

Apollo 25L Premium Product Specification By Steribel home – ECOLINE

Product Description

Apollo 25L Premium is a fully automatic high-speed pre & post vacuum Steam Sterilizer. The unit is designed with similar features as a Large Steam Sterilizer.

The sterilizer includes the following features:

- Built-in steam generator
- Vacuum pump for evacuation of the chamber
- Water reservoirs for process and used water retention
- Water pump for water circulation
- Condenser and collector for condensation and collection of water
- Temperature sensors and a pressure transducer to monitor both vacuum and pressurized states
- Control valves operating at programmed intervals

Application

As a Class B Sterilizer, the unit can process all types of loads as specified in the EN13060 standard: wrapped, non-wrapped, solid, hollow load products type A and porous products. It can be used to sterilize dental hand pieces, laparoscopes, wrapped surgical sets, etc. Best solution for dental and private clinics.

Dimensions

Chamber: Inner Dia. x Depth: 261 x 472 mm
 Chamber volume, net.: 25 Litres.
 External W x H x D: 534 x 475 x 609 mm

Configuration and Options

Model	Heating	Doors
<input type="checkbox"/> Aplo 25 b	<input type="checkbox"/> Electric, 220V, AC	<input type="checkbox"/> Single

Available Accessories:

Standard:

- One Stainless Steel Tray Holder
- 4 Stainless Steel Trays (more trays are available upon request)
- RS232 Communication port
- Built-in ink/thermal printer or SD Card Option
- Tray Handle Glove

Optional:

- Ink/Thermal Printer
- SD Card & Reader
- Pressure Gauge
- Reverse Osmosis Ready Connection
- Reverse Osmosis System
- HMI PC Software
- Stainless steel trays, Cassettes, Wire mesh baskets
- Pouch Racks and Dental Aluminum Containers



Languages

The operator panel is set up with following standard languages (maximum 20 languages per Sterilizer):

- | | | | |
|------------------------------------|------------------------------------|------------------------------------|-----------------------------------|
| <input type="checkbox"/> English | <input type="checkbox"/> Italian | <input type="checkbox"/> German | <input type="checkbox"/> French |
| <input type="checkbox"/> Hungarian | <input type="checkbox"/> Dutch | <input type="checkbox"/> Norwegian | <input type="checkbox"/> Polish |
| <input type="checkbox"/> Slovakian | <input type="checkbox"/> Spanish | <input type="checkbox"/> Russian | <input type="checkbox"/> Romanian |
| <input type="checkbox"/> Turkish | <input type="checkbox"/> Bulgarian | | |

Quality assurance

Apollo 25 B Premium complies with following standards and codes:

General Applicable Directives:

- Directive 93/42/EEC on Medical Devices (MDD), Annex II excluding (4)
- Pressure Equipment Directive- PED 2014/68/EU
- EMC Directive 2004/108/EC Article 7 (1)
- RoHS II Directive 2011/65/EU

Standards:

- Standards applicable to this product are:
- EN 61326: 1997 + A1(98) + A2(01) + A3(03), minimum immunity requirements, Class A;
- EN 60601 1:2006+AC:2010, EN 60601-1-2:2007+AC:2010, EN 60601-1-6:2010,
- EN 62366:2008, EN ISO 10993-1:2009; EN 1041:2008, EN ISO 15223-1:2012
- EN/IEC 61010-1:2010, EN 61010-2-040:05;
- EN 13060:2004+A1:2009+A2:2010 - Small Steam Sterilizers.

Notified Body: CE Certiso Ltd., Organisation for Certification and Testing on the Field of Medical and Hospital Engineering H-2040 Budaórs, Gyár u. 2. BITEP, Gábor Dénes krt. 101.

Standard features

- **Chamber** - Reflecting the latest technology, the 25 liters sterilization chamber is made of stainless steel 316L

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(conforms to the Pressure Equipment Directive (PED). The chamber is jacketed with copper coil.

- **Exterior** – Combination of grinded 1mm stainless steel for the housing and painted plastic for the front panel.
- **Steam generator** – Equipped with a 2900 W steam generator, made of Stainless Steel 304. The large capacity of the heaters enables steam to always be ready for operation, and thus contributes to a very fast cycle. An automatic flush cleans the steam generator after 20/50 cycles from residues. This feature facilitates faster sterilization cycles.
- **Vacuum system** – Equipped with a Diaphragm vacuum pump, combined with a heat exchanger, and is a pre-vacuum sterilizer having the following features:
 - An air removal stage (pre-vacuum), before starting the sterilizing stage.
 - A post-sterilization drying phase, based on the combined operation of heat and vacuum with air inlet pulses.

