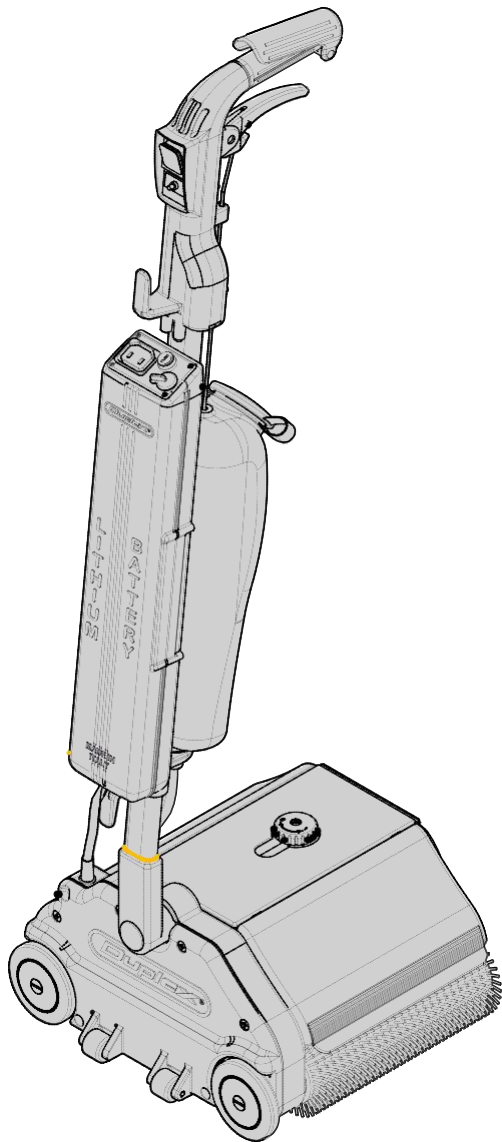
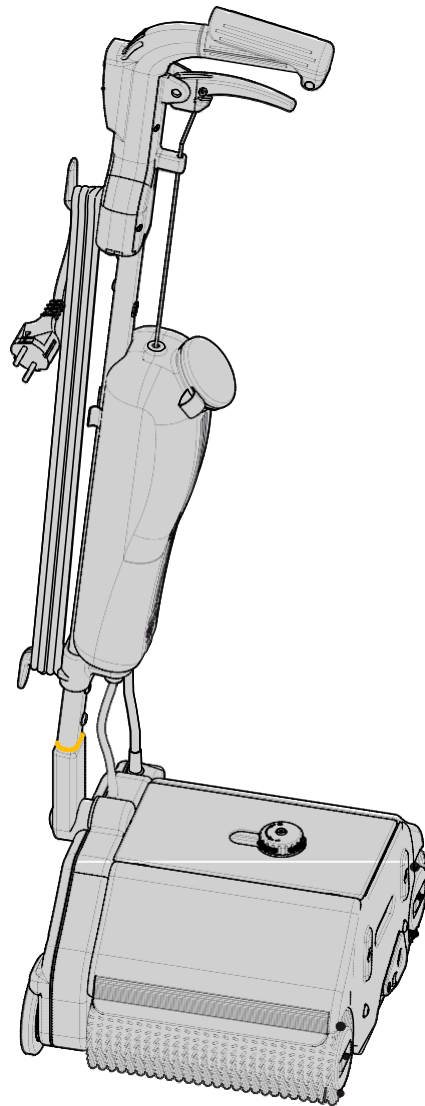


Instruction Manual Use and Maintenance

DUPLEX
International



**FLOOR WASHER / CARPET
CLEANER**



**DUPLEX 280i AC
DUPLEX 280i DC**

WARNINGS



**CAREFULLY READ THE INSTRUCTIONS OF THIS
BOOKLET BEFORE USING THE MACHINE.**

See Directive ISO 7000-0434-1691-0790

WARNING: This appliance cannot be used to collect hazardous dusts

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1.1 Congratulations on having chosen DUPLEX 280i machines.

The new **DUPLEX 280i** floor washing machine has a great performance and is highly efficient. **DUPLEX 280i** washes any kind of floor including: wood parquet, carpets and rugs. It sweeps and disinfects thoroughly, cleaning even the most hard to reach corners by means of its cantilever brushes.

DUPLEX 280i AC and lithium ion battery **DUPLEX 280i DC** have an aluminium casing to ensure each part is protected and has a tight seal against the infiltration of water, dust or other foreign bodies.

DUPLEX 280i is easy to use and to carry from one place to the other as it weighs only 13 kg, it takes up very little room and is easy to store.

The handle position can be reversed to allow bi-directional cleaning. The operator can clean in both directions and perform cleaning and washing from right to left, forward and backward and vice versa.

DUPLEX 280i's ease of handling and lightness make it pleasant and easy to use.

DUPLEX 280i's construction qualities allow for a long lifespan.

We recommend you to closely follow the instruction for use and maintenance of the machine.

The original bi-directional handle allows you to reverse the work position to clean and wash floors and carpets thoroughly in both directions and from right to left.

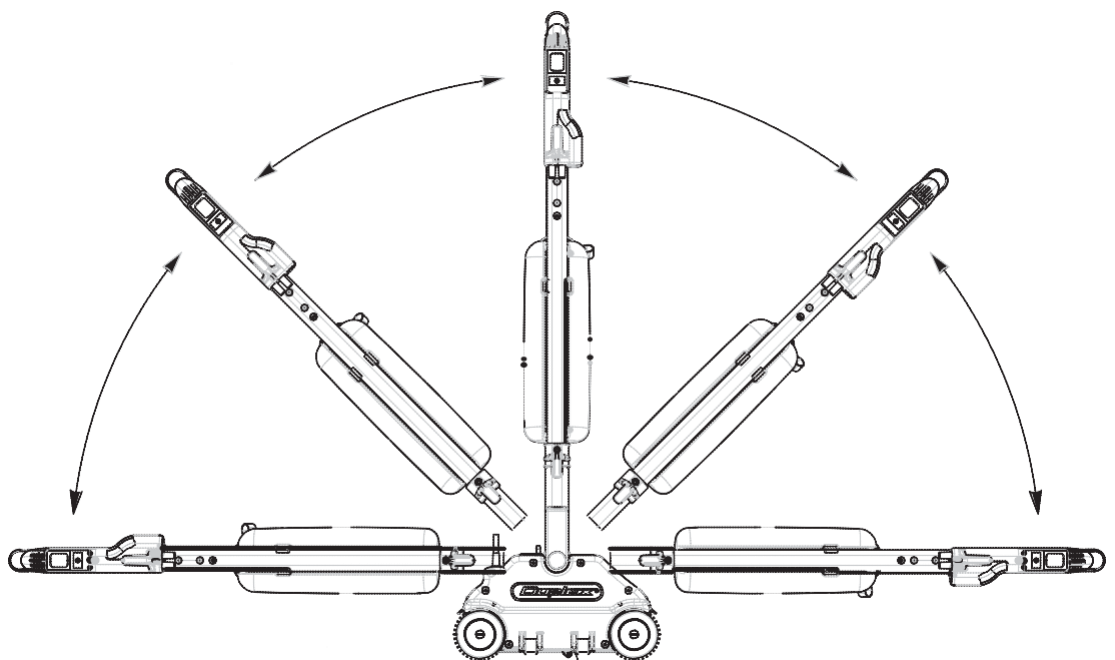


Figure 1.1

1.2 GENERAL WARNINGS

POWER CORD WITH PLUG

- Check the power cord regularly to see if there is any sign of damage:
- If the power cord is damaged, replace it before using the machine.
- Use a cable of the same type used by the Manufacturer, certified according to “ENEC” European standards
- Cable replacement must be performed by qualified personnel.

AVOID ANY CONTACT OF THE POWER CORD WITH BRUSHES

- Should the power cord get caught under the machine brushes, do not attempt to get it out with the machine working. Stop operation immediately, remove the plug from the power socket, check the cord. If damaged, do not try to repair it simply putting a tape around it, but replace it.

OTHER WARNINGS

- Ensure the machine does not sit on the brushes when in its rest position, but that it is supported and raised by the tripod (Fig [“1.15” - page 25](#)). If this not the case, the machine weight could warp the brushes.
- Do not pour water or liquids directly onto the machine.
- Unplug the power cord plug from the power socket or battery before any maintenance intervention.
- Store the machine in a closed and dry place after use.
- The machine is designed and constructed exclusively to clean floors. Any other use is considered improper.



WARNING

CLEANING AND MAINTENANCE OPERATIONS MUST BE PERFORMED WITH THE MACHINE DISCONNECTED FROM THE MAINS OR BATTERY.

