INSTRUMENT WASHER
GW1050H
GW1050H-1

OPERATING INSTRUCTIONS MANUAL

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READ THE INSTRUCTIONS MANUAL CAREFULLY

Failure to read the manual, misunderstandings or incorrect interpretation of the instructions herein may result in damage to the appliance. Moreover, such action may also become a source of danger for the user and considerably lower the performances of the machine.

The manufacturer declines all liability for use of the machine differing from that described in this manual.

The machine must only be installed, serviced and repaired by authorized personnel.

The warranty could become void if the machine is used in a way that Fails to Conform to the instructions given by SMEG.

The text and illustrations in this manual are for informative purposes only. The contents and appliance described herein may be liable to modification without prior notice. In no case may SMEG be held liable for any direct or indirect damages deriving from or in relation to use of this manual.

MANUAL NO.				
REV	**ECR/ECN**	**DATE**	**DESCRIPTION**	**BY**

Do you need Information or Assistance for products from the SMEG Instruments Division?

If so, please contact us from 8 a.m. until 6 p.m. (Rome Time) at the following numbers and addresses:

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+39 0522 821 592	FAX
http://www.smeg-instruments.com	Internet Home Page
instruments@smeg.it	Service E-Mail Address

Our Sales Office staff will give you all the info you require about prices and offers. You can also view our entire production range in our web site along with any innovations.

Our Technical Assistance Office staff can tell you how to operate your appliance in the correct way or put you in contact with your nearest Authorized Assistance Centre if necessary.

International customers, please contact your local SMEG distributor.

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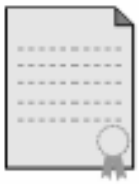
1. INTRODUCTION



This manual is an integral part of the machine.
It must be kept in a good condition and ready to hand for the entire life cycle of the machine. We advise you to *carefully read* this manual and all the instructions it contains before using the appliance.
This appliance conforms to the **EEC Directive 93/42** currently in force.

The appliance has been made in order to:

- **wash Surgical and Dental Instruments with Thermal Disinfection(*);**
- **the appliance cannot be used to sterilize instruments or any other device.**

All other uses are considered improper.
The manufacturer declines all liability for uses differing from those indicated.

The manufacturer declines all responsibility for any possible damage caused by the washing of instruments whose manufacturers have not authorized to be automatically decontaminated.

The instrument washer complies with all the requisites established by the current safety standards governing electrical equipment. Technical inspections must only be made by specialized and authorized personnel: BESIDES VOIDING THE WARRANTY, REPAIRS MADE BY UNAUTHORIZED PERSONNEL MAY REPRESENT A DANGER HAZARD FOR THE USER.

(*) *Treatment in the Instrument Washer can never be a substitute for sterilizing.* Disinfection in the instrument washer is carried out to reduce the risks sustained by the persons who handle surgical instruments when preparing them for sterilization and to guarantee a better successive sterilization process.

2. GENERAL RECOMMENDATIONS

Never use solvents such as alcohol or turpentine in the appliance as they could cause an explosion. Never put instruments stained with ash, wax or paint in the appliance.

- Do not rest or sit on the open door of the instrument washer as this could cause the appliance to overturn and thus represent a danger hazard for persons.

- Never ever touch the heating element immediately after a washing cycle has terminated.

- The heating element could become slightly darkened during use of the instrument washer, even to a localized extent. This should be considered normal as it depends on the operating mode and does not impair the way the appliance works.

- At the end of its working life, the appliance must be rendered unusable. Cut off the power cable after having removed the plug from the power socket. The appliance must then be consigned to an authorized disposal centre.

- If the appliance operates in a faulty way, unplug it from the electricity mains supply, shut off the water tap and contact your nearest authorized Service Centre.

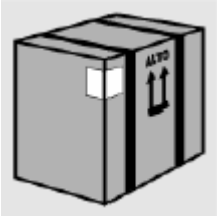
Only open the door after the washing cycle has terminated.
If you open the door while a program is in progress, hot water, steam and other liquids will spill out and may injure the user. Only authorized and well-informed personnel are allowed to use the machine.

3. GENERAL SPECIFICATIONS

3.1. TECHNICAL FEATURES

MODELS	GW1050H	GW1050H-1
ELECTRIC POWER SUPPLY		
VERSION	Triphase	Monophase
TYPE OF VOLTAGE [tolerated variation ±10%]	400V ~3/N/E	230V ~1/N/E
FREQUENCY [HZ]	50	
POWER RATING [KW]	7 kW	2,8 kW
AUTOMATIC SWITCH ON MACHINE	In 16 A 3P+N 400V Icn 4500 A	In 16 A P+N 230V Icn 4500 A
WATER SUPPLY		
TYPE OF WATER	COLD WATER	DEMINERALISED WATER
PRESSURE [BAR]	2 – 4	2 - 4
TYPE OF CONNECTION	¾"	¾"
MAX HARDNESS [°F] / CONDUCTIVITY[µS/CM]	42°F	Max 20µS
IRON [PPM] FE MAX	< 0.5	
DRAIN	FROM FLOOR LEVEL (on which machine is placed)	
HEIGHT [MM]	Min 400 Max 800	
DIAMETER [MM]	Min 40	
DIMENSIONS		
HEIGHT	850	
DEPTH	630	
WIDTH	600	
NET WEIGHT [KG]	65	
Material used	**Washing chamber AISI 316L**	**External cladding AISI 304**
ENVIRONMENTAL CONDITIONS		
USE	Indoor	
ALTITUDE	Up to 1000m	
TEMPERATURE	From 5°C to 40°C	
RELATIVE HUMIDITY	80% for temperatures up to 31°C with linear diminution down to 50% at the temperature of 40°C	
INSTALLATION CATEGORY	II	
CLASS TO WHICH APPLIANCE BELONGS	IIa(in compliance with the classification criteria established by DIRECTIVE 93/42)	
POLLUTION DEGREE	2	

3.2. LIFTING AND HANDLING



Before it leaves the factory, the base of the machine is fixed to a pallet which is then used to lift and transport the machine itself.
The machine must be handled with a fork-lift truck or transpallet.