In order to improve the efficiency of the vacuum pump – capability and speed– a heat exchanger is installed on the outlet piping of the chamber.

The advantages of the pre-vacuum sterilizer are as follows:

 - Removal of air pockets from packs and porous load and most kinds of hoses (rubber, plastic etc.) by vacuum at the first stage of the cycle.
 - Better steam penetration into the load; resulting in effective sterilization.
 - Better temperature uniformity.
 - Better drying of materials due to the vacuum achieved in the chamber at the end of the sterilization cycle.
- **Safety Devices** - Numerous safety features including: a safety valve, thermostat, temperature sensors, a water detection electrode in the steam generator, a pressure sensor, a safety pressure release valve, a door locking device and software safety features.
- **Door locking mechanism** – The door system is automatic with a special locking device. The system is based on a screw and a self-aligning nut.
The closing device prevents an incidental opening of the door if there is pressure in the chamber. The thread of the screw and the nut is self-closing thus preventing from opening of the door eventually. The door opening can be done electrically only, in case of power fail, the user can't open the door without a special tool.

The door system includes:

- Mechanical locking (screw and self-aligning nut)

- Automatic opening of the door by a special pull-out device.
- Micro switch (1) to indicate that the locking system parts are in closed position (door is closed/open).
- Micro switch (2) to indicate that the door is attached to the chamber frame (to let the motor pull the door to the closed position).

- **Water system** – The sterilizers are equipped with 2 Water Reservoirs: one for mineral-free water and one for drain water.

The Sterilizers are supplied as a stand-alone unit. A Reverse-Osmosis water purification system is available in order to avoid the need to refill the water reservoirs. This system improves the quality of the water used to generate steam. The use of mineral-free water will contribute to better performance and longer life of the Sterilizers' chamber.

- **Energy saving mode** - The Sterilizers are equipped with an Energy Saving Mode which is activated if the Sterilizer is not used after a certain period of time. This Mode reduces power consumption by approximately 12% to 30% and is thus environmental friendly.
- **Control system / Touch screen panel** – A state of the art computerized control system includes a Microprocessor controller and a resistive touch-screen TFT color LCD display, developed by world experts in the electronic field. The control system ensures high reliability, simplicity, safety of operation and automatic process cycles.



- **Operation** – Operating is simple: close the door, select the cycle on the Touch-Screen Panel, and press the Start Key. The cycle will run automatically. At the end of the cycle, by pressing the 'Open Door' button on the Touch-Screen Panel, the door will automatically open.

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Options and Accessories

- Printer** – Built-in Ink Printer is included. (Thermal Printer can be supplied upon request.) Each cycle can be documented by the printer which records the preset and actual parameters of the cycle: the selected cycle, cycle parameters, date, time, temperature, pressure, errors, etc. The last 10 cycles' data is automatically stored in memory, and can be reprinted.


- Tray** – The sterilizer is standard supplied with 4 perforated stainless steel trays together with the tray holder. Additional trays (tray holder maximum capacity is 6 trays or 4 cassettes) can be requested. Tray size (W*H*D): 200*18*390mm


- SD Card Option** – For paperless recording sterilization cycles' data can be also collected on a SD Card through an optional SD Card Slot. Collected data can be downloaded into a computer equipped with proprietary PC Software (HMI Light). 2 GB SD card collects up to 40 years logging data, including: the selected cycle, start time, cycle stages, temperature / pressure, end time, cycle status (pass / fail), etc.


- Cassette** – Special Steel Tray-Cassette bottom perforated with unperforated lid. The standard supplied tray holder capacity is maximum 4 cassettes from this type. Size (W*H*D): 185*40*285mm


- Wire Mesh Basket** – Stainless Steel wire mesh basket. Maximum 1 piece can fit in the unit. Size (W*H*D): 180*165*398mm


- Pressure Gauge** – Analog pressure gauge can be installed upon request next to the air filter on the front of the machine. Also the sterilizer's software indicates the pressure on the LCD display.


