ISTOBAL

RECYCLER 4RC1 FOR WATER GENERATED BY VEHICLE WASHING

MOD. 4RC1100 (5 M³/HOUR)
MOD. 4RC1200 (10 M³/HOUR)
MOD. 4RC1300 (15 M³/HOUR)

ISTOBAL

ORIGINAL MANUAL

Departamneto de Formación V_05_12

USER GUIDE

32UZ800B

GB

USER AND MAINTENANCE GUIDE FOR RECYCLER UNITS

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PRESENTATION

The objective of this guide is to familiarise the users and supervisors of facilities with the basic operating features of the equipment, the maintenance requirements and the conditions required to be able to operate and interact with the recycler with maximum safety. Thus, the aforementioned personnel should read this guide in its entirety before performing any action on the recycler.

If you have any doubts whatsoever, please contact the representative for your zone or Istobal S.A. directly via istobal@istobal.com.

INFORMATION

- » Istobal S.A. reserves the right to make the modifications it considers opportune without prior notice, with no obligation to communicate such modifications and without thereby giving rise to the possibility of claims on the part of users whose facilities contain earlier versions to this edition.
- » Read these instructions carefully and keep them in a safe place for future reference.

This user and maintenance guide is aimed at:

- » **User**. Understood to mean the person who owns and exploits the facility for business purposes.
- » **Facility and/or maintenance supervisor**. The person who works directly with the equipment and/or performs periodic maintenance.
- » **Repair and/or maintenance engineer.** A qualified person who performs technical interventions which require specialised labour.
- » **Assembly and disassembly technician.** A qualified person who assembles and disassembles the wash equipment.

Symbols used in the user guide:

INFORMATION	Contains important information.
WARNING	Failure to comply with the indications may lead to material damage.
DANGER	Failure to comply with the indications may lead to serious harm to persons.
DANGER	Danger of electric shocks.

Terms used in the user guide:

» Consumables: includes products which may be replaced periodically.

» Chemical products. Consumables used in washing and drying the vehicle and which are applied by the machine via a metering pump.

» Cleaning products for the machine: Consumables used to clean fairings, car bodies, panels, etc.

» Maintenance products: Consumables used to lubricate the different parts of the machine.

» Spare: Part designed to replace another equivalent part on the recycler.

DANGER

» Prior to the first start-up of the recycler, all personnel of the organisation, users and supervisors, shall be given training by the Official Technical Service, which will identify and clarify the obligations and risks involved in running the car wash facility.

» The equipment is supplied with a set of documents which together make up the Instruction Manual. The documents are:

» Civil work and installation booklet ref. 32UZ900.

» User guide ref. 32UZ800.

» Quick start guide ref. 32XN400

» Electrical diagrams and components ref. 32UY000.

» Start-up checks ref. 32UZ700.

» CE Certificate.

DANGER

» Any repair or action not described in this guide and not designed to be done by facility or maintenance supervisors shall of necessity be performed solely by specialist technical engineers trained by Istobal. S.A.

» Assembly, disassembly or a change in the location of the recycler shall be performed solely by specialist technical engineers trained by Istobal S.A.

USING THE RECYCLER

Intended use of the recycler

This equipment is designed exclusively for recycling water used to wash the outside of vehicles such as cars, vans and lorries in the way stipulated in this guide. Any other use of the equipment will exempt the manufacturer from any responsibility.

Uses for which the recycler is NOT designed

The recycler is not designed to treat water used to wash engines, workshops, faecal waters, etc ... These types of water are not suitable for recycling and can cause the recycler to malfunction as well as exposing the user to risk.

The recycler is not designed or built to be installed in potentially explosive environments.

1. SAFETY RULES

1.1. APPLICABLE RULES OF A GENERAL NATURE

DANGER

- » Before any repair or maintenance work on the recycler or any of its optional extras, disconnect the main power switch or the corresponding device, and work without current, compressed air or water.
- » The inside of any type of water storage tanks should not be accessed under any circumstances, whether they are mains water tanks, pre-treated water tanks, buried tanks or those at ground level, etc ...
- » Extreme caution should be exercised when the covers of tanks are opened since the gases stored in them can cause dizziness, fainting or general discomfort if inhaled. Additionally, the gases are sometimes inflammable.
- » Removal of the safety devices incorporated, and unauthorized modification of the equipment, will automatically invalidate the guarantee and absolve the manufacturer of any responsibility.
- » Take special care to avoid slipping when the bay is wet. The recycler should be installed on a non-slip surface.
- » Should the user, facility or maintenance supervisor or any person belonging to the organisation observe any situation of danger or potential danger either to persons or to the recycler, they should stop the machine immediately. The recycler will work properly as long as the ambient temperature stays between 1 and 45ºC.
- » The water produced by the recycler system is not apt for human or animal consumption nor is it suitable for watering.

DANGER

- » Do not under any circumstances open an electricity box not equipped with a power switch.

WARNING

- » When the unit is first started up, the stop valve should be opened very slowly otherwise there is a serious risk of irreparable damage to the machine.
- » The manual mains water stop valve should always be left closed, (except where the optional "Mains Water Inlet Control mod. RC129001" is installed). It should only be opened in emergencies or when there is a fault. This will prevent accidental mains water consumption.
- » Install the unit in a suitably ventilated area, and protected against freezing.
- » The recycler is to be installed in an area which is permanently off-limits to unauthorised personnel.
- » The main power must always be ON. Switch off only when there is a fault or for maintenance.

1.2. ADDITIONAL SAFETY STANDARDS RELATIVE TO THE LAWS OF EACH COUNTRY

INFORMATION

» The safety standards described here shall be further adapted to the meet the specific legal requirements of each country where the machine is installed.

WARNING

» The wash facility must have the pre-treatment infrastructure required by standard UNE EN 858.1 and 858.2, as described in the civil works book ref. 32UZ900.

» If there is a direct connection to the public drinking water supply, the laws relating to prevention of water returned to water networks, public or private, must be observed.

» Average use of the electricity supply must not vary more than ±10% nominal, according to CEI standard 38, equivalent to UNE 21301.

» The legal regulations in force in each country shall be complied with both in regard to the prevention of risks at work and environmental standards.

» The distributor shall ensure compliance with the safety regulations specific to countries where machine are installed and which are not covered by European Union regulations.

1.3. PERSONAL PROTECTIVE EQUIPMENT (PPE)

The provision of PPE shall be the responsibility of the user, who shall ensure compliance in the use of such equipment both by the wash and maintenance supervisors and in general by personnel involved in running the business.

DANGER

» Always make proper use of safety footwear and fluorescent jackets while working on the facility. Always make use of chemical safety gloves and splash goggles when refilling chemical products or when machine cleaning or maintenance products are used.

» Proper use of a face mask should be made when covers are to be opened on any tank on the whole recycled water system.

