Steam sterilizer TRANS SMART S 555 double gate

GETINGE

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Getinge Trans Smart S 550 double gate

Steam sterilizer

Trans Smart S 555, **is a fully automatic steam** sterilizer. The equipment has a number of preset programs for the most common sterilization processes in hospital and general use. The program cycles employ mechanical air extraction with a series of vacuum/pressure pulses to effectively remove the air ensuring sterilization. The dimensions of the chamber are adapted to sterilization, using wire baskets according to ISO and STU or containers according to DIN. The device has a capacity of **up to 555 L**. The temperature range is 121°C to 135° C.

Key features

- AISI 316L stainless steel **chamber and coating**.
- Automatic vertical sliding doors.
- Drying system.
- Process monitoring.
- Printer as standard

Standards and codes

TRANS SMART sterilizers are designed to meet the following requirements and standards:

- Medical Device Directive 93/42/EEC
- Machinery Directive 2006/42/EC
- Low Voltage Directive 2014/35/EU
- Directive 2014/30/EU EMC
- 2014/68/EU PED Pressure Equipment Directive
- 2011/65/EU ROHS 2 Restriction of Hazardous Substances Directive
- 2012/19/EU WEEE 2 Waste Electrical and Electronic Equipment Directive
- EN/ISO 13485 Medical Device Quality Management Systems
- EN ISO 14971 Risk Management for Medical Devices.
- EN 285 Sterilization - Steam Sterilized - Large Sterilizers
- EN / ISO 17665-1 Sterilization - Moist Heat - Routine Validation and Control
- EN/IEC 61010-2-040 Safety requirements for electrical equipment for measurement, control and laboratory use. Part 2-040: Particular requirements for sterilizers and disinfectant washers used to treat medical materials.
- EN 61326-1 Electrical Equipment for Measurement, Control and Laboratory Use IEC 61326-1.
- EN/ISO 9001 Quality Management Systems -Requirements
- EN ISO 14001 Environmental Management Systems: Requirements with Guidance for Use.

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Dimensions and capacity

Model	Door	Volume (L)	Chamber Dimensions (mm)			External Dimensions (mm)			UTE	ISO
			Width	Background	High	Width	Background	High		
Smart	Double	555	670	1245	670	1250	1950	1745	8	6

Technical data

Noise Level	<78 dB
Consumo de agua	237 l/fase
Temperature range	105-135°C
Suministro de voltaje	380-400 V, 50 Hz, 3N+PE
Voltage supply tolerance	± 10%
Fuente de alimentación	80 A
Cable section	5 x 16 mm2
Potencia del generador	50 kW
Generator volume	78 l
Material cámara y recámara	Acero inoxidable AISI 316L
Pipe and door material	AISI 316L stainless steel

Camera design

The sterilizer chamber, liner and door are made **of AISI 316L stainless steel**. The internal surfaces are treated with a high-performance polishing process for easy cleaning. The chamber is fully insulated with a 30-80 mm chloride-free mineral wool, located inside a removable rigid aluminum cover. The camera is mounted on **a stainless steel frame** with adjustable legs.

Validation connections

The camera has two connections for validation:

- A 1/2" threaded connection for an optional vacuum gauge/pressure gauge (VT).
- A connection de 1” para el sensor de prueba (TT).

Automatic vertical sliding doors

The autoclave is equipped with a door **made of 316 L stainless steel**, of the highest quality, with thermal and acoustic insulation (25 cm of insulation, in compliance with the EN285 standard), which works **fully automatically** and is raised and lowered by the action of an electric motor, which does not require maintenance or lubrication. The door does not use any pneumatic system.

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The operation of the door is controlled by buttons located on the control panel. The door is automatically sealed with a **safety locking** device, which prevents opening if the chamber is under pressure or decompression, so the door cannot be open during the cycle. They also have a **mechanical safety system** that stops the door if it detects an obstacle in its path.

The door is sealed by means of a silicone rubber O-ring. At the beginning of a process, the closing gasket is pressed against the rear surface of the door; At the end of the process, the closing joint is removed and the door is opened to access it. In addition to the door security systems, the chamber features a **pressure control system** that ensures that the chamber pressure has been reduced before the door is opened.

Front lining and high-quality stainless steel **trims are included**. The temperature of the cover never reaches temperatures above 55 ºC.

Mechanical vacuum pump

The equipment incorporates a **high-efficiency liquid ring mechanical vacuum pump**, mounted on vibration isolators that ensure quiet operation and remove air from the chamber. The pump has two phases for the most effective removal of air, steam and condensate from the sterilizer chamber, the chamber and the slot of the Door sealing gasket.

Liquid ring vacuum pumps, although they involve a higher investment cost, offer important **advantages over older and cheaper systems such as the Venturi ejector**:

Saving useful time: **shorter process times**.

- As a result of the previous point, they mean a lower operational cost: **lower** electricity and water consumption.
- **Lower investment cost**: depending on the project, reducing process times can mean the acquisition of a smaller number of equipment.
- In short: they enable **superior work performance.**

The pump uses water to operate, but most of it is recycled in a continuous cycle, adding a minimum of new water per cycle. The pump includes:

- An integrated tank with an air chamber and external protection to prevent flow from returning.
- A condenser located between the chamber and the vacuum pump to convert waste steam into water, improving pump performance and protecting the pump and its drainage lines from high temperatures.
  An efficient cooling system that prevents vaporization through sterilizer exhaust.

Air filter

A disposable air filter **is provided** to filter the atmospheric air entering the chamber. The air is used to equalize the chamber pressure at the end of the sterilization cycle. The filter separation efficiency is **greater than 99.998%** for a maximum particle size of 0.3µm.

