



Steam sterilizing autoclaves

for hospitals, CSSD and medical centers



Now with

4D^{IR} SENSOR

The technology for monitoring
steam saturation & penetration
of every sterilization load

Miele

Group
Member



Driven by customer needs

Steelco is a leading infection control solution provider, supplying the healthcare, laboratory research and pharma sectors. Active in over 100 countries, Steelco has equipped numerous world renowned hospitals and counts among its customers household names in the laboratory, pharmaceutical and industrial sectors.

Driven by customer feedback, Steelco develops, manufactures and supplies solutions that maximize infection control safety, optimize processes and minimize costs. Our focus on innovation has led us to become leaders in areas such as automation.

Whether you are just wishing to replace a single small machine or assistance in designing and equipping a large central CSSD, Steelco and it's factory trained dealers are here to help you make the best decision possible that works for you and then support you every step of the way.



*Steelco ATS
Automatic Transfer System*

Leading in process safety innovation

Steelco has developed the technology for the biggest step forward in instrument steam sterilization process safety since Bowie & Dick test (1963).

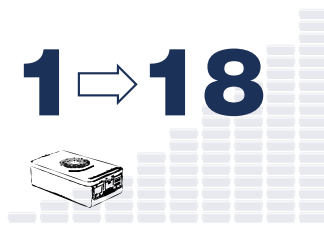
4D^{IR} SENSOR

4D^{IR} sensor technology is a breakthrough innovation in steam sterilization monitoring.

It performs state-of-the-art steam saturation and penetration monitoring by directly measuring sterilitant conditions of every load as required by the standards (EN 285:2015, ISO 17665-1:2006 clause 10.1)!

Leading in high efficiency innovation

Steelco has developed a full range of high capacity steam sterilizers for the perfect solution from the smallest facility to the largest central sterilization supply department.



Steelco sterilizers offer: **versatility, safety, high performance**, with **low cost of ownership** and **traceability**.

From the processing of **a single STU up to 18 STU per cycle**, each model in our range of steam sterilizers combines high productivity with cost efficiency: an effective tool to improve CSSD running costs.



Steelco sterilizers are engineered to offer best in class solutions for the reduction of energy and water consumption to give users lowest operating costs per load.

ECO options: Steelco's range of high end solutions to save water and energy.

Supporting you every step of the way

Steelco provides technical service and user training courses at the Steelco Academy as well as at customer sites.

Our optional remote diagnostics capabilities and worldwide team of factory trained engineers ensure that you receive the service support you need to cost effectively maximize the uptime of your sterilizers.





Steelco VS Series

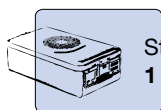
A full range for any size of facility

With innovative high performance sterilizing technology, Steelco's autoclave chamber is made of AISI 316L stainless steel and entirely covered by a high efficiency jacket to ensure fast heating and reduced cycle times. This ensures even heat distribution and reduced utilities consumption for heating and cooling.

This new chamber design minimizes dead space for optimal loading and throughput.

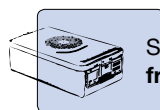


VS 1 TT
Tabletop autoclave
Horizontal sliding door



Sterilization chamber
1 STU

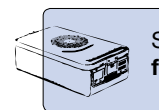
VS Series
Small capacity
Vertical sliding door



Sterilization chamber
from 1 to 3 STU

VS Series
Medium capacity
Vertical sliding door

4D^{IR}



Sterilization chamber
from 4 to 12 STU

Standard compliant

Steelco steam sterilizers VS Series are designed and constructed to comply with the latest guidelines:

- 93/42/EEC and its revised versions, Medical Device Directive
- 2014/68/EU Pressure Equipment Directive
- 2006/42/EC Machinery Directive
- 2014/30/EU EMC (Electro-Magnetic Compatibility) Directive



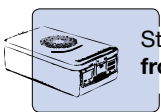


- Single and double door pass through options
- Technical service access either on the left or right loading side



VS H Series
Large capacity
Horizontal sliding door

4D^{IR}



Sterilization chamber
from 12 to 18 STU



VS 36 L
Steam disinfection unit
Horizontal sliding door

for reprocessing of mattresses, pillows and quilts
Capacity **3800 litres / 1,005.53 gal**

Steelco is unique in offering fully automated loading and unloading options for both vertical and horizontal door sterilizers. Steelco can provide a full system planning service based on 3D architectural modelling to support CSSD team managers in customizing lay-out configurations for new or refurbishment projects.