1.3 DISTINCTIVE FEATURES AND COMPETITIVE ADVANTAGES OF DUPLEX 280i

The DUPLEX brand name is synonymous with double efficiency and distinguishes a machine that actually has a dual function thereby providing numerous advantages for the best possible floor cleaning and hygiene.

- **SMART BRUSHES**

The unique smart brush system “patented” by DUPLEX allows the machine to reach more easily into corners and along skirting boards of every surface.

- **EASY-TO-DISASSEMBLE BRUSHES**

The brushes are inserted with a patented "trigger fitting" which enables them to be removed and replaced in just three seconds.

- **OPTIONAL BRUSHES**

They are provided for any type of floor and cleaning operation

- **BI-DIRECTIONAL CLEANING SYSTEM**

This system allows the work position to be reversed thanks to the bi-directional handle. (see figure [“1.1”](#), [“1.10”](#) and [“1.13”](#)).

- **DOUBLE WASHING SYSTEM**

Two powerful brushes rotate in opposition at 3.75 mt/s, attacking dirt and trapping it with their synergistic action and delivering it towards the two conveyor belts.

- **DUAL DIRT COLLECTION SYSTEM**

The patented conveyor belts which rotate quickly channel the dirt deposited on their surfaces directly into the recovery tank.

- **RECOVERY TANK**

Situated conveniently in the middle of the machine and easy to remove. It is equipped with two “scrapers” made of a special technopolymer, they are easy to replace and are needed for the final collection of dirt.

- **DOUBLE USE SYSTEM**

Simultaneous washing and dirt recovery.
Soaking followed by dirt recovery.

- **WATER AND DETERGENT TANK**

Easy to remove and to refill under a water tap and to empty at the end of cleaning. This system makes cleaning it easier.

- **ADVANCED CONSTRUCTIVE TECHNOLOGIES**

Forty years of activity and more than two hundred thousand DUPLEX machines manufactured and sold worldwide, have allowed our Company to gain considerable experience, improving our valuable and prestigious know-how.

Today, our know-how allows us to develop highly innovative technologies which find their application in the design of the most cutting-edge floor cleaners, as happened recently in the case of the new **DUPLEX 280i**.

Besides being able to clean perfectly any type of flooring by means of a new operational concept, the **DUPLEX 280i** is equipped with a robust structure which can withstand heavy use even exceeding allowed use limits, or in any case, it can tackle any involuntary distraction of the user.

It cleans easily every floor including rugs, fabric flooring, carpets, etc. It can easily pick up fine or coarse dirt, any type of solid dirt (cigarette butts, paper sheets, sand, etc.). It cleans and removes dirt from the most deep recesses of any type of floor, embossed, studded rubber flooring, etc.

In designing the **DUPLEX 280i**, we aimed to create a perfect machine. Each of its components has been designed to ensure maximum safety and durability, without requiring any maintenance. To this end a special pressure-diecast light alloy casing has been manufactured to enclose all electrical parts and most sensitive mechanical gear drive parts in order for them to be fully protected.

- **ELECTRIC MOTOR**

This motor has been made perfectly seal-tight by means of rubber seals on each closure and its external part is treated by an Anodic and Galvanic procedure to make it rustproof.

- **EASY-TO-USE AND PERFECT BALANCE**

The motor's central position and the tank above give the machine a perfect balance. The weight distributed equally on the brushes allows an efficient cleaning. It is particularly easy to handle for whoever uses this machine.

- **TRANSPORTABILITY**

The DUPLEX 280i AC weighs 13 kg.

The DUPLEX 280i DC plus Lithium Ion battery weighs only 12 kg.

The Duplex 280i can be carried easily given its reduced weight (13 kg max.), allowing anyone to lift it. Moreover, it moves silently on its two small rubber wheels.

- **QUIET OPERATION**

Noise level and vibration dBA < 72.8

1.4 TIPS FOR CLEANING FLOORS

CLEANING CARPETS OR RUGS

Fit the yellow brushes (option).

We advise you to cross the washed tracks so that all fibres appear well cleaned taking care not to wet them too much.

Carry out a few tests before starting to wash.

Use a non-foaming detergent appropriate to clean carpets or rugs.



LITHIUM ION BATTERY DUPLEX 280i DC

The lithium ion battery power decreases slightly when brushes face a greater friction cleaning and washing fabric flooring.

CLEANING WOOD PARQUET

Fit the yellow brushes (option) or the supplied grey brushes if the parquet is very dirty.

Do not wet the floor too much, and in particular not painted flooring, which absorbs more moisture. Be careful when cleaning this type of floor. Carry out a few tests before washing the entire surface.

Use a non-foaming detergent appropriate for parquet flooring.

CLEANING ALL TYPES OF FLOORING

Install the supplied grey brushes.

Use an non-foaming and non-acid all-purpose cleaner (PH max. 9).

CLEANING HEAVILY DIRTY, HARD OR DINGY FLOORS

Fit the black brushes (option).

Use a concentrated non-foaming and non-acid all-purpose cleaner (PH max. 9).

CLEANING FLOORING WITH WAX CLEANERS

Some floors are well suited to be cleaned and treated at the same time with WAX CLEANERS, such as:

- Florentine terracotta tiles
- Smooth tiles
- Clinker
- Marble
- Granite
- Industrial flooring
- Studded rubber flooring
- Wood flooring
- Old wax-treated flooring and many other.

WAX CLEANER “Shiny effect”

Fit the supplied grey brushes, use any wax cleaner available in shops, mix it with water (see the instructions on the bottle for the dose). Follow the instructions on paragraph [“1.10 HOW TO WASH FLOORS”](#) (Phase 1 and 2).

When cleaning is complete and the floor is thoroughly dry, wipe again after fitting the brown polishing brushes.

Doing this you will obtain great results and have the entire surface cleaned to perfection with a “shiny effect”. Moreover, dirt will be immediately recovered in a simple, quick and convenient way.

POLISHING WAXED FLOORS

Fit the brown brushes (option).

Turn the recovery tank knob to “1” (In this case only the brushes work and the recovery system is deactivated).

SOAKING/WASHING HEAVILY DIRTY FLOORING

When you need to scrub flooring that has been dirty for a long time and has every sort of spots and dirt, you are advised to proceed as follows:

1. Fit the supplied grey brushes for medium dirt or the black brushes (option) for heavy dirt;
2. Raise the recovery tank turning the knob and set it to **1** (Fig. 1.2). In this setting the recovery system will not work and the liquid poured onto the floor will require a more emulsified solution, and therefore, it will allow the detergent to be more effective (“soaking”).
3. Press the lever to dispense a large amount of detergent consisting of product/water, preferably warm at a temperature of 35/40°C.
4. Move the machine forward on the entire wet surface, in all directions or following precise tracks;
5. Stop the machine and turn the knob to “0” to lower the tank and re-activate the dirty water recovery system.

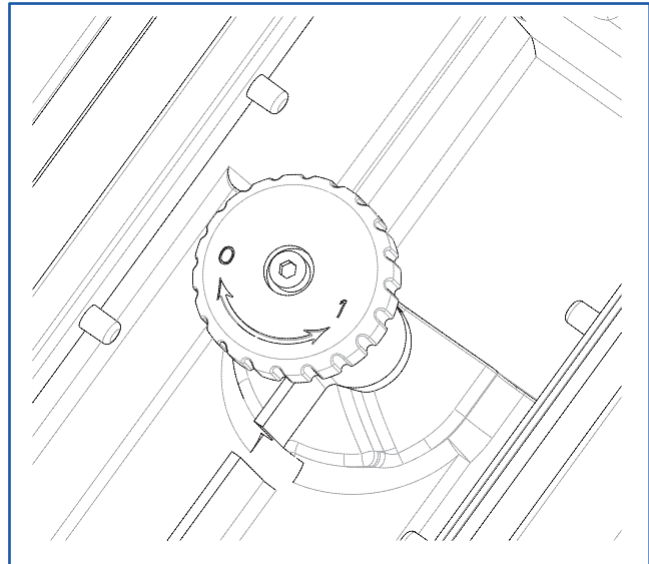


Figure 1.2



WARNING

Thoroughly clean the machine and brushes after cleaning heavily dirty floors and before cleaning delicate floors.
Do not use the machine to spread the wax.



IMPORTANT!

Do not products that are: “Static dissipative detergents” as can damage the brushes and plastic parts of the machine.

1.5 TRANSPORT

DUPLEX 280i can be carried easily from one room to the other. Tilt it to one side and let it move using the two small rubber wheels (Figure 1.3).