1.4. ENVIRONMENTAL SAFETY STANDARDS

INFORMATION

» The safety standards described here shall be further adapted to the meet the specific legal requirements of each country where the machine is installed.

WARNING

» Residue generated by vehicle washing, and stored in settling and separating tanks, such as sludge, light hydrocarbons, etc., is to be treated as dangerous waste. This means the waste must be treated by a duly accredited waste management organisation.

» All containers which have previously contained chemical products or products for cleaning or maintenance of the machine must be properly disposed of. Reuse of the containers is forbidden.

» All parts resulting from the maintenance and repair of the recycler shall be treated as dangerous waste.

2. GENERAL DESCRIPTION

The recycler is designed to treat water generated by vehicles washed in rollovers, tunnels and jet washes so that it can be reused. This is a continuous refresh type system, and it has the capacity to supply from 5000 litres/hour (1 bottle) up to 15000 litres/hour (3 bottles).

The quantity of water to be treated on a facility depends on the type of machine (rollover, tunnel, etc.), and the optional extras installed (underchassis wash, high pressure wash, etc.). Where several wash machine are installed, such as high throughput tunnels, a study of consumption will be needed.

The following table shows the relationship between the number of filters or modules and the flow rate of the treated water obtained:

No. Modules	Nominal Flow Rate (m^3/h)
1	5
2	10
3	15

An aeration system is required which injects air inside the pre-treated water tank to prevent unpleasant smells.

2.1. SPECIFICATIONS

The 4RC1X recycler units comprise one or more filtration bottles and one valve per filter, which controls the different phases.

2.2. MAIN FEATURES

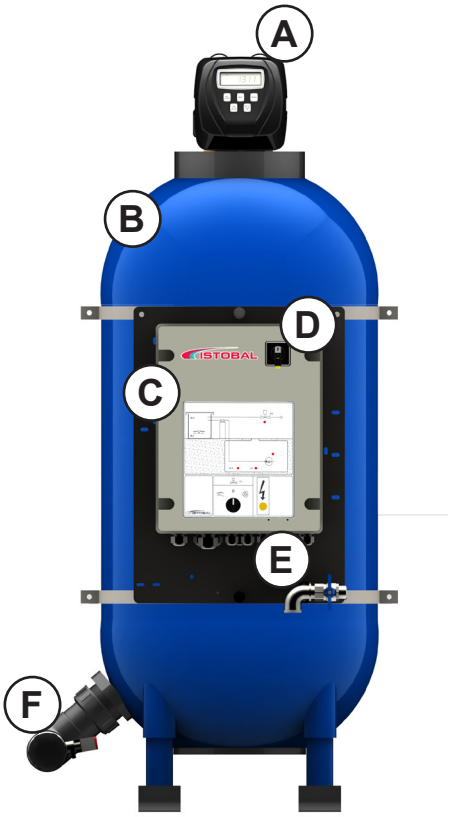


Fig. 1 Front view of the recycler

Fig. 2 Rear view of the recycler

A. **Programming valve:** Has a display screen and programming buttons

B. **Filter bottle:** Tank for recycling water using filter matter. Filter capacity is 5m^3/hour per bottle.

C. **Electrical cabinet with control panel:** The outside cover has operating and warning lights.

D. **Electrical switch:** Locks on for greater safety.

E. **Mains water supply valve.** This is a manual valve which allows mains water to enter the circuit.

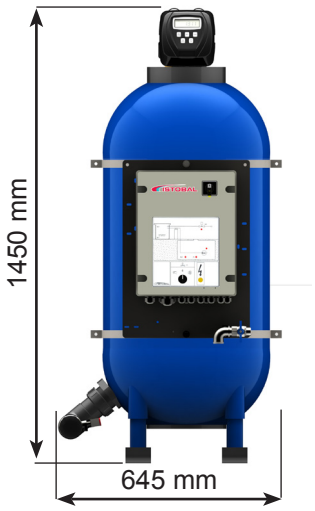
F. **Purge set:** This has a manual valve and a discharge pipe. The valve needs to be opened to empty the filter matter bottle.

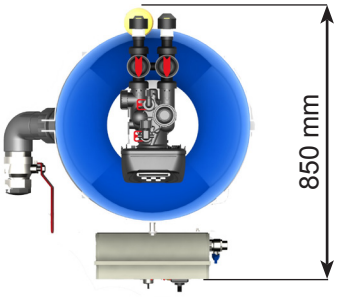
G. **Outlet pressure gauge:** Indicates the water pressure at the bottle outlet.

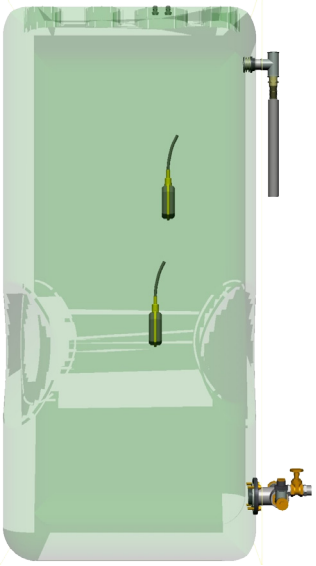
H. **Inlet pressure gauge:** Indicates the water pressure at the valve inlet.

I. **By-pass valves:** These facilitate by-passing the bottle.

2.3. DIMENSIONS







For upgrades, take into account the space required by each bottle, elbow joints, adaptors, etc....

Please note that the capacity of the recycled water tank will vary with the model of recycler and whether it is installed with disinfectant dispenser 4DD0100. See the table below:

	4DD0100 installed?	4RC1100		4RC1200		4RC1300	
Capacity of tank	Without 4DD0100	750L	1100 L	1100 L.	2000L.	1100 L.	2000L
	With 4DD0100	1100L.	2000 L	2000 L		2000 L	

NOTE: The tanks marked in red are recommended by ISTOBAL for each model.

