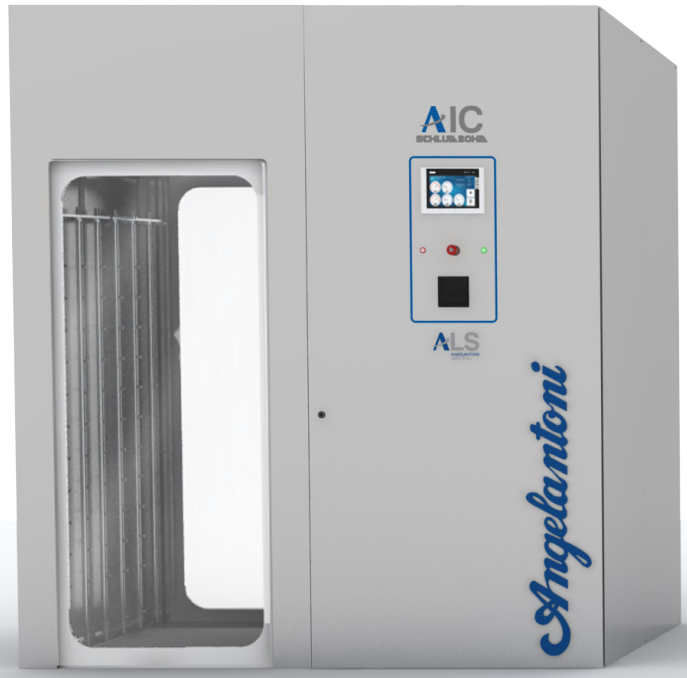
ALS
ANGELANTONI
LIFESCIENCE

EUROWASHER
Washer disinfector for trolley conteiner & shoe
Medical device

AIC
SCHLUMBOHM

Series: TCSS and TCSD with



Series TCSS

Load ergonomics

Technology

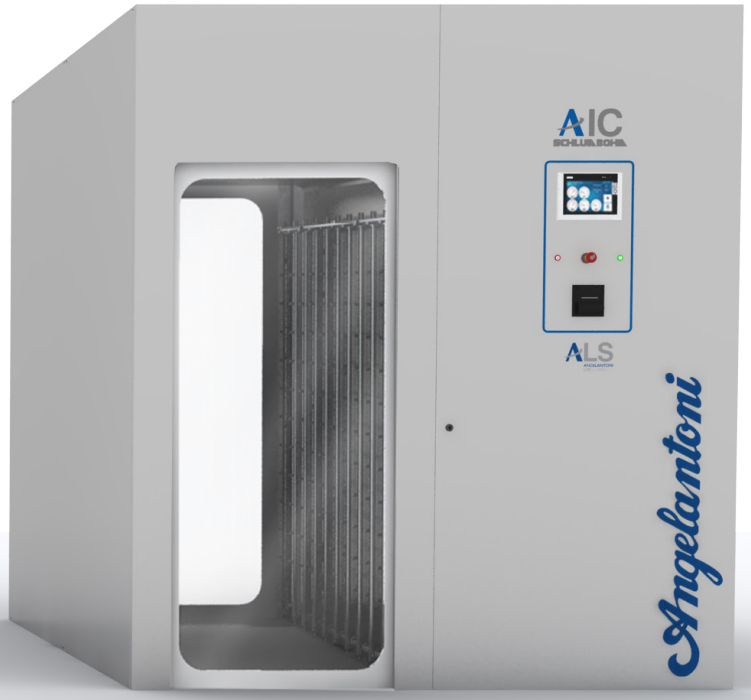
The Eurowasher MD.WSD.TCS range is a series of new generation steam sterilisers, result of the most advanced design by Schlumbohm & Angelantoni Life Science, Leader in the world of Infection Control.
German design, technology and Corporate Know-how matured over decades of activity in the sector, have supported the development of equipment based on the concept of “total quality”, able to meet the requirements of an Elite market requiring total safety assurance, absolute reliability and sterilisation processes that can be repeated in time, without burdening operators with the risk of assessment.

Total quality to produce medical devices with high construction standards, advanced techniques and innovative solutions.

Total quality for an environmentally-friendly project with almost zero impact on the environment by water consumption, and extremely low for electricity and heat dissipation.

Synergy
Know-how
Experience
Ability
Customer support

horizontal slider doors.