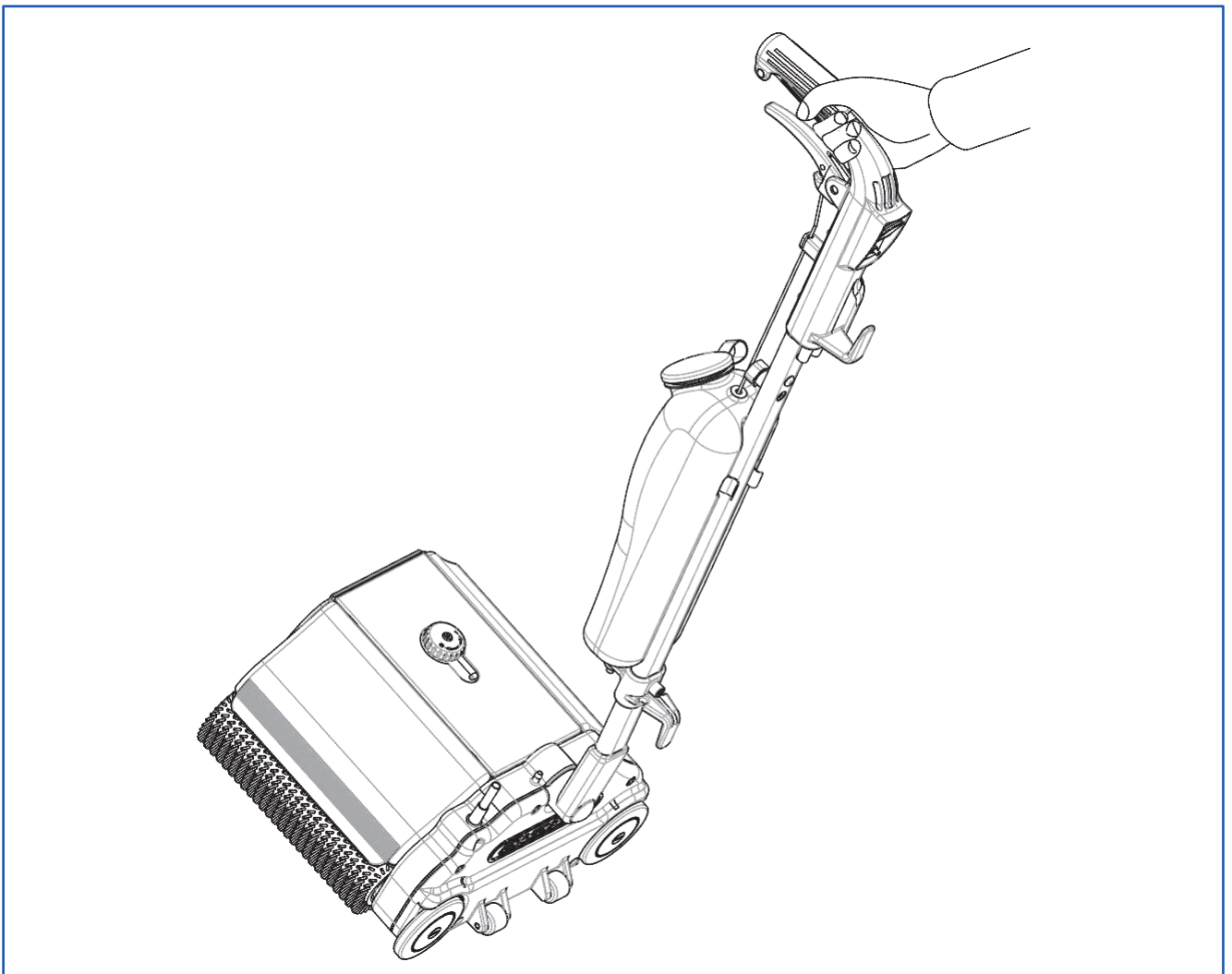


Figure 1.3

1.6 TECHNICAL FEATURES

Built in compliance with EN 30335-2-07-1998-2006/42/EC

GENERAL DATA:

DUPLEX 280i AC with power cord

Lithium ion battery DUPLEX 280i DC

Dimensions: Length - Width - Height	mm	330 – 280 – 165
Brush Diameter	mm	85
Brush Width	mm	224
Tank capacity	lt	1.75
Recovery tank capacity	lt	1.0
Brushes pressure on flooring	gr/cm ²	200
Washed track/width	mm	224
Theoretical working surface	mq/h	200/250
Degree of protection	class	IP24
Weighted acceleration value	m/s ²	1.0
Noise level and vibration	dBA	< 72,8

DUPLEX 280i AC

Voltage	Volt.	230 - 50 Hz.
Voltage	Volt.	100/120 - 60 Hz
Power	Watt	350
Brushes rpm 50 Hz and 60 Hz model	rev./1	780/936
Electrical insulation	Class:	I°
Unloaded Weight	kg	13

Lithium ion battery DUPLEX 280i DC

Voltage	Volt DC	36
Power	Watt	260
Unloaded weight with lithium ion battery	kg	12
Max. autonomy, with new battery	approx. hours	1.0

LITHIUM ION BATTERY

Battery pack with PCB degree of protection

Supplied voltage	Volt.	36
Supplied current	Amp.	7.23
Dimensions Length - Width - Thickness	mm	430x85x50
Weight	kg	2.3

SUPPLIED BATTERY CHARGER

Duplex Universal power supply	Volt.	100/240
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THE MACHINE IS REGISTERED

Trademark:	DUPLEX INT.
Country:	Italy
Universal identification	Mod. DUPLEX 280i
Power	Watt.
Power supply:	Volt. xxx
Frequency:	Hz. 50 or 60
Voltage DUPLEX 280i DC	Volt. 36
Serial number	Serial no. xxxx
Month and year of manufacture:	Current month and year
Self-certification marking:	CE
Weight	Kg.

ELECTRIC MOTOR EQUIPPED WITH:

Original nameplate applied by the manufacturer

MACHINES MADE EXCLUSIVELY IN ITALY



DUPLEX INTERNATIONAL Srl

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1.7 ASSEMBLING THE HANDLE

Use the supplied hex wrench to assemble the handle as follows:

1. Place the two conical inserts **M** into the seats of support **C**.
2. Insert chromed rod **B** into support **C** already fitted with the two conical inserts **M**.
3. Screw the two screws **N** and tighten firmly.
4. Place the two conical inserts **M** into the seats of handle **D**.
5. Insert handle **D** into the chromed rod **B** already fitted with conical inserts **M**.
6. Insert the transparent hose **I** for the washing liquid into the appropriate coupling on the machine casing.
7. Insert tank **E** into the seat of support **A** that will snap into place pressing it towards the chromed rod.
8. Safety handle **L** (*Start&Stop*) to immediately switch on/off the machine.
9. Couple flexible cable **F** to lever **G** making it go through support **H**.

Only for DUPLEX 280i AC

10. Fasten the electrical cable starting from handle **D** up to the casing making it go through the appropriate seat of support **A**;

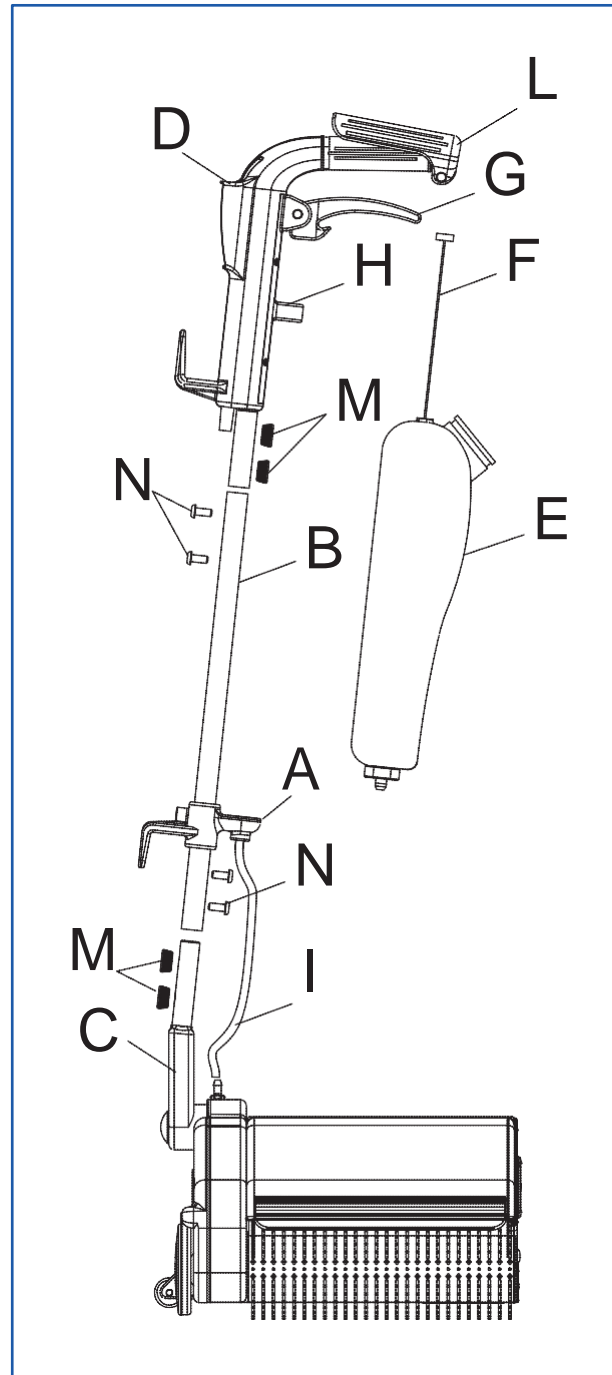


Figure 1.4

1.8 LOADING THE WASHING LIQUID

Tank **E** which contains the washing liquid can be removed easily and quickly as it is snapped into place on the chromed rod of the handle.