Do not use appliances damaged by transport! Consult your dealer if in doubt.

The appliance must only be installed and connected by personnel authorized by the manufacturer.

3.3. DOOR LOCKING SYSTEM

After unpacking, pay attention to the following:
the machine is equipped with an automatic door locking/unlocking system.

The door is locked. Don't force the door, but follow the procedure below:

. connect the machine to the mains supply;

. push the button with the symbol ⏻

. push the button with the symbol of the key and after some seconds the door opens

In order to open the door without connencting the machine to the mains, the manual unlocking procedure must be executed. Please, see §3.4 for further details.

3.4. MANUAL DOOR UNLOCKING

In case of emergency or in case of a power failure the door may be manually opened by means of inserting a small screwdriver under the handle as shown below:

Please, insert the screwdriver carefully into the yellow marked hole till the characteristic "CLACK" is heard.

4. INSTALLATION

IMPORTANT: The machine must be positioned against the wall (minimum distance 10 cm) and must be installed by a technician authorized by the manufacturer. The technician who installs the machine is responsible for the appliance operating correctly after it has been installed. He is also obliged to provide the user with all the information required to use the machine in the correct way. All adjustments, servicing and so forth, must be carried out with the appliance disconnected from the electricity main.
The scratch-proof film must be removed from the external steel surfaces when the appliance is installed.

IT IS STRICTLY FORBIDDEN FOR UNAUTHORIZED PERSONS TO USE THE MACHINE.

4.1. POSITIONING

The side panels of the machine must adhere to the adjacent furniture and care must be taken to leave space at the rear: it is therefore advisable for the wall at the back to be made of brickwork or some other impermeable material.

The machine has pipes to supply and drain off the water. These can be positioned towards the right or left, depending on the installation requirements.
The machine can also be installed under a work top: this operation must be carried out by specialized personnel.

4.2. LEVELLING

Once the machine has been set in position, it must be levelled until horizontal (2 degrees tolerance allowed) by either screwing in the feet or unscrewing them.
Correct levelling will ensure that the machine operates in the right way.

4.3. CONNECTION TO THE WATER SUPPLY

Prevent the risk of clogging or damage to the appliance: if the water pipe is new or has remained unused for a long period of time, make sure that the water is clean and clear and free from impurities before connecting the machine to the water supply.
The machine is provided with two water supply hoses: one for cold water and the other for demineralised water. If equipped with the steam condenser, there is another supply hose to take into account.
The pipes are pre-engineered for connection to a cock with 3/4" gas threaded union on both ends.

Insert the supplied filters **A** before connecting the other ends of the pipes to their respective taps (see *fig. 4.3.1*)

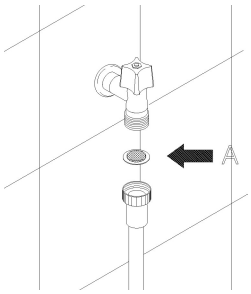


fig.4.3.1

It is advisable to allow the water to run in order to drain off any rusty deposits or sludge if connections are made with new pipes.

WARNING

- Make sure that the inlet pressure of the mains water is within the operating limits:

min. 2 bar max 4 bar

☞ **The water shut off valves must be accessible**

☞ **Always shut off the water supply when the machine is not being used**

CAUTION

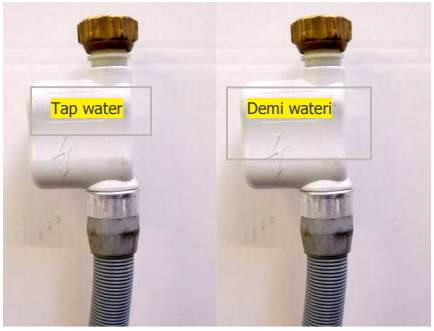
Chemical characteristics of the water that are not compatible with a good washing process

If the water contains more than 2 ppm of iron Fe^{2+}/Fe^{3+} and/or the hardness of the water is more than 45°F (French degrees), it must be pre-treated by installing a deferrization and/or softening system to which the machine must then be connected.

