

GW4190

BASIC LINE – LABORATORY GLASSWARE WASHER, 90 CM, WITH DRYING SYSTEM

GENERAL FEATURES

- Manufacturer: Smeg S.p.A.
- Basic Model: GW4190 and available in the following versions:
 - GW4190S equipped with peristaltic pump for alkaline detergent.
 - GW4190C equipped with a stream condenser
 - GW4190SC equipped with a vapour condenser and a peristaltic pump for alkaline detergent
 - GW4190W equipped with warm water connection
- Year of sales on the market: 2012
- Use: For washing and thermally disinfecting laboratory glassware.
- Main fields of application: food and pharmaceutical industries, general chemistry, organic and biochemistry, research laboratories and schools.

TECHNICAL SPECIFICATIONS

- Front loading with drop down door
- Wash chamber and inner door made in stainless steel AISI 316, anti-acid in molybdenum nickel – chrome, thickness of 6/10 for the chamber and 8/10 for the inner door.
- Outer panels in polished stainless steel AISI 304 for easy cleaning.
- External dimensions: (L x D x H): 900 x 605 x 850 mm (820 mm under counter version - 1250 mm upon stainless steel bases and frames)
- Useful chamber dimensions (L x D x H): 520 x 515 x 545 mm
- Net Weight: Kg. 83
- Washing chamber capacity: 146lt
- Washing levels with baskets equipped with rotating spray arms or injection trolleys.
- Total washing surface: from 0,52 to 1 m² (depending on the type of baskets or trolleys used)
- Drying system with forced air and equipped with a pre filter and absolute HEPA filter (optional)
- Cabinet for detergent storage and positioning of the integrated printer (optional)
- Possibility to install the machine under a counter (also with a specific optional top cover) or on a plinth for ergonomic reasons.

FUNCTIONAL CHARACTERISTICS

- The GW4190 glassware washers are designed and manufactured to operate, with 15 wash programs, of which 9 basic fixed programs (not modifiable), 6 programs can be generated according to the needs of the end user and one service program reserved for the service technician. Each program differs from others in time, temperature and use of detergents, in order to offer the end user a complete selection of programs suitable to treat many different types of materials and to meet various washing needs.
- Each wash program can be made up 10 wash phases + 1 drying phase. All relevant parameters of each program can be set according to specific needs: you can adjust the cycle times, the working temperatures, select the quantity and type of additives to use in a specific phase. You can define the number of wash and rinse phases in a cycle and whether to use demineralized water or not. The drying phase can be programmed by defining both the temperature and the duration. It is possible to edit and store each elementary wash phase. For each wash phase you can define the type of water to be used (cold,

demineralized water), the type of detergent or chemical additive to be used, the duration of washing without heating, the temperature of the hot phase and its duration, when to add the additive. The elementary phases can be joined together to form the washing and/or disinfection program.

- Control of the dosing of detergents using level sensors (if provided as an option) and timers.
- LED segment display, to display all the main operating parameters and alarm messages and breakdowns.
- The control buttons on the panel, easy to use and understand, allow a simple and automatic use of the machine and an immediate control of the disinfection parameters. In addition, through the combined use of the buttons, it is possible to enter the SET UP mode of the machine, to adapt it to the installation requirements.
- Temperature control with viewing of the chamber temperature.
- Temperature controlled by a PT1000 probe.
- Electronic control of the maximum temperature permitted.
- End of Cycle warning both optical and acoustic.
- Automatic Door opening at the end of the cycle
- Immediate display of error detected.
- Automatic counter of cycles performed.
- RS232 port for connecting the thermal disinfecter to a PC or to an external printer.
- Real Time clock with backup battery in case of blackout.
- Control and viewing of the cycle in progress of the following information in real time:
 - Current program name
 - Program progress with indication of the residual time
 - Identification of the current phase
 - Temperature detection in the wash chamber
- Control of the correct working of the washing pump through an high pressure switch
- Built-in "eco-slim" vapor condenser (if provided as an option), controlled by the electronic system and which guarantees low water consumption
- Heat shock prevention inside the chamber by starting with function "shock start"
- Possibility of calibrating the temperature probes (using dedicated software)
- Water temperature range: from room temperature to 95 °C
- Archive of cycles performed, dedicated to the automatic storage of all data related to the cleaning cycles performed
- Possibility to download the archived cycles onto a PC
- Possibility to install an external printer for printing the cycle data in real-time for validation of the disinfection cycle carried out.
- Exclusion demineralized water in real time to the selected program
- Acoustic signal at the end of cycle and in a failure case

WASHING SYSTEM

The glassware washer Smeg GW4190 uses a washing system with takes in fresh water for each phase of the cycle. The machine uses about 10 liters of pre-filtered water for each phase. At the end of each phase the water is completely drained by means of a drain pump before taking in fresh water for the next phase. After the filling phase detergents are added via peristaltic pumps directly to the wash chamber in a point predetermined by the program. The volume of the detergents is determined by the program. During the washing phase the wash pump forces water and detergents to circulate through the rotating spray arms. The high ratio of flow rate / pressure, combined with the factors of temperature and time, remove and dilute residual contaminants present in the water. The water in the washing chamber is brought to the set temperature by means of internal heaters. During heating the machine continues the process of spraying and washing.

