Steelco

Steam sterilizers VS G2 Series

For hospitals, CSSDs, medical and outsourcing centers

Featuring

NCG SENSOR & 4D[IR] SENSOR

Miele Group Member


Steelco
Steelco
Steelco

Customization. Innovation. Excellence.

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. Already a leader in innovation in areas such as automation, the integration within the Miele organization has provided additional boost in technological development.

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 equipment.

Steelco

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Steelco VS G2 Series
Steam sterilizing autoclaves

1250*

950

1660

Vertical sliding doors
from 4 up to 12 STUs
5 chamber sizes with volumes
from 322 to 966 liters

Horizontal sliding doors
from 6 up to 18 STUs
5 chamber sizes with volumes
from 530 to 1538 liters

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

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

From the processing of 4 STU up to 18 STU per cycle, each model in the range of steam sterilizers combines high productivity with cost efficiency: an effective tool to improve CSSD running costs.

Steelco sterilizers conform to:

European Regulation for Medical Devices:
- 2017/745/EU and its revised versions

European Directive for Medical Devices:
- 93/42/EEC and its revised versions

Pressure Equipment Directive:
- PED 2014/68/EU

Technical norms and standards:
- EN 285
- EN ISO 14971
- UNI EN ISO 17665-1
- IEC EN 61010-1
- IEC EN 61010-2-040
- EN 62366-1
- IEC EN 61326-1


2
4
5

Key Advantages
a winning combination

VS G2 series steam sterilizers define a new standard in quality, ergonomics, and safety!

Process Quality Focus

Although steam sterilization is a proven process, innovation helps reduce manual handling, improve cycle efficiency and safety whilst reducing process time and utility consumption.

Find out more about what Steelco and Miele R&D have developed together with process quality as the focus!

Advanced Eco Options

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

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

Multiple Loading Options

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

Optimized Process Speed

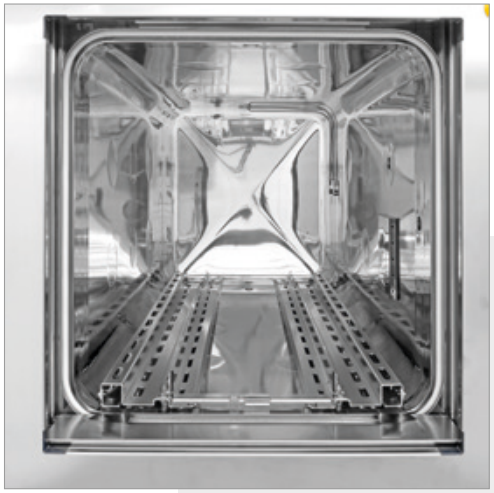
Our aim is to provide customers with the fastest possible sterilization processes in compliance with international and local standards, always considering to the load and Sterile Barrier System.

The two-stage liquid ring vacuum pump ensures faster processes and is perfectly matched to the chamber size. Vacuum pump options and Eco options also help to shorten process times.

Layout Optimization Solutions

The wide range of models and the combination from manual up to robotized (un)loading systems allows the optimization of layout solutions. Steelco can provide 3D architectural planning services to support CSSD team managers in customizing layout configurations for new or refurbishment projects.

Steelco sterilizers can be shipped in modules to overcome architectural limitations (door passages, lifts...).



Safety, design and strength

The squared design chamber minimizes dead space for optimal loading and throughput.
The best possible jacket covering ensures fast heating and reducing cycle times and areas of potential condensation.
High-quality AISI 316 L steam process circuits are a guarantee of long-term reliability and steam cleanliness.

Safety & Performance coming together

Process Quality Focus

VS G2 sterilizers improve processes in terms of safety and quality of performance with advanced features including:

- separate direct injection of steam into gaskets, jacket and chamber for better steam quality and safety.
- high efficiency heat transfer jacket system.
- built-in degassing device allows the reduction of the NCG concentration in water for steam generation, to keep it below the 3,5% Vol. according to EN 285 norm.
- monitoring steam penetration during each sterilization cycle with the unique 4D^{IR} Sensor.