Tank	Tank size (mm.)	Sales ref.
750 L.	730x730x1650	RC058003
1100 L.	1060 x 660 x 1813	RC058004
2000 L.	2250X720X1695	RC058005

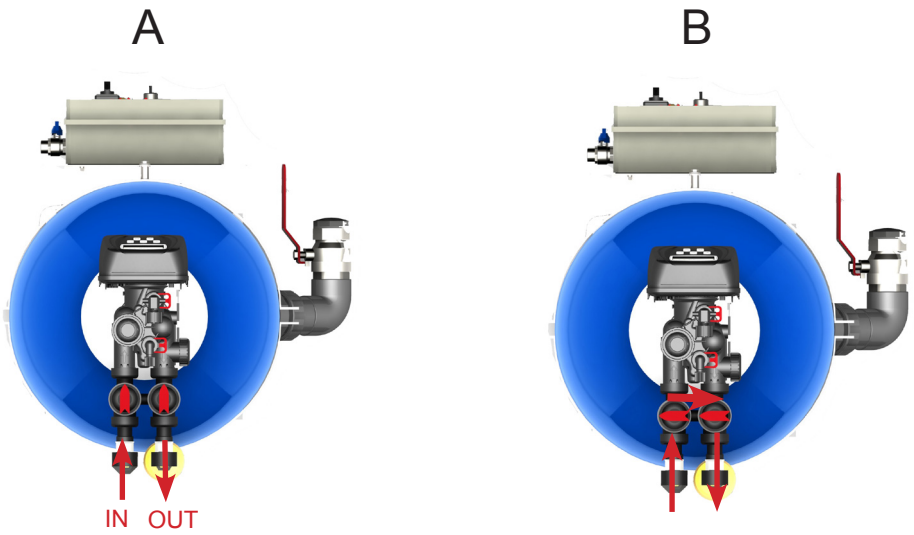
2.4. VALVES

These control each phase of operation (filtration and backwash). The by-pass valves are especially useful for carrying out maintenance tasks on one module without affecting the rest.

WARNING

» The by-pass valves should be in position A during operation.

» Position B is only used at certain times when the by-pass needs activating temporarily.



2.5. ELECTRICITY CONSUMPTION

	4RC1100	4RC1200	4RC1300
	380V/50Hz	380V/50Hz	380V/50Hz
Power (kW.)	3.35	3.47	6.8
Electricity consumption kW./h*m3	0.67	0.34	0.45

2.6. COMPOSITION OF THE FILTER MATTER

The filter bed comprises two layers of matter:

- The first layer contains 50 kg of silica sand with a grain size of between 1.6 mm and 4 mm. (ref. 5W001600) situated at the bottom of the bottle. This acts as a base for the second layer of matter, and as protection for the lower filter nozzle.
- The second layer contains 80 kg of zeolite 0.5 - 1 mm (ref. 32WE300) spread on top of the first layer of matter. This acts as a filtration layer.

3. INSTALLATION

3.1. LOCATION

Situate the Recycler on a previously prepared base. The unit must be perfectly level for it to work properly. Please adhere to the instructions for the building work, detailed in booklet ref. 32UZ900. This contains information about installation, civil works, service lines, dimensions, etc.

3.2. WATER SUPPLY PUMP

The submersible pump supplied with the recycler sends water from the pre-treated water tank (D5) to the recycler. The water pump should not rest on the bottom of the tank but should be about 70cm above it, and away from the walls. Suspend the tank using nylon string (NOT metal) threaded through the handle on the top. Never hang the pump by the electrical cable or supply hose.

INFORMATION

» Istobal S.A. recommend that the total distance between the water feed pump and the recycler unit should not exceed 10 metres (vertically and/or horizontally) to guarantee the necessary pressure and filtration flow rate.

WARNING

» The pump must be completely submerged to guarantee proper cooling. It should always be positioned lower than the level where detector SL3 detects “low water level”.

Model	Quantity of pumps
4RC1100/1200	1
4RC1300	2

3.3. MAINS WATER INLET

The mains water is connected to the unit using conduit T3. On the standard unit, the water is supplied manually by opening stop valve V1. The stop valve should be closed again when sufficient water has been let in.

If the unit has the optional RC129001 (mains water inlet control) the supply of mains water to the tank is automatic. If after 4 hours water is still entering the system, an alarm will sound advising of the fact. In this way, unintended consumption of mains water is avoided.

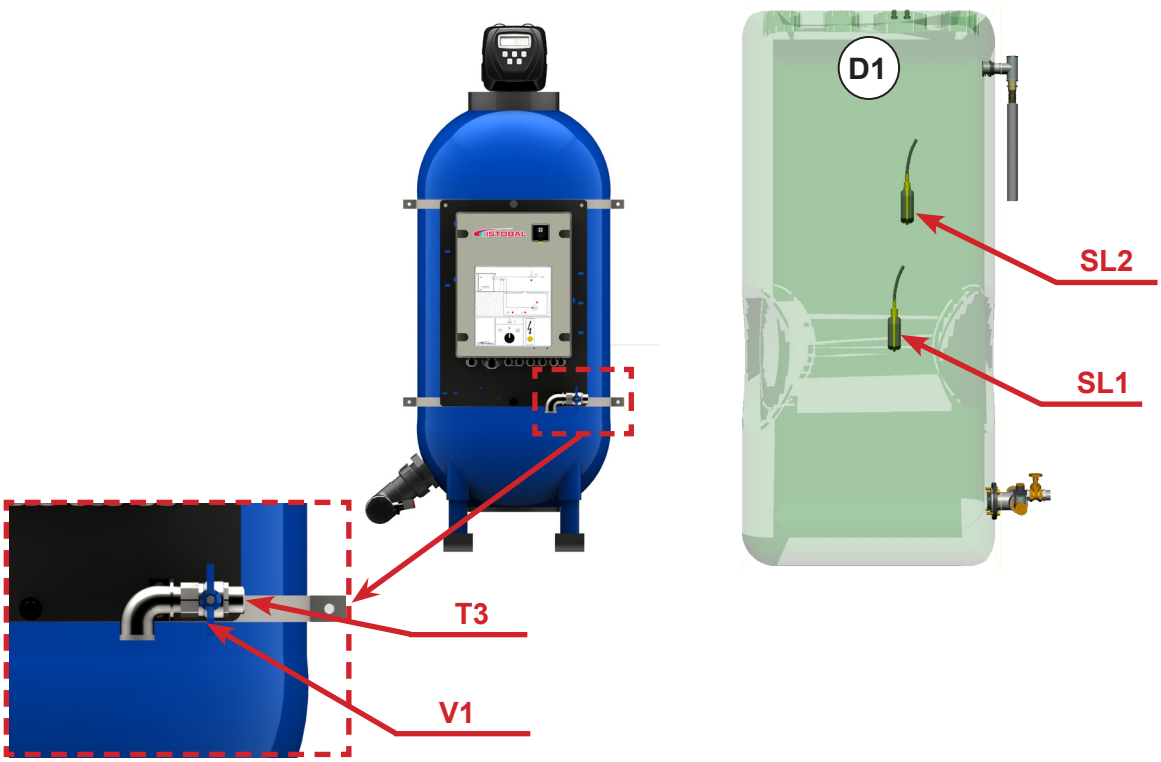


Fig. 3

INFORMATION

» The position shown in figure 3 is where the stop valve is closed.

WARNING

» Only leave the stop valve open if the optional RC129001 (mains water inlet control) is fitted.

3.4. LEVEL DETECTORS

The standard unit includes detector SL2 (upper position) which starts up water pump M1 (pre-treated water supply). It therefore also starts the filters working.

Level detector SL3 is installed in tank D5. It stops the recycler when the pre-treated water level drops to the pre-set level, to protect submerged pump M1.

