

# CB-1<sup>2.0</sup>

AUTONOMOUS SCRUBBING MACHINE



LI-ION  
BATTERIES



FIMAP  
FLEET MANAGEMENT

## Switch to clever cleaning!

 **FIMAP**<sup>®</sup>

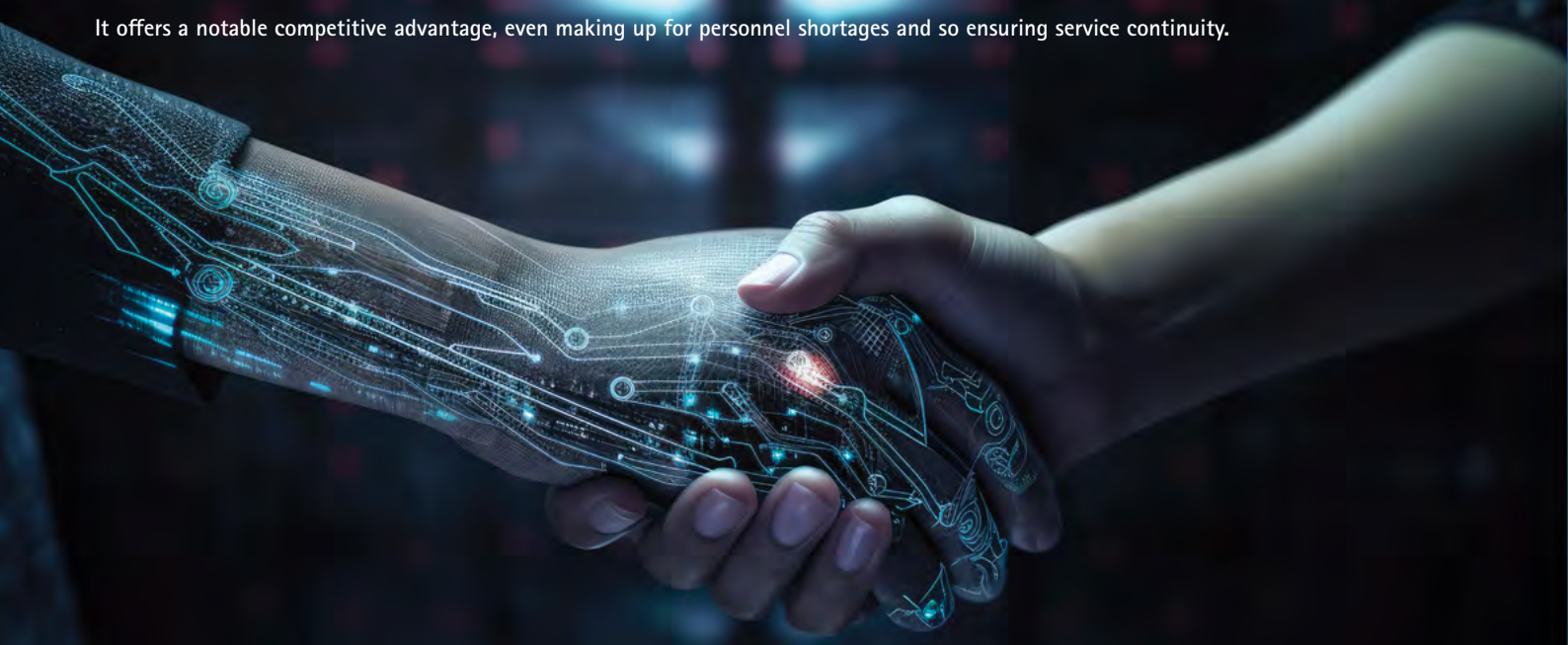
# CB-1<sup>2.0</sup>

## Co-Bot-1.

### Fimap's autonomous cleaning system that raises cleaning standards

CB-1 is a collaborative robot (COLlaborative roBOT) that doesn't take the place of operators but works with them, boosting productivity on each single job. It requires minimum supervision so, while it's dealing with the more simple and repetitive cleaning tasks that take up a lot of time, personnel can concentrate on the more complex ones, thereby optimising times and costs.

It offers a notable competitive advantage, even making up for personnel shortages and so ensuring service continuity.



#### SCENARIO

Most autonomous scrubbing machines follow the programming set by a specialised technician in the start-up phase.