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Valves and Components

All process valves are piston valves that operate pneumatically, providing longer life and less maintenance. All pipes and valves are made of **stainless steel**. The equipment incorporates **stainless steel pipes and valves** for the flow of steam to the chamber, for the closing of the door, as well as for the drain valve of the chamber. This also includes the pipes and valves for the supply of water to the electric steam generator. Pipes through which fluids circulate at high temperatures are coated with **insulating material to protect operators and to extend the useful life of the pipe.** The special design and arrangement of the valves and ducts **allow for a significant reduction in process times**. None of the standard components are proprietary brand and are readily available.

Steam Supply

The steam supply is carried out by an **automatic integrated electric steam generator**, which is mounted under the sterilizer chamber. The pressure vessel of the steam generator is made of stainless steel, insulated with 50mm chloride-free mineral wool and situated within a removable rigid aluminum foil cover. The heating elements are made of **stainless steel**.

Water quality

The water quality must be equivalent to EN 285:2006 according to the specifications in Annex B. The requisito mínimo de calidad del agua para la dureza es ≤0.02 mmol/l y para la conductividad es ≤ 5µS/cm.

Pressure Gauges

Bar reading pressure gauges, mounted on the dashboard, are provided, displaying:

- Pressure on the chamber.
- Pressure of the chamber.
- Steam supply pressure.
- Pressure on the joints.
- Air pressure

Control System

PLC modular control system is dedicated to the control of TRANS sterilizers, including:

- Digital inputs and outputs for the sterilizer
- Control analogue measurement inputs
- COM ports for printer and PC communication

The system **controls all functions, monitors operations, provides visual and acoustic alerts** to the operator of cycle malfunctions and, on demand, provides visual information on the temperature and pressure of the chamber.

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Operator Control Panel

The control system is managed by an **easy-to-use** menu tree. By default, the operator has access to cycle selection and door control. Operators can only run standard cycles.

Access to other functions, such as running test and test cycles, setting parameters, calibration, servicing, and maintenance, is controlled using **predefined access levels**, which prevent unauthorized access. Users with a password can change the following settings (in accordance with local regulations):

- The name of the cycle
- Sterilization Time
- Sterilization temperature
- Drying Time

The operating panel is located on the charging side, above the camera door. It features an intuitive and easy-to-use main screen:

Alarms

The Siemens control system provides **automatic process verification** and fault corrections. In the event of an anomaly during the sterilization cycle, the process enters an alarm phase that will safely and automatically terminate the process. The range of alarms includes:

- High pressure in the chamber
- Low water level in the generator
- High pressure in the generator
- Pt100 Camera Temperature Sensor Error
- High Generator Temperature
- Water Pump Operating Time

The autoclave also includes a **self-diagnostic program** with a complete alert system with automatic and pre-programmed activation of information alerts on various important aspects (service intervals, maintenance, etc.)

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Programs

Getinge Trans Smart includes **6 different programs** as standard. Optionally, additional cycles can be added from among the **99 available** and **adjustable by the user**, which **require a password**.

Temperature Program		Sterilization time (min)	Drying time (min)	Load Type	Maximum Load
Textiles 134ºC	134ºC	5	10	Textiles & Wrapped Products	7.5 kg /pack
Instruments 134ºC	134ºC	5	10	Instruments in boxes and containers	15 kg / UTE
Plastics and heat-sensitive material121ºC	121ºC	20	15	Plastic Material	7.5 kg/ pack
Plastics and heat-sensitive material125ºC	125ºC	20	15	Plastic Material	7.5 kg/ pack
Bowie & Dick Test	134ºC	3.5	8	Bowie & Dick test Pack	NA*
Open liquids **	121ºC	20	NA*	Open liquids	10% of the camera capacity

**NA = Not Applicable*

****The open liquid program described is valid for current procedures performed by the customer. The parameters that govern this program are fixed and cannot be modified by the client under any circumstances.**

Monitoring system

The equipment has a **completely independent monitoring** system that constantly receives readings and compares them with the equipment's own sensors. Continuous cross-checking of the sterilizer's safety system and sterilization period is also carried out in accordance with the limit values of EN-285 and EN-17665. It prints all process data in a single printout, eliminating the need for a separate recorder.

Cycle documentation and communication

The equipment includes a printer as standard, which allows the printing of process data during the cycle and at the end of the cycle. Printed information includes transition points, pressure and temperatures, cycle start time, sterilizer date and cycle number and any alarms that occur during the cycle. In the event of a printer failure during the cycle, Siemens stores the cycle data and can, on request, reprint the last cycle. The autoclave has an **RS 232 9 connection port** for storage on **a USB device with a memory capacity of up to 10,000 cycles**.

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Savings systems

The sterilizer has a water-saving system that is used to limit the consumption of useful water during the process and to be able **to save around 45-75% of normal water consumption**. In addition, it has an energy saving system:

- Stand-by *mode*: Automatic shutdown of the chamber and steam generator when the equipment is not in use, resulting in energy savings of between 45% and 69% and additional savings in water consumption of between 39% and 75%.
- Scheduled operation: The sterilizer can be turned on automatically at the scheduled time, as well as also turned off on a scheduled basis and begin preheating and leak/vacuum testing before personnel start working.

Options

Drain Cooling

As an option (**included** in this offer), cold water can be automatically injected into the drain to reduce the temperature of the drained water **to 65-70ºC**, extending the life of the drain.

Accessories

Racks for containers and baskets

Includes **1 unit** of module for loading basket and/or containers (Ref. 6032280044) made of stainless steel.

3 units of trays **made of stainless steel are included that adapt to the procedures and needs carried out by the customer.**

Transport trolley (loading and unloading) for sterilisers

1 **unit** of transport trolley for loading and unloading (Ref. 6032280032) are included, with safety lock system.

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