VS series steam sterilizers

main features

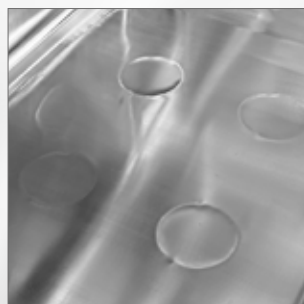
4D^{IR} SENSOR



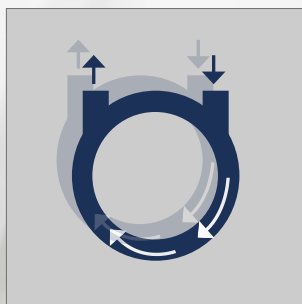
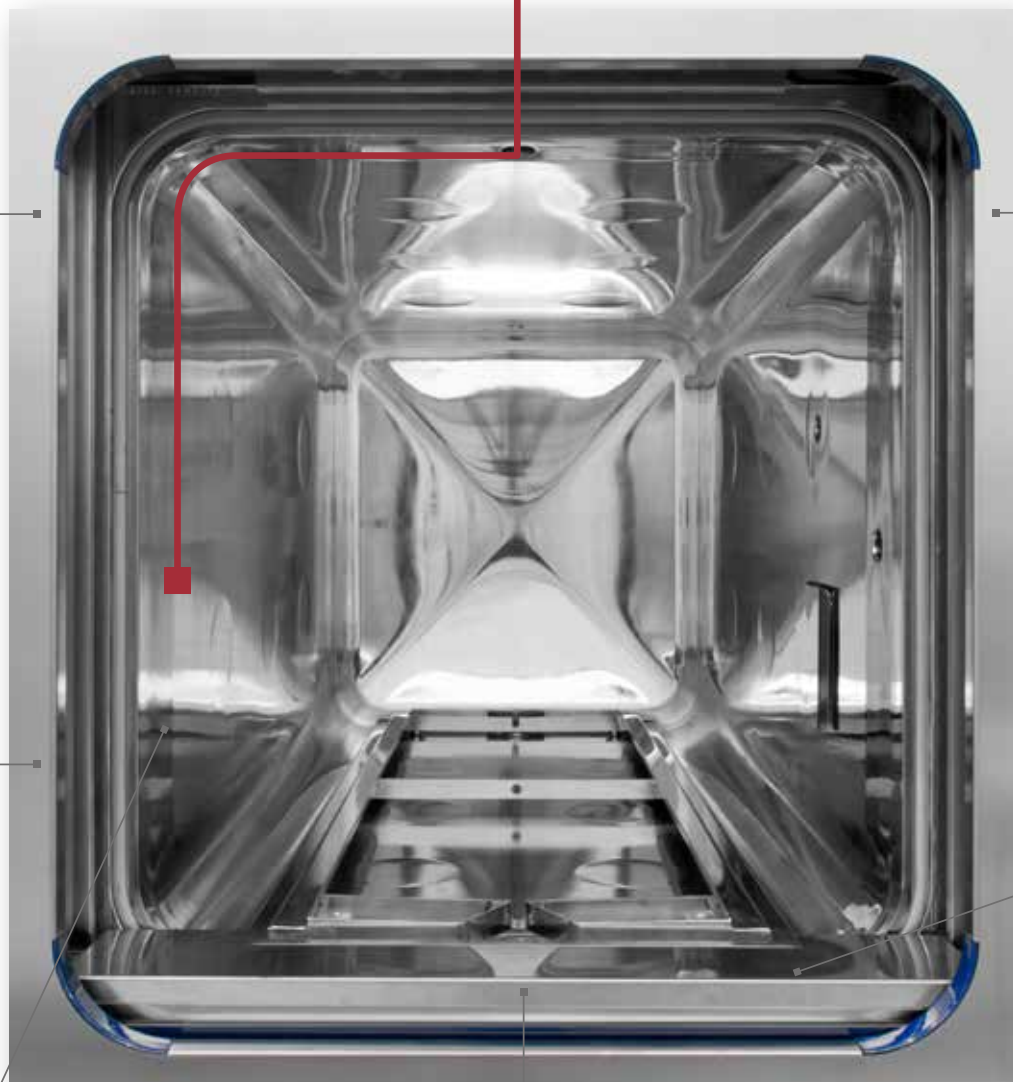
Friendly control panel with multi level user access system.