Filling of the tank can be performed as follows:

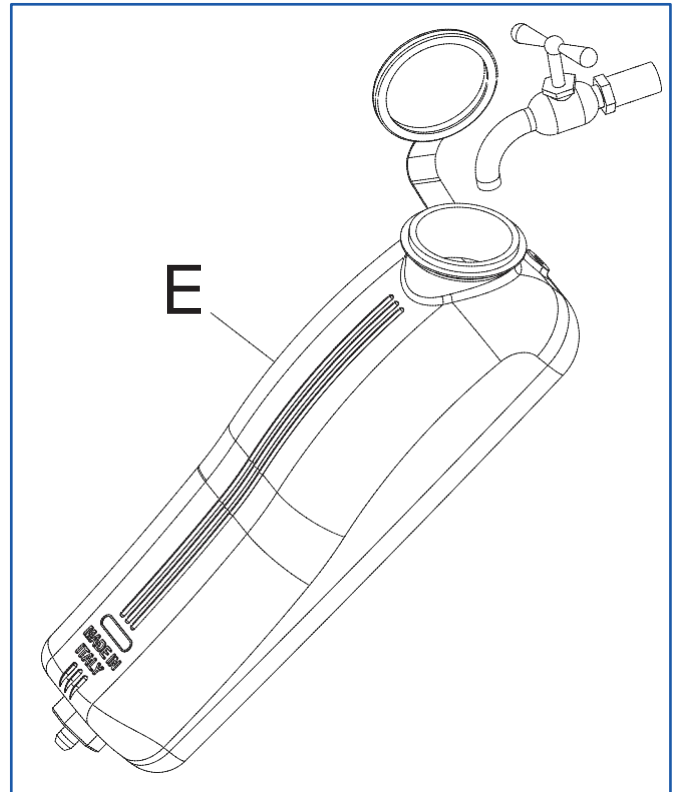
Mode 1:

1. Remove the tank and refill under a water tap.
2. Add a non-foaming detergent.
3. Stir the solution and re-insert the tank in its housing.

Mode 2:

1. Leave the tank assembled on the machine.
2. Mix the detergent solution.
3. Pour the liquid into the tank.

(See the instructions on the bottles for the correct dose)



Figure

1.5

WARNING!

Do not use unsuitable detergents or aggressive and acid-based chemicals like:

- Hydrochloric acid
- Trichloroethylene
- Methyl ethyl ketone
- Acetone
- Pure ammonia
- Bleach
- Pure sodium hypochlorite, etc.

Static dissipative detergents which can damage the brushes and plastic parts of the machine.



WARNING

The manufacturer declines any liability for damage caused to the machine, flooring of any kind, including carpets and rugs, deriving from the use of non conforming detergents or products (see [“1.14 WARRANTY” - page 29](#))

1.9 HOW TO USE

Turn the recovery tank knob to “0”. This operation allows you to lower the tank with its scrapers until they touch the rubber conveyor belts for the collection of dirty liquid (Fig. 1.6).

After using the machine, turn the knob to “1” to avoid warping the scrapers and conveyor belts. We recommend you to lubricate the rubber conveyors frequently using an ordinary silicone oil spray available in shops.



WARNING

The knob which adjusts the recovery tank position must always be activated with the machine at a standstill.

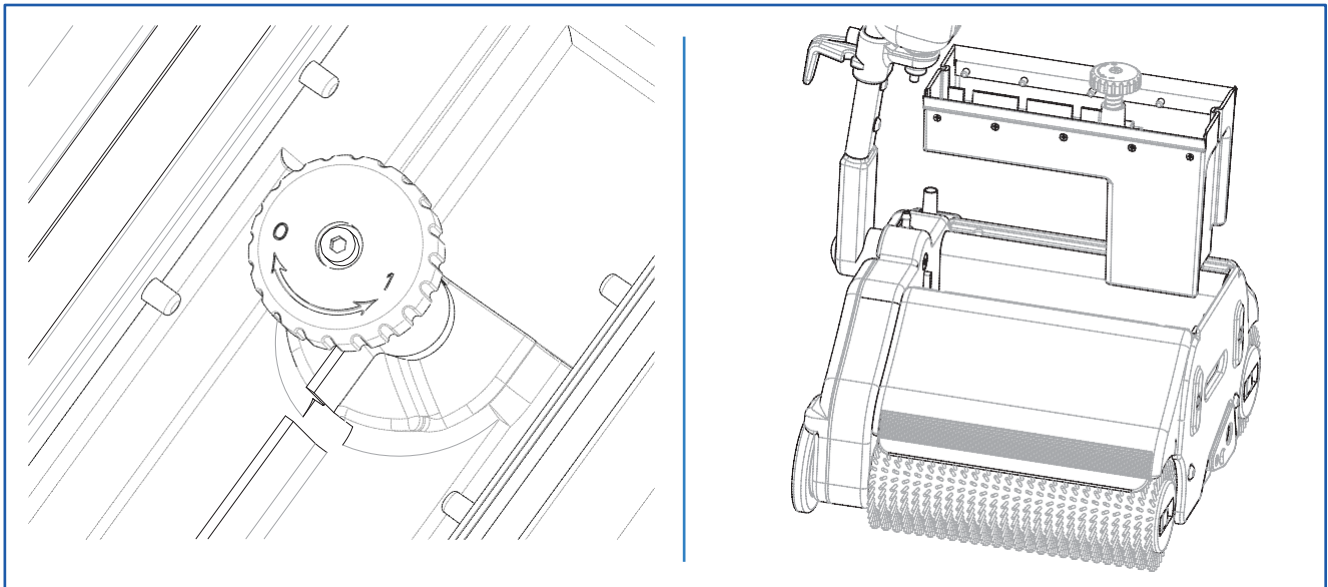


Figure 1.6

MACHINE START-UP

DUPLEX 280i AC:

Plug the cable into an earthed socket. Remove the support tripod before starting up the machine (Fig. 1.7).

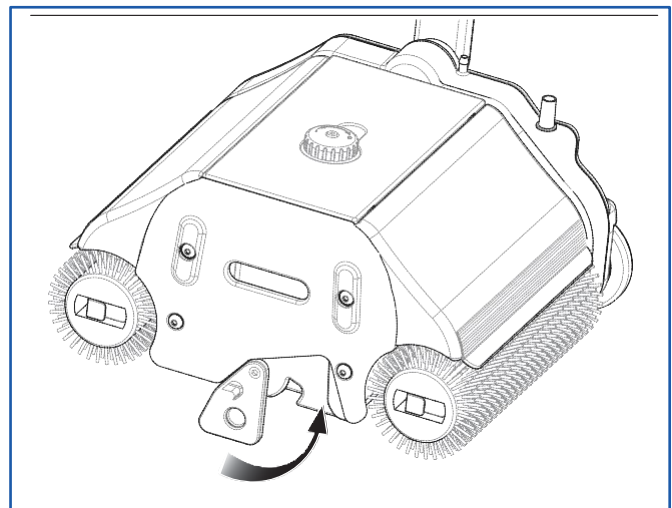


Figure 1.7

DUPLEX 280i AC

Battery DUPLEX 280i DC;

Press the safety and pre-activation switch (S) on the handle: a red light will switch on.

Machine start-up takes place taking hold of the handle and keeping pressed the yellow safety lever (L) (Figure 1.8).