To ensure a constant pressure on the spray arms, and a good quality of cleaning, the machine continuously monitors the wash pump to ensure it is functioning properly. Each time the heating of the washing water generates vapor, the vapor condenser comes into operation (if provided as an option), which prevents the vapor from escaping into the surrounding. If this device is present on the machine, it is not necessary to connect the machine to a possible suction system to extract the vapor.

SAFETY FEATURES

- Safety features: wash pump stops if door is opened, water level control, overheating control, error messages displayed, malfunctioning of wash pump, safety thermostats, flow meter to control the volume of water added to the wash chamber.
- Electric interlock on the door with automatic security system with the door closed. Locking and unlocking of the door microprocessor-controlled (in case of need the emergency manual release is possible).
- Visual and acoustic alarm to indicate lack of detergents (if level sensor is installed).
- Wash chamber temperature reduction at the end of the cycle before draining.

WASH / DRAIN / DETERGENT PUMPS

- Circulating Pump: 400 l/min.
- Drain Pump: flow rate 18 l/min
- Peristaltic Detergent Dosing Pump: flow rate 55 ml/min
- 1 Powder Detergent Box
- 1 Peristaltic Detergent Dosing Pump for Acid Neutralizer
- 1 Peristaltic Detergent Dosing Pump for liquid Alkaline (optional)
- 1 External Peristaltic Detergent Dosing Pump for Liquid Anti-Foam (optional)

WATER CONNECTIONS

- Water Softener incorporated with automatic volumetric regeneration with salt. Hardness workable from 33°dH/60°F to < 4°dH/7°F
- LED signal for refilling of salt.
- Separate water connections for cold water (pressure between 1,5 to 5 bars) and demineralised water
- Inlet water controlled by flow meters.
- Water Consumption: 9 – 10 litres per phase, according to the program selected.
- Cold water Hardness Max 42 °F (French degrees)
- Demineralised water conductivity <30 µS/cm

FILTERS

- Sump Macro Filters in stainless steel.
- Sump Micro Filter in stainless mesh.
- 2 filters on the incoming water inlet pipes.
- Median Micro Filter in stainless mesh
- Micro Filters in correspondence to 2 filters on the incoming water inlet pipes to stop impurities of the utilized water

DRYING SYSTEM

Drying system: The system is made up of filtered hot air generator, connected to the hydraulic circuit through an air / water valve separator. The hot air is forced into the hydraulic circuits, by means of a special ventilation system, till it gets into the chamber through the spray arms placed at the bottom of the chamber or directly on the trolley. If an injection trolley is used, the air flow is channeled into the injectors, to allow a perfect drying of the inside of the hollow glassware. The temperature of the hot air can be set from 40 ° C to 120 ° C. The time and the drying temperature are stored within the parameters of the drying phase, of each program, in this way it is possible to adjust the temperature and duration of the drying phase of each program according to the type of material to be dried. During the drying phase, the speed of the air flow is adjusted via the microprocessor, in order to optimize the drying process and to minimize the energy consumption.

- Fan Speed control and air flow control on the inlet of the wash chamber. Pre-filter class C 98%
- Absolute HEPA Filter class S 99,999% (optional)
- Filter replacement indication on the display.

POWER SUPPLY

- Three Phase Version: 3PH/N/PE 50Hz 400V 7kW or, Single Phase Version: 1/N/PE 50Hz 230V 2.8kW
- The machine is supplied with the mains cable without a plug. It must be supplied by the end user during installation.

DETERGENT CONSUMPTION TABLE PER CYCLE

Detergent consumption for a standard cycle of 5 phases + 1 drying phase of 10'.

ALKALINE POWDER DETERGENT	35-40 mg
ALKALINE LIQUID DETERGENT	50 ml
NEUTRALIZING ACID	30 ml
ANTI FOAM (if used)	3 ml

Products recommended by Smeg:

ALKALINE POWDER DETERGENT	DETERGLASS, DETERGLASS SP
ALKALINE LIQUID DETERGENT	DETERLIQUID C2, DETERLIQUID C, DENTALNE5
NEUTRALIZING ACID	ACIDGLASS C2, ACIDGLASS C, DENTALAC5

OPTIONS AVAILABLE

- Demineralised water booster pump.
- Peristaltic dosing pump for liquid alkaline detergent
- Peristaltic dosing pump for liquid anti-foam
- Detergent level sensor
- Detergent flow sensor
- Acquastop
- Absolute HEPA Filter class S 99,999%
- Plinth in stainless steel with detergent compartment or raised frame.
- Integrated panel printer for print outs, in real time, of cycle data for validation of the thermal disinfection cycle carried out. For each process data as: date and time of each event, main wash parameters (time, temperature, detergent quantity, etc.) are printed.
- Built-in vapor condenser electronically controlled guarantees low water consumption. Each time the heating of the washing water generates vapor, the vapor condenser comes into operation, which prevents the vapor from escaping into the surrounding
- Additional ceiling spray arm, made in stainless steel AISI 304, to improve the washing efficiency on glass ware with complex shapes
- Data communication card for LAN Ethernet connection