4.4. WATER SUPPLY

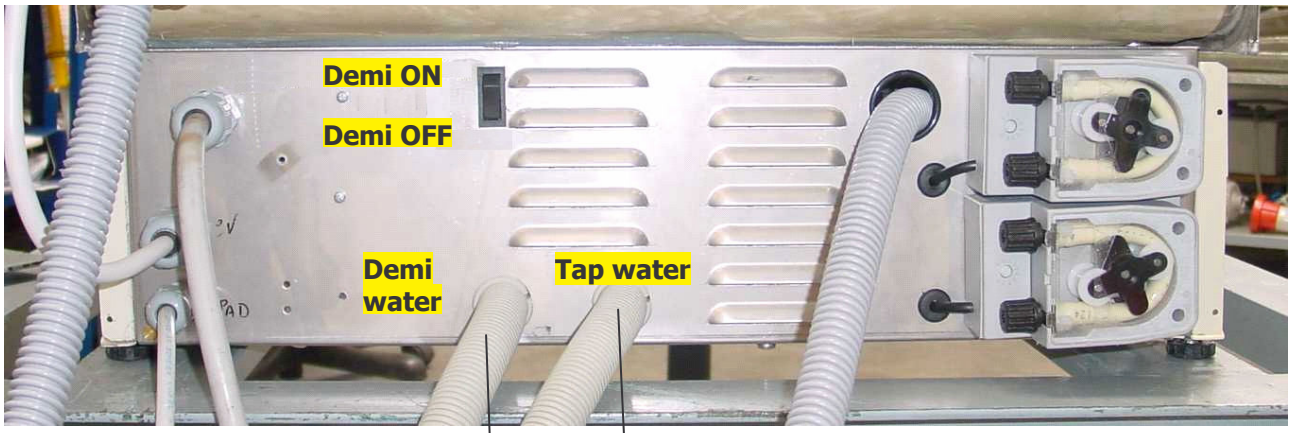
This machine is able to use tap water to wash and demineralised water to rinse.

If the demineralised water is not at disposal, don't connect the demi hose and set the water switch off.



position **ON**

Rinse with demi water



position **OFF**
Rinse with tap water

Tap cold water hose

Demi water hose

4.5. NON PRESSURIZED DEMINERALISED WATER CONNECTION

The connection to a non-pressurized demineralised water supply (e.g. gravity tank) is possible only by installing the special demineralised water pump, called 'PAD' (cod. Smeg 901430).

The PAD, optional booster pump, ensures the correct inlet water supply pressure within the pre-set filling time.

This accessory can be fitted on any machine and must be mounted on the back of the machine.

If the PAD pump is used, the water supply pressure must be less than 1 bar.

We advise having the pump installed by a specialized technician, who should follow the instructions provided. **The manufacturer will accept no responsibility for any possible damage caused by an incorrect installation performed by an unauthorized technician.**

WARNING
Make sure that the demineralised water pressure is less than or equal to 0.9bar. The manufacturer declines every responsibility for higher pressures.

4.6. WATER DRAIN CONNECTION

The internal diameter of the hose is ½" so it can be connected to any standard ½" hose adapter.

General rules for installing outlet

The washing water outlet hose must be placed with its curved section hooked onto the edge of a sink or waste pipe. A drain pipe with siphon should be used.
The following precautions should be observed during installation:

- As the water drain temperature may reach about 95°C the end of the outlet hose must be connected firmly to the drain by using clamps.

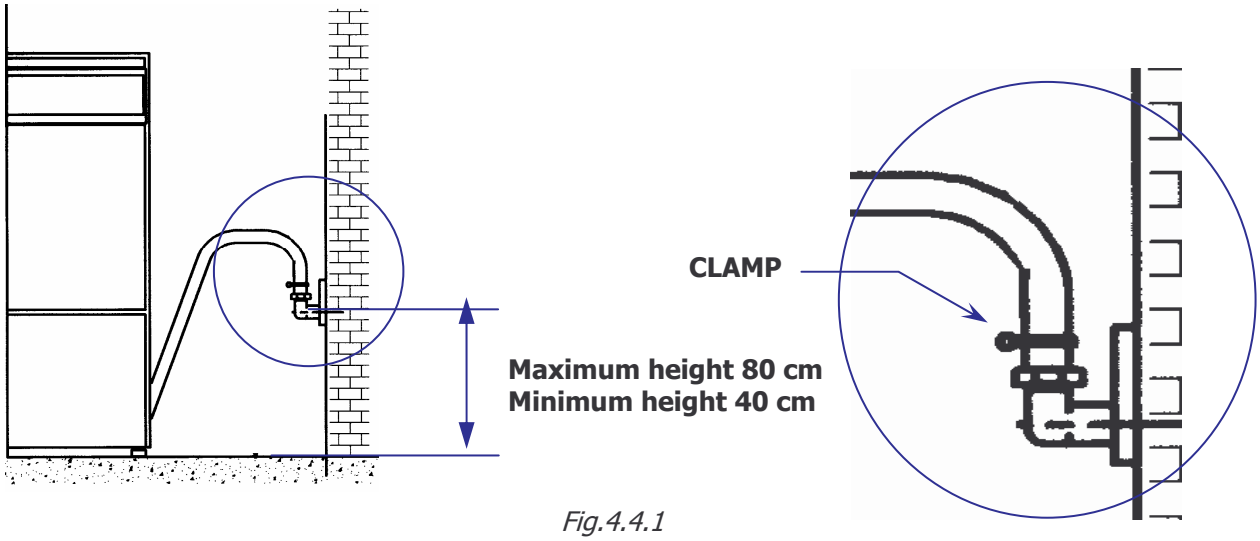


Fig.4.4.1

- The outlet hose must not have any tight bends liable to obstruct the flow;
- The end of the outlet hose must not be placed either more than 80cm or less than 40 cm above the surface on which the machine is installed;
- The end of the hose must under no circumstances be immersed in water;
- The internal diameter of the waste pipe must be at least 40 mm;
- We recommend installing a waste pipe of diameter 50 mm;
- If a waste pipe extension is used, it must not be longer than 1 meter and must have the same internal diameter. In this case the maximum height of the free end must be reduced from 80 cm to 50 cm.

WARNING
The drain connection must comply with international standards.
Our company will accept no liability for pollution caused by the machine.

4.7. ELECTRICAL CONNECTION

The machine is designed for connection to the following electrical power supply:

- 3/ N / PE ~ 400V 50Hz.
- 1/ N / PE ~ 230V 50Hz.