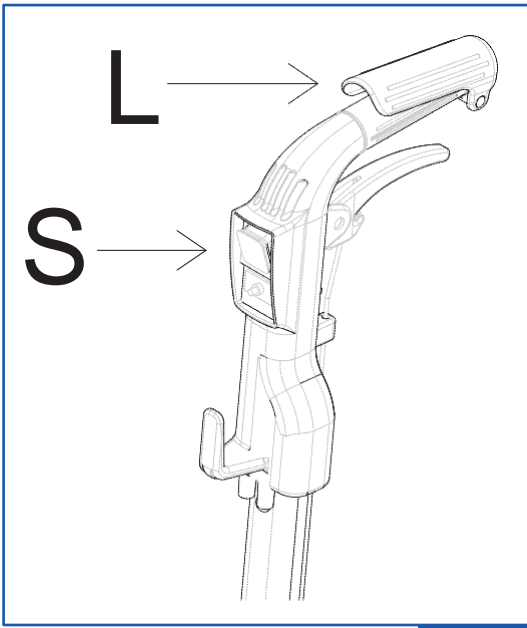


Figure 1.8



LITHIUM ION BATTERY
IMPORTANT PRECAUTION

Switch off the safety and pre-activation “S” switch each time the machine is not used or in case of interruptions or work breaks, even short.

The red lit up switch key discharges the battery, even if it consumes little power.

LOADING LITHIUM ION BATTERY



WARNING

Carefully read information regarding the Lithium Ion battery on paragraph [“1.16 LITHIUM ION BATTERY \(DUPLEX 280i DC\)”](#)

1. The battery can be charged when it is out or into its housing on the machine.
2. Insert the Battery charger plug into the charger socket (X).
3. When the battery is discharged its LED turns red.
4. The Battery charger LED turns green when the battery is charged.
5. The PCB electronic system incorporated into the battery can stop machine operation immediately when the battery power is low. If the PCB does not trigger, use the machine as long as you notice a reduction in the rpm and in brush performance, then stop the machine and do not insist or wait for the machine to stop on its own.



WARNING

DO NOT attempt to re-start the machine if the battery is discharged. Immediately switch off the pre-activation (S) switch (Fig. 1.8).

BATTERY CHARGER

The lithium ion battery requires a special battery charger supplied with the machine. The charge lasts about four hours. When the charge is complete you do not need to remove the battery from the battery charger as it can be left either inserted into the battery or into the power socket without time limits or problems.



EXTREMELY DANGEROUS!!!

DO NOT USE DIFFERENT BATTERY CHARGERS THE USE OF BATTERY CHARGERS USED FOR COMMON LEAD BATTERIES, GEL BATTERIES, CAR TOWING BATTERIES, CAR BATTERIES ETC. CAN SERIOUSLY DAMAGE THE LITHIUM ION BATTERY OR CAUSE IT TO BURST VIOLENTLY

FITTING THE BATTERY TO THE MACHINE

- Insert the battery on the handle chromed rod in its seats of support (A).
- Fasten it screwing knob (T)
- Plug the plug (U) into the battery socket (V)
- If the battery is charged the machine can work.
- **W** = Safety fuse: 15 amp. mm. 5x20.
- **X** = Socket to plug the Battery charger.



WARNING

If the machine does not start in the rare event of greater friction of the brushes due to very rough flooring, carpets or long hair rugs, raise the machine slightly on one side to make the motor start-up easier.

To gain more stability and control of the machine, grip the handle and lower it in one of the two directions before starting up the machine.

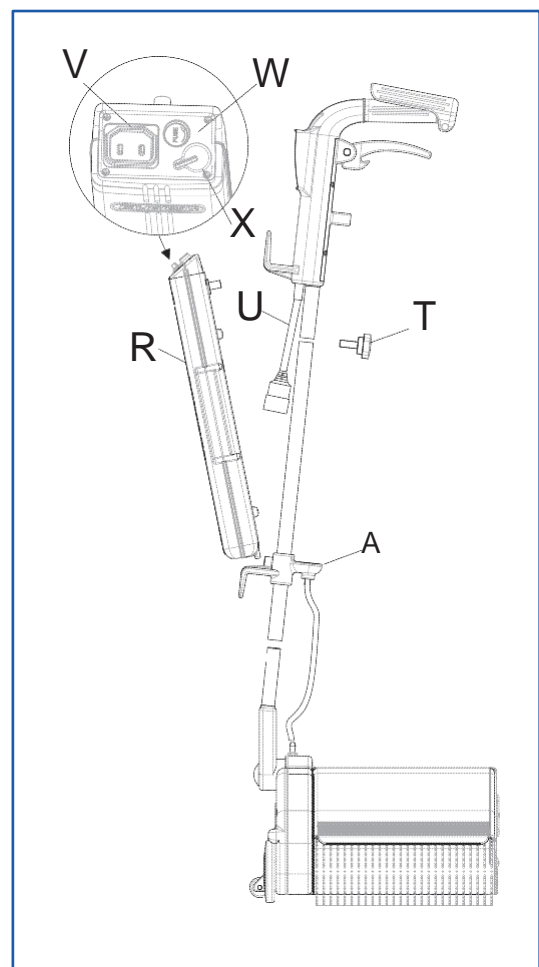


Figure 1.9

Move it forward in a straight line following the washed track (see Fig. [“1.13” - page 23](#)).
 Activate the lever under the handle at short intervals to dispense a minimum quantity of washing liquid, taking care not to wet too much and/or flood the floor.
 Reversing the handle from right to left and vice versa, allows DUPLEX machines to work in both directions and reach the opposite ends of every room, without requiring the machine to be moved from its position (Figure 1.10).

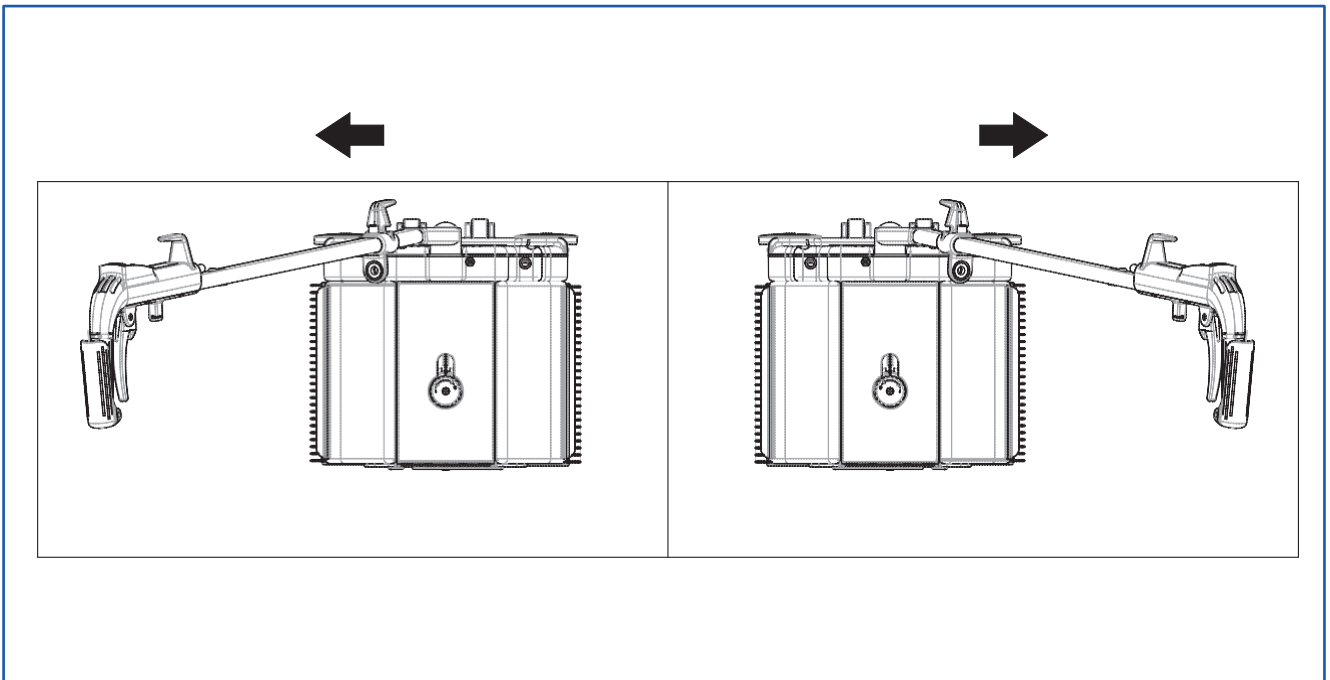


Figure 1.10



IMPORTANT

Carry out the following procedure very carefully.