With the aid of computers and other external devices, the technician enters the necessary information to highlight areas that are off-limits to the machine, along with the obstacles nearby.

The remaining surface is its working area. This operation is called "MAPPING".

If the area to be excluded changes, or another obstacle is added, the technician has to repeat the procedure.

The work of the autonomous scrubbing machine therefore depends on the information provided by the technician, who is inevitably called upon whenever the area is updated or new work areas are added, and this means new costs and slowdowns every time to allow for programming.

## With CB-1, start-up is within the reach of everyone!

With CB-1, the registration of the area to be cleaned is so simple that it can be done by the operators themselves, without any specific training.

The area just needs to be covered once in manual mode, and CB-1 will memorise it and then be able to repeat it in the future.



### NO MAPPING OF THE AREA TO BE CLEANED

## With CB-1, there's no talk of MAPPING the area to be cleaned!

It's not necessary to book the intervention of a technician, which takes time and money, and no special devices are required either. CB-1 is programmed directly from the built-in touch screen display, in a fast and user-friendly manner. Once it has learnt the route, it can even improve it and suggest alternatives to make it even more efficient.



### ONLINE AND OFFLINE MODE

No Internet connection is needed. CB-1 works in OFFLINE mode too



### REPORTS

The work carried out by CB-1 can be summed up in a report that outlines the tasks handled, adding value and transparency to the cleaning service provided



### LOCALIZATION

A few solid points such as walls and columns, within 50 m, are sufficient to allow the machine to be located properly



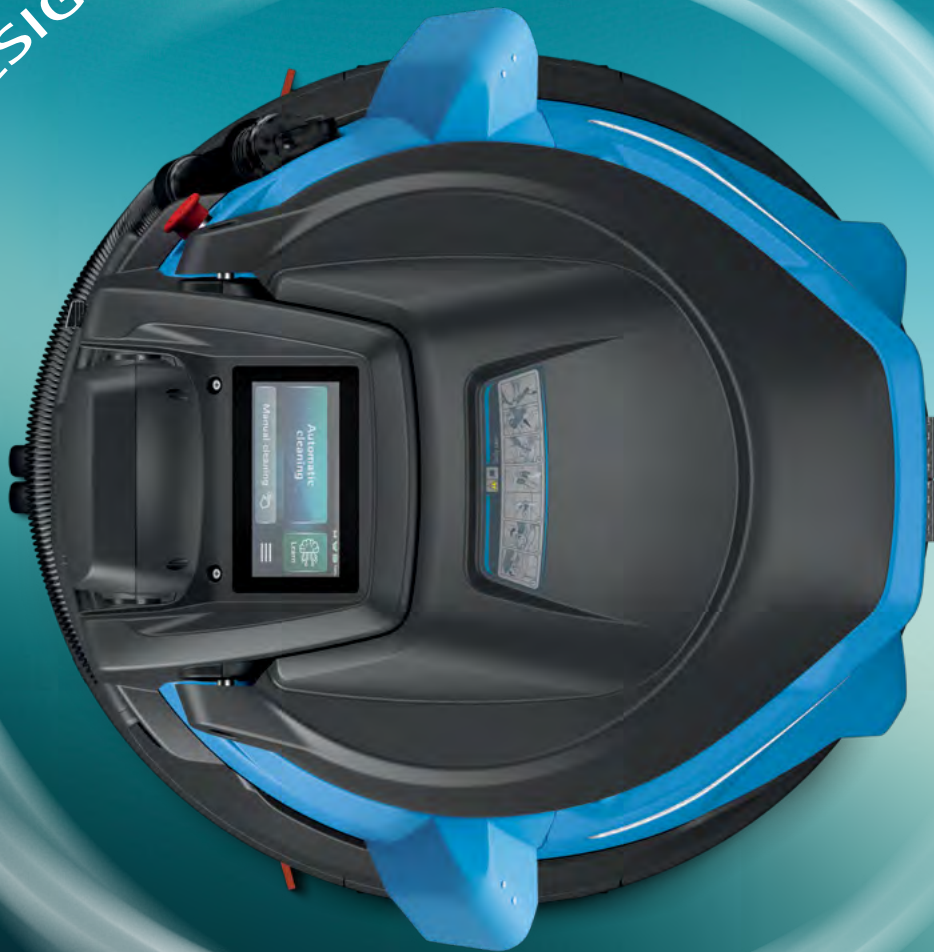
### NATURAL NAVIGATION

No need for infrastructure such as reflectors, magnetic lines, taping, beacons, etc.