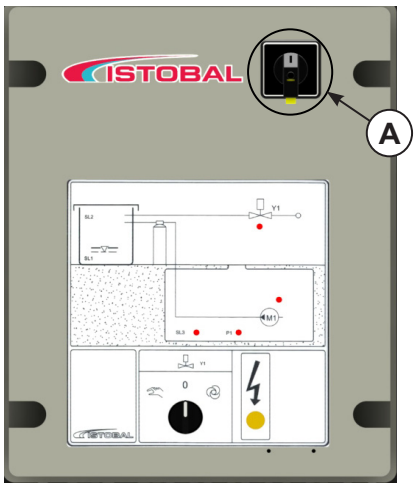
There is an optional level detector SL1 (lower position) with the optional RC129001 (mains water inlet control), which opens solenoid Y1 when tank D1 drops to minimum level.

3.5. UNIT IDENTIFICATION

The ID plate of the recycler is behind the door of the electrical cabinet.

4. OPERATION

4.1. CONNECTION



To connect the machine, set the main switch (A) to “ON”. The switch is on the door of the electrical cabinet.

DANGER

» Take extra care when activating the main power switch on the machine.

4.2. WATER CYCLE

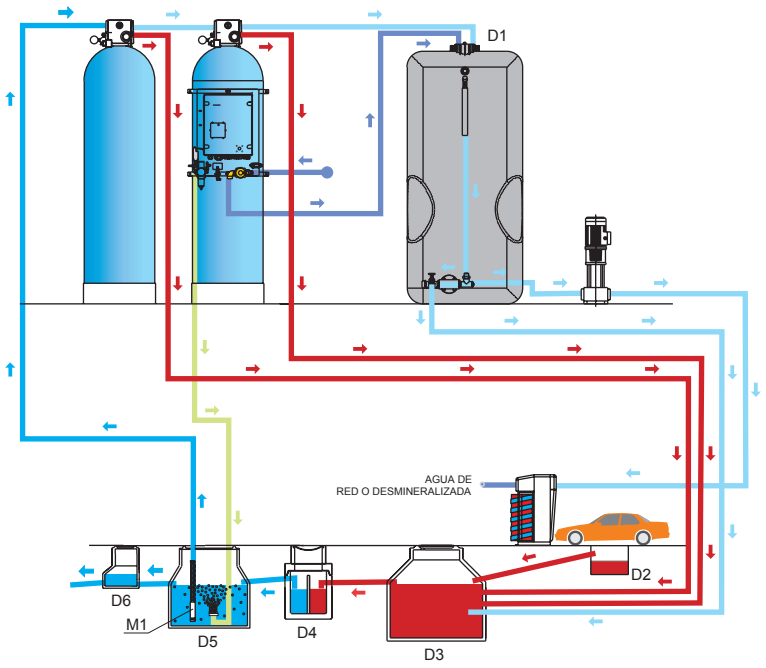
The water generated by the wash is collected in sand settlers D2 and D3, where the heavier particles are deposited. Next, separator D4 retains the oils and light hydrocarbons. Submerged water pump M1 inside tank D5 sends the water to the recycler, where it is treated, ready to be used again in the wash process.

To guarantee that the recycled water in the tank is refreshed, and thus prevent foul smells, the continuous loss valve installed on the outlet of tank D1 should be set as follows:

No. Modules	Flow rate setting L/min.
1	4-6
2	8-12
3	12-15

Note that for a proper finish on the vehicle, we recommend using mains or demineralised water for the final rinse. ISTOBAL rollovers and tunnels have an optional second water system for this.

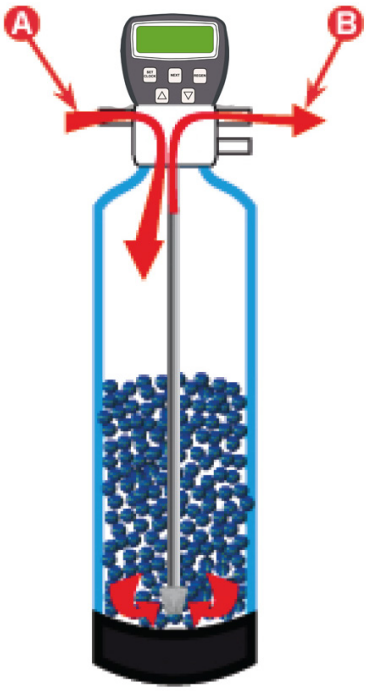
4.3. FLOW DIAGRAM



4.4. OPERATING PHASES OF THE RECYCLER UNIT

1st FILTRATION

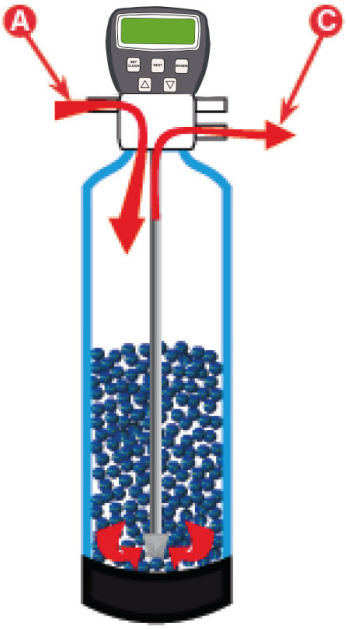
This is the water treatment phase. Water passes through the filter, and the particles get trapped in the Zeolite bed.



A	In
B	Out
C	Drainage

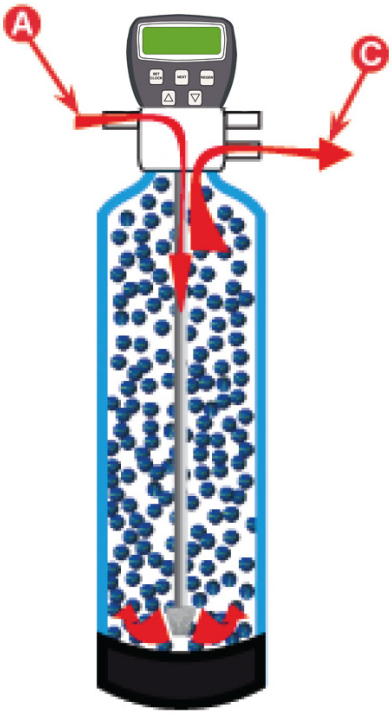
2nd BACKWASH

At programmed intervals, the water inlet cycle is reversed, thus allowing the particles retained during the filtration phase to be expelled.

