIFICATIONS

- ✓ Washing and disinfection are performed by SMART® technology: washing, disinfection and drying of the bowl and of the surrounding walls up to 80 cm, washing and disinfection of the floor;
- ✓ Concrete block: anti-vandal, flame-retardant, anti-graffiti
- ✓ Safety access to the technical room only from outside;
- ✓ HPL covering of indoor walls, without gaps, vandal proof, fire proof, graffiti proof;
- ✓ Sliding door or swinging door;
- ✓ Presence detector through radar;
- ✓ Washbasin with anti-syringe patented system, with hidden drain pipe.
- ✓ SOS safety buttons and emergency calls bi-direction system PTCall®
- ✓ Access control with button for free use or multi-coin machine, or ID-card. The management system allows programming the access time;
- ✓ Accessibility for disabled users in compliance with the prescriptions of D.M. 14th June 1989 n. 236, confirmed by DPR 24th July 1996 n. 503;
- ✓ Self-diagnosis system in case of malfunction and remote notification, in real time, on a mobile or computer.





URINAL ROOM: SPECIFICATIONS

- ✓ Flexible solution: there's the possibility to get a close urinal room, equipped with hanging urinals or an open room that can be supplied with hanging urinals or urinal walls.
- ✓ Stainless-steel separation wall between urinals;
- ✓ HPL walls covering, gaps free, anti-vandal, fire-prevention, graffiti-proof;
- ✓ Automatic washing system and sanitisation of urinals;
- ✓ Low consumption internal lighting;





SHOWER: SPECIFICATIONS

- ✓ Shower plant complete with timed external tap to eject premixed water;
- ✓ Instantaneous electric boiler with thermostatic mixer to supply water at constant temperature;
- ✓ Automatic soap distributors;
- ✓ Floor with anti-slip ceramic tiles, 25x25 Pinhead type;
- ✓ HPL walls, thickness 12 mm, speckled white;
- ✓ HPL shelf and water protection shield;
- ✓ Low consumption lighting.





STORAGE, LOCKER, OR TICKET BOOTH: SPECIFICATIONS

- ✓ Flexible use: this room can be used as storage, lodge or ticket booth;
- ✓ When it's used as lodge or ticket booth it can be equipped with air conditioned or heating system;
- ✓ Anti-breaking windows can be installed in the lodge/ticket booth.





AVAILABLE MODELS

BASE MODEL

The toilet is supplied as follows:

- Vibrated concrete block with projecting side walls;
- Finishing metal profile, dark brown;
- Front and back wall painted with RAL 1015
- Side walls painted;



TCab HN – Base model: external view with special finishing - wood



MILANO MODEL

The toilet is supplied as follows:

- ✓ Vibrated concrete block with projecting side walls;
- ✓ Front and back stainless-steel decoration profile, with laser-cut pictograms;
- ✓ External LED lighting;
- ✓ Front and rear wall decorated with horizontal lines (bevels), painted beige, other solutions are available on request;
- ✓ Side painting grey;
- ✓ Large internal back-lit control buttons with LED ring.



TCab HN – Milano Model external view of the toilet



VENEZIA MODEL

The toilet is supplied as follows:

- ✓ block with projecting side walls;
- ✓ Perimeter profile, "Historical";
- ✓ WC writing with pictograms
- ✓ External finishing with front and back walls in 30x60 cm tiles;
- ✓ Large back-lit internal control buttons, with LED ring.



TCab –Venezia model - external view



AMSTERDAM MODEL

The toilet is supplied as follows:

- ✓ Squared block;
- ✓ Decoration stainless-steel perimeter profile with laser-cut pictograms;
- ✓ LED external lighting;
- ✓ Walls with horizontal decoration;
- ✓ Large back-lit internal control buttons, with LED ring