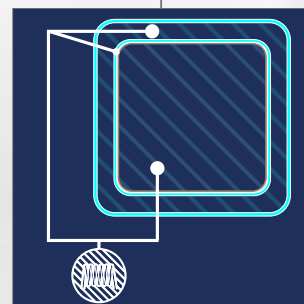
A built in degassing device placed on top of the sterilizer allows the reduction of the NCG concentration of the water for steam generation below the 3,5% Vol. according to EN 285 norm.



Full high efficiency heat transfer jacket system.



Two stage liquid ring vacuum pump for faster processes.



Separate direct injection of steam into the jacket and chamber for better steam quality.

State of the art technology!

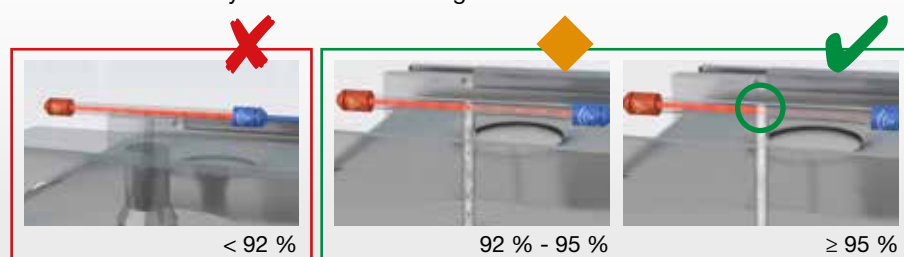
The 4D^{IR} sensor is currently **the only commercially available instrument that ensures the control of sterilization conditions** as required by regulations such as EN 285: 2015 and ISO 17665-1:2006 clause 10.1 by state-of-the-art **direct measuring the sterilant** conditions.

How does the 4D^{IR} sensor work?

It measures steam saturation, the only parameter which can guarantee that sufficient steam is present in the sterilizer chamber and load and that there are no excessive residues of non-condensable gasses. **The measurement takes place at the close end of a long narrow channel (70 cm) in the chamber to simulate a worst-case scenario** of the most challenging hollow surgical instruments. An emitted infrared radiation is filtered by the steam according to its concentration level:



Heat insulation with durable fabric covering for improved service maintenance.



the **greater the absorption of IR light by steam**
the **higher the saturation of steam**

Steam presence and steam penetration are proven, monitored and registered in real time during the sterilization plateau every single second together with the other relevant cycle parameters.

Which are the benefits?

Since every sterilization cycle is a unique event, most of the benefits in terms of safety come from **continuously monitoring steam penetration** throughout each cycle, in addition 4D^{IR} sensor:

- **Provides a numeric indication of the steam saturation** to define a 'pass', a 'pass with warning' or a 'fail'. A pass with a warning alerts users that the sterilizer may need maintenance but currently the sterilization conditions comply with the specifications in the standards.
- **Provides traceability** of the steam penetration by recording the 4D^{IR} sensor cycle data, **reducing handling time and potential human errors thus improving patient safety. Digital tests and traceability guarantee savings in a very short time.**
- **Performs a "self-test" before each steam penetration test cycle:** a unique automatic feature not available in any other chemical or biological indicator or digital device.
- Steelco 4D^{IR} sensor exceeds the challenge of the Bowie & Dick test and is third party certified (it is also certified as class 6 PCD Helix test).

Additional information!

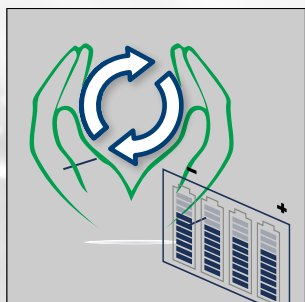
A practical guide is available, it includes:

- **Questions and Answers** to quickly get into the topic on how the 4D^{IR} sensor technology can improve your sterilization process safety.
- **Scientific literature** and additional comments.
- **Deep dives** on related topics.

Ask for it or download it from www.steelcogroup.com site!



Safety, design and strength.



Up to 5 minutes of continuous operation in the event of a power failure.



ECO - water and energy saving options

unrivalled levels of efficiency

Steelco's sterilizers are already efficient compared to equivalent competitor models.

To assist our customers conserve water even further, Steelco has introduced ECO water saving packages that can reduce overall water consumption up to 90% depending on chosen options. This means that a 1 DIN standard STU container can be reprocessed using as little as 1.5L of water.

As part of its environmental water saving policy, Steelco equips all sterilizers as standard with its ECO 1 water saving package.