For safety reasons, when the machine is not used or in case of a temporary stop of cleaning operations, disconnect the power supply to deactivate the machine electric circuits using the pre-activation switch “S” (Figure [“1.8” - page 19](#)), the indicator light will switch off .

SUPPORT TRIPOD AND FOR BRUSH PROTECTION

When you have finished using the machine, place it on the support tripod to prevent the brushes from getting deformed if they rest on the floor.

The tripod is at the end of the machine and can be put in position raising the machine slightly on one side and making it turn towards the floor (FIGURE 1.11).

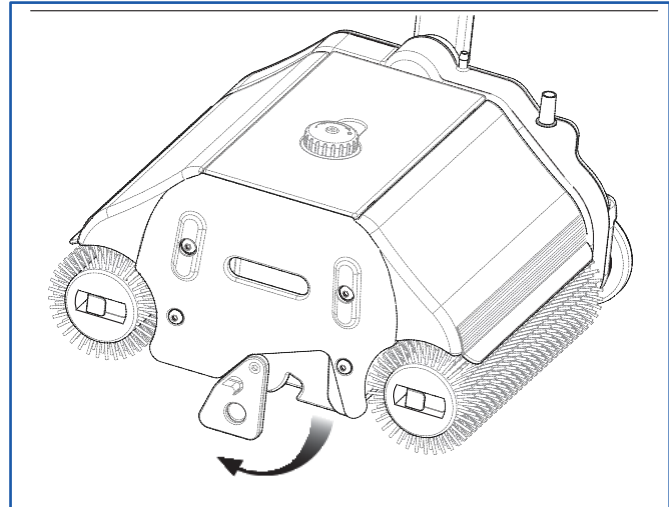


Figure 1.11

MOTOR PROTECTOR

The “Motor Protector” (MP) (Figure 1.12), is a safety device which stops the machine in case conditions occur that overload the motor (e.g. foreign bodies caught in the brushes which can prevent their rotation, locking of the brushes for failed start-up due to great friction with the floor, mechanical fault, electric motor fault, poor supply of power, overheating, etc.).

DUPLEX 280i AC: Disconnect the machine from the power socket before removing any foreign bodies caught in the brushes.

Battery DUPLEX 280i DC: Unplug the plug from the power socket on the lithium ion battery before removing any foreign bodies caught in the brushes.

After checking and possibly eliminating the cause which led to motor overload, press the “Motor protector” (MP) button after about 2 minutes to restore machine operation.

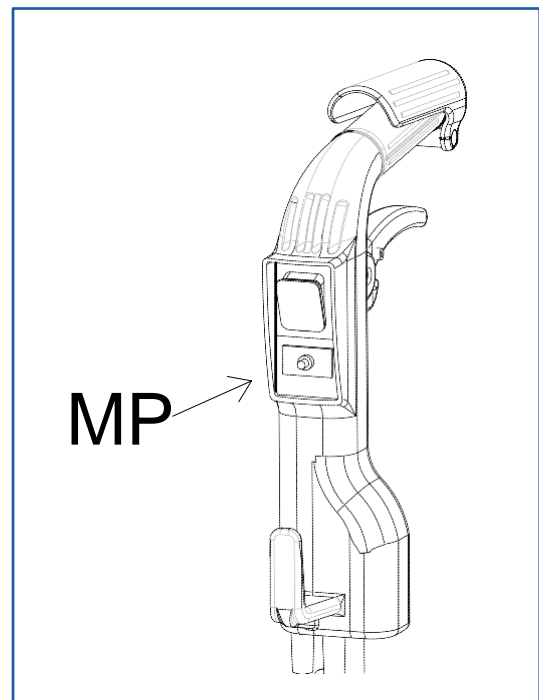


Figure 1.12



Only for DUPLEX 281i AC:

PAY ATTENTION TO THE POWER CORD

We recommend keeping the power cord away from the brushes when using the machine to avoid damaging them.

1.10 HOW TO WASH FLOORS

Stage 1

1. From the starting position, move forward towards the corner as indicated in the figure.
2. When you have reached the corner, move back with the machine and keep cleaning the lane until you reach your starting position.
3. From the starting position move to the second lane to wash slightly overlapping the area you have cleaned before.
4. Repeat this operation until you complete stage 1.
5. Clean the outer edge on the opposite side of the cleaning area, reversing the machine.

Stage 2

6. Reverse the machine cleaning direction using the handle.
7. Repeat the operations described in Stage 1.

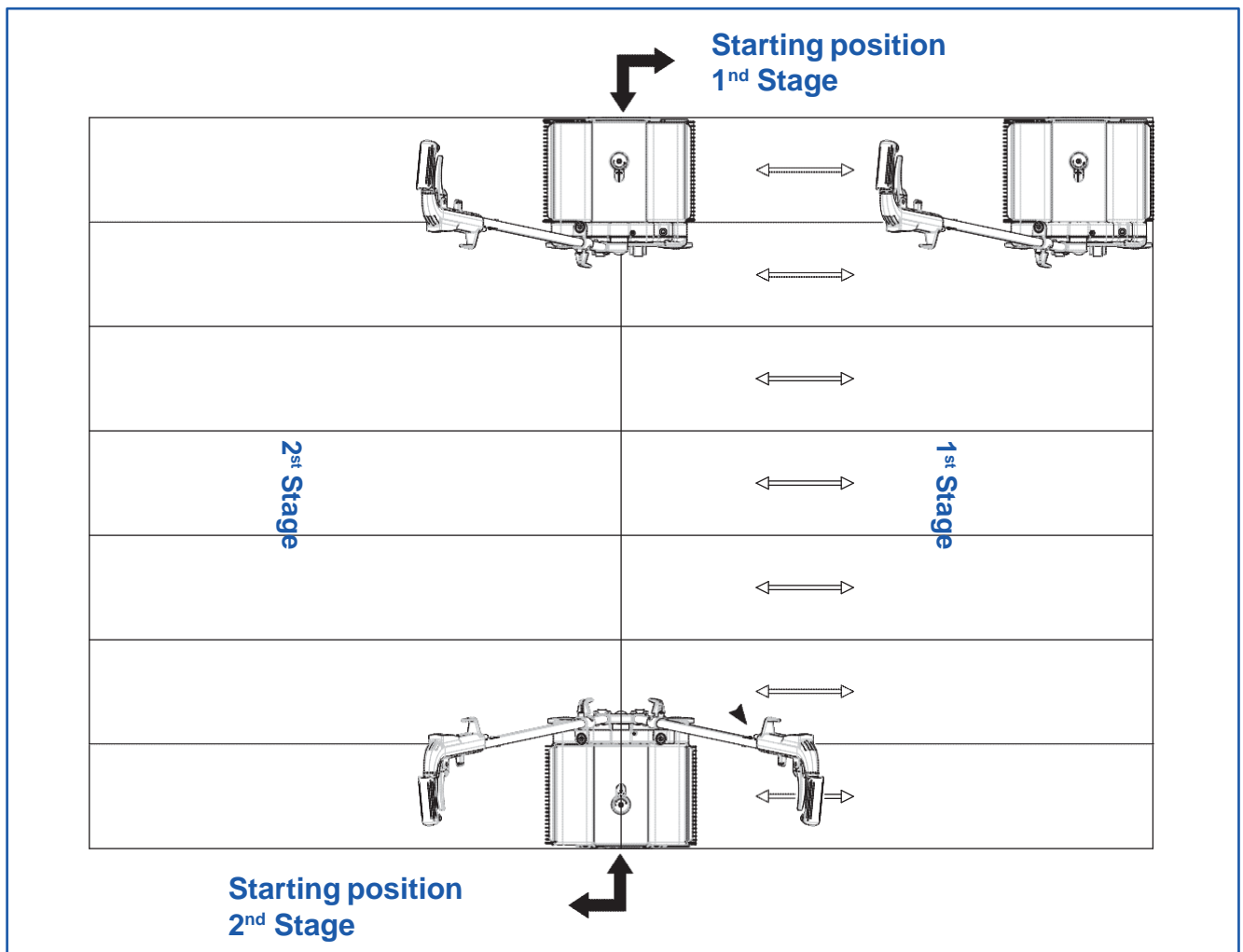


Figure 1.13

1.11 Cleaning and maintenance of the brushes

The **DUPLEX 280i** allows brushes to be removed and replaced in just a few seconds by means of its unique and patented “Trigger fitting” (Figure 1.14).