TCab HN – Amsterdam model – external view



INSIDE THE TOILET

RECESSED LOW CONSUMPTION LE LIGHT

STAINLESS STEEL WASHBASIN WITH AUTOMATIC EJECTORS

RECESSED WASTE BIN WITH STAINLESS-STEEL LID

SWINGING DOOR OR SLIDING DOOR



HANDRAIL FOR DISABLED

TOILET PAPER RECESSED EJECTOR

EMERGENCY SOS BUTTON

CERAMIC HANGING WC-BOWL

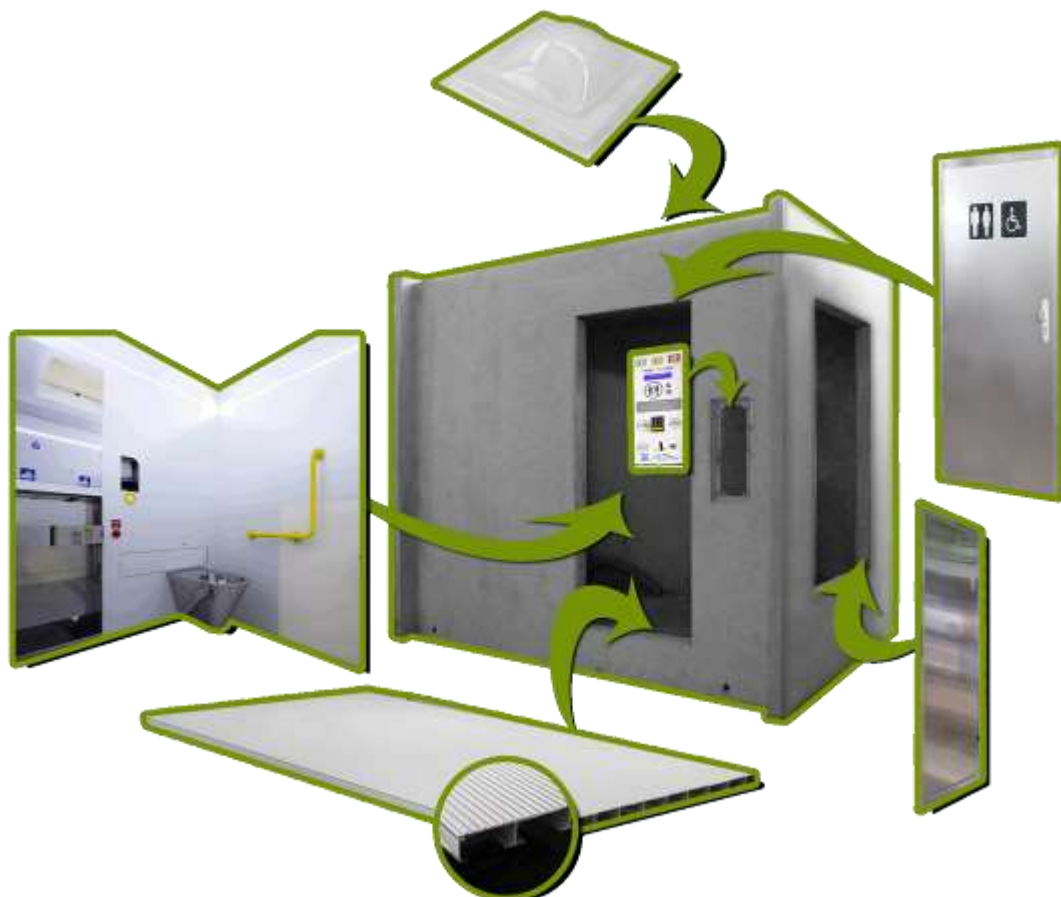


TECHNICAL SPECIFICATIONS

- **SINGLE BLOCK STRUCTURE: 3D monobloc in reinforced concrete** composed by 8-10 cm thick panels, concrete covering slab, with min. thickness 5cm, shaped to convoy rain water. The monobloc obtained from moulds, is earthquake proof and is classified as class S12. This characteristic allows a safe transport and an easy displacement in case of moving. The thermal insulated walls are manufactured interposing 3 cm polyurethane panels. The slab is waterproofed with a bitumen and glass fibre sheath. Rain conveying and collection in a single collection pipe coupling. The drainpipe connected to the discharge network of the unit is set in the technical room.

The bloc is set for the vertical connection (anti-freeze protection on request) to the underlying water, electric, and sewerage network, this solution allows a better protection from freezing. The external finishing is made of a smooth decoration cement, coloured beige, with grey side walls.

Other solutions (tiles, stainless-steel panels, wooden panels or recycled materials) are available on request.





- A **SQUARE BASED OPAL POLYCARBONATE AIR-LIGHTING DOME**, 80x80 cm, located on the roof and assembled on appropriate spacers ensures a natural ventilation, beside the forced one. Its shape and size allow an appropriate natural lighting combination and attenuates the user's closeness sensation. The polycarbonate dome is higher than the roof: this system creates a kind of "chimney" that guarantees the natural air-circulation also when the automatic fan is not working.



- **INTERNAL WALLS OF USER ROOM ARE COATED HPL**, thickness 13 mm, the panels are made of cellulose fibre sheets, soaked by thermosetting resins, this solution guarantees a scratch-proof, smooth surface, without gaps, fire-proof and mould-proof. The walls are fixed to a stainless-steel structure without visible fixing, thus eliminating the issue of vandal acts, and the accumulation of dirt, the finishing panel is warm and comfortable, the clear indoor colours, the light from the opal dome and from the automatic lighting system, create a wide and comfortable environment. The walls are perfectly smooth, easy to wash, and do not withhold dirt or liquid stagnation.





- **CEILING FINISHED WITH SYNTHETIC PAINTS** with low resins content in order to guarantee a perfect transpiration.
- **PTFLOO® FLOOR MADE OF ALUMINIUM SLIP-PREVENTION SLABS**, manufactured according to our specifications, mounted on a stainless-steel supporting frame. The frame is composed by a stainless-steel tubular structure with rectangular section that bears the planking level and the washing system. The floor is vandal-proof, with an anti-cut and no-slip surface, a washing liquid collection tank is set underneath. Thanks to its characteristics it does not need any periodical maintenance.



- **SWINGING OR SLIDING DOOR** - The breaking prevention door is available with aluminium or stainless-steel frame. The standard solution includes a “swinging” aluminium door, equipped with hydraulic vandal-proof recessed unit, for the automatic closing and controlled by an electro-lock or, on request, a sliding door with electric opening and closing. On request it is also possible to install a stainless-steel sliding door for disabled, with automatic opening and closing, with electric control, equipped with buffer battery in order to guarantee the operation also in case of black-out. The sliding shutter is composed by a welded frame in aluminium tubular, cavity with polypropylene alveolar panel for thermo-acoustic insulation and internal-external covering with stainless-steel anti-print sheets, cold glued under press with polyurethane adhesive. The upper guide is made of aluminium with sliding rails and nylon silenced wheels. The lower guide is recessed and continuous all along the sliding stroke, to prevent derailing in case of shock.



INTERNAL FINISHING AND COMPLEMENTS

- **HANGING CERAMIC BOWL:** the border 80 cm far from the back wall and its axis is at 40 cm from the side wall. On request the stainless-steel version is available. Both solutions may be equipped with an exclusive overflowing prevention system, that allows detecting any clogging of the bowl. In this case, the toilet switches automatically in the out-of-order condition.



- **STAINLESS-STEEL ANTI-VANDAL WASHBASIN,** anti-syringe device with hidden drain and recessed siphon. The shape and position of the wash basin ensure an easy use. The integrated automatic cleaning system allows removing any object that should finish inside it and convey them in a kind of basket installed in the technical room, thus inaccessible for users.