Optimized Process Speed

Two-stage liquid ring vacuum pumps are perfectly sized for the chamber capacity for faster processes. Vacuum pump options and Eco options are also matched to improve process time. If a dedicated room has been foreseen in the projects it is also possible to remote the vacuum pumps and their water saving options.

A built in Uninterruptible Power Supply unit (UPS) is also available as a "save the cycle" option allowing up to 5 minutes of continuous operation of the control system in the event of a power failure.

NCG & 4D^{IR} Sensors
Leading in process safety

NCG SENSOR

The only sensor that can measure the Non-Condenseable Gases (NCGs) and quantify them in every steam sterilization process.

With the measured percentage of NCGs and chamber temperature the sterilization conditions, as specified in EN285:2015, are verified and the load can be released for use.

NCG sensor allows a parametric release based upon directly measured sterilization parameters!

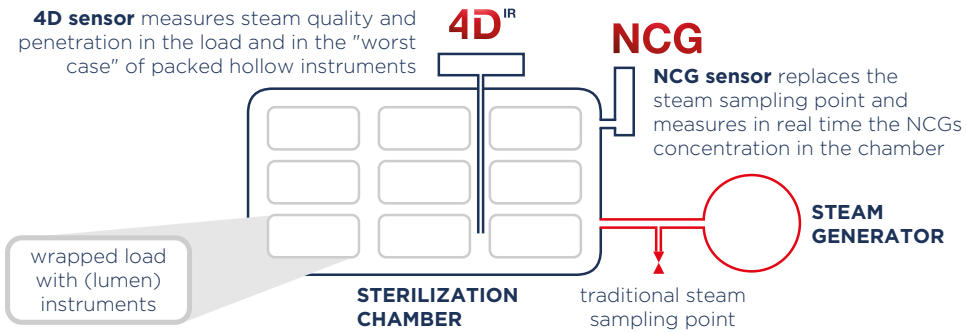
4D^{IR} SENSOR

The only commercially available sensor that ensures the control of sterilization conditions as required by regulations such as EN 285.

Steam presence, density and penetration are verified by state-of-the-art direct measuring of the sterilant conditions at the closed end of a 70 cm constant diameter metal pipe.

This represents the most challenging "worst case" hollow instrument in a Sterile Barrier System.

The most significant step forward in instrument steam sterilization process safety since Bowie & Dick test (1963).



TEST: current practice	STEAM QUALITY	STEAM PENETRATION	STEAM PENETRATION IN HOLLOW INSTRUMENTS
According to EN 285	**frequently***	**daily**	**no previous technical solution available**
Measuring interval	**sporadic**	**1 at day start**	**not existing**
Cycle type	**external**	**empty chamber**	**not existing**

*Depending on local regulations. Often done only once in the sterilizer lifetime during installation and commissioning or on a yearly basis.

TEST: Steelco sensors	NCG SENSOR	NCG SENSOR & 4D^{IR} SENSOR	4D^{IR} SENSOR
With Steelco sensors	**each cycle**	**each cycle**	**each cycle**
Measuring interval	**continuous**	**continuous**	**continuous**
Cycle type	**all test & production cycles with load**	**all test & production cycles with load**	**all test & production cycles with load**

Continuous monitoring of steam quality and penetration

Compliance to standards and practical guides are available, including: Questions and Answers to quickly get into the topic on how Steelco sensors can improve your sterilization process safety - Scientific literature and additional comments - Deep dives on related topics.

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

Efficiency & Sustainability coming together

Advanced Eco Options

Unrivalled levels of efficiency, reduction of energy and water consumption with lowest operating costs per load.

Even when sterilizers are already efficient compared to equivalent competitor models, to assist our customers in conserving water even further, Steelco has introduced ECO water-saving packages.