WARNING
THE MACHINE IS EQUIPPED WITH A POWER CABLE FOR PERMANENT CONNECTION TO THE ELECTRICAL POWER SUPPLY.

WARNING
It is essential for the electricity main to which the machine is connected to comply with the current standards in force.
Always make sure that the ground connection is efficient.
Our company declines all liability for damage caused by connection to a defective socket that fails to ensure a perfect connection to the general earth conductor, or by a poorly efficient grounding circuit.

5. DESCRIPTION OF THE CONTROLS

All the controls and indicators of the instrument washer are installed on the front panel.

1	**WASHING PROGRAMMES** SELECTOR
2	**ON/OFF** KEY
3	**POWER ON** INDICATOR LIGHT
4	**START/PAUSE** KEY
5	**TEMPERATURE** DISPLAY
6	**DOOR UNLOCKING** KEY
7	**INFORMATION** DISPLAY
8	**TEMPERATURE DISPLAY** INDICATOR LIGHT
9	**DEMINIRALIZED WATER EXCLUSION** INDICATOR LIGHT
10	**LOW SALT** INDICATOR LIGHT
11	**HATING PHASE** INDICATOR LIGHT
12	**RECESSED HANDLE** TO OPEN THE DOOR

SYMBOLES	
	AUTOMATIC DOOR UNLOCKING KEY
°C	TEMPERATURE/TIME INDICATOR
▶ ‖	START/PAUSE
	SALT
	ON/OFF
	HEATING

5.1. WASHING PROGRAM SETTINGS

The instrument washer has a practical display that provides all the information the user needs to know about the functions programmed.

Consult the following table to select the required program. It gives the washing cycle most able to suit the nature of the instruments you need to wash and the degree of dirt involved.
Once you have found the most suitable washing program in the table, turn the PROGRAM SELECTOR knob (1) and select the desired program by setting it to the relative reference number.

The following is an indicative list of the type of washing cycles to which the available programs refer:

1. quick washing program using cold water
2. washing program at 65°C suitable for plastic ware;
3. washing program at 75°C suitable for standard glassware;
4. washing + disinfection at 90°C for 1' (A_0 =600);
5. washing + disinfection at 90°C for 5' (A_0 =3.000);
6. washing + disinfection at 93°C for 5' (A_0 =6.000);
7. washing + disinfection at 93°C for10' (A_0 =12.000);
8. service program: use it to charge the peristaltic pumps with liquid detergent (to be used before using any wash programs).

5.2. THERMAL DISINFECTION IN ACCORDANCE WITH THE PARAMETER 'A_0'

We introduce the **A_0** concept to explain the time/temperature relationship used to draw up the programmes. According to pr EN ISO 15883 and the recommendations of the Robert Koch Institute (European authority on the subject), an **A_0** of 600 is considered as the minimum standard for non-critical medical devices, i.e. for those that only come into contact with uninjured skin. A further condition required is that microbic contamination must only be slight and there must be no heat-resistant pathogens present. An **A_0** value of 600 can be obtained by maintaining a temperature of 80°C for 10 minutes or 90°C for 1 minute or again, 70°C for 100 minutes.
If the medical devices are contaminated with heat-resistant viruses, such as those of hepatitis B, the value of **A_0** must be at least 3000. This can be obtained by maintaining a temperature of 90°C for 5 minutes.
An **A_0** value of 3000 is considered the minimum value to apply to all medical devices considered to be critical.
Programs that include thermal disinfection have therefore been designed to offer the following **A_0** values:

Temperature – time	**A_0**
90°C 1'	600
90°C 5'	3000
93°C 5'	6000
93°C 10'	12000

The formula to calculate **A_0 is given as follows**

$$A_0 = \tau \bullet 10^{\left(\frac{T-80}{10}\right)}$$ where:

τ = holding time in seconds at the disinfection temperature
T = disinfection temperature in Celsius degrees

5.3. PROGRAMMES DESCRIPTION

DESCRIPTION OF THE PROGRAMMES								
PROGRAM NUMBER	PROGRAM NAME	PHASE 0	PHASE 1	PHASE 2	PHASE 3	PHASE 4	PHASE 5	CYCLE TIME
1	PREWASH	WATER SOFTENER RESINS RINSE	PREWASH WITH MAINS WATER FOR 5’		.	.	.	8’
2	WASH 65°C	WATER SOFTENER RESINS RINSE	PREWASH WITH MAINS WATER FOR 5’	WASHING WITH MAINS WATER 65°C/5’ AND DETERGENT	NEUTRALIZING WITH ACID AGENT 3’	RINSING WITH DEMINERALIZED WATER FOR 2’	RINSING WITH DEMINERALIZED WATER 60°C	55’
3	WASH 75°C	WATER SOFTENER RESINS RINSE	PREWASH WITH MAINS WATER FOR 5’	WASHING WITH MAINS WATER 75°C/3’ AND DETERGENT	NEUTRALIZING WITH ACID AGENT 3’	RINSING WITH DEMINERALIZED WATER FOR 2’	RINSING WITH DEMINERALIZED WATER 60°C	1 h
4	THERMAL DISINFECTION 90°C 1’	WATER SOFTENER RESINS RINSE	PREWASH WITH MAINS WATER FOR 5’	WASHING WITH MAINS WATER 60°C/3’ AND DETERGENT	NEUTRALIZING WITH ACID AGENT 3’	RINSING WITH DEMINERALIZED WATER FOR 2’	THERMAL-DISINFECTION WITH DEMI WATER AT 90°C/1’	1h 5’
5	THERMAL-DISINFECTION 90°C 5’	WATER SOFTENER RESINS RINSE	PREWASH WITH MAINS WATER FOR 5’	WASHING WITH MAINS WATER 60°C/3’ AND DETERGENT	NEUTRALIZING WITH ACID AGENT 3’	RINSING WITH DEMINERALIZED WATER FOR 2’	THERMAL-DISINFECTION WITH DEMI WATER AT 90°C/5’	1h 10’