- **TOUCHLESS AUTOMATIC WATER, SOAP AND HOT AIR DISPENSER** type, with infrared rays and automatic calibration managed by the embed microprocessor. Soap and water ejection are pre-set to prevent any waste. All ejectors are recessed and protected into the wall, thus not accessible from the user room.
- **THE INTERNAL WALLS** are composed by a stainless-steel structure on which the HPL 13 mm panels are mounted. The fire-proof panels (Class 1) are made with “sheets of cellulosic fibres” soaked at high pressure with thermo-setting resins. This solution gives scratch prevention surfaces, smooth and gap-free, easy to clean. The walls are fire proof and do not show any visible fixing.
- **INTERNAL LIGHTING.** The user room is illuminated naturally through the dome, and artificially with low consumption lights. This solution allows to reduce the electrical consumptions and to pay more attention to the environment, ensuring a better internal illumination when compared to traditional solutions. The toilet is also equipped with emergency illumination that switches on in case of black-out.



The toilet is lit by a LED strip along three walls of the room, furthermore an emergency unit supplied by a dedicated battery.



- Anti-vandal **TOILET PAPER DISTRIBUTOR**, with stainless-steel slipway. On request it is possible to install the automatic version, with touchless dispenser and indication of reserve and finished paper.
- **SHATTER PROOF STAINLESS STEEL MIRROR** The large shatter proof stainless steel mirror



is set above the wash basin, in order to be accessible also by people on a wheel chair. It is made of AISI 304 stainless-steel with glossy mirror finishing type 7, size approx. 53x80 cm.

- **STAINLESS-STEEL WASTE BIN**, flame-prevention and smoke prevention, completely recessed into the wall and equipped with large lid. The waste bin can be removed only from





the technical room using the handle and has a capacity of 12 lt. A wastebin with touchless opening will be available soon.

- **STAINLESS STEEL COAT HANGER** accessible also by people on a wheel chair.
- **HANDRAIL FOR DISABLED** made of glossy stainless steel.
- **LARGE INTERNAL TOUCHLESS BUTTONS**
- **ANTI-VANDAL WARNING EXTERNAL PANEL.** The base version is equipped with a touchless button for free-use, with LCD lit display and instructions/causes of out of service in 4 languages. On request the toilet can be equipped with coin-machine, ID-card reader or contactless credit card reader.
- The **INFO-PANEL** is made of a highly resistant stainless-steel structure, it is recessed into the external covering and cannot be opened from outside. **It is not possible to access the coin collector from outside.** The electronic coin machine, programmed to accept the pre-set coins (up to 12 types) is installed on the back of the panel. The coins are introduced in the related slot and conveyed into a box in the technical room. The refused coins are returned through a different slot. The optical-acoustic emergency signal is notified by the blinking of the three different lights on the display corresponding to "VACANT", "BUSY", "OUT OF WORK", the display is also equipped with an acoustic warning that sounds inside the toilet, and that is hidden and cannot be damaged by vandals.





EQUIPMENT

WATER PLANT

The high-level water plant is made of top-quality components and devices and is equipped with a pressure switch that controls the “lack of water”, and a “flush box” with electronic control.

- **10 LITERS FLUSH BOX** with electro-magnetic drain valve. The water reserve tank always guarantees the washing after use even when the toilet is “Out of Order”
- **DISINFECTION LIQUID TANK** with control of “minimum level” and dosing pump.
- **MULTI-SECTION CENTRIFUGAL WATER PUMP**, stainless steel pump with 80lt/min capacity and 0,55 kW motor.
- Bronze **FITTING** and high-quality electro-valves.
- **SAFETY POLLUTION-PREVENTION DISCONNECTION SWITCH**

ELECTRIC PLANT

The electric plant has been produced in compliance with the rules in force and with EC-certifications issued by a notified body.

- **SINGLE PHASE ELECTRIC SUPPLY 230V**, absorbed power 3kw.
- **ELECTRIC PROTECTION AND CONTROL PANEL** for the computerized management of all operations related with user detection and toilet washing; it is equipped with:
 - **Protection** devices: RCD idn 0,03°, magneto-thermal switches, fuses;
 - **Control** devices: button, relays, contactors, selectors;
 - **Switching supply** 5/24 Vcc for electronic circuits;
 - 24Vca **transformer** for low voltage user circuits;
 - **CPU with microprocessor** to manage the ATS, load cells interface to control the weight on the floor, interface for photodiodes, supply controls for water, soap, hand-drying air, WC automatic flush (option) and person detection on the bowl (option), coin-machine interface, sound diffusion interface (option), system clock, flash programmable memory, Earom memory for data saving, RS485 interface of the communication among electronic control boards, RS232 interface to perform the communication between the remote control system (option) and the display interface. The microprocessor allows changing: operation time, use price, time



available for the user, quantity of disinfectant, toilet paper, frequency of the floor washing, frequency of the complete washing of the unit (it performs only the flushing of the bowl to save water).

- **IN/OUT board** with 16 analogic inputs (ON/OFF), 1 digital input for the connection of control sensors and 28 control relays of control and warning devices.
- Alphanumeric **LCD display** to show the user programming data.
- **Service plug** 2P+T 10/16A 230Vca

THE CONTROL LOGIC IS PERFORMED BY A MICROPROCESSOR AND ELECTRONIC BOARD, PROPERTY OF PTMATIC, CONCEIVED FOR THE AUTOMATION OF OUR UNITS.

- **FORCED VENTILATION** with automatic switching to guarantee air change inside the user's room (approx. 45 changes per hour). It is performed with a high capacity, low noise emissions centrifugal fan.
- **CYCLE COUNTER**, mechanical and electronic. The mechanic cycle counter cannot be reset, it counts all accesses. The electronic cycle counter is equipped with a display installed on the electric board, show the total and partial accesses (e.g. between two service interventions).