-50%
-35%
-26%

ECO 1

This option, included as standard, helps to achieve **a reduction in water consumption on average of 35%** with less water needed to cool down the drain prior to discharge.

- Saves water
- Cools drain water



-90%

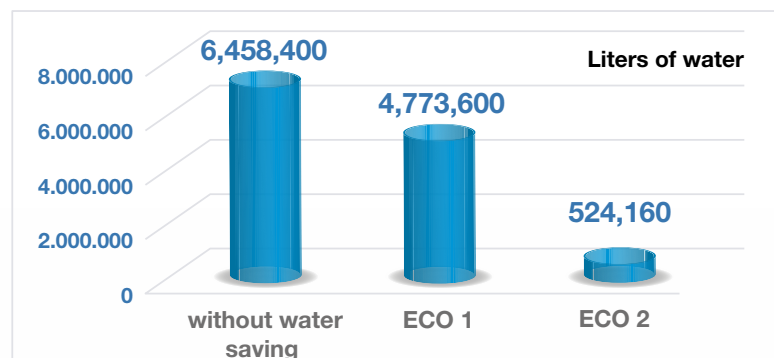
ECO 2

This option involves the use of chilled water from a chilled water system. It consists of a set of high efficiency heat exchangers enabling a substantial saving in water consumption by the vacuum pump and **over 90% reduction of total water usage**. Drain water is also cooled, so that separate tap water does not need to be used to lower the temperature prior to discharge.

- Saves water
- Cools drain water

Every drop counts!

Example of the **annual water consumption in liters** of a CSSD of a typical university hospital with 4 units of 18 STU sterilizer with house steam: 15 cycles per day, 6 days a week, 52 weeks a year.



Steelco quotes savings in water and electrical consumption compared to its standard machines, not against worst performing machines from other companies.

Only actual consumption figures for specific cycles with and without utility saving packages provide a realistic comparison.

Process cycles

20 programmes, 12 factory pre-defined, 8 custom.

Working programmes

Process cycles according to EN 285 are factory programmed and available for the operator to select via the touch screen control panel.

Standard programme cycles include: 121°C/ 249,8°F and 134°C/273,2°F, for textiles, instruments, rubber.

Additional programs are available such as a Prion cycle or can be programmed and validated according to customer specifications.

Temperature inside the chamber is uniformly distributed with a temperature deviation of less than 0.5°C.

The touch screen displays cycle status and alarms with cycle data stored on the PLC and available from the integrated printer.

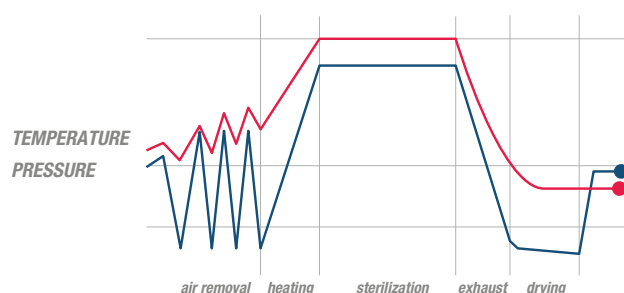
If the steam sterilizer is equipped with the 4D^{IR} sensor, steam penetration information that are monitored in real time every single second are also collected for cycle data traceability together with the other critical information parameters.

Test/service programmes

Vacuum Leak Test: this cycle is used to verify the vacuum integrity of the sterilizer

Bowie-Dick Test: this cycle is used to verify the effectiveness of steam penetration and air removal

Helix Test: the purpose of this test is to check steam penetration down a long lumen, replicating the processing of hollow instruments.