DESCRIPTION OF THE PROGRAM								
PROGRAM NUMBER	**PROGRAM NAME**	**PHASE 1**	**PHASE 2**	**PHASE 3**	**PHASE 4**	**PHASE 5**	**PHASE 6**	**CYCLE TIME** MIN**
6	**THERMAL-DISINFECTION 93°C 5'**	WATER SOFTENER RESINS RINSE	PREWASH WITH MAINS WATER FOR 5'	WASHING WITH MAINS WATER 60°C/3' AND DETERGENT	NEUTRALIZING WITH ACID AGENT 3'	RINSING WITH DEMINERALIZED WATER FOR 2'	THERMAL-DISINFECTION WITH DEMI WATER AT 93°C/5'	1 h 15'
7	**THERMAL-DISINFECTION 93°C 10'**	WATER SOFTENER RESINS RINSE	PREWASH WITH MAINS WATER FOR 5'	WASHING WITH MAINS WATER 60°C/3' AND DETERGENT	NEUTRALIZING WITH ACID AGENT 3'	RINSING WITH DEMINERALIZED WATER FOR 2'	THERMAL-DISINFECTION WITH DEMI WATER AT 93°C/10'	1 h 20'
8	**SERVICE**	CHARGING OF PERISTALTIC PUMPS	RINSING WITH MAINS WATER FOR 1'					5'

NOTE

The cycle time shown in the table are indicative and may vary due to the inlet water temperature or pressure.
The resin washing phase at the beginning of a washing cycle and the regeneration phase at the end of a washing cycle are common to all programs.
The cycle time shown refer to a three phase version. For the single phase version the cycle time must be increased by approximately 20 or 30 minutes.

5.4. MACHINE RUNNING

Note: the numbers indicated below in brackets refer to those that appear on page 14.

The machine is provided with an automatic door locking/unlocking system: to open the door connect the machine to the mains supply and press the ON/OFF key. The ON/OFF light comes on. At this point, press the key

Press the **ON/OFF** key (2) to switch ON the instrument washer. The "power on" indicator (3) light will come on.

The door must be shut before any program can begin. Once the racks have been filled with the instruments, close the door and proceed with the following operations.

If demineralised water is not at your disposal, press the **DEMINERALISED WATER EXCLUSION** switch at the rear of the machine before starting the programme.
We recommend however to use demineralised water in order to improve the washing results.

To activate a washing cycle, select the required program using the knob (1), then press the **START** button (4) for a couple of seconds until the characteristic double beep sound is heard.

During the cycle, the display (7) will alternately show the number of the program in progress and the time remaining for washing cycle to end.
If the temperature key '**°C**' (5) is pressed, the indicator light (8) will come on. In this case, the number of the programme in progress and the value of the temperature in the washing chamber will be displayed alternately.
If you press the temperature key '**°C**' (5) again the corresponding indicator light (8) will switch off and the display (8) will alternately show the number of the program in progress and the time remaining for the wash cycle to end.

WARNING

Never open the door whilst the program is in progress! Despite the fact that the machine is provided with micro switches that immediately turn off the washing pump and heating element, it is absolutely forbidden to open the door manually when the machine is operating.

5.5. RESIN WASHING PHASE

Message '**LA**' flashes on the display in alternation with the program number during the resin washing phase.

5.6. RESIN REGENERATION PHASE

Message '**SA**' flashes on the display in alternation with the program number during the resin regeneration phase.

5.7. PROGRAM TERMINATION

Message '**FP**' appears and flashes on the display once the program has terminated: therefore, the washing cycle must be considered terminated only when this message appears. The door automaically opens at once.

NOTE At the end of a programme once the door has been opened, we recommed to make the drying of the instruments better by pulling the lower basket out of the washing chamber and then by letting it stay over the door for a few minutes.

5.8. IN PROGRESS PROGRAM INTERRUPTION

If the cycle is interrupted when in progress or the door is suddenly opened, the machine will access an alarm status and can only continue to operate after it has been **RESET**.

5.9. RESET PROCEDURE

In the event of an alarm or with the machine not responding to any keys, hold down together the temperature and start buttons successively for few seconds till the characteristic double beep sound is heard. Message '**P-**' will appear on the display and the RESET procedure will begin.
'**F-**' flashes on the display at the end of the RESET phase.
In some circumstances (e.g. when the washing chamber is hot) the RESET procedure might not be accepted: in such a case open and close the door, then repeat the same procedure (e.g. after few minutes).

NOTE

In any case, if the RESET procedure does not work, switch OFF and ON the machine and try again before calling the Technical Assistance.

6. OPERATING INSTRUCTIONS

After the instrument washer has been correctly installed, it must be prepared for operation in the following way:

- Pour in regenerating salt;
- Add detergent and neutralizing agent.

6.1. USE OF THE WATER SOFTENER

The lime content in the water (index of water hardness) is responsible for the whitish marks on dry instruments, which tend to become opaque as time goes by. The instrument washer has an automatic water softener which uses a specific regenerating salt to remove the hardening substances from the water.

