

# Steam Sterilizer VS L series

for pharma and research laboratories



**Steelco**  
*your partner in infection control*



*"For the Environmentally conscious"*



## Driven by customer needs

Steelco is a leading infection control solution provider, supplying the healthcare, laboratory research and pharma sectors. Active in over 90 countries, Steelco has equipped numerous world renown 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, improving the efficiency and working environment of those that use Steelco products.

Whether you are just wishing to replace a single small machine or requiring assistance in designing and equipping your scientific or research laboratory, 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.



*R&D Department*

*Scientific Laboratories*

*Pharmaceutical Laboratories*

## 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.

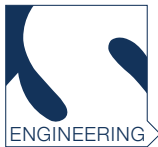




“For the Environmentally conscious”

Constant improvements and innovations lead Steelco products to run economically and reach a higher level of environmental compatibility.

## Steam sterilizing autoclaves for pharma and research laboratories



Steelco is the ideal partner for the sterilization of glassware and other items used in laboratory activities or life sciences applications. Customers appreciate the **versatility**, **intuitive functionality**, **high performance** and **reliability** of the VS L Series.

With an extensive range, models are available for any size facility.

Our experienced layout design team can help you plan your new or refurbished department and our process engineering team can develop cycles specifically to best meet your needs.



Steelco range of  
**washing systems**  
for life sciences

Washer disinfectors for  
life science applications



Laboratory glassware  
washer disinfectors



Pharmaceutical  
washing and  
sterilization systems





## Steelco VS L Series

### A full range for any size of facility

Steelco Steam Autoclaves are designed for sterilization of heat-resistant and moisture-stable materials such as metal parts, liquids in sealed or vented containers, porous loads, etc., used in scientific and research laboratories.

Steelco has developed a full range of high capacity steam sterilizers to provide the perfect solution from the smallest facility to the largest laboratory department. Up to 17 standard chamber sizes with a volume from 89 to over 8700 litres, are available with pressure vessel and relief valves that are PED and/or ASME marked or according to the directives of the country of destination.



**VS LD Series**  
**Vertical loading autoclaves**  
*Hinged door*

Chamber volume  
**from 89 litres / 23.51 gal**  
**to 125 litres / 33.02 gal**



**VS 1 TT L**  
**Tabletop autoclaves**  
*Horizontal sliding door*

Chamber volume  
**95 litres / 25.1 gal**



**VS L Series**  
**Small & Medium capacity**  
*Vertical sliding door*

Chamber volume  
**from 100 litres / 26.42 gal**  
**to 910 litres / 240.40 gal**

## Standard compliant

STEELCO steam sterilizers meet the requirements of the following standards:

- 97/23/EC (PED)
- 2004/108/EC (EMC)
- 2006/42/EC

- EN 285:2009
- CEI EN 61010-1,
- CEI EN 61010-2-040
- UNI EN ISO 12100
- EN 61326
- EN 13445-3 annex B & C,
- EN 13445-3 Cl.18

- UNI EN 288-3
- EN 15614-1
- UNI EN 473
- UNI EN ISO 9712
- UNI EN ISO 5817
- EN 10028-7
- EN 571-1

- EN 1435 A1
- UNI EN ISO 17637
- EN 287-1
- UNI EN ISO 15609-1

### Upon request:

GAMP 5 (Good Automated Manufacturing Practice - Version 5), ASME code Sec. VIII div 1 & div, NEMA 4X, UL compliant, cGLP



"For the Environmentally conscious"



- Single and double door pass through options
- Technical service access either on the left or right loading side
- Automatic or manual loading/unloading systems
- The floor loading model is pit mounted, ramp or with lift installation



**VS HL Series**  
**Large capacity**  
*Horizontal sliding door*

Chamber volume  
**from 905 litres / 239.08 gal**  
**to 1344 litres / 355.05 gal**



**VS L Series**  
**Floor loading**  
*Horizontal sliding door*

Chamber volume  
**from 3800 litres / 1004 gal**  
**to 8700 litres / 2298 gal and over**



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.