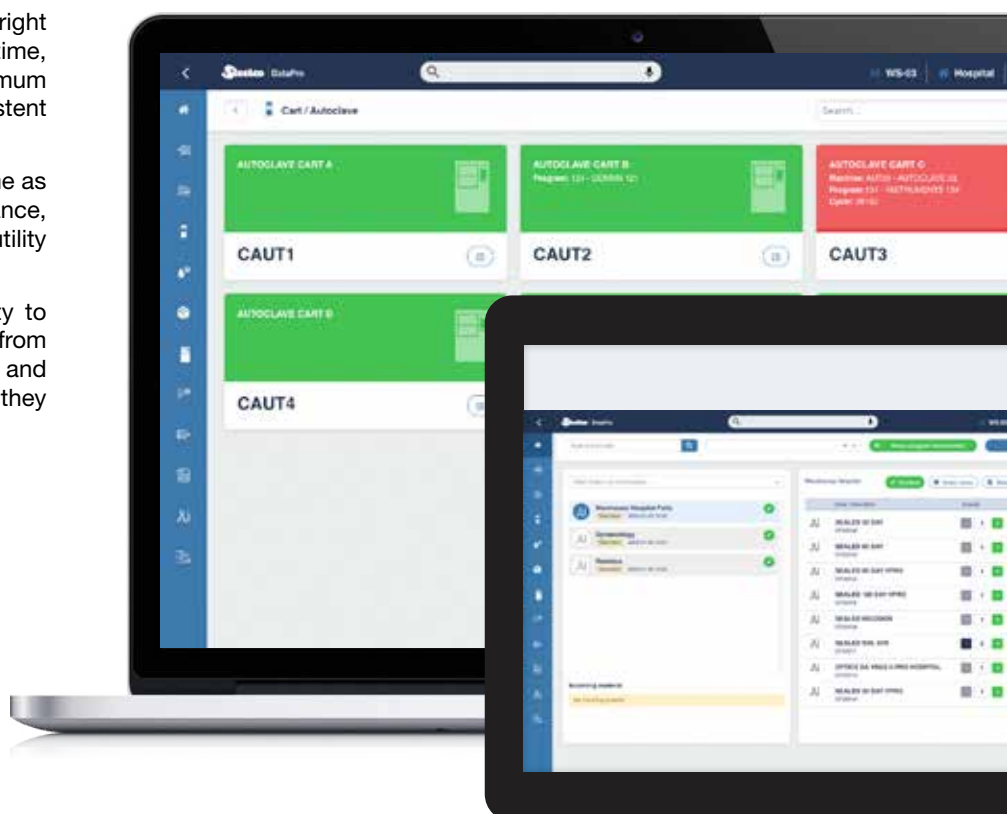
Total process control

advanced software traceability solutions

Steelco helps you to ensure you have the right instruments in the right place at the right time, reprocessed to the correct standard in the minimum amount of time and the lowest cost on a consistent basis.

SteelcoData Live allows you to see in real time as well as historic records of machine performance, cycles performed, any alarms as well as utility consumption.

SteelcoData Pro provides you the possibility to track sets as well as individual instruments from their use in the OR through each stage of and reprocessing, transportation and storage until they are ready to be used in ORs again.





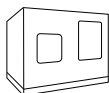
Technical data

STEAM AUTOCLAVES	VS 1 TT	VS 1 → 1,5	VS 2 → 3	VS 4 → 12	VS 12H→18H
Compliance with standards					
EN 285	•	•	•	•	•
european machine directive 2006/42/EC and medical device directive 93/42/EEC	•	•	•	•	•
PED marking	•	•	•	•	•
Chamber					
type/section (round, rectangular)	○	○	□	□	□
sliding door opening (horizontal, vertical)	→	↓	↓	↓	↔
AISI 316 L	•	•	•	•	•
AISI 316 Ti	-	○	○	○	○
mirror polishing	○	○	○	○	○
Technical area					
configuration (Left or Right)	R	L/R	L/R	L/R	L/R
front access for service	•	•	•	•	•
820mm height stand cabinet	○	-	-	-	-
Load capacity					
number of STU	1	1/1,5	2/3	4/6/8/10/12	12/15/18
number of levels	1	1	2	2	3
loading trolley	-	○	○	○	○
Easy Load system	-	-	-	○ ¹	-
loading/unloading automation	-	-	-	○ ²	○
ATS automatic transfer system	-	-	-	○ ²	○
Control system and traceability					
7" touch screen graphic LCD display	•	•	•	•	•
10" touch screen graphic LCD display	-	○	○	○	○
barcode reader for cycle parameter recognition	○	○	○	○	○
integrated printer	•	•	•	•	•
ethernet port	•	•	•	•	•
5 minutes power save	○	○	○	○	○
SteelcoData Live software for cycle traceability and equipment monitoring	○	○	○	○	○
Process cycles					
working programs: 121°C/ 249,8°F and 134°C/273,2°F, for textiles, instruments, rubber	•	•	•	•	•
test/service programs heating, vacuum, Bowie Dick, Helix	•	•	•	•	•
custom programs	•	•	•	•	•
auto start function	○	○	○	○	○
Process monitoring					
4D ^{IR} sensor: includes automatic execution of heating, vacuum, Bowie Dick and Helix tests. Allows the continuous monitoring of steam saturation/penetration in every cycle.	-	-	-	○	○
Process water quality					
Degassing unit for steam generation water allows the reduction of the percentage of Non Condensable Gasses and the "save the cycle" water feeding of the water for the steam generator.	-	-	○	○	○
ECO options					
ECO 1 - Water saving, drain cooling	-	•	•	•	•
ECO 2 - Water saving with chiller system	-	○	○	○	○