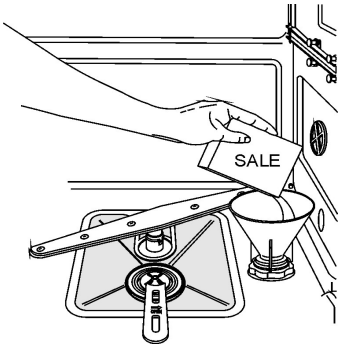


fig.5.1.1

When water of medium hardness is used, new salt must be added after every 20 washes or so. The softener reservoir can hold about 1 kg of coarse salt. This reservoir is situated on the bottom of the instrument washer. After having removed the bottom rack, unscrew the cap from the reservoir by turning it in the anti-clockwise direction and pour in salt using the funnel supplied with the appliance. Before screwing the clap back on, remove any residues of salt from around the opening.

- When the instruments washer is used for the first time, pour 1Kg coarse salt in the reservoir and some water till the rim. Each time the reservoir is filled, make sure that the plug is screwed on with care. The mixture of water and detergent must not penetrate into the salt reservoir as this would impair the regeneration system. Besides, a salt leakage in the washing chamber may damage the instruments and the tank.
  In this case, the warranty would become void.

- Only use regenerating salt for domestic instrument washers (coarse salt only!).

- Do not use edible salt as it contains insoluble substances which would damage the softening system over a period of time.

- When necessary add salt before starting the washing cycle; in this way the excess salt solution will be immediately removed by the water; if the salt solution remains in the wash chamber for a long period it may get corroded

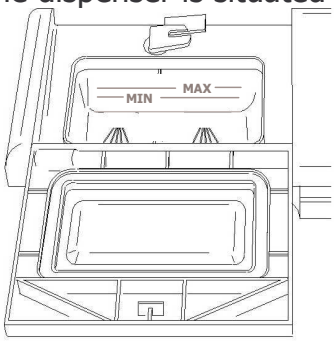
6.2. USE OF THE DETERGENT AND NEUTRALIZING AGENT

The machine is equipped with three dispensers:

pump P1 liquid detergent (neutral or lightly alkaline)	To dose the liquid detergent: it must be used whenever it is possible
Powder detergent dispenser	If the pump P1 is broken or the liquid detergent is finished, this dispenser may be used : don't use it for aluminium-made instruments
Pump P2 (neutralizing acid)	To dose the liquid neutralising agent

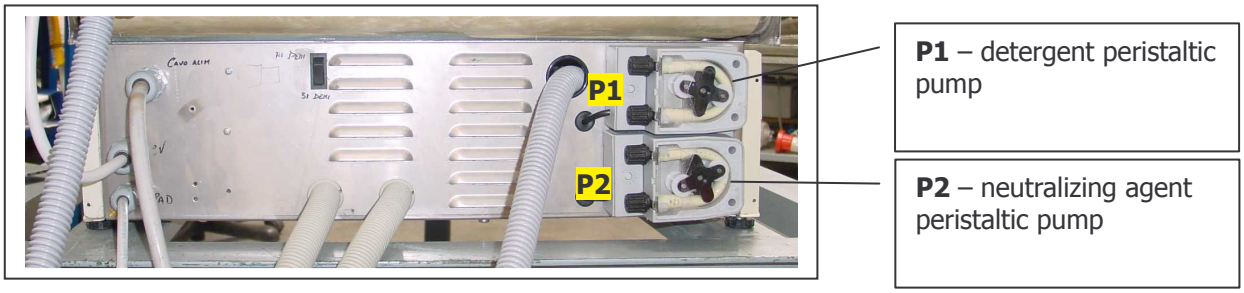
P

The dispenser is situated over the inner door.



Lightly depress button 'P' to open the cover of the detergent dispenser. Add detergent, then carefully close the cover again. The dispenser holds about 60 mg of detergent.
The dispenser is opened automatically during the washing cycle.

The peristaltic pumps are situated at the rear of the machine.

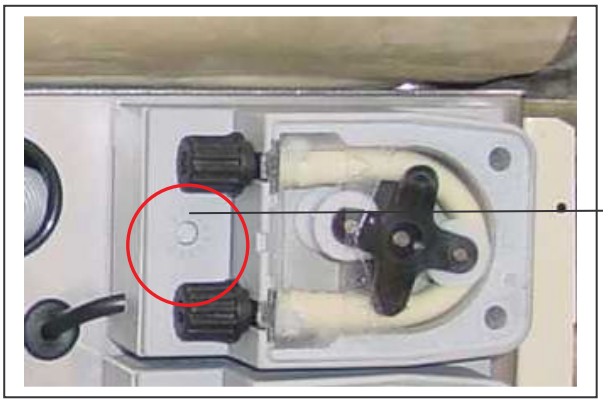


Only use specific detergents for instrument washers. It is important to use a good quality detergent if optimum washing results are to be obtained.

Keep the packs of detergent securely closed and in a dry place to prevent the formation of lumps which could compromise the washing results. After the packs have been opened, they must not be kept for too long as the detergent loses its efficacy.
Dose the quantity of detergent in the correct way. Insufficient detergent will prevent the dirt from being completely eliminated while too much is merely wasteful, does not improve washing efficacy and it may stay as residue on the instruments.

By using the Smeg products, we recommend:
. **DENTAL NE** alkaline detergent: the set dose is 50 ml;
. **DENTAL AC** neutralizing agent: the set dose is 30 ml

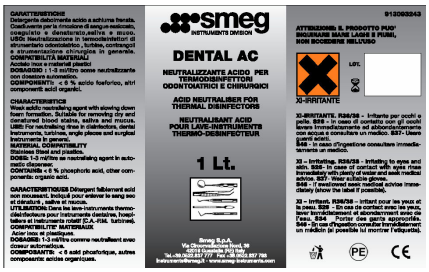
These amounts of liquid may be varied by means of the regulating button.