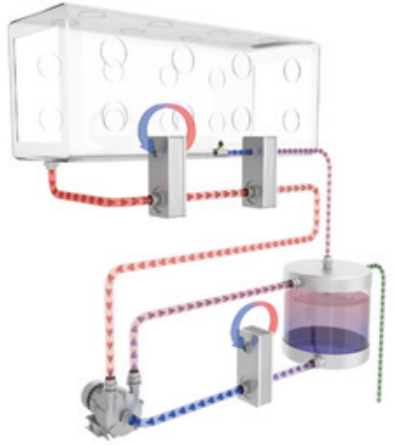
Every drop counts!

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) without water saving system can be as high as 6.458.400 liters. This consumption can be reduced to less than one tenth with Steelco ECO options!

Steelco quotes savings in water 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.

ECO 1

This water-saving package equips all sterilizers as standard as part of Steelco environmental water-saving policy. This solution, allows **a reduction in water consumption on average of 35%** with less water needed to cool down the drain prior to discharge.



ECO 2

This option involves the use of water from a chilled water loop. It allows **over 90% reduction of total water usage** by the vacuum pump thanks to a set of high efficiency heat exchangers. Drain water is also cooled without needing the addiction of separate tap water to lower the temperature prior to discharge.

Reliability & Serviceability
coming together

Top quality materials, devices made to last!

The sterilization chamber as well as the steam process piping are made of high quality AISI 316 L stainless steel, a guarantee for long-term reliability and steam cleanliness.

The acid-proof stainless steel chambers and piping are fully insulated with a CFC-free thermal insulation that is covering easy to remove and to refit in case of service needs. With ease of service in mind, most piping is connected using stainless steel tri-clamps and main components such as the vacuum pump are installed on sliding rails.

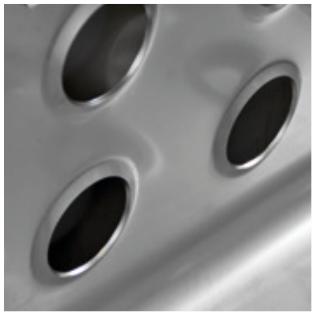
Effective steam sterilization requires correct water quality

A proper water quality also helps to prevent the deposition of contaminants such as limescale and prolongs the life of the sterilization device. Steelco offers a wide range of water treatment options for different sized facilities: water softeners, RO and DI water systems, water chillers.

Minimized encumbrance and service requirements

VS G2 series steam sterilizers are designed for a side to side "zero gap" installation. Service is fully frontal via the hinged door which opens completely (and from the back if double door version) allowing the access to all the components.

Maintenance of this range of devices is streamlined, highly simplified and cost effective.



Steam feeding options

Steelco VS G2 devices are available for direct external clean steam supply (type “V”) as well as with multiple choices of built-in or remote steam generators:

- electrically heated (type “E”) • indirect steam heated connected to an external industrial steam supply (type “I”)
- combining the external steam source with a steam generator to activate as back up solution (type “E/V”, “I/V”….).

Ergonomics & Logistics
coming together

Your daily work made easier

The workflow of each sterilization center is unique. Different surgical specialties, flow of instruments, treatment. Steelco's attention to ergonomics and adaptability to different logistics systems is unique!

Loading with loading racks:

- Fits all sizes of containers/baskets
- When on double door sterilizer a return hatch/ window is recommended
- Availability of fixed height, height adjustable and also height adjustable with semi-automatic loading and unloading system transfer trolleys.

Loading racks with height adjustable levels. Fixed or adjustable transport trolley from 4 up to 12 STU capacity.

Multiple Loading Options

Steelco's unique range of loading and unloading options.

Steelco range includes all the needed accessories to improve the efficiency of the CSSD: transfer trolleys for the full or partial load, fixed height or height-adjustable even capable of automatically feeding the sterilizers. Furthermore, with the "Easy Load System" accessories for stackable loads, the loading racks can be eliminated as well as the need to install pass-through hatches or windows.

Grid type loading rack for ISO standard baskets

- Flexibility in height adjustement of the levels maximaze load capacity
- Compatibility with ISO standard storage shelving systems
- When used with double door sterilizers a return hatch/window is recommended
- Availability of height adjustable and fixed height transfer trolleys

Loading racks provided with sliders on up to 9 levels that can be used for sterilization storage baskets as well as wire shelves for general purpose, Availability is for 6 and 8 STU capacity.