• = Standard ○ = Optional - = Not available

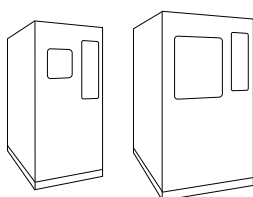
Capacity and dimensions

VS 1 TT tabletop autoclave 1 STU



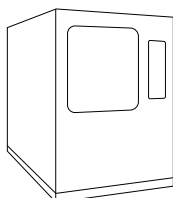
model	chamber (Ø - WxHxD) - mm/inch				litres/gal	overall (WxHxD) - mm/inch			
Single door									
VS 1 TT/1	420/16.53	310/12.20	310/12.20	682/26.85	94.44/24.95	1050/41.34	900/35.43	800/31.50	

VS Series small capacity 1 - 1,5 - 2 - 3 STU



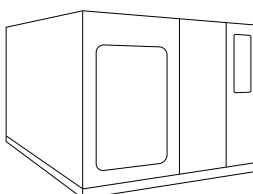
model	chamber (Ø - WxHxD) - mm/inch				litres/gal	overall (WxHxD) - mm/inch			
Single door									
VS 1/1	420/16.53	310/12.20	310/12.20	782/30.79	108/28.53	800/31.50	1700/66.93	1000/39.37	
VS 1,5/1	420/16.53	310/12.20	310/12.20	1082/42.60	150/39.63	800/31.50	1700/66.93	1300/51.18	
VS 2/1	-	440/17.32	700/27.56	645/25.39	200/52.83	1000/39.37	1900/74.80	992/39.05	
VS 3/1	-	440/17.32	700/27.56	945/37.20	290/76.61	1000/39.37	1900/74.80	1292/50.87	
Double door									
VS 1/2	420/16.53	310/12.20	310/12.20	718/28.27	100/26.42	800/31.50	1700/66.93	1000/39.37	
VS 1,5/2	420/16.53	310/12.20	310/12.20	1018/40.08	141/37.25	800/31.50	1700/66.93	1300/51.18	
VS 2/2	-	440/17.32	700/27.56	670/26.38	205/54.15	1000/39.37	1900/74.80	992/39.05	
VS 3/2	-	440/17.32	700/27.56	970/38.19	300/79.25	1000/39.37	1900/74.80	1292/50.87	

VS Series medium capacity 4 - 6 - 8 - 10 - 12 STU



model	chamber (WxHxD) - mm/inch			litres/gal	overall (WxHxD) - mm/inch		
Single door							
VS 4/1	670/26.38	700/27.56	686/27.01	322/85.06	1250/49.21	1900/74.80	992/39.06
VS 6/1	670/26.38	700/27.56	986/38.82	462/122.05	1100/43.31	1900/74.80	1292/50.87
VS 8/1	670/26.38	700/27.56	1286/50.63	603/159.30	1100/43.31	1900/74.80	1592/62.68
VS 10/1	670/26.38	700/27.56	1586/60.87	744/196.54	1100/43.31	1900/74.80	1892/74.49
VS 12/1	670/26.38	700/27.56	1940/76.39	910/240.40	1100/43.31	1900/74.80	2222/87.48
Double door							
VS 4/2	670/26.38	700/27.56	710/27.95	333/87.97	1250/49.21	1900/74.80	992/39.06
VS 6/2	670/26.38	700/27.56	1010/39.76	474/125.22	1100/43.31	1900/74.80	1292/50.87
VS 8/2	670/26.38	700/27.56	1310/51.57	614/162.20	1100/43.31	1900/74.80	1592/62.68
VS 10/2	670/26.38	700/27.56	1610/63.39	755/199.45	1100/43.31	1900/74.80	1892/74.49
VS 12/2	670/26.38	700/27.56	1940/76.39	910/240.40	1100/43.31	1900/74.80	2222/87.48