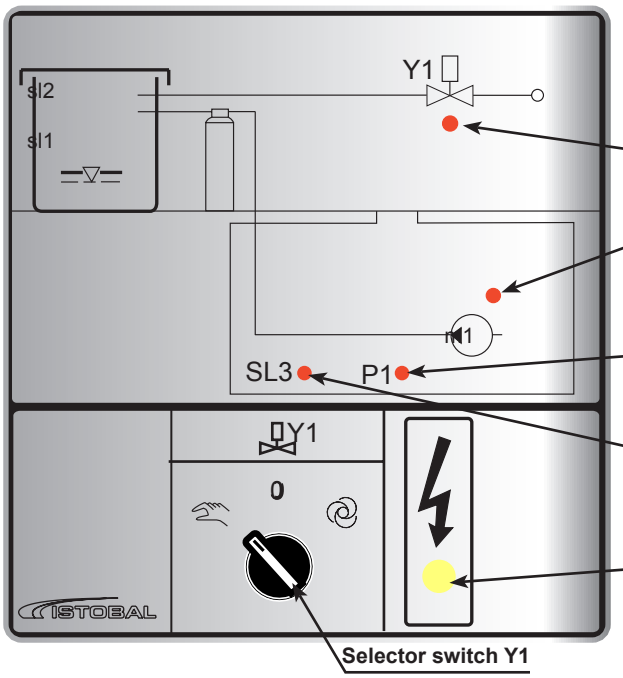


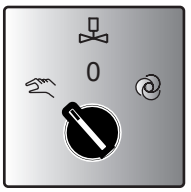
3rd QUICK WASH

The bed is allowed to settle before the filtration phase resumes.

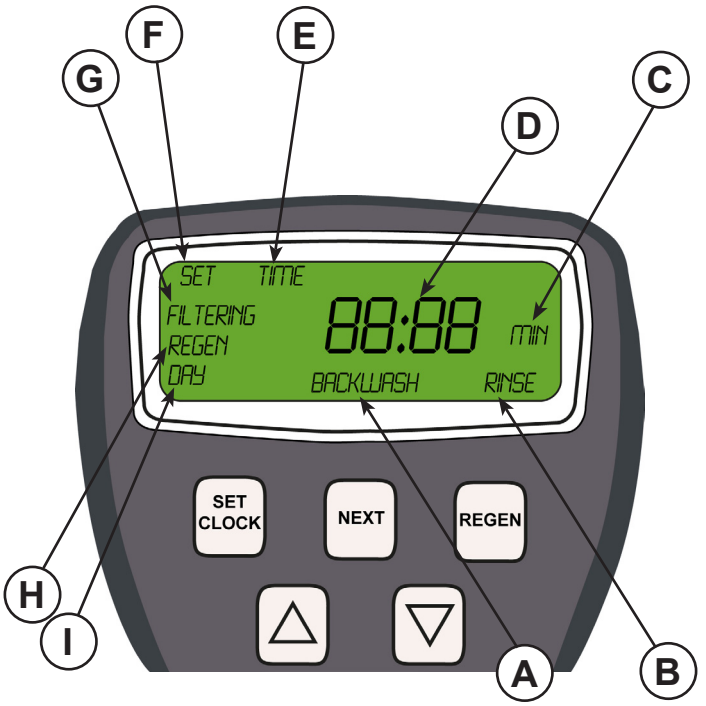


5. CONTROL PANEL



Selector switch Y1		
		Permanent manual activation
	0	To disable the solenoid
		Automatic and controlled activation of the mains water supply solenoid valve

6. PROGRAMMING PANEL OF THE CLACK VALVE



A	Backwash indicator
B	Quick wash indicator
C	Minutes indicator
D	Digits display
E	Time indicator
F	Filtration mode indicator
G	Backwash time indicator
H	Backwash days indicator
I	Settings menu indicator

6.1. PROGRAMMING THE CLACK VALVE

Programming consists of:

- Setting the current time.
- Configuring the programmer.
- Adjusting the backwash times.
- Adjusting the time and day of backwashes.

Use the ARROW keys △ ▽ to change the values and the SET key SET CLOCK to accept the changes.

6.1.1. HOW TO SET THE CURRENT TIME.

To set the current time, do as follows:

- Press SET CLOCK , and the hour digits will flash. Set the hour with △ ▽
- Press SET CLOCK again. Now the minutes will flash. Set the minutes with △ ▽
- Press SET CLOCK again and the main menu will appear with the time set.

6.1.2. HOW TO ADJUST THE PROGRAMMER SETTINGS

The unit is factory set for two daily valve backwashes. One longer during the night and another shorter one during the morning.

To access the settings, do as follows:

- Press NEXT and ▽ for 3 seconds. The screen will show **SET** and **FILTERING**.
- Press NEXT and ▽ for another 3 seconds to access the advanced settings where the **SET** indicator is displayed.
- The first parameter defines the type of valve. This should ALWAYS be set at **25** with △ ▽ and then pressing NEXT to accept.
- The next parameter should be set to **OFF.** if not, modify with △ ▽ and press NEXT again.
- The next screen should show **dP OFF.** if not, modify with △ ▽ and press NEXT again.
- The next screen will show **HARDNESS** and should be set to **nA.** Then press NEXT again.
- The next parameter will show the different wash phases, which should be set as shown in the table:

Order	Process
1	Backwash
2	Rinse
3	Filtering
4	Backwash
5	Rinse
6	End

Once you have finished checking everything, press NEXT again to exit the settings menu.

6.1.3. SETTING BACKWASH TIMES

From the main screen, and with the valve showing the correct current time, press NEXT and ▽ for 3 seconds.

- The **FILTERING** indicator will appear on the screen. Press NEXT again to check that the times of the different operating phases are as indicated in the table.

Process	Time
Backwash	12 min.
Rinse	8 min.
Filtering	480 min.
Backwash	5 min.
Rinse	2 min.

6.1.4. SETTING THE TIME AND DAY OF BACKWASHES.

- Press NEXT and △ for 3 seconds

- Keep pressing NEXT until **REGEN DAY** appears. This parameter indicates the frequency in days of backwashes. In this case, it is set to **1.** and then NEXT is pressed again to accept.

- The screen will show **SET TIME REGEN**, and this is the time when the backwash will happen.

WARNING

» Set the backwash time for when there is no demand for water on the facility because the unit will not send water to the tank during the backwash.

» Where there is more than one filtration module, delay the backwash time of each successive module by one hour so that no two modules are doing a backwash at the same time.

6.2. HOW TO PERFORM A MANUAL BACKWASH

To perform a manual backwash, simply press and hold REGEN for 3 seconds.

To change phase during a regeneration, press REGEN .

7. MAINTENANCE

Before any maintenance operation on the machine or any of its optionals, please observe the following precautions:

- Use the appropriate Personal Protection Equipment.
- Switch off the power at the main switch.
- Cut off the water supply.

INFORMATION

» Use only original spares.

WARNING

» Before applying cleaning products, read their corresponding safety files, proceed with extreme caution, and use the corresponding PPE.

DANGER

» Before any maintenance operation, please proceed with extreme care, and use the appropriate PPE.