## ECO - water and energy saving options

### unrivalled levels of efficiency

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

To assist our customers conserve water even further, Steelco has introduced ECO water and energy saving packages that can reduce overall water consumption up to 90% depending on chosen options with a 13% reduction in energy.

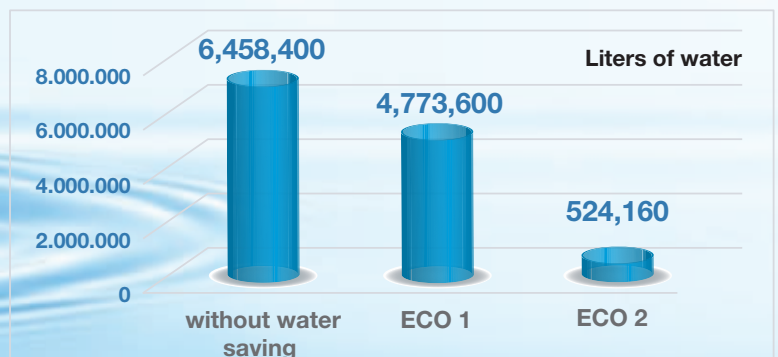
As part of its environmental water saving policy, Steelco equips all sterilizers as standard with its ECO 1 water saving package.



With headquarters overlooking the Alps, a core value of Steelco is to minimize our carbon footprint by manufacturing in modern premises in as efficient a manner as possible, reducing energy and water consumption of our equipment whilst improving performance.

## Every drop counts!

Example of the **annual water consumption in liters** for a lab research facility with 4 units of 1344 liters capacity sterilizer with house steam: 15 cycles per day, 6 days a week, 52 weeks a year.





## 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



## 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



## ECO 3

This hybrid system helps to achieve a **reduction in water consumption on average of 35%** with less water needed to cool down the drain prior to discharge.

This configuration features an energy recovery system supplying the steam generator with preheated water. The system provides **an energy saving of up to 13% in the production of process steam** with the further benefit of having a water supply "buffer", enabling the successful completion of a sterilization cycle in the event of a disruption in water supply

- Saves water
- Saves energy
- Cools drain water
- Creates a water buffer

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.

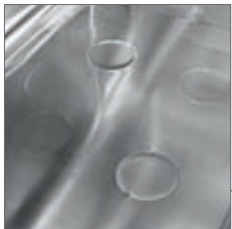


## VS L series - main features

Leading in high efficiency innovation



Piping is made of AISI 316L stainless steel with hygienic tri-clamp hydraulic connections



Full high efficiency heat transfer jacket system



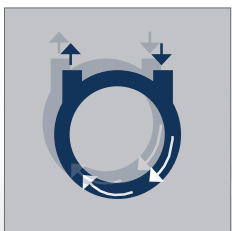
Friendly control panel with multi level user access system.



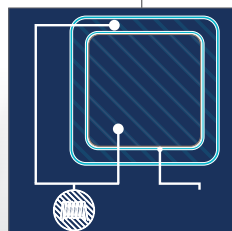
Heat insulation with durable fabric covering for improved service maintenance



Door system made of stainless steel AISI 316L without any welding. Safe, hermetically sealing for durability and reliability.



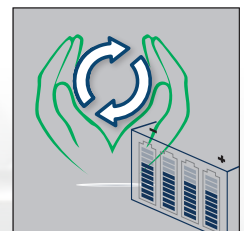
Two stage liquid ring vacuum pump for faster processes



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



Bioseal frame level 2 and level 3 options designed to hermetically seal the autoclave on different contamination zones