**CB-1<sup>2.0</sup>**

**ROUND SHAPE DESIGN**



**& SENSOR DATA FUSION**

# Designed to be AUTONOMOUS

CB-1 isn't merely a scrubbing machine that's been adapted to use an existing technology; it's an all-new, unique design in which the integration of the **CIRCULAR SHAPE** and **SENSOR DATA FUSION** technology offers optimum efficiency and safety in terms of movement and productivity.



## An even working width

The consistent water flow ensures even distribution of the solution across the working area, guaranteeing optimal performance along the entire cleaning path.

At very low speeds, the water flow stops automatically to improve drying.

The 70 cm width of the squeegee enables thorough drying even on bends, without leaving marks or flaws.



## It moves in every direction

With its circular shape, it can turn back on itself and move in any direction.



## Obstacle-proof

Its circular design allows CB-1 to easily avoid any obstacle without damage or accidents, and it will never get trapped.

# CB-1<sup>2.0</sup>

## SENSOR DATA FUSION

High-precision sensors for movements with excellent safety levels

CB-1 is fitted with depth and vision sensors that work together to enhance the safety standards. The information from the various sensors is combined to create a highly accurate and reliable obstacle detection system.



### ULTRASONIC SENSORS

**360° virtual wall protection**

OPERATING RANGE: from 3 cm to 1 m

They detect glass and transparent materials, and are reliable in very bright or dusty places as well



### ODOMETRY

In large spaces with few reference points it enables natural navigation to continue even though other sensors provide little information



The wheel design is developed to prevent contact with feet even when a person is very close



**SAFETY**

**NEW INTERNATIONAL COMPLIANCE**  
CB-1 is in compliance with  
IEC 63327 and CSA/ANSI C22.2 No. 336-2017  
regulations on safety of autonomous cleaning  
machines.



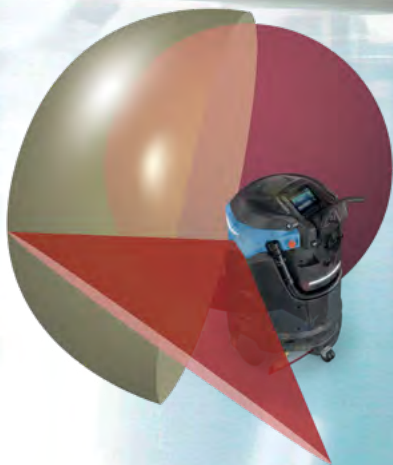
International Electrotechnical Commission



Canadian Standards Association



American National Standards Institute



### 3D ToF Camera

**Advanced obstacle avoidance.**

**OPERATING RANGE:** from 20 cm to more than 10 m

They detect the depth of objects,  
and identify suspended and low obstacles (up to 5 cm).  
They enable more precise initial localisation.  
They extend side vision capability for better detection of  
obstacles throughout the surrounding space.



### Hemispherical 3D Lidar

**OPERATING RANGE:** from 0 cm up to 60 m

The long range and wide field vision enable localisation in  
large open spaces. The resolution and accuracy of vision  
provide intelligent space detection, with greater area  
definition and dynamic obstacle adaptation that optimises  
routes, intervention and productivity.



### FALL DETECTION

**Certified anti-drop sensors**

These are essential for avoiding falls if there  
are staircases in the area






# CB-1<sup>2.0</sup>



**NO MAPPING  
OF THE AREA TO BE CLEANED**

## NAVIGATION LIGHTS

CB-1 uses the colour of the LEDs to indicate the work mode being used in that moment.