VS H Series large capacity 12 - 15 - 18 STU



model	chamber (WxHxD) - mm/inch			litres/gal	overall (WxHxD) - mm/inch		
Single door							
VS 12 H/1	670/26.38	1050/41.34	1286/50.63	905/239.08	1860/73.23	1900/74.80	1592/62.68
VS 15 H/1	670/26.38	1050/41.34	1586/62.44	1116/294.82	1860/73.23	1900/74.80	1892/74.49
VS 18 H/1	670/26.38	1050/41.34	1886/74.25	1327/350.56	1860/73.23	1900/74.80	2192/86.30
Double door							
VS 12 H/2	670/26.38	1050/41.34	1310/51.57	922/243.57	1860/73.23	1900/74.80	1592/62.68
VS 15 H/2	670/26.38	1050/41.34	1610/63.39	1133/299.31	1860/73.23	1900/74.80	1892/74.49
VS 18 H/2	670/26.38	1050/41.34	1910/75.20	1344/355.05	1860/73.23	1900/74.80	2192/86.30

Clean steam supply system - Steelco steam sterilizers can be powered from several sources*:

- external clean steam supply (**type V**)
- built-in electrically heated steam generator (**type E**)
- built-in industrial steam heated steam generator (**type I**)
- built-in mixed electrical/industrial steam generator (**type E/I**)
- combining steam generators and external steam sources on request (**type E/V, I/V...**)

* The steam supply of VS 1 TT is **type E** only.



Water quality

water softener and reverse osmosis water purification systems

Effective steam sterilization requires correct water quality. This also helps to prevent the deposition of any contaminants such as limescale. Steelco offers a wide range of water treatment options for different sized facilities.

- Water softeners
- RO and DI water systems
- Water chillers

Accessories

Loading automations, racks, shelves and transport trolleys

Steelco range includes accessories to improve the efficiency of the CSSD, loading carts, systems for stacking baskets and containers, motorized transfer trolleys with adjustable height as well as conveyors and pass-through hatches.

Easy Load system for stackable loads such as containers or baskets. The system does not need a passthrough return hatch resulting in a more space saving installation.

Shelves and loading racks, with height adjustment.