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

# Cycle options

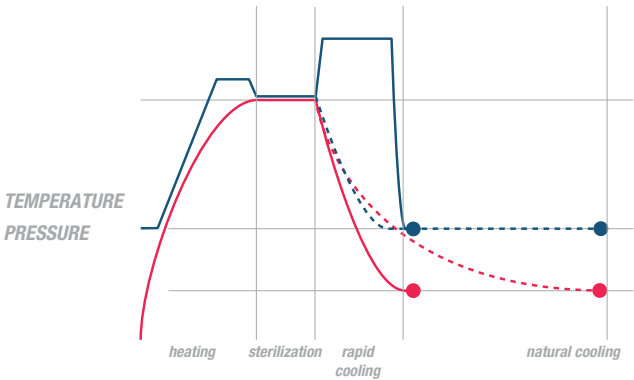
to match your process needs.

Cycles are factory programmed according to EN 285, with standard cycles of 134°C and 121°C. Standard cycles cannot be modified by the operator and include the following typical phases: Conditioning, Sterilization, Drying. Steelco can develop and provide specific cycles to meet individual customers needs.

## Standard and optional configurations

WORK PROGRAMS	STANDARD	OPTION
<b>Solids:</b> tools, machine parts, empty glassware, animal cages	natural cooling	-
<b>Porous:</b> textiles, rubber, filters, vials, animal bedding and feed	natural cooling	jacket cooling
<b>Liquids</b> in vented containers	natural cooling	jacket cooling + counter pressure
<b>Liquids</b> in sealed containers	natural cooling	jacket cooling + water shower + counter pressure jacket cooling + counter pressure
<b>Decontamination</b> cycle	-	discharge sterilization
<b>Test/service</b> programmes	warm-up, bowie & dick, vacuum leak test	filter sterilization

These options and accessories may not be available for all models and may subject to overall dimensions changes on the equipment.



Sterilizing liquids requires longer cycle times. Advanced rapid cooling options are available with cycles to prevent liquids boiling over and to minimize load exposure to high temperatures.



## 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 racks, shelves and transport trolleys

Steelco sterilizers range includes useful accessories to improve the efficiency of your laboratory, such as transfer and storage tables as well as motorized transfer trolleys with height adjustable, conveyors and pass-through hatches.



fixed height



powered adjustable height



## Automated loading/unloading systems

Steelco can provide tailor made automation solutions to maximize efficiency and decrease workplace related injuries for both horizontal and vertical door opening sterilizers.



## Technical data - Capacity and dimensions

STEAM AUTOCLAVES	table top	small	small	medium	large	floor loading
<b>Chamber</b>						
type/section (round, rectangular)	○	○	□	□	□	□
sliding door opening (horizontal, vertical)	→	↓	↓	↓	↔	↔
AISI 316 L	•	•	•	•	•	•
AISI 316 Ti	-	○	○	○	○	○
mirror polishing	○	○	○	○	○	○
<b>Technical area</b>						
configuration (Left or Right)	R	L/R	L/R	L/R	L/R	L/R
front access for service	•	•	•	•	•	•
820mm height stand cabinet	○	-	-	-	-	-
<b>Control system and traceability</b>						
touch screen graphic LCD display	7"	5,7" - 7"	5,7" - 7"	5,7" - 7"	5,7" - 7"	5,7" - 7"
additional control panel on the unloading side	-	○	○	○	○	○
barcode reader for cycle parameter recognition	○	○	○	○	○	○
integrated printer	•	•	•	•	•	•
ethernet port	•	•	•	•	•	•
SteelcoData supervisor software for traceability and equipment monitoring	○	○	○	○	○	○
5 minutes power save	○	○	○	○	○	○
auto start function	○	○	○	○	○	○
<b>ECO options</b>						
ECO 1 - Water saving, drain cooling	-	•	•	•	•	•
ECO 2 - Water saving with chiller system	-	○	○	○	○	○
ECO 3 - Water saving, energy saving, drain cooling, save the cycle water feeding	-	○	○	○	○	○
<b>Process control</b>						
1 product flexible RTD	-	•	•	•	•	•
thermocouple fitting	-	○	○	○	○	○
manual or automatic air detection systems	-	○	○	○	○	○
independent pressure transducer	○	○	○	○	○	○
independent recorder with temperature probe	○	○	○	○	○	○
pipework for testing clean steam quality	-	○	○	○	○	○
bio-seal frame level 2 or 3 (P2- P3) on loading/unloading side	-	○	○	○	○	○

• = Standard      ○ = Optional      - = Not available



## Quality documentation

In option, Steelco supplies upon request IQ/OQ documentation and execution, temperature mapping test (PQ), GMP package, FAT and SAT documentation and test.