DRAIN SYSTEM

The closed-circuit system is composed by self-extinguishing polypropylene piping, with double lip elastomer cup clutch or with sealing joints.

Two drains to the sewerage are available: under-floor tank drain and WC-bowl drain. All piping is located into the technical room and can be easily inspected.

HEATING PLANT

The unit is composed by:

- **Electric thermo-fans**, 850 w with stainless steel structure as protection against possible water spurts. The thermo-fans have been designed and installed in order to guarantee the best hot air circulation in the technical room and in the user room (when required).
- Environmental **thermostat** in the technical rooms.

The heating plant is fit to maintain a temperature above 5°C inside the toilet and to protect the hydraulic plant from freezing.



DEPLATION PLANT

The plant is installed to protect the hydraulic circuits from freezing in case of failure of the heating system or in case of black out.

The safety unit is composed by:

- ¾" NC shut-off electro valve
- Mechanical valve for hydric plant drain
- Freezing-protection safety electronic thermostat integrated into the management unit with probe installed in the hydric unit

In case of extremely low temperatures or in case of failure of electric supply the system automatically empties the hydric plant and puts the facility in "out of order" condition. As soon as the critical conditions have been removed the unit has to be reset, and the system restores the "Vacant" condition.

PT FRESH PERFUMING DEVICE

The automatic perfuming system, an exclusive of PTMatic ejects in the user room, at pre-set intervals, a fixed quantity of deodorizing mix, thus guaranteeing a pleasant and perfumed environment.

According to the needs it is possible to choose between a timed ejection, every 36 minutes (to be used in rush periods) and an ejection performed upon detection (the perfume is sprayed when the device detects the presence of a user).

The ejection mode can be easily set from the technical room, moving the slider on the left for ejection every 36 minutes (indicated by a pictogram showing a clock and a yellow led) or on the right for ejection at presence detection (pictogram with a man and a light blue led).

The led on indicates the type of ejection and that the device is working.

Each device is supplied with a spray deodorant refill (250 ml). Original refills can be bought at PTMatic. The following perfumes are available:

- Brezza Marina (*Sea breeze*);
- Frutta Fiori (*Fruits and flowers*)
- Lavanda (*Lavander*)

PTMatic does not guarantee the correct function of the device with "compatible" refills.

To replace the empty bottle, open the housing pulling it, remove the empty bottle, take off the cap of the new one and introduce it in the related slot, centring the ejection nozzle outwards, without directing it to the eyes. Close the housing. This operation can be performed when the toilet is on.





SAFETY

The toilet is equipped with a special technology system exclusive for PTMatic, that guarantees a high safety level for users and service personnel.

The toilet is available for use only when the following requirements are met:

- ✓ The driving equipment and the control systems are working efficiently;
- ✓ Water, electricity, toilet paper and sanitizing agent are available;
- ✓ The WC-bowl drain is not clogged (option);
- ✓ The toilet is not in the “Out of service” condition for the night;
- ✓ The toilet is not in “Service” condition for repairing works.

USER DETECTION DEVICE

The presence of a user inside the toilet is detected by a vandal-proof radar device, installed above the entrance door, and it's protected by a vandal-proof housing.

Through this device the safety equipment controls the toilet inside and starts the washing operation when the toilet is empty.





SLIDING DOOR (ON REQUEST)

AUTOMATIC SLIDING DOOR, it is equipped with anti-crushing, driven when opening and closing by an electrical system. The movement of the door is also maintained in case of black out thanks to a buffer battery.



The anti-crushing safety is ensured by:

- The driving logic complying with international safety standards, that automatically programs the opening and closing power and speed, according to frictions. Whenever an obstacle is detected, the door opens immediately and during the next closing it checks, at a lower speed, if the obstacle has been removed.

The toilet also opens automatically in the event of:

- **Black-out:** the opening button placed near the door and the SOS button, with ergonomic shape and size, allow the automatic opening or the automatic opening also in case of power failure.
- **Sickness of the user** (unable to push the EXIT/EMERGENCY buttons): the door opens automatically 15 minutes after the toilet has been engaged and remains open for the pre-set time. When the door opens also the optic/acoustic EMERGENCY signal goes on.