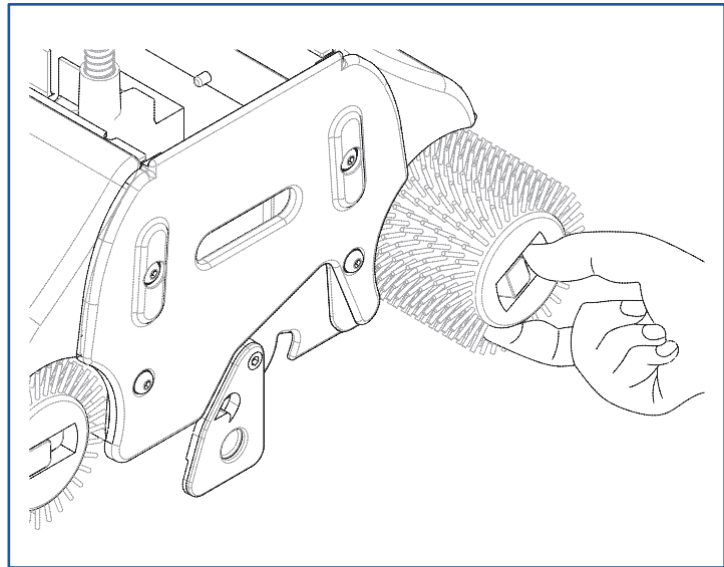


Figure 1.14

This way, you can insert quickly the brushes most suited to the type of cleaning required:

BRUSH colour	Use
YELLOW	Cleaning of carpets, rugs or parquet flooring
GREY	All-purpose for light dirt of all types of flooring smooth or embossed: tiles, ceramic tiles, marble, smooth industrial flooring, Even, Glassy Plastic (linoleum, etc.)
BLACK	Cleaning of heavily dirty flooring.
BROWN	Polishing



WARNING

DUPLEX 280i AC:

REMOVE THE PLUG FROM THE POWER SOCKET BEFORE CLEANING AND REPLACING BRUSHES.

Battery DUPLEX 280i DC:

REMOVE THE PLUG FROM THE POWER SOCKET ON THE BATTERY

BRUSH MAINTENANCE:

Brushes require little routine maintenance. The high rotation speed during cleaning manages to centrifugate dirt and keep them clean and efficient at all times.

However, check their state, and if necessary, proceed as follows:

1. Remove the brushes from the machine;
2. Immerse them in a container of cold or lukewarm water and let them soak for a few hours;
3. Stir and rinse well;
4. Re-fit the brushes in reversed position in relation to the one they had before. This operation is required to correct the bending of the bristles.

5. BROWN POLISHING BRUSHES:

Wash the brushes after each use to keep them in good working order. Immerse them in lukewarm water and diluted degreasing detergent. Stir and rinse. Use them only when thoroughly dry.

BRUSH DEFORMATION

Wear and storing the machine without lowering the tripod (1 Figure 1.15) can cause the brushes to warp resulting in bouncing and/or vibrations during work stages.

Replace the brushes to prevent damaging the machine.

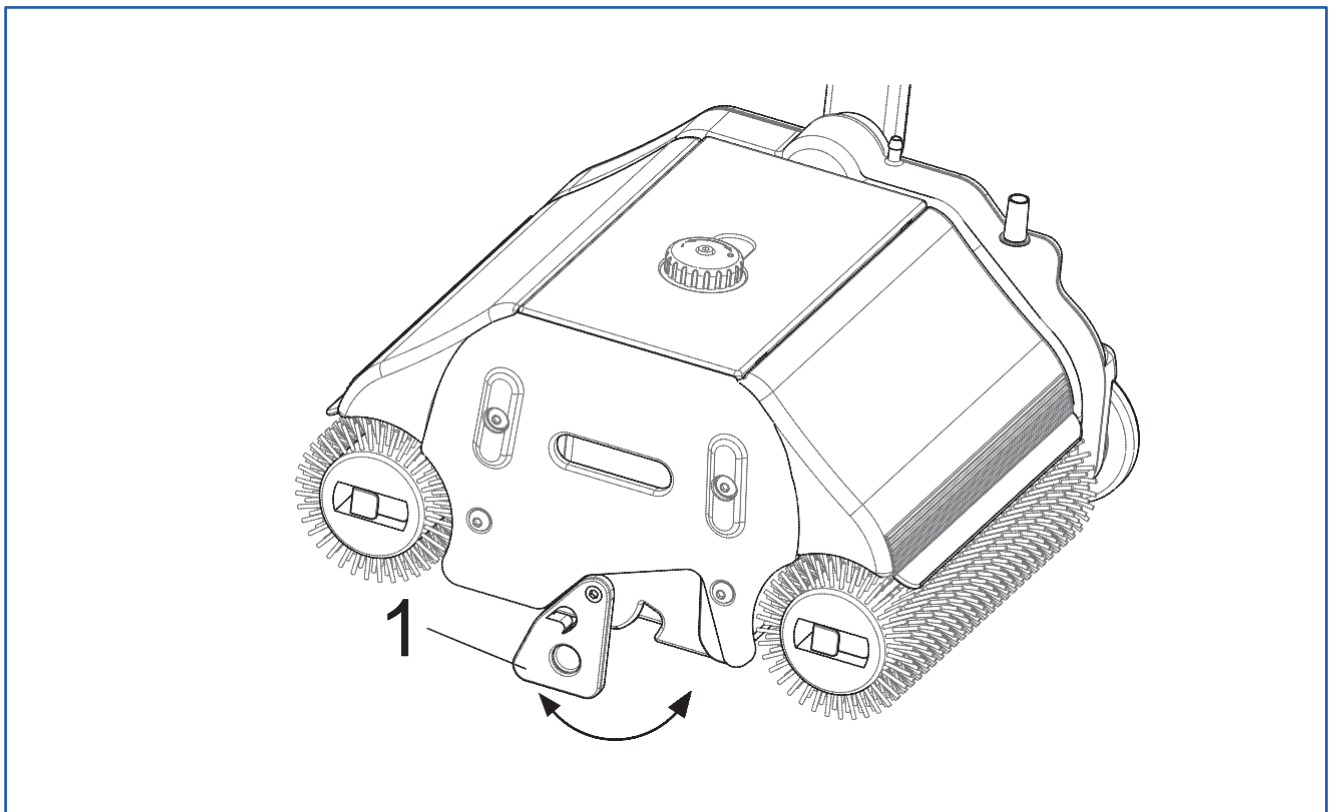


Figure 1.15

1.12 CLEANING THE MACHINE

All mechanical and electrical parts of **Duplex 280i** machines are sealed and enclosed in a light alloy casing and do not require maintenance.

The casing is closed by a robust cover with a rubber gasket and fastened with six screws. The cover prevents dust, water, dirt or the like from entering.

To carry out routine maintenance of the machine external parts, proceed as follows:

1. **DUPLEX 280i AC**: disconnect the power cord plug from the socket.
2. **DUPLEX 280i DC**: lithium ion battery: Remove the battery.
3. Remove the recovery tank.
4. Remove the two guards covering the brushes and wash under running water, using a flat brush. Thoroughly clean all corners and dry.
5. Remove the detergent tank on the handle rod, empty it and rinse its interior.
6. Remove the brushes and clean them (Figure [“1.14” - page 24](#))
7. Carefully clean the rest of the machine, the upper and lower part including the motor with a sponge dipped in water. Dry.
8. Re-fit the removed parts when they are dry.
9. We recommend you to lubricate the rubber conveyors frequently using an ordinary silicone oil spray available in shops.
10. Turn the knob to "1" before storing the machine and as you are reassembling the recovery tank (Figure [“1.6” - page 18](#)).



IMPORTANT!

These simple operations require just a few minutes and are essential to keep the machine in good working order at all times.

1.13 TROUBLESHOOTING TIPS

WET STRIPES ON THE SIDES

- Excessive liquid dispensed
- Irregular paths are covered failing to follow the instructions on paragraph [“1.10 HOW TO WASH FLOORS” - page 23](#).
- Recovery tank raised (1) turn the knob to “0” (Figure [“1.6” - page 18](#)).
- Recovery tank scrapers dirty or worn. Replace.

Liquid flows continuously

- Valve in the tank remained open because the clamp screw under the handle lever has slid or moved. Loosen the screw and adjust.
- Foreign bodies inside the valve. Disassemble and clean.
- Valve rubber seal worn. Replace.

The dirt is not picked up

- Recovery tank raised (1) or not properly inserted into its housing.
- Recovery tank with dirty or worn scrapers. Replace scrapers.
- Worn brushes.
- Cleaning liquid not coming out.