## 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 L is type E only.



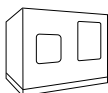
## Steelco VS L Series

### A full range for any size of facility

The following tables show a selection of Steelco VS L standard models.

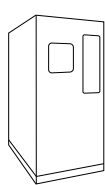
In addition to the 46 standard configurations, specific sizes can be made upon request.

#### VS 1 TT tabletop autoclave

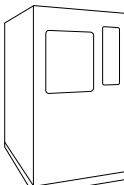


model	chamber (Ø - WxHxD) - mm/inch				litres/gal	overall (WxHxD) - mm/inch		
Single door								
VS 1 TT/1 L	420/16.53	310/12.20	310/12.20	682/26.85	94,44/24.95	1050/41.34	900/35.43	800/31.50
Double door								
VS 1 TT/2 L	420/16.53	310/12.20	310/12.20	618/24.33	85,58/22.61	1050/41.34	900/35.43	800/31.50

#### VS Series small capacity



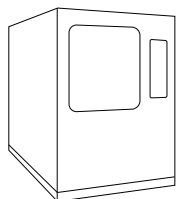
round  
chamber



rectangular  
chamber

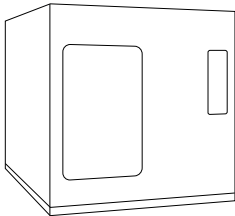
model	chamber (Ø - WxHxD) - mm/inch				litres/gal	overall (WxHxD) - mm/inch		
Single door								
VS 1/1 L	420/16.53	310/12.20	310/12.20	782/30.79	108/28.53	800/31.50	1700/66.93	1000/39.37
VS 1,5/1 L	420/16.53	310/12.20	310/12.20	1082/42.60	150/39.63	800/31.50	1700/66.93	1300/51.18
VS 2/1 L	-	440/17.32	700/27.56	645/25.39	200/52.83	1000/39.37	1900/74.80	992/39.05
VS 3/1 L	-	440/17.32	700/27.56	945/37.20	290/76.61	1000/39.37	1900/74.80	1292/50.87
VS 202038/1 L	-	508/20	508/20	965/38	249/65.78	1068/42.05	1900/74.80	1312/51.65
Double door								
VS 1/2 L	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 L	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 L	-	440/17.32	700/27.56	670/26.38	205/54.15	1000/39.37	1900/74.80	992/39.05
VS 3/2 L	-	440/17.32	700/27.56	970/38.19	300/79.25	1000/39.37	1900/74.80	1292/50.87
VS 202038/2 L	-	508/20	508/20	990/39	255/67.36	1068/42.05	1900/74.80	1312/51.65

#### VS Series medium capacity



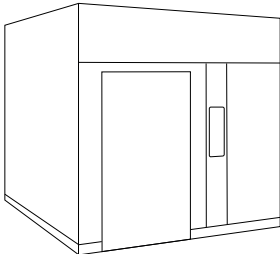
model	chamber (WxHxD) - mm/inch			litres/gal	overall (WxHxD) - mm/inch		
Single door							
VS 4/1 L	670/26.38	700/27.56	686/27.01	322/85.06	1250/49.21	1900/74.80	992/39.06
VS 6/1 L	670/26.38	700/27.56	986/38.82	462/122.05	1100/43.31	1900/74.80	1292/50.87
VS 8/1 L	670/26.38	700/27.56	1286/50.63	603/159.30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