Easy Load System

- For loading stackable baskets, and containers
- Compatibility with ISO and DIN standard storage shelving systems
- Saves space by not needing a return hatch/ window
- Availability of height adjustable and fixed height transfer trolleys

Availability from 4 up to 12 STU capacity. Sterilizers can be fed directly by the feeder of the transfer trolley or with the support of automatic loading and unloading conveyor systems.

Automations for loading and unloading

- Suitable for racks and Easy Load System
- Available for split load (i.e. 6+6 or 9+9 STU) to reduce risks by handling heavy loads and to optimize space usage in the CSSD
- Bi-directional automatic loading and unloading rack conveyors for single and double door sterilizer applications

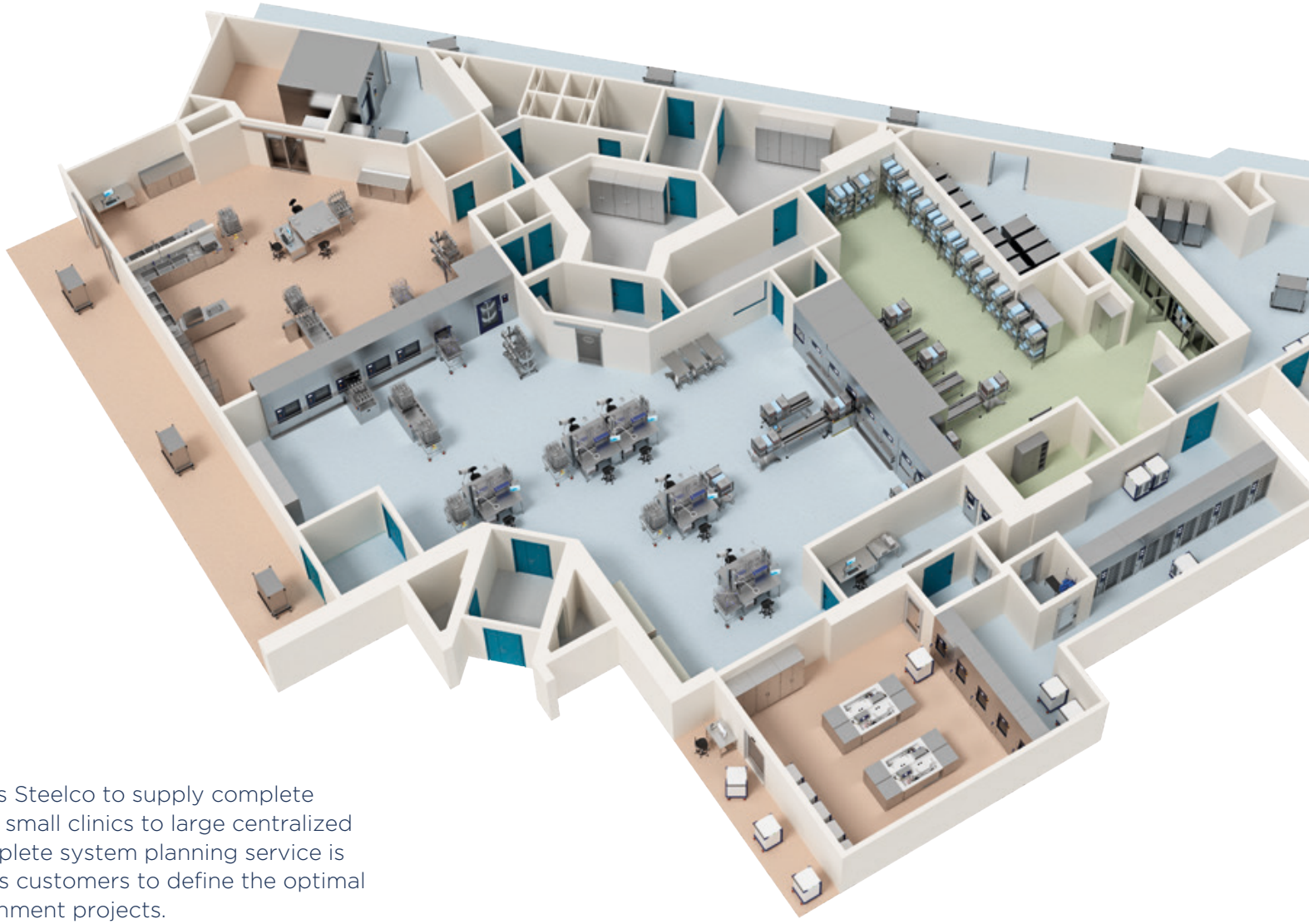
Full range available for all the sterilizer models from 4 up to 18 STU as well as for combination to pass through hatches or windows.