Series TCSD

High productivity

Savings

The constant research for greater productivity and efficiency distinguishes and accompanies us on a design journey aimed at “Safety”, “Total quality” and “Savings”. «Savings” is one of the aims that we set ourselves in the design phase; savings in operating consumption and maintenance with devices, solutions and components of high quality and reliability and long service life.

+50%
Service life

Use

In a medical device manufacturing process, the washing anddisinfecting appliance for trolleys or containers carrying sterile surgical instruments or clogs plays a critical role, being a fundamental step to first bring down and then stabilise the microbial load and assure repeatable reduction over time.

The equipment in the Eurowasher MD.WSD.TCS range of washing and disinfecting appliances for trolleys, containers, clogs has been designed to be installed in sterilisation or disinfection stations and are fundamental to assure procedures and paths that reduce contamination risks, increase productivity and make trolleys, containers or clogs perfectly washed and with significant SAL.

-60%
Water consumption

```
+======================+
+   AIC-SCHLUMBOHM     +
+======================+
SERES MDWSD.TCS2.2D.S
ID20140219000
Operator:
Number 10
+======================+
Cycle CONTAINER
Cycle starting  16:47:13
                06/03/14
Cycle N°        00000123
+======================+
RINSE
16:47  20,6°C   100,0kPa
Water loading        =01
16:48  18,3°C   100,0kPa
Washing         0060 sec
16:49  18,8°C   212,7kPa
Discharge
16:51  19,4°C   101,3kPa
Water loading        =02
16:52  44,5°C   101,3kPa
Dosage           050,0°C
16:55  50,0°C   215,3kPa
Dosage         P01=150ml
16:54  50,1°C   215,5kPa
Warming          065,0°C
16:57  65,0°C   215,6kPa
Washing         0300 sec
17:02  65,2°C   210,3kPa
Hot water discharge
17:04  42,1°C   101,0kPa
Water loading        =02
17:05  44,4°C   100,0kPa
Washing         0060 sec
17:06  52,8°C   209,7kPa
Disinfection water
discharge
17:08  47,7°C   101,1kPa
Water loading        =04
17:09  66,3°C   101,1kPa
Warming          080,0°C
17:13  80,0°C   216,0kPa
Washing         0600 sec
17:23  80,2°C   210,1KPa
Discharge
17:25  77,0°C   101,0kPa
Drying          0600 sec
17:35  77,6°C   101,1kPa
Colling down    0120 sec
+======================+
CYCLE END       17:37:23
REGULAR CYCLE
T.MAX 080,7°C
T.MIN 080,0°C
TOTAL TIME :      50 min
```

100%
Recycling

Automatic wash

The automatic wash allows contamination risks to be reduced, accelerates washing times, reduces costs and means the washing cycle can be validated. In order to ensure the process remains constant over time, the equipment in the Eurowasher MD.WSD.TCS range is fitted with devices and sensors to verify and confirm data and prevent any kind of error. In fact, after experimental tests, constant monitoring of parameters is carried out. These parameters can affect the result and/or make it inconsistent over time, such as: water pressure, water temperature, water jet moving speed, water jet mechanical action and added chemical. The appliances in the Eurowasher MD.WSD.TCS range have been tested in compliance with the standard of reference as well as similar ones to assess washing quality.

Disinfection

As well as perfect cleaning of the instruments, it is essential to achieve a substantial reduction of the microbial load at the end of the washing and disinfection process.
Furthermore, a constant value should be obtained at the end of the process with final SAL of 10-2 in order to be able to ensure a SAL of 10-6 after sterilisation. Constant and precise monitoring of the "bioburden" allows the validity of disinfection, and the trend over time, to be assessed.
The thermochemical energy released by the chemical solution diluted in hot water allows a double effect to be obtained by attacking the micro-organisms with two different activities in order to overcome their resistance. In order to ensure the process as well as the final result remain constant over time, the equipment in the Eurowasher MD.WSD.TCSBO range is fitted with devices and sensors to verify and confirm data and prevent any kind of error. In fact, after experimental tests, constant monitoring is carried out of parameters that affect the result and/or make it constant over time, such as: detergent and disinfectant dosage, checking PH on discharge, water temperature adjustment, contact time of water at temperature with the surface of the instruments (A0) and chemical residue after rinsing. The appliances in the Eurowasher MD.WSD.TCS range have been tested in compliance with the standard of reference as well as similar ones to assess disinfection quality.