- Pouch Racks** – Two types of pouch racks are available to hold wrapped single instruments. Type 1 has 3 rows for up to 15 pouches. Size (W*H*D): 155*78*330mm
Type 2 has 2 rows for up to 13 pouches. Size (W*H*D): 180*60*330mm


- Reverse Osmosis (water softener)** – A Reverse Osmosis system shall be used to improve the quality of the water used to generate steam in the electric steam generator. The use of mineral-free water will contribute to better performance and longer life of the autoclave's chamber. The water purification system uses a high quality booster pump which can provide 6.8 bar water pressure to pass through the membrane even under low water pressure area. The booster pump prevents damage, prolongs the life of the membrane and improves solids +99% of all organics +99% of all bacteria.



Reverse Osmosis ready connection can be built in to the sterilizer, if customer already has his own Reverse Osmosis system.


- Dental Aluminum Containers** – Aluminum dental containers are available in different sizes.


- Tray Handle Glove** – Heat Resistant personal protective wear for the operator. One piece is standard supplied with the unit.


- Monitoring and Documentation Software (HMI Software)** – Powerful PC Windows based software is available for monitoring, logging control and service. The software enables complete control over the sterilizer, including data receiving, creating graphs, parameter tables with the option of printing either graphs or texts.

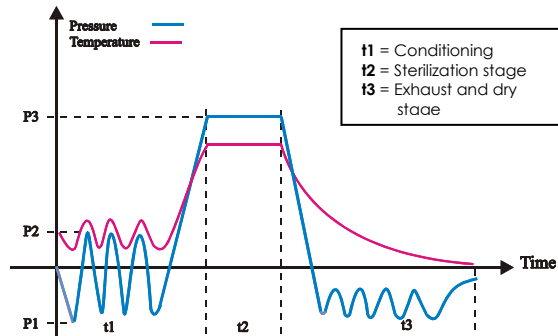


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Cycle description

Apollo 25 by Steribel Premium offers 7 preset cycles: 5 sterilization cycles, and 2 test cycles. Up to totally 20 cycles can be custom designed by the manufacturer.

The two available test programs are the Vacuum Test for checking the integrity of the chamber and piping system and the Bowie & Dick test which checks the efficiency of the sterilization process.



1 - Flash 134°C / 3 min (Warm Up).

Sterilizing unwrapped solid instruments.
Load weight <6 kg. Without drying stage.

- Sterilization temperature: 134 °C, -0°C +3°C.
- Sterilization time: 3 minutes.
- Drying time: 1 minute.
- Vacuum pulses: 4.
- Average cycle time: 20 minutes.



2 - Unwrapped 134°C / 3 min (Class B)

Sterilizing unwrapped instruments.
Load weight <6 kg. Without drying stage.

- Sterilization temperature: 134 °C, -0°C +3°C.
- Sterilization time: 3 minutes.
- Dry Time: 2 minutes.
- Vacuum pulses: 4
- Average cycle time: 21 minutes.



3 - Wrapped 134°C / 3:30 min, 20 min dry (Class B)

Sterilizing wrapped instruments.
Load weight <6 kg. With drying stage.

- Sterilization temperature: 134 °C, -0°C +3°C.
- Sterilization time: 3:30 minutes.
- Dry Time: 20 minutes.
- Vacuum pulses: 4.
- Average cycle time: 40 minutes.



4 - Prion 134°C / 18 min, 20 min dry (Class B)

Sterilizing wrapped instruments.
Load weight <6 kg. With drying stage.

- Sterilization temperature: 134 °C, -0°C +3°C.
- Sterilization time: 18 minutes.
- Dry Time: 20 minutes.
- Vacuum pulses: 4.
- Average cycle time: 55 minutes.



5 - Porous 121°C / 20 min, 20 min dry (Class B)

Sterilizing Wrapped instruments.
Load weight <2 kg. With drying stage.

- Sterilization temperature: 121 °C, -0°C +3°C.
- Sterilization time 20 minutes.
- Dry Time: 20 minutes.
- Vacuum pulses: 4.
- Average cycle time: 60 minutes.



6-Bowie and Dick test 134°C / 3:30 min, 2 min dry (Hollow load A)

This is a test program, with fixed sterilization parameters 134 °C and 3.5 min. drying time of 2 min. that cannot be modified by the operator.

- Sterilization temperature: 134 °C, -0°C +3°C.
- Sterilization time: 3:30 minutes.
- Dry Time: 2 minutes.
- Vacuum pulses: 4.
- Average cycle time: 21 minutes.