Transport trolley
from 1 up to 6 STU as well as dedicated capacity



fixed height

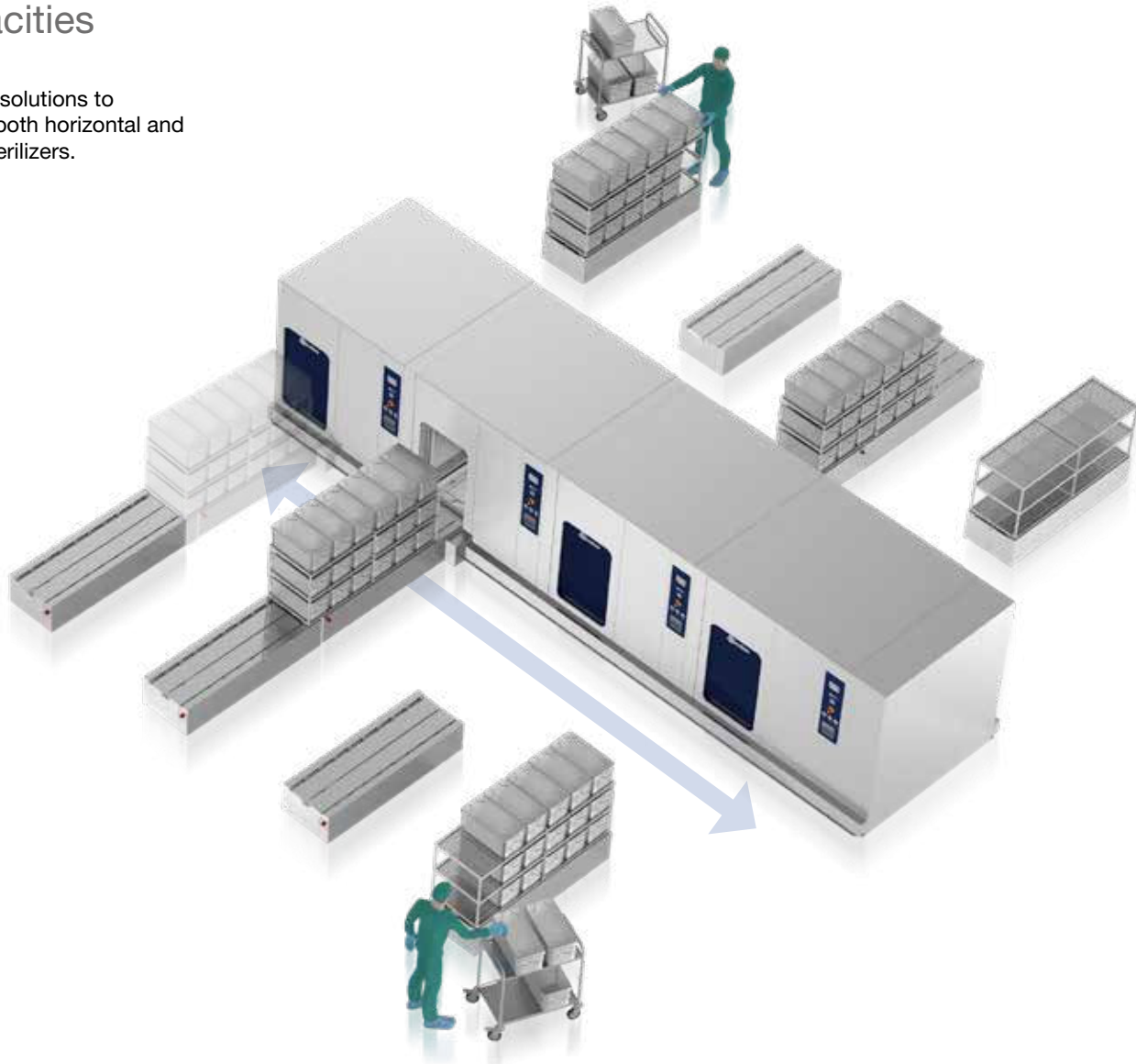
powered adjustable height



Systems and automation

automation solutions for different capacities

Tailor made automation solutions to maximize efficiency for both horizontal and vertical door opening sterilizers.



ATS benefits

- Reduction of the risk of injuries related to manual loading and unloading of heavy loads.
- Automatic selection of right cycle for type of goods via barcode system.
- Optimized running efficiency of sterilizers with equal workload distribution to assist with maintenance planning.
- Enables sterilizers to be located in narrow areas that are not normally accessible with manual loading.
- Easy cleaning of the area below the ATS system.






VS 36 L

Steam disinfection unit

Professional reprocessing of bedding materials

Reducing the risk of cross infection from any goods that can come into direct contact with humans such as mattresses, pillows, bed linen etc... is of primary importance. The automated steam disinfection of such items is the most effective, reliable and economic way to protect both personnel and patients of a health care facility.

With proven and reliable high performance steam disinfection technology, this Steelco autoclave's chamber is made of AISI 316L stainless steel with a **full jacket system for even steam/heat distribution**.

- 
- + Disinfection programs covering the A, B and C range of effectiveness according to the RKI requirements
 - + Fast process and high capacity:
 - up to 7 BA (according to DIN 58949)
 - up to 10 mattresses 120mm h
 - up to 12 mattresses 100mm h
 - + Dedicated loading trolleys for mattresses, pillows and quilts
 - + Cycle traceability through integrated printer or network connection



Steelco VS 36 L

Models:

VS 36/1 L single door

VS 36/2 L double door

Capacity: litres/gal 3.806/1,005.53

Chamber (WxHxD):

1.050 x 1.450 x 2.500 mm

41.34 x 57.09 x 98.43 inches

Overall (WxHxD):

2.800 x 2.150 x 3.000 mm

110.24 x 84.65 x 118.11 inches

Main features

- Chamber and process piping made of stainless steel AISI 316L
- Horizontal sliding door made of stainless steel AISI 316L for durability and ease of cleaning
- Sensitive anti-finger trapping safety device
- Cladding made of stainless steel AISI 304
- Suitable for floor level installation
- Direct and indirect steam to steam feed versions
- Easy service with frontal access
- 7" touch screen panel HMI
- Integrated thermal paper printer

Main optional features

- Water saving packages
- SteelcoData Live supervisor software
- Drain cooling system
- Loading trolley
- 5 minute UPS
- Remote vacuum pump

Programs according to the RKI requirement

Cycles from 75°C to 105°C with disinfection times between 5 and 20 minutes according to the range of effectiveness needed as per RKI recommended protocol.

Disinfection of condensate available as an option.

Possibility to program up to 8 additional cycles following customer needs.



User friendly 7" touch screen control panel



Miele Group Member

ARES - flexible endoscope automated reprocessing system



Dental washer disinfectors

Flusher disinfectors

Steam sterilizing autoclaves



Washer disinfectors for central of sterilization departments

Laboratory glassware washer disinfectors



Washing and sterilizing systems for life science and pharmaceutical applications

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* Only for products listed into the 1652/MDD certificate