Productivity & Automation coming together

Layout Optimization Solutions

Steelco: leading in customized solution

Steelco is renown for developing automation solutions that facilitate the user in their daily tasks.



A comprehensive range of devices allows Steelco to supply complete tailored sterile processing solutions from small clinics to large centralized sterile reprocessing departments. A complete system planning service is based on 3D architectural modeling helps customers to define the optimal layout configurations for new or refurbishment projects.

ATS - Automatic Transfer System

A specially designed automation for departments where time and space are critical. A shuttle loader moves along the sterilizers and loads the racks automatically into the first available sterilizer.

A similar solution can be adopted on both the sides of the sterilizers (loading and unloading). System 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 or obscured by columns.
- Easy cleaning of the area below the ATS system.

M-ATS - Mobile Automatic Transfer System

AGVs (Autonomous guided vehicles) are the most innovative solutions to move high volumes of goods monitoring and tracing the entire workflow of a CSSD. This allows staff to focus on other important activities. M-ATS can be used for 2 main purposes: loading/unloading of washer disinfectors and sterilizers and managing the logistic of goods inside/outside the CSSD.

In addition to the benefits of ATS:

- More flexibility during the initial implementation phase in the configuration of processes, tasks and priorities.
- Safe and efficient handling in the presence of people and obstacles without any service interruption.
- Self-recognizing key positions of the workflow and charging stations.
- Self learning guidance allowing the AGVs to move freely even in limited spaces and to rotate 360°, avoiding downtime and keeping a constant level of operation throughout the day.

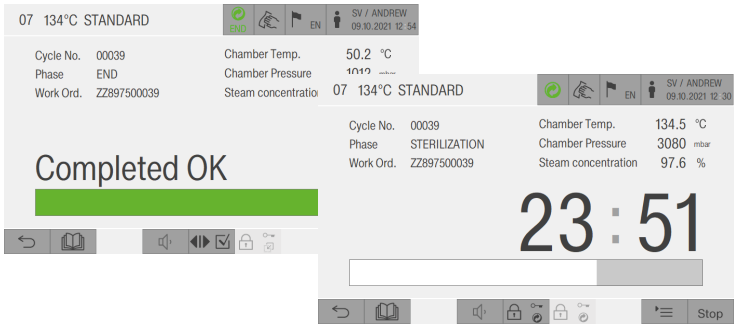
Flexibility & Control
coming together

The large 7" touchscreen control panel (on both sides for double door devices) or the option 10" HMI facilitates device control with bright, easy-to-read information even from a distance: an intuitive and practical aid for operators in their daily tasks. In addition, the well-thought-out and user-friendly design is consistent throughout the portfolio of Steelco devices, supporting intuitive operation and reliable processes.

A user friendly interface

The operator is supported in every step of their interaction with the device with clear and easy to understand operational tasks. Cycle programs can also be selected via barcode scanner.

The touch screen panel displays highly visible cycle status and alarm messages.



Cycle data storage

Cycle data is stored, and available from the integrated printer and, if the device is connected to the network is sent to a centralized traceability system.