- |   |   |   |   |   |  |
|---|---|---|---|---|--|
|  | <b>LIGHT BLUE LIGHT</b><br>AUTONOMOUS work mode |  | <b>GREEN LIGHT</b><br>Recording the cleaning route                      |  | <b>ORANGE LIGHT</b><br>It shows that water tank needs to be topped up or battery needs to be recharged |
|  | <b>WHITE LIGHT</b><br>MANUAL work mode          |  | <b>RED LIGHT</b><br>CB-1 is requesting the intervention of the operator |   |  |





## 1. LEARN&PLAY

The operator teaches CB-1 the cleaning route by tracing it out once in manual mode. CB-1 is then able to repeat it and even perfect it, always offering the most efficient solution

## AUTONOMOUS MODES



## 2. PERIMETER

The operator walks along the perimeter within which CB-1 will have to work. After recording the information, CB-1 processes five routes from which the most suitable one can be chosen to be integrated with the staff's activities, maximising productivity.



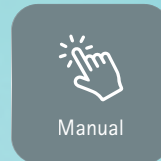
## 3 navigation modes, allowing you to choose the best one for the area to be cleaned

The autonomous modes ensure simple, immediate start-up that requires no training. Once the mode has been selected, CB-1 starts working straight away and operators can optimise their shift by dealing with other tasks.



CB-1 adapts autonomously to partial changes in the layout of the work area

## MANUAL MODE



## 3. MANUAL

CB-1 can be used as a normal scrubbing machine too, for example for special cleaning jobs or dirt conditions.



The operator can switch from one mode to the other by just pressing a button

### DELAY START FUNCTION:

The Delay Start function enables to set the cleaning operation to begin after a specified time. It supports coordination between the work of CB-1 and that of the operators, making it possible to consider multiple variables related to the environment to be cleaned, thereby optimising the cleaning schedule.

# CB-1<sup>2.0</sup>

How many variables are there  
in your cleaning plan?

With CB-1, you can create **999!**

With CB-1, you can store up to 999 different missions,  
each one customized with specific characteristics:

#### TYPE OF AREA,

in other words the type of place – for instance the fruit & veg or frozen foods area of a supermarket,  
or the entrance and shops area of a shopping centre;

#### ROUTE,

meaning the path that CB-1 will follow which, even in the same area,  
may be different depending on the day or the time when the work is carried out;

#### TYPE OF CLEANING,

allowing routine or low consumption cleaning to be associated within the same area and following the same route,  
depending on the requirements.

Every STORED MISSION is associated with a MISSION CODE. To activate it, just position CB-1 in front of the label with the code, so it can scan it. Once CB-1 has acquired the code, it's ready to begin the job: just press the start button. There's no need for the operator to be trained with regards the type or characteristics of the mission to be carried out, as all the information is contained in the code and transferred directly to the machine.

## How to use the MISSION CODES



### One mission code per area.

Associate one mission with each different area of a supermarket such as fruit & veg, frozen foods or aisles of packaged items or, in the case of a shopping centre, with the entrance areas and shop areas.



### Several mission codes per area, with different routes.

If one section of a single area doesn't need cleaning every day, or it has to be excluded in certain time slots, it may be useful to have one code for the various missions, one for the total mission and others for the partial missions.



### Several mission codes per area, with different work modes.

For one single area, it might be handy to register one mission with scrubbing functions for routine cleaning, and another mission for light cleaning, with low consumption settings.





## TYPE OF AREA



One mission for each type of area

## ROUTES



Same area



Different routes



Different time slots

## TYPE OF CLEANING



Same area



Same route



Different cleaning tasks:  
routine with  
low consumption  
(Eco Mode), or special

# CB-1<sup>2.0</sup>

## Connect to CB-1 and keep your cleaning tasks under control

Track the performance of your fleet easily from your smartphone, with the My.Machine app. Enter the profile of each machine to see where it is, whether the planned cleaning schedule is being followed, and whether anything unexpected has occurred.



FIMAP FLEET MANAGEMENT

With FFM, you're always connected!



WI-FI & GSM

Data transmission is stable because it constantly uses both the Wi-Fi network and the GSM network of the SIM installed on the machine, ensuring reliable communication at all times.

The information is detailed: as the tasks of the individual machines in the fleet can be associated with the key in use, specific data can be obtained for each model. In addition, it provides access to the INDOOR TRACKING function, for tracking cleaning jobs inside buildings.

You can check the list of maintenance tasks carried out, the recharges made and any issues that have arisen, to always be in full control of the situation and keep productivity high.



### REPORTS

CB-1 can provide detailed reports for each single MISSION.