7- Leak test (Vacuum test).

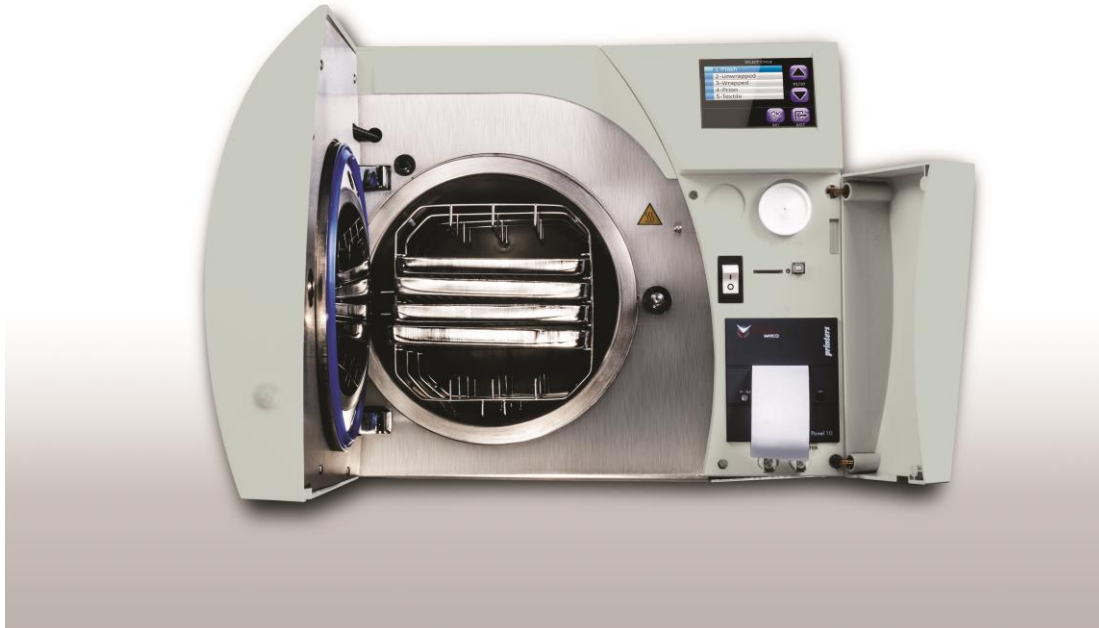
The vacuum pump is activated until the pressure reaches a level of at least 15 kPa, all the valves and pump shut down (P1). The following 5 min. is for the stabilization condition of the chamber (P2). From now on (P2) along the next 10 min. the allowable decrease of pressure is 0.13 kPa / min. (or 1.3 kPa for 10 min.)

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Technical Data	Apollo 25 B Premium
Cycle type (according to EN 13060)	B
External dimensions W x H x D	534 x 475 x 609 mm (21 x 18.7 x 23.9 inch)
Maximum depth (door open)	920 mm (36.2")
Chamber volume, net.	25 Litres. (6.6 gal)
Chamber shape	Cylindrical 316L, electro polished
Chamber Dimensions, Inner Dia. x Depth	261 x 472 mm (10.3 x 18.5 inch)
Weight,	70 kg (154.0 lb)
Shipping weight	80 kg (176.0 lb)
Shipping dimensions W x H x D	750 x 680 x 710 mm (29.5 x 26.8 x 28 inch)
Mineral free water reservoir volume	6 Litres (1.32 gal)
Min. water quantity allowing the cycle	1 Litres
Average water consumption during the cycle	0.6 Litres
Max. Water temp. at the reservoirs	65°C (149°F)
Max. Working pressure	2.76 bar (40 psi)
Min. Working pressure	-0.9 bar (-13.5 psi)
Heaters power	2900 W
Jacket	Coil jacket
Peak sound level	65 dB
Max. total Heating spread in 1 hour	4325 kJ
Max electric power	3000W, 1 phase, 220V - 16A, 50/60 Hz
Voltage fluctuation	±10%
Operation	Electronic with microprocessor
Controls	Digital
Display	LCD 5.7" Full Color TFT Resistive Touch-Screen
Integrated printer	Yes -(Optional)
Connection to PC	Standard RS232, USB connection for servicing and Ethernet connection as an option
Supplied No. of trays	4
Tray dimensions W x H x D	200 x 18 x 390 mm (7.2 x 0.8 x 15.4 inch)
Maximum load for tray holder	6 stainless steel trays or 4 cassettes
Maximum load for tray	2.0 kg (4.4 lb)
Maximum solid load	6.0 kg (13.2 lb)
Maximum textile load	2.0 kg (4.4 lb)
Number of Cycles	7 cycles -5 sterilization cycles, 2 test cycles.
Cycle type (stated load types)	Wrapped or non-wrapped, solid, hollow load products Type A and porous products.
Sterilization temperatures	121° C and 134° C
Special / Test Cycles	Bowie & Dick test and Vacuum test