Washing and disinfection cycles

The Eurowasher MD.WSD.TCS line is configured with the following cycles:

1 - Thermo-chemical washing and disinfection for "T" trolleys at 93°C for 10 minutes
2 - Thermo-chemical washing and disinfection for "C" containers at 93°C for 10 minutes
3 - Thermo-chemical washing and disinfection for "S" clogs at 65°C for 10 minutes
4 - Equipment washing and self-disinfection

Productivity

Thanks to the large size of the washing chamber and quick cycle, the Eurowasher MD.WSD.TCS range affords great hourly output. The care in the details of plants, components and devices affecting and intervening in the performance of the washing and disinfection cycle, has allowed phases to be sped up and times to be reduced, thus increasing the production capacity. In particular, the reduced amount of water per phase, the shape of the chamber to take water back to the pump quickly, water preheating, quick water loading, the high performance recirculation pump, the quick water discharge and turbulent flow drying through the impeller blades of the trolley and the diffusers in the lower part of the chamber opposite the suction allow phases to be sped up and make execution of the cycle quick.

Ergonomic loading

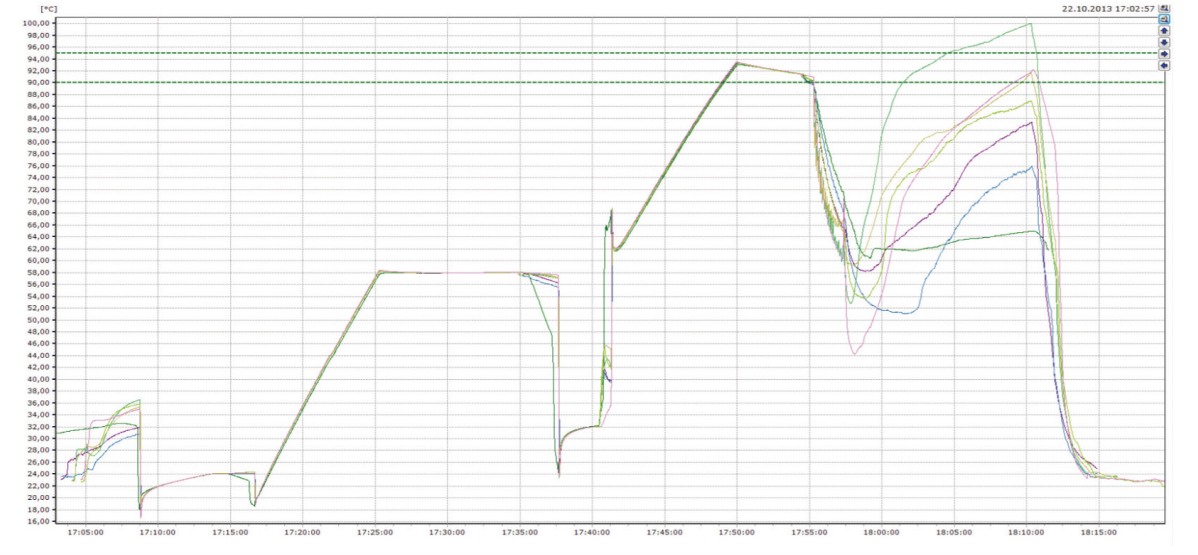
In view of the minimum size of the recessed part, the Eurowasher MD.WSD.TCS range may easily be installed flush with the floor.
This assures ergonomic loading height and allows all loading levels to be conveniently reached, as well as making the arrangement of "C" containers and "S" clogs safer, thus reducing the risk of operators' incidents due to visibility.
For "T" trolleys, the "C" universal container trolley and "S" clogs, the fact that the chamber is flush with the floor with a plane connecting it to the floor makes loading easier and eliminates strain and risks for operators.

Environmental impact

The Eurowasher MD.WSD.TCS line has been developed by applying environmentally friendly design with the aim of preserving the environment in which we live; adopting innovative technical solutions and high quality components, in order to significantly reduce consumption and, therefore, reduce pollution throughout the entire life cycle. Building on the idea of producing sustainable consumption equipment, reducing environmental impact, significant and measurable objectives have been reached that enhance the Eurowasher MD.WSD.TCSBO line in view of the performances it reaches. Highlighted aspects are water consumption, energy consumption and recyclability.

Validation

Validation is one of the most important operations as it allows verifying, after installation, whether design conditions are respected. In particular, for the load object of the validation, we can verify that temperature, doses of chemical solutions and time fall within the correct parameters to ensure the effectiveness of the washing and disinfection process in compliance with the reference standard UNI EN ISO 15883-1.