» It is totally forbidden to climb on top of the equipment to perform any action, whether it is for maintenance or repairs.

7.1. TABLE OF CONTENTS

POINTS FOR CHECKING	DAILY	WEEKLY	RECOMMENDATIONS
Check the clock setting and the backwash time.		●	Check that the clock is showing the current time and the time set for the backwash.
Check for leaks on the circuit.	●		If there are leaks, contact Technical Service at Istobal.
Check that none of the red lights on the recycler's electrical panel are lit up.	●		If a fault light is on, consult the table, point 9.
Check that the difference between pressure gauges does not exceed 2.5 bars.		●	If the difference exceeds 2 bars, keep forcing manual backwashes until the difference is corrected.
Check that the continuous loss flow rate is as recommended.	●		Open the continuous loss valve if it is closed.

INFORMATION

» ISTOBAL S.A. recommends the use of original chemical products.

DANGER

» All checking tasks should be performed with electrical current, water or air on, which means that extreme care should be exercised and the zone should be cordoned off to prevent access by unauthorised personnel. The appropriate PPE should also be used.

7.2. MAINTENANCE TABLE

POINTS FOR MAINTENANCE	MONTHLY	RECOMMENDATIONS
Cleaning the air diffuser	●	1- Open the pre-treated water cover 2- Remove the air diffuser 3- Clean it with abundant water 4- Re-insert the diffuser in the bottom of the tank.
Cleaning the recycler bottle	●	Clean the body manually with a sponge while steering well clear of the CLACK valve and the electrical components in general.

DANGER

» All maintenance tasks should be performed without electrical current, water or air and with the appropriate PPE.

» All repair tasks should be performed exclusively by technical personnel authorised by the Istobal S.A. network.

7.3. WATER QUALITY

For the recycler and its component parts to work satisfactorily, the water should meet a series of basic requirements in terms of quality.

The following table shows the maximum allowable limits set by Istobal S.A.:

Maximum allowable values	
Parameter	Limit
Iron	<0.2 mg/L
Manganese	<0.05 mg/L
Ammonium	<4 mg/L
pH	6.5 - 9
Conductivity	<2500 µS
Chlorides	<250 mg/L
Size of particles	<70 µm

When the water is obtained from a non-public mains source, such as a well, the characteristics may be affected and thus a more exhaustive control is required, involving annual analyses.

When one or various parameters exceed the limits, you should contact Istobal S.A. for a suitable pre-treatment system or systems.

WARNING

» Istobal S.A. declines all responsibility for any damage caused by the use of water with parameters which exceed the maximums set.

DANGER

» In accordance with Spanish standard R.D. 865/2003 and sanitation and hygiene criteria, programs designed to prevent and control Legionella shall be implemented and tanks shall be disinfected where necessary. These tasks are to be recorded in the maintenance records.

» These facilities should be cleaned at least once a year. Contracting and maintaining this control is the responsibility of the user.

» In addition, all nozzles belonging to wash machines on the facility are to be disinfected at least once a year.

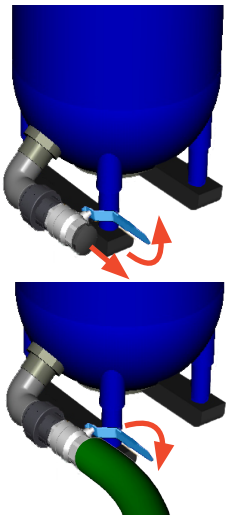
7.4. HOW TO CHECK THE DIFFERENCE IN PRESSURE BETWEEN THE GAUGES

A	Inlet pressure gauge
B	Outlet pressure gauge

The test run should be done with the unit in filtration mode and with the pump running. If this is not possible, force the pump to start up by lifting level detector SL2. If you observe a difference in pressure of 2.5 bars or more between the inlet and outlet gauges, keep performing manual backwashes until the difference in pressure in and pressure out is 1bar or less. If this does not happen after three successive manual backwashes, advise technical service at Istobal.S.A.

7.5. REPLACING THE FILTRATION MATTER

The filter matter should be extracted **exclusively** by **Istobal Technical Service** so that the extraction is performed with complete safety and without damaging the unit.



1) First, make sure the manual relief valve at the bottom of the filter is closed.

2) Next, disconnect the unit from power. Remove the stopper on the relief valve and fit the spigot adapter supplied with the recycler.

3) Fit the hose that will convey the filtration sands to the container where they will be stored.

4) To empty, open the manual relief valve and connect the unit. As water enters the filter, it will exert pressure on the filter bed, forcing the filtration material out through the relief valve.

When you see abundant quantities of water flowing through the sand-emptying hose, disconnect the unit and take off the hose and spigot adapter. Make sure you thoroughly clean off any possible filtration material residue left on the relief valve. Close the valve. Put the stopper back on the relief valve, and reconnect the coil to the outlet solenoid valve.

To add new filtration matter:

- Access the inside of the valve by taking off the cover.
- Disconnect the supply cable and the valve head DIP switch cable. Also disconnect the inlet, outlet, and backwash hoses.
- Unscrew the valve and remove the top filter nozzle on the valve head. Clean it with abundant water.
- Cover the collector pipe with tape or paper to prevent filtration matter entering.
- Line up the collector pipe, and start filling with the new filter matter.
- When the filter is full of the new matter, remove the tape from the collector pipe, and screw the valve back into position.
- Finally, reconnect the inlet, outlet, and backwash hoses as well as the cables belonging to the DIP switch on the valve head and the the supply line.
- Connect the unit but **never in backwash mode**. Check for leaks, and that the unit is working normally.

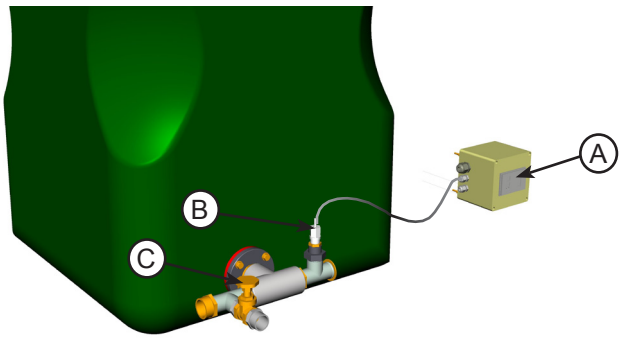
8. OPTIONAL EXTRAS

Below is a list of possible optional extras:

- Aeration of pre-treated water tank by blower (RC146002) or compressor (RC146001).**One of these two options must be chosen for the machine to work.**
- Conductivity monitor (RC147003)
- Recirculation pump for continuous loss (RC147001). This unit is needed on facilities where the recycler is at the same height as the settling tank (D3).
- Exterior fault warning alarm (RC142001).
- Mains water inlet control (RC129001)
- Organic filter matter (RC075001 for 5 m3/h; RC075002 for 10 m3/h).
- Communications module for IW Manager. A signals hub (RC148001) for 5 and 10 m3/h models.