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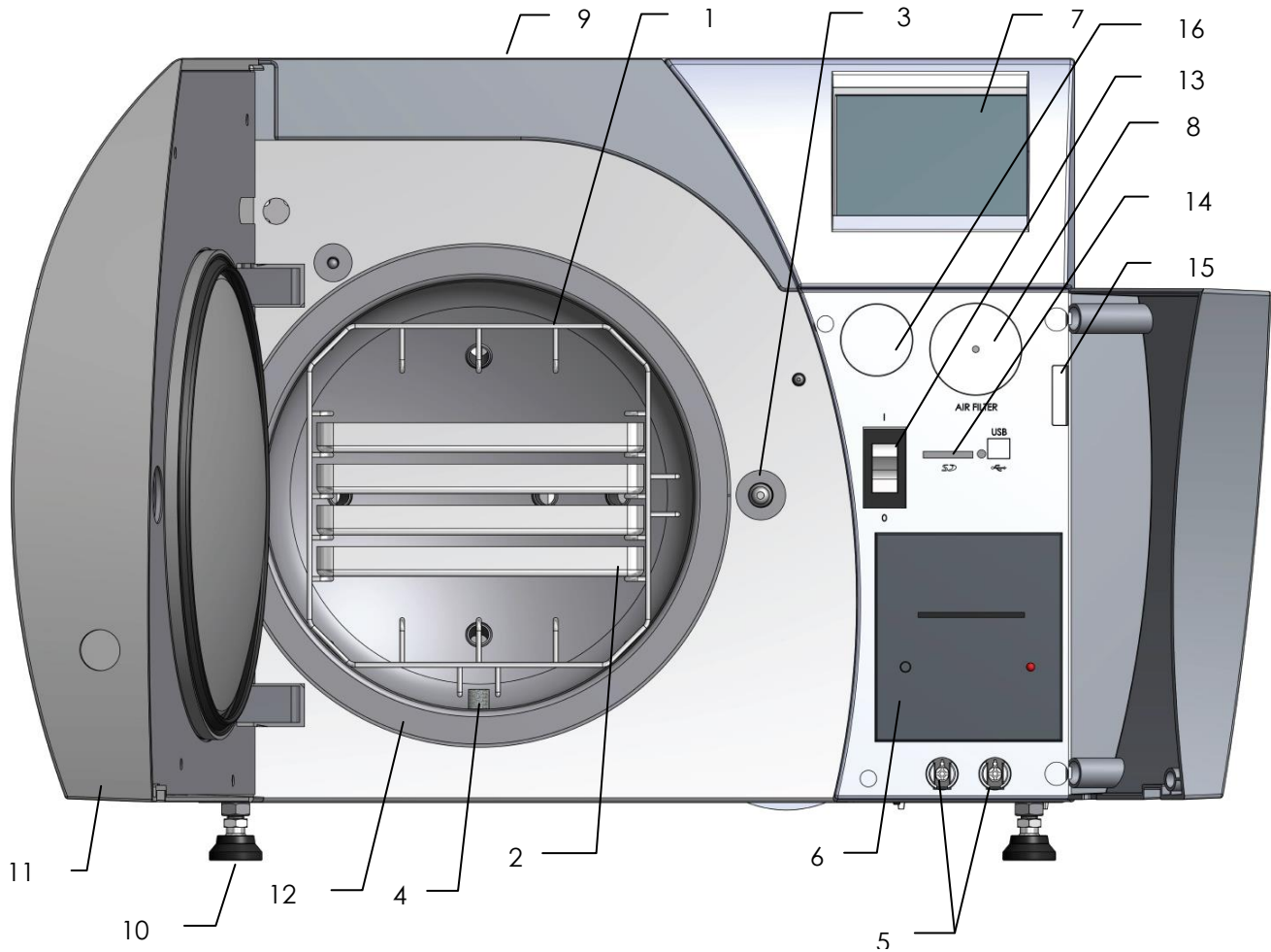
Technical Data	Apollo 25 B Premium
Air removal	Fractionated vacuum
Drying system	Vacuum
Average Cycle time (Depends on load)	Flash134 - (20min), Unwrapped134 - (21min), Wrapped 134 - (40min), Prion 121 - (55min), Porous 134 - (60min)
Stand-by	Yes
Separate loading / unloading tanks	Yes
Appearance of Face	Plastic and steel
Type of Closure	Grinded 1 mm stainless steel and painted plastic.
Automatic water filling	Optional
Automatic water draining	Optional
Manual water filling and draining	Yes
Door locking device	Full automatic door locking device means by a screw