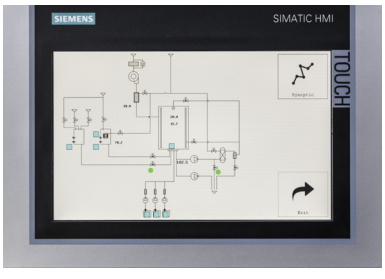
Technical solutions for the various applications

The equipment in the Eurowasher MD.WSD.TCS range is fitted with specific, suitably designed devices in order to optimise washing and disinfection phases depending on applications, thus the connected device must be selected depending on the material to be handled:

- For the “T” trolley treatment cycle, a device was designed consisting of a set of manifolds placed vertically on the two sides of the washing chamber with automatic reciprocating motion, on which are installed a set of nozzles fed by a high flow rate pump in order to fully cover the washing and disinfection area.

- For the “C” container treatment cycle, a device was designed consisting of a universal trolley with levels that allows 20 containers to be loaded simultaneously from a sterilisation unit including lids fastened onto specific kits. The trolley for each level is fitted with rotating arms with spraying nozzles fed by a high flow rate pump in order to fully cover the washing and disinfection area.

- For the “S” clogs treatment cycle, a device was designed consisting of a universal trolley with levels that allows 120 pairs of clogs to be loaded simultaneously onto specific kits. The trolley for each level is fitted with rotating arms with spraying nozzles fed by a high flow rate pump in order to fully cover the washing and disinfection area.



Bioseal

The modern concept of a sterilisation or disinfection unit calls for equipment, flows, paths, procedures, checks and traceability that must be implemented in order to consider instruments' ''re-processing'' safe. Specifically, the separation of clean and dirty environments is thus essential to reduce contamination risks. Hence the need to create a barrier inside the washing and disinfecting appliance for through trolleys&containers&clogs&beds between clean and dirty, that prevents contact between the areas.
The Eurowasher MD.WSD.TCSBO line is produced in order to fully meet this need through complete separation of the equipment on the sterile side - the so-called ''Bioseal'', which is aligned and sealed with the wall.

Industrialization

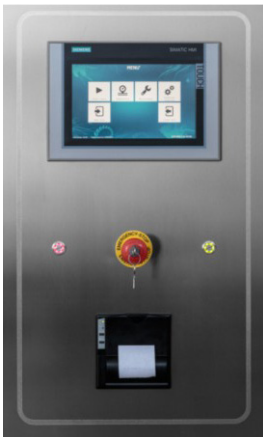
The position of the components, main units and operational phases to facilitate pre-assemblies and general assemblies, are analysed since the design phase, to significantly reduce times and costs in a serial production.
The reduction of phases and the repetition of assembly
operations, together with the optimisation of the semi-finished products, support the industrialisation of the production process and constant preservation of high quality standards of the finished product.

Directives, Certificates, Quality and Construction Standards

The Eurowasher MD.WSD.TCS line equipment is CE marked with the identification number issued by the Notified Body according to European Directive 93/42/EEC and 2007/47/EEC as a Medical Device and with European Directive 2009/125/EEC (eco-design).
They also comply with European Directives: 2006/95/EEC for Low Voltage, 2004/108/EEC for Electromagnetic compatibility and 2006/42/EEC for Machinery.
Construction is done in compliance with the European Standards of reference UNI EN ISO 15883-1-2:2009 (washing and disinfection) and those related to it. UNI EN ISO 17665-1 (development, validation and routine testing), CEI EN ISO 61010-1 (electrical safety), CEI EN ISO 61010-1-040 (electrical safety), CEI EN ISO 61010-2-041 (electrical safety) CEI EN ISO 60204-1 (electrical equipment), UNI CEI EN ISO 17050-1:2005 (conformity assessment), UNI EN ISO 14971-1:2000 (risk analysis), EN IEC 62304:2006 (software validation) and EN IEC 62366:2008 (human-machine interface).
All of that within a UNI EN ISO 9001 Quality System (quality certification) and UNI EN ISO 13485 (medical quality certification).