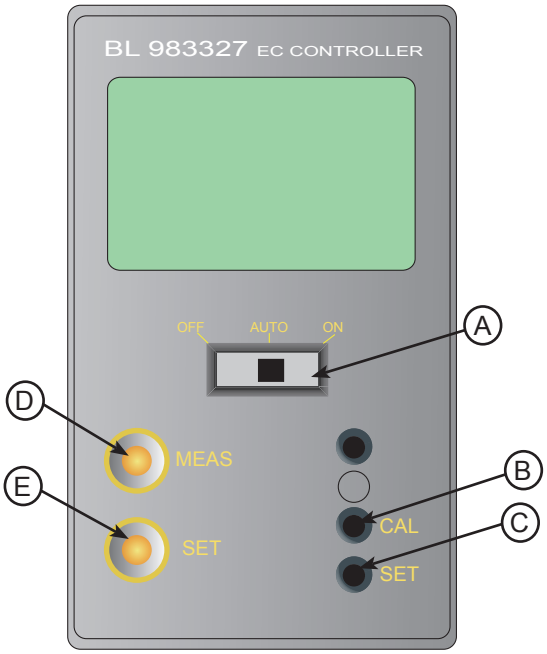
8.1. CONDUCTIVITY MONITOR

This is required when the maximum level of salinity in the recycled water needs adjusting. When the salinity set point is reached, it opens the mains water inlet and with the influx of water, the salinity drops.



A	Conductivity monitor
B	Meter
C	Continuous loss valve

This unit needs two settings to be made:



A) CALIBRATION

Check that the monitor is in AUTO mode by setting the mode selector (A) in that position.

Unscrew the meter from the pipe insert.

Press the “MEAS” button (D).

Insert the meter in a 1413 microS/cm conductivity buffer Ref. 5059600.

Adjust the “CAL” screw (B) to the buffer value. Remember that the monitor reads in MS/cm, so the value will be 1.41 mS/cm.

B) SET POINT ADJUSTMENT

Press the “SET” button (E).

Turn the potentiometer (C) to “SET” mode.

Raise or lower the set point to the desired level.

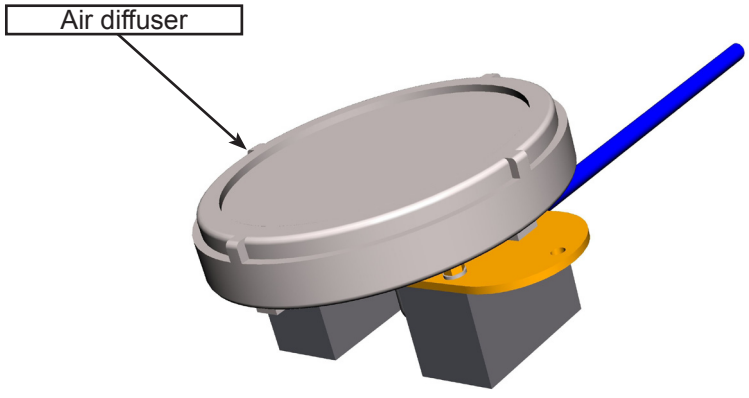
8.2. AIR INTAKE

This unit pumps air into the pre-treated water tank to prevent unpleasant odours. This can be done in two different ways:

- By compressor
- By blower

The blower system is connected to the mains or the electrical cabinet of the machine, and must be left on 24 hours a day. It must also be protected from sunlight, dust and humidity. Its membrane needs changing from time to time.

In both systems, the diffuser needs cleaning with abundant water in accordance with the maintenance table. The diffuser is submerged inside the pre-treated water tank.



DANGER

» Use of a mask is compulsory to guard against intense smells whenever the cover of any of the deposits is opened.

8.3. CONTROL OF MAINS WATER INFLOW

This system works on demand for filtered water i.e. it will only supply mains water when the supply of water from the filters is deficient or when consumption on the facility is higher than expected. When the level detector in the filtered water tank detects that the level has dropped below it, the system will open the solenoid and let mains water into the filtered water tank. When the detector returns to its standby position, the system will close the mains water inlet.

The optional extra has a water meter and control board with a buzzer which will sound in the following situations:

- If the solenoid valve has been closed for 60 seconds and the meter continues to emit impulses.
- More than 24 seconds pass without impulses from the meter when there is demand for mains water.
- If during normal operation the mains solenoid is working longer than the time set.

For improved installation control, we recommend to install the optional extra EXTERIOR FAULT WARNING SYSTEM Ref. RC142001 together with the control of mains water inflow. This system will issue sound and light warnings in any of the situations described.

9. LOCATING AND RECTIFYING FAULTS

FAULT	POSSIBLE CAUSE	SOLUTION
1 - Recycler not working	A) Power supply fault B) the switch is off	Check that the main switch is set to "ON".
2 - Light SL3 on	Pre-treated water tank at minimum level.	The recycler will stay off until the water level in pre-treated tank D5 rises.
3 - P1 light on (where aeration by compressor is installed)	A) Air compressor stopped. B) Insufficient air pressure.	A) Check that the recycler air supply compressor is connected. B) Check the air pressure by using pressure gauge MN1. It should be above 2 bars. If it is lower, contact Technical Service at Istobal S.A.
4 - Light Y1 on.	A) Insufficient recycled water flow. B) Excessive recycled water consumption.	A) Open manual valve V1. Next, contact Technical Service at Istobal S.A. B) Check for leaks on the recycled water circuit.
5 - The recycler fails to perform backwashes	A) Power supply fault. B) Programmer defective C) Fault on the DIP switch	A) Set the timer dial to the right time. B) Contact Technical Service at Istobal S.A C) Contact Technical Service at Istobal S.A
6 - Loss of recycled water production	Dirt has accumulated in the filter matter of the recycler.	Check whether the difference in pressure between the inlet and outlet pressure gauges is above 2 bars. If it is, provoke manual backwashes until the difference is corrected. If it is not possible to correct the difference, please contact Technical Service at Istobal S.A.
7 - The recycled water is very dirty.	A) By-pass valve open. B) Breakage inside the valve body.	A) Close the by-pass valve. B) Contact Technical Service at Istobal S.A

FAULT	POSSIBLE CAUSE	SOLUTION
8 - Pungent smells from the recycled water.	A) Continuous refresh valve on tank outlet is closed, or low recirculation flow. B) Insufficient aeration of tank.	A) Open the continuous refresh valve in accordance with the flow indicated. B) Check the aeration of the pre-treated water tank. There should be intense bubbling on the surface.
9 – M1 light on	An over voltage has tripped a thermal switch	Contact Technical Service at Istobal S.A
10 – Pre-treated water tank overflowing	Detector SL3 faulty	Contact Technical Service at Istobal S.A
11 – Despite successive backwashes there is no difference in pressure on the inlet and outlet readings	A) The filter material has become too clogged up to be cleaned. B) Valve obstructed. C) The top filter nozzle of the valve is blocked.	Contact Technical Service at Istobal S.A
12 - On the display, "--:--" appears instead of the time	The valve head has suffered a power cut.	Program the time and the backwashes

10. CORROSION TABLE

The following table shows corrosion data based on laboratory tests. The corrosion resistance for four types of steel, and aluminium, has been sorted into three types: "total resistance" (A); "good resistance" (B); and "no resistance" (C).