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Detailed interface of the autoclave

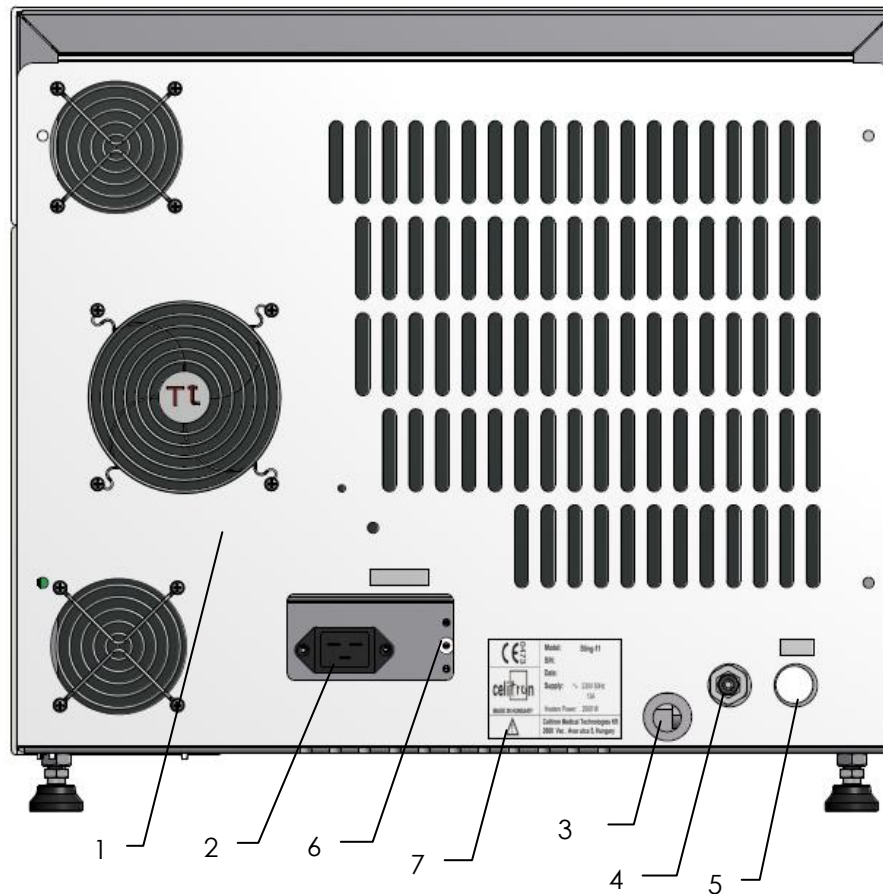
Front View



No.	Description	No.	Description
1	Trays Holder	9	Fill water to reservoir (from top)
2	Tray	10	Front leg
3	Door locker	11	Door
4	Exhaust Filter	12	Chamber
5	Water Reservoir Drainage	13	Main Switch
6	Printer	14	Optional USB/SD Card Slot
7	Operator Panel	15	RS232 PC Communication port (from side)
8	Air Filter	16	Optional Analogue Pressure Gauge

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Rear View



No.	Description	No.	Description
1	Rear Cover	5	Optional – Reverse Osmosis (R.O) System Connection*
2	Power Inlet	6	Cut-off switch
3	Optional – Liquid Ring Vacuum Pump – Tap water inlet	7	Autoclave's label
4	Over Flow		

*For a machine supplied with a RO system:

No.	Description	No.	Description
4	Drain	5	R.O water inlet

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External Dimensions