These reports can be consulted on the machine display. They give the following information:

- Map [Mission ID]
- Working time [mm:ss]
- Average speed [km/h]
- Time left [mm:ss]
- Work Progress [%]
- Covered area [m<sup>2</sup>]
- Cleaned area [%]
- Mission length [m]
- Water consumption [%]
- Battery consumption [%]

Statistics are compiled from the reports, enabling increased efficiency and productivity by providing an overview that makes it easier to identify the strengths and areas for improvement of the cleaning tasks.

Manage your fleet remotely with the FFM – Fimap Fleet Management system, use the My.Machine app to access data at any time and don't miss a single detail of the status of your machines



Watch the video



### INDOOR TRACKING

Tracking of cleaning activities inside buildings, to see which areas have already been cleaned and which are still to be completed.



### MISSION CONTROL PART PROGRAM

The supervisor can set a weekly cleaning schedule and send it to the machine. This enables the operator to follow the set schedule, ensuring the desired cleaning standards are maintained, and keeping costs low.



### GEOLOCALISATION

It shows on a map the machine.



### ENVIRONMENTAL IMPACT

The FFM system records the data relating to the CO<sub>2</sub> production of the individual machine right from the beginning of its life cycle, and those data can be consulted on the My.Machine app.

An awareness of the real emissions helps when it comes to setting targets and defining the actions needed to reduce those values.



### USE INFORMATION

It's possible to know in what working mode the machine is operating and for how long. Moreover, it provides information about the duration of each intervention and the sq.m cleaned.



### BATTERY RECHARGE

It sums up all the complete and opportune recharges performed, the residual charge and the charge settings. This is an essential set of information to extend the battery lifespan and reduce the related costs.



### HEALTH STATUS

It is possible to monitor the condition of both machines and batteries at any time, to have a clear view of the fleet availability and optimize its coordination.



### ALARMS

The anomalies occurred are summarised in a list which includes a description of the type of issue, and the date and time of the event. It helps you to have an overview of the improper uses that need to be corrected.



### MAINTENANCE

An overview of the list of the maintenance services performed allows to identify discrepancies with the condition of the machine in case an anomaly is detected, and to monitor the inspections of the whole fleet.

# CB-1<sup>2.0</sup>



High cycle life



High energy density / compact design



Ultra-fast and frequent opportunity charging



Ultra light weight



24/7 applications  
and multi-shift



No gas emissions



Maintenance-free during the whole service life



BMS included



## Efficient energy management

### LITHIUM BATTERIES

As they can be partially charged at any time, they increase the availability of the machine, which can be used for several jobs on the same day.

In addition, they are more efficient than traditional batteries, in that they require less energy to charge, and have a much longer life cycle.



# Technologies for reducing the wastage of resources



## ECO MODE

Eco Mode is a quiet work configuration with low consumption. For frequent or maintenance cleaning, i.e. when enhanced scrubbing power isn't required, it guarantees sustainable operations by reducing the use of water, detergent and energy, to ensure good cleaning results with a limited quantity of resources, respecting the environment.



## START&STOP

When the machine stops temporarily, the brush motors, vacuum, traction and water flow turn off automatically, reducing consumption, costs and emissions. All these functions are automatically reactivated when work begins again.



It reduces energy consumption by

up to **35%**

## FES-FIMAP ENERGY SAVER

Industrialization, new technologies, the use of the latest materials and the solutions developed thanks to advanced design methods, have enabled the number of components to be rationalised in number and the machine weight to be reduced, with improved performance and autonomy as a result, as well as a reduction in consumption of up to 35%.

CB-1<sup>2.0</sup>

CB-1:  
COLLABORATIVE ROBOT.  
Robotics and professional  
cleaning.





The introduction of robotics is an unparalleled opportunity for improvement for the cleaning sector.

It can considerably boost productivity without jeopardising the role of personnel, if anything, it enhances it.

The autonomous machine becomes an ally that can deal with the longer and more simple jobs that take up precious time, allowing personnel to concentrate instead on more delicate tasks that call for expert human intervention.

In the case of an office block for example, CB-1 can work in the corridors while personnel are cleaning inside the offices themselves, where more care and attention is needed.

The overall job takes the same time, but productivity is improved.

The assistance of an autonomous machine is an excellent opportunity to stand out with a highly competitive service that offers added value.