model	chamber (WxHxD) - mm/inch			litres/gal	overall (WxHxD) - mm/inch		
Single door							
VS 12 H/1 L	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 L	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 L	670/26.38	1050/41.34	1886/74.25	1327/350.56	1860/73.23	1900/74.80	2192/86.30
VS 263639/1 L	660,4/26	914,4/36	990,6/39	598/157.97	1860/73.23	1900/74.80	1297/51.06
VS 263648/1 L	660,4/26	914,4/36	1244,6/48	752/198.66	1860/73.23	1900/74.80	1551/61.06
VS 263660/1 L	660,4/26	914,4/36	1524/60	920/243.04	1860/73.23	1900/74.80	1830/72.05
Double door							
VS 12 H/2 L	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 L	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 L	670/26.38	1050/41.34	1910/75.20	1344/355.05	1860/73.23	1900/74.80	2192/86.30
VS 263639/2 L	660,4/26	914,4/36	1015,6/40	613/161.94	1860/73.23	1900/74.80	1297/51.06
VS 263648/2 L	660,4/26	914,4/36	1296,6/49	766/202.36	1860/73.23	1900/74.80	1551/61.06
VS 263660/2 L	660,4/26	914,4/36	1549/61	935/247.00	1860/73.23	1900/74.80	1830/72.05

## VS Series Floor loading



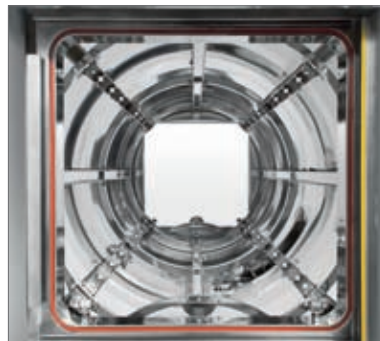
model	chamber (WxHxD) - mm/inch			litres/gal	overall (WxHxD) - mm/inch		
Single door							
VS 36/1 L	1050/41.34	1450/57.09	2500/98.43	3806/1005.53	2800/110.24	2150/84.65	3000/118.11
VS 43/1 L	1000/39.37	2200/ 86.61	2200/ 86.61	4840/1278.6	2693/106.02	3012/118.58	2664/104.88
VS 60/1 L	1244,6/49	2184,4/86	2184,4/86	5939/1568.9	3200/125.98	3012/118.58	2664/104.88
VS 74/1 L	1549,4/61	2184,4/86	2184,4/86	7393/1953	3600/141.73	3012/118.58	2664/104.88
VS 87/1 L	1828,8/72	2184,4/86	2184,4/86	8726/2305.2	4200/165.35	3012/118.58	2664/104.88
Double door							
VS 36/2 L	1050/41.34	1450/57.09	2500/98.43	3806/1005.53	2800/110.24	2150/84.65	3000/118.11
VS 43/2 L	1000/39.37	2200/ 86.61	2200/ 86.61	4840/1278.6	2693/106.02	3012/118.58	2664/104.88
VS 60/2 L	1244,6/49	2184,4/86	2184,4/86	5939/1568.9	3200/125.98	3012/118.58	2664/104.88
VS 74/2 L	1549,4/61	2184,4/86	2184,4/86	7393/1953	3600/141.73	3012/118.58	2664/104.88
VS 87/2 L	1828,8/72	2184,4/86	2184,4/86	8726/2305.2	4200/165.35	3012/118.58	2664/104.88

\* Height has to be reduced by 300 mm when installed into a pit

## Custom solutions for pharma and medical device component sterilization



In addition to standard steam VS L Series autoclaves, Steelco Group offers custom solutions to cGMP, GAMP, FDA standards and regulations using different sterilization media and technologies.





## VS 13 LD - VS 9 LD

vertical sterilizers



With proven and reliable high performance sterilizing technology, the new Steelco's vertical loading autoclaves meets the needs of a wide range of applications used in modern laboratories.