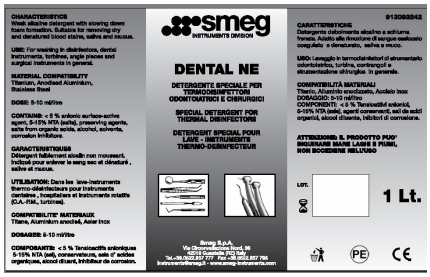


Regulating button : turning clockwise to increase the amount

Periodically check the level of the products inside the tanks, thus avoiding to accomplish some programs without the detergent or the neutralizing agent which is very important to obtain good washing results.

During the installation and whenever the detergent tank is empty you must execute Pr. Nr.8 to charge the liquid into the peristaltic pumps.





There are essentially two kinds of detergents available for disinfection cycles of instruments:

- Low alkalinity liquid detergent (DENTAL NE, dose equal to 50 ml);
- Lightly acid neutralizing liquid agent (DENTAL AC, automatic dose) or Smeg Acidglass C.

Alkaline detergent is fitted to process stainless steel instruments.

Low alkalinity liquid detergents are recommended to process delicate instruments like titanium turbine-type dental handpieces, contra-angles and so on. They work well with stainless steel instruments too.

WARNING

Do not use powder detergents to wash transmission instruments like turbine-type handpieces or contra-angles: this operation may cause serious damages to internal mechanisms and corrode the titanium surfaces.
Smeg will accept no liability for damages caused by this behaviour.

WARNING

Even when in liquid form, the addition of detergent to the neutralizing agent reservoir will impair washing efficiency.

7. ALARMS

The instrument washer is equipped with the following alarms.
All the alarm situations are quitted by means of the RESET procedure.

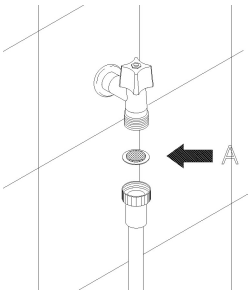
FAULT	DESCRIPTION
E1/E2	*The system that limits the level of the water in the instrument washer has activated.* (Safety Level). Since this could be a temporary fault, try to start the machine again. Call the technician if the fault persists.
E3	*The instrument washer is unable to heat the water*. This alarm activates when the machine is unable to raise the temperature of the water by at least 1°C in 6 minutes. After the RESET procedure, turn the machine **OFF** and **ON** again. Contact your nearest authorized Service Centre if the fault persists.
E4	*The temperature measuring system is faulty.* Call the technician.
E5	*The instrument washer fails to fill with water*. Make sure that: the water tap is fully open; the filter on the water pipe inlet is clean; there are no obstructions in the water inlet pipe. Contact your nearest authorized Service Centre if the fault persists.
E6	*The instrument washer fails to drain.* Make sure that: the drain hose is not crushed or clogged; the water drain pipe is not clogged; the filter of the instrument washer is not clogged. This alarm occurs when the filling pressure switch fails to reset within 3 minutes after the drain pump switches **ON.** Contact your nearest authorized Service Centre if the fault persists.
E7/E9	*The machine is unable to correctly measure the quantity of water filled.* After the **RESET** procedure, turn the machine **OFF** and **ON** again. Contact your nearest authorized Service Centre if the fault persists.
EA	*The machine has been unable to terminate the current program for some reason.* This alarm activates in various situations: **.**when the machine is turned **OFF** during the heating phase with T≥ 35°C; **.**when the door is opened and the temperature in the washing chamber is ≥ 35°C **.**when the program is stopped and the temperature in the washing chamber is ≥ 35°C **.**in case of voltage drops Contact your nearest authorized Service Centre if the fault persists.

8. CLEANING AND MAINTENANCE

Remove the plug from the electricity mains and close the water taps before proceeding with any of the operations. To work in the correct way, you must also ensure that there is a free space of about one square meter in front of the machine.
It is absolutely essential to use cables of the HT 105°C or H05V2-K type if damaged cables must be replaced.

8.1. RECOMMENDATIONS AND GENERAL ADVICE

General cleaning
The external surfaces and door frame of the instrument washer must be cleaned at regular intervals with a soft cloth soaked in water or a normal detergent for steel surfaces. The door seals must be cleaned with a damp sponge.
It is advisable to clean off any dirt that may have accumulated in the washing chamber or on the seals every so often (once or twice a year) using a soft cloth and water.



How to clean the water inlet filter
Water inlet filter A installed at the cock outlet must be periodically cleaned. First close the tap, then disconnect the water inlet pipe, remove the filter A and clean it delicately under running water. Fit filter A back in its housing and carefully replace the pipe

fig.8.1.1

How to clean the spray arms
The spray arms can be easily removed so that the nozzles can be periodically cleaned to prevent clogging. Wash them under running water and then fit them back in their housings. Make sure that their circular movement is not hindered in any way.