Does not start up

- Sometimes the machine does not start given the strong friction of the brushes. Lift slightly tilting the handle (see “Warning” page 20).
- Scrapers left resting on and stuck to the conveyor belts by the dry residual dirt deposited from the previous cleaning operation. Turn the knob to (1) to raise the recovery tank and separate it from the conveyors. Clean and then start up returning the knob to (0).
- “Motor Protector” tripped. Press the (MP) button (page 8) to re-activate it. Reactivation occurs approx. after 2 minutes.
- Faulty motor.
- “Start&stop” button switch tripped, replace.

DUPLEX 280i AC

- Power cord faulty or plug not correctly inserted into the socket.
- Power cord tripped.
- Voltage too low.
- Start-up capacitor tripped or in short circuit.

Battery DUPLEX 280i DC

- Battery fuse tripped. Remove the fuse cap on the battery and replace with an identical one of 15 Amp. Do not use fuses with different values.
- If the fuse trips again, search for the fault on the machine.
- Power cord plug not correctly inserted into the battery.
- Discharged battery: re-charge or replace with a fully charged spare battery.

VIBRATION DURING CLEANING

Brushes worn out, replace them. (see paragraph [“1.11 Cleaning and maintenance of the brushes”](#) - page 24)

1.14 WARRANTY

DUPLEX 280i AC with power cord Lithium ion battery DUPLEX 280i DC

The commercial warranty issued by the seller has a validity of “12 months”

Warranty acknowledgement can be achieved showing a photocopy of the receipt or invoice along with the machine serial number.

Failure to send this document entails the non-acknowledgement of the warranty.

The warranty does not cover expendable components such as:

- Brushes.
- Scrapers.
- Conveyor belts.
- Power cord.
- Casing connection cable.
- Safety handle and its switch.
- The two large transfer wheels.
- The two small wheels and their casing to which they are fastened.
- Plastic or metal parts damaged out of negligence.
- Lithium ion battery.
- Battery charger.

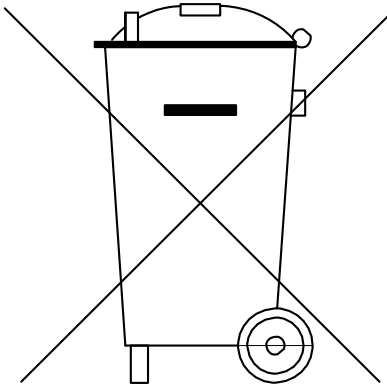
FORFEITURE OF THE WARRANTY

The warranty will be invalid in the following cases:

- The machine is used for purposes not complying with those for which it has been designed or is used improperly.
- Failure to observe the indications for use described in the manual.
- The machine gets damaged due to the use of unsuitable detergents or aggressive and unsuitable chemical products, like strongly acid products: Static dissipative detergents, Hydrochloric acid, trichloroethylene, methyl ethyl ketone, acetone, pure ammonia, bleach or pure sodium hypochlorite, etc.

1.15 DISPOSAL AND WASTE SEPARATION

Pursuant to art. 13 of Legislative Decree of 25th July 2005, no. 151 “Fulfilment of the Directives 2002/95/EC, 2002/96/EC and 2003/108/EC on the restriction of the use of certain hazardous substances in electrical and electronic equipment and disposal of their waste”.



The crossed-out bin symbol on the equipment indicates that at the end of its lifespan, the product, must be collected separately from other waste.

The user must deliver the DUPLEX 280i, at the end of its lifespan, to an appropriate collection point for the recycling of electric and electronic equipment or deliver it back to the retailer when purchasing a new equivalent machine on a one-to-one basis.

Correct disposal of the DUPLEX 280i for its recycling and treatment will help prevent potential negative consequences for the environment and human health, and will help recycling the materials of which the machine consists.

Disposal of lithium ion batteries

The **DUPLEX 280i DC** is equipped with a lithium ion battery inserted in an appropriate fireproof plastic enclosure, hermetically closed and easy to remove from the machine by simply unscrewing a knob manually.

The battery, at the end of its lifespan, must be disposed of separately from other waste.



WARNING

Do not burn lithium ion batteries as they could explode or blow up violently. Carefully collect the batteries for disposal. Avoid them being short-circuited or their enclosure being compacted or destroyed.

Check and follow all local, regional and national laws on the disposal of these materials. The user is legally responsible for hazards generated during the disposal of batteries and preservation of material resources which enable the recovery of valuable materials.

Abusive disposal of the DUPLEX 280i by the user entails the application of penalties according to the regulations in force. Professional users who decide to dispose of the DUPLEX 280i at the end of its lifespan and purchase a new equivalent machine with the same features can agree upon the collection of the old DUPLEX 280i and delivery of the new machine.

1.16 LITHIUM ION BATTERY (DUPLEX 280i DC)

FOREWARD

New lithium ion batteries have a higher energy density if compared to conventional batteries. They are more compact in size and weigh less compared to old lead batteries in their various variations, lead acid, gel lead, calcium lead and hermetic batteries.

If, on one hand, lead batteries cost less, on the other they are very heavy and require specific maintenance. They produce **hydrogen** when recharging (pollutant gas) and contain lead (**a cancer causing and tetragonous agent**). They require to be disposed of according to severe and precise methods. Our choice to use **lithium ion** batteries to supply the **DUPLEX 280i DC** is a major step forward, bearing in mind the future as we are among the first to use a type of long-range technology, able to activate the first floor cleaner worldwide. The machine is fitted with two powerful and smart cylindrical brushes along with a patented high performance collection system of solid and liquid dirt.

As for all other lithium ion batteries used in other devices: computers, mobile phones, vehicles, towing vehicles, etc. their durability over time is determined by the number of charging cycles, which sometimes exceeds 2,000 cycles.

Re-charging can take place at any time without requiring them to be fully discharged by means of their appropriate battery charger. Should they be inadvertently charged using a conventional battery charger for lead batteries, they will be irreparably damaged.

PRECAUTIONS

The lithium ion battery autonomy can be compromised if it is deposited, used or recharged in places at temperatures exceeding 40°C. On the other hand, using and storing the battery in a cold environment will reduce its duration, but in this case it is a fleeting issue as battery capacity is restored by recharging it.

Exposing the battery to sun rays can damage it irreparably.

PARKING THE MACHINE WITH BATTERY

If the machine is not used for long periods of time and is left parked, the battery might self-discharge. Therefore, it needs to be recharged every 40 days.

REPLACING OR DISPOSING OF THE BATTERY

At the end of its lifespan, do not burn lithium ion batteries as they could explode or blow up violently.

Do not dispose of with other waste. Dispose of batteries delivering them to the authorised collection points.

IMPORTANT SAFETY NOTES

- A) Use the supplied lithium ion battery only on the DUPLEX 280i DC.
- B) Do not expose to direct sunlight.
- C) Keep away from heat sources: radiators, heaters, stoves, mantelpieces, etc.
- D) Recharge using the appropriate battery charger for the supplied lithium battery.
- E) Do not use a battery charger for lead batteries. Doing this damages the battery, which might explode or blow up violently endangering people's safety.
- F) Do not try to open the battery fireproof plastic enclosure.
- G) Do not break or pierce the battery pack: Extremely dangerous!
- H) Do not burn: violent explosion or blow up hazard.
- I) Do not weld the cables at the ends of the batteries.
- J) Do not short circuit positive and negative terminals.
- K) Stock and store in a cool and dry place.
- L) For their correct disposal, see and follow all local, regional and national laws on the disposal of these materials. The user is legally responsible for dangers generated during battery disposal.

BRIEF HISTORY OF LITHIUM ION BATTERIES

Lithium ion batteries take advantage of the high electro-chemical potential of Lithium (compared to its low overpotential) and their low weight. Other advantages lie in high energy (mass and volume), long cycle duration and minimum self-discharge. Moreover, using lithium accumulators you do not run the risk of contaminating the environment as it happens with lead or cadmium accumulators. Recharge times are short and have no memory effect. Even if they require particular chargers, their cost prevents them from being widely distributed even if their use is expanding. Lithium can be found abundantly in nature, even if it never occurs freely because of its high reactivity. It can be found in small amounts in all igneous rocks and salts from mineral springs. Starting from the Second World War, the production of lithium has grown considerably by separating the metal from the other elements of igneous rocks or extracting it from mineral water springs. Lithium comprises the following minerals: Lepidolite, Spodumene, Petalite and Amblygonite. However, the discovery of lithium batteries is not recent. Gilbert N. Lewis manufactured the first lithium ion batteries in 1912, even if they were produced and first launched on the market by Japanese Company SONY in 1991.

NOTE

A series of horizontal dashed lines for taking notes.

European Mark of conformity



Made in Italy



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