- + Safe, efficient and reliable performance
- + Unrivalled capacity/footprint ratio
- + Easy to use and modular loading
- + Equipment and cycle options for different applications

### Main features

- Chamber and process piping made of stainless steel AISI 316L
- Single piece hinged door of stainless steel AISI 316L for durability and ease of cleaning. Full shockproof ABS cover. Easy and effortless door opening and closing
- Cladding made of stainless steel AISI 304
- Lockable antistatic castors
- Built-in electrical steam generator
- PT 1000 RTD flexible probe for liquid sterilization
- Easy service access and maintenance
- User friendly 7" touch screen panel HMI
- F<sub>0</sub> value calculation
- Cycle memory capacity of 660 cycles
- Service indicator
- Ethernet interface to traceability system

### Cycle Programs

#### Standard working programs:

- Solids at 134°C/273,2°F
- Liquids at 121°C/249,8°F
- Glassware at 121°C/249,8°F
- Waste at 121°C/249,8°F

#### Test/service programs:

- Warm up to 121°C/249,8°F
- Maintaining temperature at 121°C/249,8°F

#### Additional programmes:

possibility to program up to 8 additional cycles





*Free-standing, compact, vertical sterilizers:  
cost-effective performance for laboratory applications*

## Main options

### Process performance options

- Vacuum pump for efficient pre vacuum air removal and post vacuum faster drying of **solid loads**
- Additional chamber heating with external steam coil to shorten cycles and enhance drying phase of **solid loads**
- Enhanced microbiologically filtered compressed air plus chamber cooling using cold water in an external coil for cutting in half the cool down time of **liquid loads**

### Accessories

- Additional RTD flexible probe and data recording
- Additional pressure transducer and data recording

### Connectivity and recording options

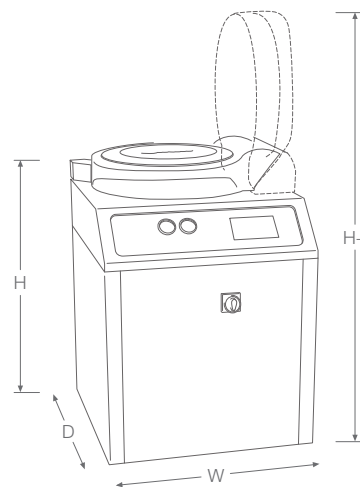
- Integrated thermal paper printer
- SteelcoData LAB supervisor software
- WiFi connection
- Barcode scanner

## Loading accessories



### Loading accessories

- Lifting device with electronic control and swivel arm for fully assisted loading and unloading with easy handling at all load types.
- Several types and dimensions of loading baskets are available to optimize loading capacity.



## Dimensions

model	chamber (Ø x D) - mm/inch		litres/gal	overall (W x H (H+) x D) - mm/inch			
VS 9 LD	420/16.53	636/25.04	89/23.51	720/39.37	1000/39.37	1467/57.76	723/28.46
VS 13 LD	420/16.53	896/35.28	125/33.02	1235/48.62	1235/48.62	1702/67.01	723/28.46

## Loading capacity (ml)



Erlenmeyer  
flasks

model	250	500	1000	2000	3000
VS 9 LD	13 x 2	8 x 2	5 x 2	3 x 1	1 x 1
VS 13 LD	13 x 3	8 x 3	5 x 3	3 x 2	1 x 2



Flask bottles

model	250	500	1000	2000	3500
VS 9 LD	23 x 2	14 x 2	9 x 2	4 x 2	3 x 1
VS 13 LD	23 x 3	14 x 3	9 x 3	4 x 3	3 x 2

Laboratory glassware washer disinfectors



Pharmaceutical washing and sterilization systems



Washer disinfectors for lifescience applications

Dental washer disinfectors



Flusher disinfectors

Washer disinfectors  
Small/medium range

Washer disinfectors  
CSSD range - Systems and Automations



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