How to clean the filter unit

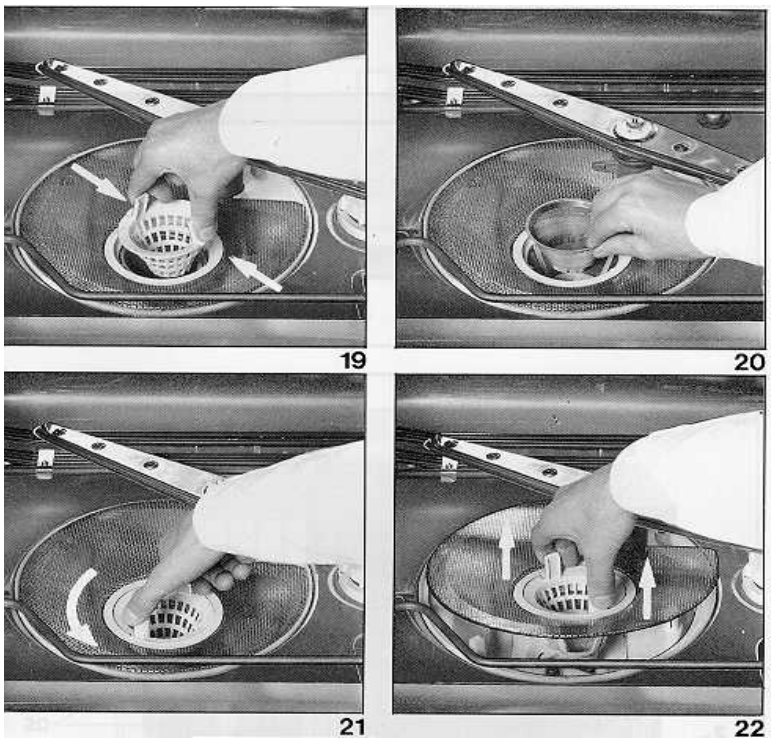
The filtering unit consists of a circular filter with a filter cone, a micro filter and a coarse filter. To ensure efficient operation of the machine it is extremely important to keep the filters clean. They must be inspected frequently to remove deposits which may adversely affect operation.

Coarse filter
To remove the coarse filter, press the tabs and pull upwards (see fig. 19). Clean the filter and replace.

Micro filter
This is located below the coarse filter (see fig. 20). Check and clean whenever inspecting the coarse filter.
For a perfect clean, use a brush and hot water.

Circular filter
To remove this filter:
- press the tabs on the coarse filter and turn counterclockwise.
- without pressing the tabs, raise the entire unit (i.e. filter, filter cone, coarse filter and micro filter) (see fig. 22).

When cleaning this filter it is worth also cleaning the others.



Recommendations for correct maintenance

- The filters should be cleaned under running water using a hard brush.
- It is essential to clean the filters carefully according to the instructions given above: the instrument washer will be unable to operate if the filters are clogged.
- Fit the filters back in their housings with care, to prevent the washing pump from being damaged.

8.2. EXTENDED PERIODS OF DISUSE

- Carry out the Prewash program twice consecutively.
- Remove the plug from the power socket.
- Leave the door slightly open to prevent unpleasant odours from forming inside the washing chamber.
- Shut off the water cock.

8.3. REUSE OF THE INSTRUMENT WASHER AFTER A LONG PERIOD OF INACTIVITY

- Make sure that there are no rust or sludge deposits in the pipes. If this is the case, allow water to run from the tap for a few minutes.
- Plug the machine into the electricity mains.
- Re-connect the water supply hose and turn on the tap.

8.4. TROUBLESHOOTING

Slight faults can sometimes be eliminated by the user with the aid of the following instructions.

1. *If the program fails to start, make sure that:*

- the instrument washer is connected to the electricity mains;
- the instrument washer is being powered;
- the water tap is open;
- the door of the instrument washer has been closed properly.

2. *If water stagnates in the instrument washer, make sure that:*
- the drain pipe is not bent;
- the drain trap is not clogged;
- the filters of the instrument washer are not clogged.

3. *If the instruments are not cleaned properly, make sure that:*
- an adequate amount of detergent has been added;
- there is regenerating salt in the relative reservoir;
- the instruments have been positioned correctly;
- the program is suitable for the type and degree of dirt on the instruments;
- all the filters are clean and correctly seated;
- the holes in the water spray arms are not clogged;
- nothing is preventing the spray arms from turning.

4. *If the instruments fail to dry or remain opaque, make sure that:*
- there is neutralizing agent in the relative container;
- the neutralizing agent dispenser has been regulated in the correct way;
- the detergent used is of good quality and has not lost its characteristics (e.g. owing to incorrect storage, pack left open, etc.).

5. *If the instruments are streaked, stained… make sure that:*
- the amount of neutralizing agent dispensed is not excessive.

6. *If there are visible traces of rust in the washing chamber*
- The washing chamber is made of corrosion-proof steel, thus rust stains are due to external factors (pieces of rust from the water pipes, etc.). Specific products are available in the shops to eliminate these stains.
- Make sure that the detergent dosage is correct. Some detergents can be more corrosive than others.
- Make sure that the salt reservoir plug is firmly closed.

Contact your nearest authorized technical assistance centre if the faults persist after compliance with the instructions given above

WARNING
Repairs to the appliance by unauthorized personnel are not covered by the warranty and are at the user's charge.

9. ROUTINE CHECKS

9.1. DAYLY

a) control the detergent level in the tanks: fill it up, if necessary
b) check the sprinklers movement and cleanless

9.2. WEEKLY

a) clean the sump filter,
b) perform Pr.4 without any load to clean and disinfect the washing chamber

9.3. HALF YEARLY

a) check the filter status of the elctrovalves: clean them if necessary, by making hot water flow backwards;
b) check the tubes status of the peristaltic pumps.

9.4. YEARLY

At the end of the warranty period and over the successive yars, call the nearest Smeg authorized assistance centre in order to execute a complete check-up of the machine.

WARNING
In no case may SMEG be held liable for any direct or indirect damages deriving from or in relation to inobservance of the above described checks.

GLASSWARE WASHER GW1050