The operators can specialise in other tasks and acquire new responsibilities that not only increase work satisfaction but also become supplementary services that extend the cleaning program.



## REFERENCE SECTORS



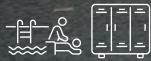
LARGE-SCALE  
RETAILING



OFFICES



HO.REC.A



SCHOOLS AND GYMS



SHOPPING  
CENTRES



TRANSPORTATION



LOGISTICS



HEALTH



INDUSTRY



MISSIONS



1	001	853-840	15-000
2	002	803-610	000-000

# CB-1<sup>2.0</sup>

## Fast, simple maintenance to save time and reduce costs

SOLUTION TANK

RECOVERY TANK

The tanks are easy to fill and empty

Brush uncoupling lever



**YELLOW COLOUR CODE**

The parts which must be cleaned regularly at the end of the shift are colour-coded in yellow, to save time and keep CB-1 constantly efficient.



**ON BOARD BATTERY CHARGER**  
The built-in battery charger makes recharging easier and quicker

### BRUSHLESS MOTORS (BRUSHES AND TRACTION)

Motors without brushes bring several advantages:

- **GREATER DURABILITY OVER TIME**, as they do not generate heat, there is no need for ventilation which can cause damaging seepages
- **GREATER CONTROL**, which being electronic, and not electromechanical, automatically adjusts to the required performance, improving efficiency
- **COMPACT DESIGN**, they leave more space to the volume of the tanks, thus increasing the working autonomy consequente aumento dell'autonomia di lavoro
- **NO MAINTENANCE** and extremely longer life cycle

CB-1 is equipped with a host of safety systems that help keep everything under control at all times, so you can work with total peace of mind



SAFETY



**SENSOR DATA FUSION**

A combination of sensors and technologies that enhances navigation quality and boosts safety and reliability



**LED navigation lights**

They help keep CB-1 visible while it's moving



**TOUCH SCREEN DISPLAY**

Enhances visibility in dim light



**VIDEO TUTORIALS FOR OPERATOR TRAINING**

Any questions? CB-1 has all the answers: the video tutorials help the operator in every phase of the job



**EMERGENCY STOP**

By pressing a single button the machine stops immediately



**EMERGENCY SMS**

In the unusual event that it's unable to free itself from an obstacle, CB-1 stops and immediately sends an SMS to the operator



## Touch screen Display with high-resolution colours (7 inches)



LOG-IN  
WITH PASSWORD



NAVIGATION  
MODES



MISSION  
CODES



SUSTAINABLE  
CLEANING



VIDEO TUTORIALS  
FOR OPERATOR  
TRAINING



DELAY START  
FUNCTION

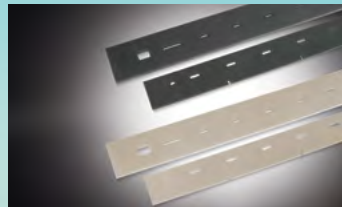
## ACCESSORIES

PPL 0,3



PPL 0,45

Different types of PPL disc brushes are available, with a thickness varying from 0.3 to 0.45 to handle any type of dirt.



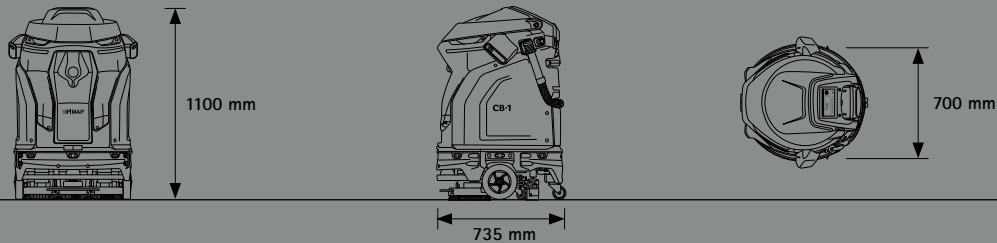
Rear squeegee rubber blades  
33 SHORE (PARA)  
For maintenance cleaning of smooth floors.  
40 SHORE (PARA)  
For stubborn dirt on floors with joints.  
POLYURETHANE  
For heavy duty cleaning on industrial floors, even with wide gaps.