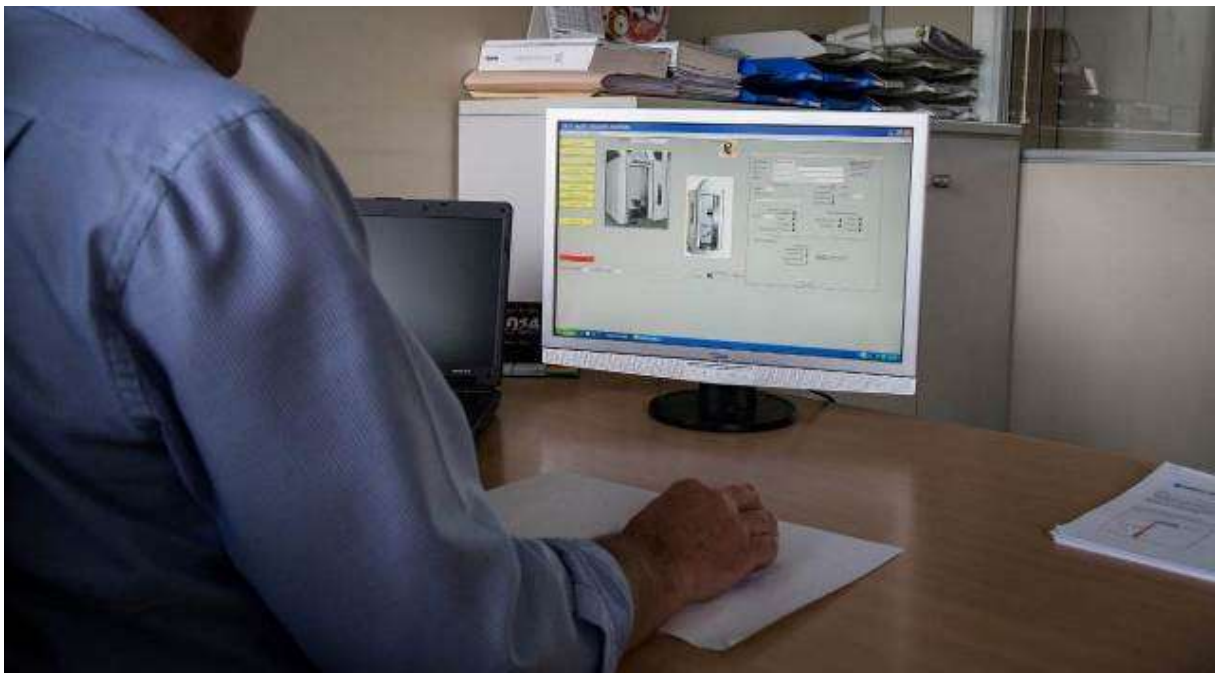
➤ **PT-CALL**

Emergency communication plant for the user that notifies an emergency condition to the surveillance central via GSM/GPRS. In case of emergency or need the user can get in contact with the assistance central simply pressing a button. Furthermore, the system allows the surveillance/service centre to control the door.

➤ **PT-LINE**

REMOTE CONTROL - continuously monitors, the operation condition of the toilet sending e-mail notifications, through a data network, to the PC of the system supervisor and to the maintenance mobile phone. This occurs in case of out of service conditions, in case of alarm or when the consumables shall be topped up.

The management software, that can be easily reached via our web site www.ptmatic.it in the menu "Service→Remote control" allows to process data and obtain statistics and



information history.

The system allows checking the toilet condition (in use – out of service – in maintenance) and offers the possibility to send commands to the device, such as:

- ✓ Open/close the door
- ✓ Reset the unit

It is also possible to change some programming parameters such as:

- ✓ Time available;



- ✓ Price;
- ✓ Switching on and off of the external luminous indication sign (if any).

The software shall be updated with the e-mail addresses of the users that will receive the notifications from the toilet. There's the possibility to differentiate the type of message according to the specific competences. E.g.:

- ✓ Supply / refill notifications → janitor
- ✓ Maintenance notification → service technician
- ✓ Emergency notifications → On-call service crew/surveillance.

REMOTE CONTROL - Toilet status

The screenshot shows a web application interface for 'COMUNE DI LECCO'. At the top, there is a navigation bar with links: RMD, Home, Customer, Users, Locations, Devices, Views, Logout. Below the navigation bar, the title 'COMUNE DI LECCO' is displayed. A toggle switch for 'Enable Automatic Refresh' is visible. The main content area features a map of the Lecco region with two green location markers. Below the map is a table with the following data:

Description	Type	Address	Status	
TWAV	PLUS	VIA DELLE NAZIONI SNC	Connected	detail
TWAV	PLUS	VIA NULLO SNC	Connected	detail



REMOTE CONTROL - Toilet maintenance

RMD Home Customer Users Locations Devices News Logout

Toilet Maintenance

Enable Automatic Refresh:

MAINTENANCE STATUS

on service door opened

out of Service door closed

stand by

Cycles	<input type="text"/>	<input type="button" value="get"/>	<input type="button" value="res"/>	BannerOn	<input type="text"/>	<input type="button" value="get"/>	<input type="button" value="set"/>
Cash	<input type="text"/>	<input type="button" value="get"/>	<input type="button" value="res"/>	BannerOff	<input type="text"/>	<input type="button" value="get"/>	<input type="button" value="set"/>
H: M	<input type="text"/>	<input type="button" value="get"/>	<input type="button" value="set"/>	Price(dlq.)	<input type="text"/>	<input type="button" value="get"/>	<input type="button" value="set"/>
Day	<input type="text"/>	<input type="button" value="get"/>	<input type="button" value="set"/>	FloorWeight	<input type="text"/>	<input type="button" value="get"/>	<input type="button" value="set"/>
Month	<input type="text"/>	<input type="button" value="get"/>	<input type="button" value="set"/>	MaxWater	<input type="text"/>	<input type="button" value="get"/>	<input type="button" value="set"/>
Year	<input type="text"/>	<input type="button" value="get"/>	<input type="button" value="set"/>	WashFloor	<input type="text"/>	<input type="button" value="get"/>	<input type="button" value="set"/>
StartServ	<input type="text"/>	<input type="button" value="get"/>	<input type="button" value="set"/>	WashFloorED	<input type="text"/>	<input type="button" value="get"/>	<input type="button" value="set"/>
EndServ	<input type="text"/>	<input type="button" value="get"/>	<input type="button" value="set"/>	WashFreq	<input type="text"/>	<input type="button" value="get"/>	<input type="button" value="set"/>
				StandByED	<input type="text"/>	<input type="button" value="get"/>	<input type="button" value="set"/>

desctype: PLUS
description: TVWAV
back

serial: 167006
address: VIA DELL'E NAZIONI SNC

Powered by Coban



WASH BASIN WITH ANTI-SYRINGES SAFETY SYSTEM

The stainless-steel washbasin has a special patented design that, together with an automatic control nozzle set on the sloping surface cleans and sanitizes it efficiently after every use.

This system allows removing any object remained inside the basin that could be dangerous for the users, these objects are conveyed into a fit container set in the technical room, therefore not accessible by the users.