Main construction features

1 Supporting structure, front and side panels in AISI 304 stainless steel.
2 AISI 316L, 1.5mm-thick stainless steel washing chamber.
3 Chamber bottom with central drain and filtering.
4 Door/s in double high resistance thermal glass with argon/krypton gas inside.
5 Horizontal door sliding device.
6 Pneumatic door seal device.
7 AISI 304 stainless steel pre-heating tank.
8 Drying unit fitted with bacteriological filter, turbo fan and electric heating elements.
9 Water condensation unit with total vapour removal.
10 Washing impeller blades on the special trolley only for versions “C” and “S”.
11 Manifolds with vertical nozzles for version “T” and “B”.
12 Perfectly drainable and cleanable chamber.
13 Automatic plane connecting to the floor.
14 High delivery performance single pump.
15 Loading height flush with floor.
16 Double data detection systems.
17 Siemens Simatic ET200S integrated safety, programmable electronic controller.
18 Siemens TP900 Comfort colour, high resolution touch screen monitor.
19 Alphanumerical printer on board the machine.
20 Remote connection-ready.
21 Modular universal trolley with specialised racks for containers and clogs.
22 Automatic connection between universal trolley and machine.



Range of product EUROSTEAM TCS

Series	Model	Capacity (l)	Chamber dimensions (WxHxD mm)	Overall dimensions (WxHxD mm)
TCSS	MDWSD.TCSS.2550.1/2HSD.E/S/ES	2550	850X2000X1500	2300x2600x1700
TCSD	MDWSD.TCSD.5100.1/2HSD.E/S/ES	5100	850X2000X3000	2300x2600x3200

Definition of the model code:

EUROWASHER range for Medical Devices:
Type of equipment - container, trolley & clogs washing and disinfecting appliance
Medical Device - “MD”: Hospital Application
Thermochemical - “WSD”: Washing and Disinfection Machine
Series - “T”: Loading capacity 1 or 2 trolleys (S or D)
Series - “C”: Loading capacity 1 or 2 trolleys with 20 containers of 1 US each (S or D)
Series - “S”: Loading capacity 1 or 2 trolleys with 120 pairs of clogs each (S or D)
Volume litres : Chamber capacity in litres
Execution - “1 or 2”: Number of Doors
Door movement - “HSD”: Automatic horizontal sliding door
Heating - “E/S/ES/SE”: Internal Electric Steam Generator / Centralised Steam / Electric-Steam / Steam Exchange

Example. Model MD.WSD.TCSD.5100.2HSD.S

Medical Device
Washer disinfector machine
Two trolleys for containers or clogs and two sterile material carrying trolleys
5100 litres
2 Horizontal sliding automatic doors
Steam exchange heating with connection to the main mains

Angelantoni Life Science

Our skills and basic services for total customer satisfaction:

- Training, either at our premises a the customer's premises
- Testing and quality control
- Process Validations (IQ-OQ-PQ)
- Design for Central of sterilization (CSSD) and central of disinfection (CSDD).
- Management of traceability and remote control of the equipment
- Certificate tools SIT Calibration
- Service contracts "full risk"
- Extended warranties
- Research and development
- Production and Assembly
- Installation and commissioning
- Preventive maintenance
- Market analysis and advice
- Special applications

Angelantoni Life Science (ALS) is sub-wholly-owned holding company Angelantoni Industrie, is among the internationally leading supplier of refrigeration equipment and designing technological solutions in the biomedical field, with a constant commitment to innovation and safety, environmental or biological.
Research centres, hospitals, laboratories, universities, industrial companies of chemical and pharmaceutical sectors are the target Customers of ALS, which covers all the requirements of refrigeration, control of infection (Infection Control) and microbiological safety through a wide range of standard and special products.
Angelantoni Life Science is present in more than 40 countries and can be an ideal partner in Science and Technology.
Angelantoni Life Science, with agents and distributors in over 40 countries, is the ideal partner for the health sector and scientific research. Angelantoni Life Science has a long presence in refrigeration applied to biomedical field, both in research and industrial sectors within the cleaning, disinfection and sterilization with a complete range of equipment and services to meet the needs of sterilization (CSSD), disinfection stations (CSDD) and special applications BSL3 laboratories-BSL4 and treating infected waste (Biohazard).
Our strength comes from the expertise of engineers and handed experience that they have acquired in the design, by the professionalism of the technicians in the production and service, from coordinating manager who complete our team.
Each team member brings their enthusiasm and their scientific and industrial knowledge, in a working environment that stimulates innovation and development.
Angelantoni Life Science invests more than 10% of its turnover in research and development, which involved a multidisciplinary team of scientists that provides clients with cutting-edge solutions in terms of quality, reliability and innovation

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