## EQUIPMENT

USER EXPERIENCE	CB-1
7-inch high resolution colour touch screen display	•
Navigation modes (Learn&Play, Perimeter Manual)	•
Delay start function	•
Mission codes (up to 999 missions can be stored)	•
Eco Mode	•
Login with password	•
Digital solution level indicator	•
Video tutorials for operator training	•
COMFORT	
Hour meter	•
Cleaning solution level indicator	•
Fresh water empty tank light	•
Indicator light for full recovery water tank	•
On-board battery charger	•
Brush and squeegee actuator	•
PRODUCTIVITY	
FFM (Fimap Fleet Management)	•
Aluminium squeegee	•
Vacuum speed selector	•
SAFETY	
Sensor Data Fusion	•
LED navigation lights	•
Emergency Stop	•
ENVIRONMENT	
FES (Fimap Energy Saver)	•
Start&Stop	•

• STANDARD

# DIMENSIONS AND TECHNICAL DATA



TECHNICAL DATA - CB-1		DISC (3 BRUSHES)
Productivity theoretical	up to sqm/h	1710
Estimated coverage	up to sqm/h	1425
<b>SCRUBBING SYSTEM</b>		
Working width	mm	570
Brush motors	(no.) V/W	(3) 24/130
Brush rpm	rpm	170
Pressure on the brushes	up to kg	15
<b>TANK AND RECOVERY SYSTEM</b>		
Solution tank	l	40
Recovery tank	l	40
Suction motor	V/W	24/422
Vacuum water lift	mbar	180
<b>BATTERIES</b>		
Supply/traction	V/Hz	24/aut.
Batteries	(no.) V/Ah	(1) 24/Li-ion
Battery run time	up to h	4 *
<b>PROPELLING SYSTEM</b>		
Forward working speed	up to km/h	2,5
Traction motor	(no.) V/W	(2) 24/450
<b>SPECIFICATIONS</b>		
Machine dimensions (L x h x a)	mm	735
		1100
		739
Squeegee width	mm	700
Machine weight empty without batteries	kg	182
Machine weight empty with batteries	kg	205
GVW (Gross Vehicle Weight)	kg	240
Sound pressure level (ISO 11201) - L <sub>pA</sub> - Eco Mode	dB (A)	65

\* Run times are based on continuous scrubbing run times in Eco Mode

# SERVICES

## CONSULTING AND PLANNING



We put our experience at your service, to help you realize the cleaning project perfect you. We suggest you the best solutions to make costs decrease and service quality increase.

## SET-UP



We can help you set up your machines in order to make them meet specifically the requirements of the sites of your project, allowing you to always have control over costs and results.

## AUTHORIZED WORKSHOP NETWORK



The Fimap Authorised Workshop network spans the globe, so you can enjoy the peace of mind of finding a professional support wherever your business is.

## CONFIGURATION



Your business is unique, only a customized fleet can lead you to better results. We will help you find the configurations that best fit the specific requirements of your cleaning sites, in order to optimize processes and lower costs.

## TRAINING COURSES



Fimap Academy offers courses for all levels, from the correct use of machines and technologies, up to the management of sites and tenders, helping you to make your service really competitive.

## MAINTENANCE AND REPAIR



With our service packs, we help you to ensure your business is always operational. Our technicians take care of monitoring the machines health status and know how to intervene quickly and effectively when needed.

## FINANCIAL SOLUTIONS



You can choose to use the fleet in different ways. We can advise you on the best financial solution for your business, so that you can get the quality of the Fimap world at the most convenient conditions for you.

## DIGITAL FLEET MANAGEMENT SYSTEM



With Fimap Fleet Management everything is under your control. You can have a complete overview of the service provided and find out the improvements that can be made, basing your considerations on real data, always available via the MyMachine app or FFM website.

## GENUINE SPARE PARTS



Get the most out of your machines, choose the reliability of Fimap original spare parts. They are designed together with the machines, so they perfectly fit them thus guaranteeing the highest quality of performance.

## CERTIFICATIONS



## AWARDS



For any additional information or for a demo please contact your usual Fimap dealer



FIMAP spa - Via Invalidi del Lavoro, 1 - 37059 S. Maria di Zevio - Verona - Italy - Tel. +39 045 6060411 - E-mail: contact@fimap.com