EMERGENCY BUTTONS (SOS)

An emergency button is installed in the toilet next to the WC-bowl, this button may unlock the door and activates the emergency acoustic and optic signals. The button is large with an ergonomic shape.

This button also works in case of black out and opens the door.

EMERGENCY LIGHT

In case of black-out the emergency illumination system is activated to guarantee the illumination of the toilet for 120 minutes more.



INTERNAL FIRE-PROOF AND VANDAL-PROOF COMPONENTS

All internal components have been designed to lessen vandal acts: the washbasin, the waste bin, and the toilet paper distributor are recessed into the HPL walls.

All parts that could potentially be vandalized are inside the technical room, therefore accessible by qualified personnel only.

The material used to build the toilet (HPL, stainless-steel) have extremely high flame retardant and smoke-prevention characteristics. The mirror is made of mirror finishing shatter proof stainless-steel, therefore with a high resistance against shocks.

USE TIME LIMIT

The time limit setting controls the time available for the user and the automatic opening of the door when this pre-set period has expired, after an optic/acoustic warning. The use and warning time can be easily programmed with the buttons installed on the unit management electronic board. When the available time is over (normally after 15 minutes) the device, after emitting an optic/acoustic signal, controls the automatic opening of the door. This prevents the inappropriate use of the toilet and allows providing help to people that could occasionally feel sick.





PT-HELP

Support voice messages with the instructions for use of the toilet and indications about the available accessories. The system communicates via a pre-recorded voice, and supplies information about: the condition of the door (if it is open or closed, or if it is closing, where the bowl is located, where the wash-basin is, etc.) and other information that may be necessary.

The pre-recorded messages and music are saved on a SD card in “.wav” format.

The 8 message*s available are the following (in case of a toilet with sliding door):

1) When press the button “I” (info installed on the info-plate):

“Self-cleaning public toilet, please introduce the amount shown on the display or on the braille text and wait until the door opens.”

2) When the door is opening:

“The door is opening”

3) When the door is open:

“The door is open”

4) When the door is closing:

“The door is closing”

5) When the door is closed:

“The door is closed”

6) Welcome message with instruction to exit the toilet:

“Welcome to PTMatic automatic toilet. The toilet is washed and sanitized after every use.

To exit press the button “OPEN” near the door. In case of emergency, please press the SOS button near the WC-bowl or near the washbasin. The door will open automatically.”

7) When pressing the SOS button:

“You’ve pressed the SOS button and the door opens automatically.”

8) 3 minutes before the maximum use time is over:

“The time available is running out. In three minutes the door will open automatically.”



PT-HEALTH

To prevent any contact with the surfaces and guarantee the highest level of hygiene and safety PTMatic has conceived a Kit that complies with the guidelines of the ISS/WHO (Adinterim provisions to prevent and manage the indoor environment in relation to the transmission of the infection by the SARS-CoV-2 virus. Version of March 23rd, 2020.)

- PTMatic self-cleaning toilets are equipped with **sensors** that control the dispensers of water, soap, and hand-drying air, to wash hands thoroughly avoiding any contact with the surfaces.
- Water is supplied for the time enough to guarantee the prescribed washing.
- PTMatic toilets have been designed to ensure a complete washing cycle for wc-bowl and floor after every use, with a dilution of SESTENE (a quaternary ammonium saltsbased product) in water (already tested in the past). This mix in the new kit has been replaced by **XIDENE**, a **disinfectant** and fungicide containing tetradecyl dimethyl benzyl ammonium chloride, chlorhexidine and ethyl alcohol (0.8% in water).
- Replacement of the door opening/closing, toilet paper dispenser and extra-flush push-buttons with **no-touch buttons** to minimize contacts with the toilet's surfaces. The IR buttons activate from a distance the opening/closing of the toilet door, but also the toilet paper dispenser and the extra-flush (when installed). The IR buttons activate from a distance the opening/closing of the toilet door, but also the toilet paper dispenser and the extra-flush (when installed)
- The disinfection cycle performs the following operations:
 - Deactivation of the axial intake fan
 - Activation of the UVc lamp for the necessary time (the lamp is always on when the toilet is "vacant")
 - Re-activation of the axial intake fan



- **UVc Lamp.** UVc lamps are already frequently used thanks to their anti-bacterial properties and guarantee the sterilisation of surfaces through irradiation.



The UV rays at specific wave lengths (253,7 nm) *destroy molecular bindings* of the micro-organism's DNA and of the viruses' RNA making the harmless and inhibiting their proliferation.

The lamp is programmed to switch on when the toilet is "free", thus sanitizing the user room between a use and the next one, so that people are not exposed to it.



Implementation of the already existing ventilation system adding an axial intake fan. Wall axial intake fan are already implemented on PTMatic toilets and ejects air directly outside. The ball-bearing motor installed allow to use it also for a long period thus guaranteeing the possibility to extract air during the whole service cycle of the toilet – the toilet is normally switched off at night. Furthermore, the technical data sheets *suggest a capacity of 100m³/h in order to ensure a complete air exchange every 10 minutes.*

Installation of **PT-HELP**: sound diffusion system with voice messages as guide support for visually impaired users.



SMART TECHNOLOGY®

The cleaning and sanitation SMART® technology ensures high cleaning and disinfection levels of the toilet after every use.

It is composed by a unique system that, thanks to a hidden washing arm above the bowl, cleans and dries it, also washing the surrounding walls up to 80 cm while a nozzle system on the floor ejects high pressure water and disinfectant.