SUBSTANCE	CONCENT. %	ºC	Inox 316	Inox 302/304	Pickled steel	Cold steel	Aluminium
Lubricating oils		20 / hot	A	A	A	A	A
Water		20/ hot	A	A	A	A	A
Faecal Waters		20	A	B	A	A	B
Potable Water		20	A	A	A	A	A
Ammonia - Gas		cold	A	A	A	A	A
Ammonia - Gas		hot	C	C	A	A	A
Ammonia - Solution (aqueous ammonia)	all concen-trations.	20 / boiling	A	A	A	A	B
Liquid bromine		20	C	C	C	C	C
Calcium Hydroxide	saturated	20	A	A	A	A	B
Calcium Hypochlorite	saturated	20	A	C	C	C	C
Calcium Sulphate	saturated	20	A	A	A	A	A
Hydrogen cyanide (Prussic acid)		20	A	A	A	A	A
Citric Acid	50	20	A	A	A	A	A
Citric Acid	50	boiling	A	B	B	B	B
Chlorine Gas	humid	20	B	C	C	C	C
Chlorine Gas		100	C	C	C	C	C

SUBSTANCE	CONCENT. %	ºC	Inox 316	Inox 302/304	Pickled steel	Cold steel	Aluminium
Ferric Chloride	10	20	B	C	B	B	C
Ferric Sulphate	1-5	20	A	A	A	A	C
Fluorine (gas)		20	C	C	C	C	A
Phosphoric Acid	saturated	20	A	A	A	A	A
Fuel oil		20	A	A	A	A	A
Gasoline		20	A	A	A	A	A
Glycerine		20	A	A	A	A	A
Hydrobromic Acid	saturated	20	C	C	C	C	C
Hydrochloric Acid	more than 10%	all temperatures	C	C	C	C	C
Hydrochloric Acid (vapours)		20	B	C	C	C	C
Hydrofluoric Acid	all concentrations.	20	C	C	C	C	C
Hydrofluoric Acid (vapours)		100	C	C	C	C	C
Hydrogen Sulphide (vapours)	humid	20	A	B	A	A	A
Bleach	30	boiling	A	A	A	A	A
Magnesium Carbonate	saturated	20	A	B	A	A	A
Magnesium Chloride	1-5	20	A	A	A	A	A
Magnesium Hydroxide	thick	20	A	A	A	A	A
Magnesium Sulphate	all concentrations.	hot	A	A	A	A	A
Manganese Chloride	all concentrations.	boiling	B	B	B	B	B
Manganese Sulphate		20	A	A	A	A	A
Nitric Acid	all concentrations.	20	A	A	A	A	A
Nitric Acid	concentrated	boiling	B	B	B	B	B
Nitric Acid (+2% hydrochloric acid)	concentrated	20	--	A	B	B	B
Nitric Acid	fuming concentration	20 / boiling	C	C	C	C	C
Perchloric Acid		20	C	C	C	C	C
Sodium Bicarbonate	all concentrations.	20	A	A	A	A	A
Sodium Carbonate	all concentrations.	20	A	A	A	A	A
Sodium Chloride	saturated	20	A	B	B	B	B
Sodium Hydroxide	all concentrations.	20	A	A	A	A	C
Sulphuric Acid	15	20 / 40	A	C	B	B	B
Sulphuric Acid	50	20 / 40	B	C	C	C	B
Sulphuric Acid	concentrated	20 / 40	A	C	C	C	B
Sulphuric Acid	concentrated	60	B	B	B	B	C
Sulphuric Acid	concentrated	100	C	C	C	C	C
Vapour - SO2, CO2 and air			A	A			A

ISTOBAL

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R. M. Valencia F. 135 T. 37 Lbr. Sds. S. 3ª An. Hoj. 662 Ins. 1.ª C.I.F. A-46.011.27

GUARANTEE for SPAIN

This guarantee replaces any verbal guarantee given by sales personnel or distributors. No further guarantees are offered beyond the following:

A. THE GUARANTEE INCLUDES

1. Manufacturing defects for a year from the machine start-up date. However, in no circumstances will the guarantee be valid for more than 15 months from when delivery is made.
2. In the event of a fault, the Official Technical Service of the Istobal Network shall verify, wherever it considers it opportune and by means of a technical report, that the fault is covered by the guarantee.
3. Istobal S.A. shall provide free of charge during the guarantee period:
   a. Labour
   b. Call-outs
   c. Replacement or repair of parts deemed to be under guarantee

B. THE GUARANTEE DOES NOT INCLUDE

4. Parts subject to wear, such as:
   a. Nozzles
   b. Boom arms
   c. Brushes
   d. Cartridge filters
   e. Etc.
5. Consumables, lubricants and filter material.
6. General cleaning of the machine and the bay.
7. Extraction of sludge and any other waste generated by the vehicle wash.
8. Cleaning of hydraulic hoses or chimney flues.

C. EXCLUSIONS FROM THE GUARANTEE

9. Damage caused by decomposition of chemical products or abrasive materials.
10. Damage caused by the use of water with different characteristics to those prescribed by Istobal S.A.
11. Damage caused by fluctuations in the electricity supply outside the limits prescribed by Istobal S.A.
12. Damage caused by misuse, abuse, poor service line connections, intentional misuse, accident, negligence, maintenance performed by unauthorized personnel, installation of modifications or improper settings or faults on the wash units caused by the failure of supervisors to comply with the basic maintenance instructions prescribed by Istobal S.A.
13. Damage caused by natural disasters.
14. Damage caused by the use of non-original consumables and spares.

D. OTHERS

15. No fault shall imply a right by the user to claim compensation for periods of inactivity suffered by the facility.
16. This guarantee does not cover separate parts or equipment used in conjunction with this machine which have not been sold or manufactured by Istobal, S.A.
17. The parts used as a result of repairs to faults are the property of Istobal S.A.
18. Work carried out under guarantee shall not cause the guarantee period to be extended.

On no account shall the buyer seek to revoke the contract of sale and/or sue for costs or damages since ISTOBAL S.A. accepts no responsibility beyond that described above.


ISTOBAL
Automotive Cleaning Solutions