Key features of the SMART® technology:

- Customisable access system:
 - Swinging door or, on request, sliding door with electric driving system.
- Automatic washing with disinfection:
 - Internal washing of the WC-bowl with a water veil during the use;
 - Internal washing of the WC-bowl (flush) and external washing after every use, and drying of the seat;
 - Washing of the walls up to 0,8 m, around the WC-bowl;
 - Automatic washing of the washbasin;
 - Washing and disinfection of the floor by nozzles ejecting high pressure water and disinfectant
- User detection inside the toilet:
 - User detection inside the toilet by a radar;
- User safety:
 - The sliding door is equipped with an anti-crushing safety device;
 - The shape of the washbasin prevents that syringes or other objects remains inside the basin;
 - The surfaces do not have edges nor gaps and have been designed paying utmost care to ergonomic aspects.
 - Bi-directional emergency call system PTCall® (option available on request);



WASHING SYSTEMS

➤ WASHING, HYGIENISING AND DRYING OF THE WC-BOWL



The WC-bowl is washed, sanitised and dried when the user room is vacant.

The nozzles are mounted on an arm fixed onto a door that rotates horizontally above the WC-bowl, and eject water mixed with disinfectant for the washing-sanitising phase, and hot air for the drying phase.

Washing and disinfection are performed during the opening phase, the drying when it is closing.

The WC-bowl undergoes three different kind of washing.

- ✓ Continuous water veil: on the internal walls of the bowl when in use; this prevents possible adherence of dirt on the walls, promoting the final washing.

Duration: for the whole use of the toilet

- ✓ Flushing washing inside the WC-bowl (flush) through the internal ejectors of the bowl.

Time: 6 sec.

Water consumption: approx.. 8 litres.

Pressure: 2 bar



DYNAMIC WASHING OF THE WC SEAT

The dynamic washing is performed by a mix ejected by 5 high pressure nozzles: a hinged door above the upper wc border is equipped with a washing collector and a drying diffuser. The opening of the door gives particular efficiency to the washing thanks to the chisel effect obtained.

Time: 20 sec.

Water consumption: 3 litres

Pressure: 6 bar

The **drying of the sitting surface**: is obtained by blowing air under pressure, generated by a tangential electric fan (560 mc/h a 500 Pa), through a diffuser, that conveys and directs the air flow in order to eliminate any residual of water resulting from the cleaning of the sitting surface. The high efficiency electric fan is a "low noise" device.

➤ **WASHING OF THE WALLS**

A washing system washes the walls around the WC-bowl up to a height of 80 cm.

This system allows to clean and sanitize the walls that could be dirty after the use.

The walls are washed by high pressure jets of a sanitising mix ejected by nozzles, built in the wall behind the bowl. The nozzles are set at 80 cm from the floor.

Time: 5 sec.

Water consumption: approx. 1 lt.

Pressure: 3 bar



➤ **WASHING INSIDE THE WASH BASIN WITH HIGH PRESSURE NOZZLE.**

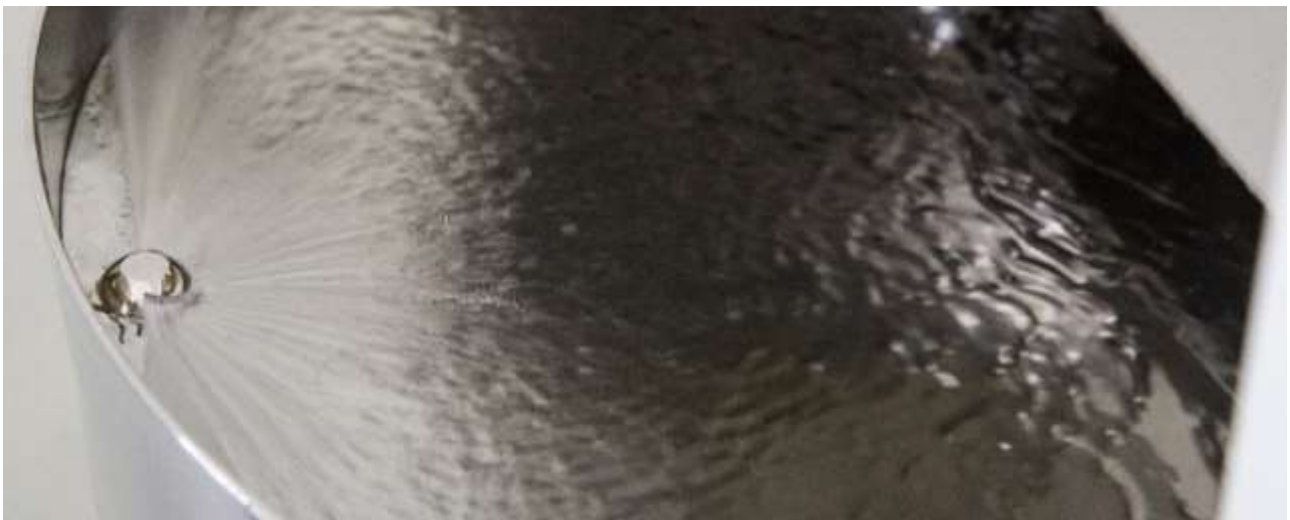
A nozzle with automatic control (**option**) set in the washbasin allows cleaning and sanitizing it efficiently after every use.

This system removes any object inside the washbasin and conveys it into a fit stainless-steel container in the technical room, inaccessible for users (anti-syringes protection). The washing effect is obtained by water pressure jets, ejected by the nozzle.

Time: 5 sec.

Water consumption: approx. 0,5 lt

Pressure: 3 bar





➤ **WASHING AND DISINFECTION OF THE FLOOR**

The system washes the floor through automatic nozzles that ejects high pressure water. In order to increase the washing performance and optimize the water consumption, the nozzle operate alternatively. The power of the water jet removes any waste remained on the floor, that are collected into the technical room, leaving the floor perfectly clean.

The PTFloor® floor is made of slip-prevention extruded aluminium slabs, anti-print and anti-bacterial. This material does not have any junction and does not need a periodical maintenance. The frequency of the washing cycles of the floor may be easily programmed according to the requests of the Customer and the number of daily accesses to the toilet.

Time: 20 sec.

Water consumption: approx. 7 lt.

Pressure: 5 bar





USE CYCLE

Pressing the entrance button on the outer panel (or introducing the coin into the coin-machine, when a per pay access is provided), the following functions are automatically on:

- ✓ Toilet lighting;
- ✓ Automatic door unlocking (or automatic opening in case of sliding door)
- ✓ Timer
- ✓ The sign "vacant" on the info-panel
- ✓ Incremental, by one unit, on the cycle counter;
- ✓ PT-Help sound diffusion system with vocal instructions and messages for blind users (if provided)
- ✓ Water veil ejection in the bowl;
- ✓ Ventilator for the air recycling;
- ✓ Automatic NO TOUCH ejectors for water, soap, air and toilet paper;

As soon as the user enters, the toilet the radar presence detection system installed above the door, changes the status of the toilet from "vacant" to "busy", activating the following functions:

- ✓ The toilet, inside, is illuminated;
- ✓ The door closes;
- ✓ The control and safety systems gets on;
- ✓ The counting for the maximum available time starts

After the use, when the user must get out the toilet. In case the user remains inside, or another person gets into the toilet before the door closes, the optic and acoustic emergency signal gets on.

When the toilet is vacant the following operations start:



- ✓ The door closes;
- ✓ The light goes off;
- ✓ The water veil ejection into the WC-bowl stops flowing;
- ✓ The music stops (when available);
- ✓ After starting the washing cycle, the safety systems are deactivated;
- ✓ Automatic ejectors switch off;
- ✓ Activation of the washing and disinfection cycle of the toilet;
- ✓ Reset of the time of use

At the end of the washing cycle, before the toilet is available for a new use, all devices installed in the toilet are checked out.



OPTIONS AVAILABLE

ADDITIONAL KITS

KX50	<p>Kit WINTER PRO - Solution for increase toilette winter environment heating with:</p> <ul style="list-style-type: none">✓ Winter environment security heating COMFORT PLUS✓ Automatic depletion device of the water system✓ Thermal and acoustical increase insulation✓ Hot water boiler
KX51	<p>Kit INOX - Solution with stainless steel vandal-proof accessories including:</p> <ul style="list-style-type: none">✓ Stainless steel wall-hung bowl with overflow control device✓ Stainless steel baby-changing table✓ Stainless steel handrail for disable users
KX52	<p>Kit-PTHealth -Kit conceived to prevent viruses and bacteria spreading and to implement disinfection systems.</p> <ul style="list-style-type: none">• the floor and wc-bowl washing are performed with a mix of water and TDBAC, chlorhexidine and ethylic alcohol• No-touch sensors to access and exit the toilet room and for toilet paper ejection• UVC lamp to reduce the bacterial count• Total night air recharge performed through an axial intake fan• PT-help-sound system emission with voice instructions and messages to users visually impaired.

OUTER FINISHING

ACX30	Gravel outer finishing white, other versions available on request.
ACX14	External LED low consumption illumination .
ACX43	Outer finishing of front and rear walls with tiles, size 30x60 cm , colours available on request
ACX42	Stainless-steel cladding
ACX12	Graffiti-proof external painting with glossy finishing to protect the unit.



ACCESSORIES

ACX01	Freeze prevention heating with electric thermo-conveyors (in the technical room)
ACX05	Coin machine mounted on the external info-panel, it replaces the entry button, and is completed with a coin collection box, and a counter.
ACX06	Magnetic key reader or ID-card reader.
ACX07	PT-Line remote control of the unit by means of GSM system transmitting notifications to a mobile and/or a PC.
ACX22	Toilet paper automatic distributor to eject paper in a pre-set quantity, it replaces the manual distributor.
ACX25	Stainless-steel baby-changing table in the toilet room for disabled people.
ACX48	Stainless-steel sliding door for disabled with electric movement, it replaces the swinging door.
ACX49	Eco LED - internal illumination with low consumption LED strip.
ACX51	Hanging stainless-steel urinal , it replaces the standard ceramic one (x1)
ACX52	Stainless-steel urinal wall with automatic water supply controlled by proximity switch (150 cm)
ACX59	Info-panel with language selector (4 languages): Italian, French, English, German
ACX63	Stainless-steel sliding door for normal users , automatic, with electric movement; it replaces the swinging door (*TCAB only room N)
ACX69	Prefab CAV foundations complete with prepared setting.
ACX75	PTcall- Bi-direction emergency communication system for the user, to contact the surveillance centre via GSM/GPRS



TECHNICAL DATA SHEET

Dimension (standard model TCab HN)	4,65 m.x1,98m. h:2,60 m
Weight	12.000 kg
Electrical plant - specifications	
Connection to the electric supply network without heating or air conditioning	220V F.N.3KW
Connection to the electric supply network with heating or air conditioning	220V F.N.4,5KW
Min. section of the supply cables	6 mm ²
Max current to safety switch	0.03A
Electric controls and signals	5, 12, 24V
Water plant - specifications	
Hydraulic supply pipe	Ø ¾"
Min network pressure	1,5 atm.
Waste water drain pipe	Ø 110 mm.
Floor board drain pipe	Ø 90 mm.
Tanks capacity	
WC flush tank	10 litres
Disinfectants	5 litres
Liquid soap	3 litres
Consumptions per every washing cycle (excluded heating)	
Water	Litri.20
Disinfectant	Cc.20
Electricity	15 W
Toilet paper	Up to 99 pieces
Times	
Washing, disinfection and drying cycle	50 seconds