Allows increased productivity

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

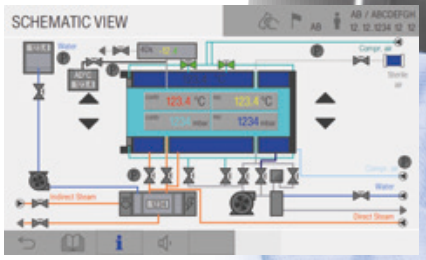
With the 4D^{IR} sensor and automatic timer function for heating up steam generator and chamber the autoclave is warmed up, Air Leackage Test and Steam Penetration Test cycles are executed. At start of shift the equipment is ready to be used saving production time.

User access levels

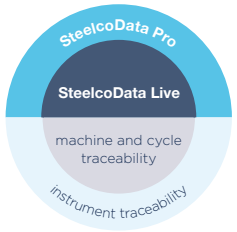
User access is split into 5 levels to ensure that only trained staff have access to specific functions: operator, department manager, service technician at the customer's site, authorized service technician, and manufacturer.

Technical service mode

The sterilizer is designed to streamline maintenance. An easy-to-read synoptic panel allows for an in-depth overview of component status of the sterilizer, speeding up service interventions.



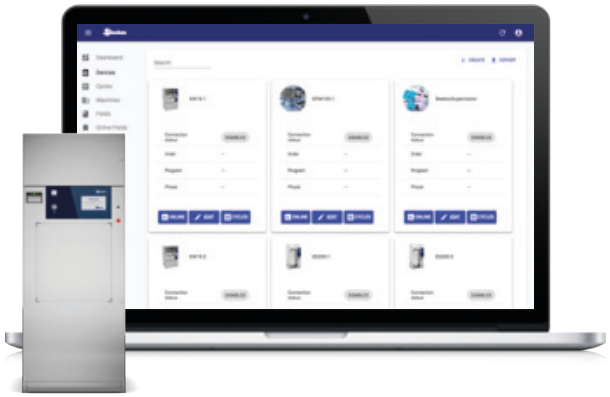
SteelcoData Live & Pro
Management & traceability system



To ensure the availability of 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 consistently.

SteelcoData Live
is a web-based software allowing to see in real-time machine performance, cycle data, and alarms with historic records. When available from the device, utility consumption is also stored. Information is traced and efficiently visualized for device monitoring and data management with different authorisation levels.

SteelcoData Live is also the link between Steelco machines and instrument traceability systems such as SteelcoData Pro.



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

Software features:

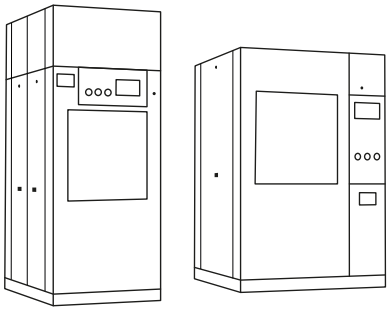
+ Respects HL7 standard
+ Reliable information and data entirety
+ Traceability and backward traceability of user activities and material handling
+ Full coverage of activities in the CSSD
+ Real-time analysis
+ Efficiency improvement tools
+ Procedure automation, no unnecessary steps
+ Workstations can only display activities in the specific user's area of competence
+ Effective information sharing with customers
+ Can be integrated with other client software systems

Capacity and Dimensions

Layouts and configurations

VS G2 - VS SC G2 Series

4 - 6 - 8 - 10 - 12 STU



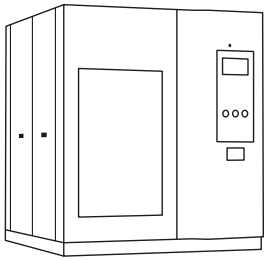
VS G2 VS SC G2

Model	Chamber (WxHxD) - mm			Litres	Overall (WxHxD) - mm		
Single door							
VS 4/1 G2	670	700	686	322	950	2400	992
VS 4/1 SC G2					1250	1900	
VS 6/1 G2	670	700	986	462	950	2400	1292
VS 6/1 SC G2					1250	1900	
VS 8/1 G2	670	700	1286	603	950	2400	1592
VS 8/1 SC G2					1250	1900	
VS 10/1 G2	670	700	1760	810	950	2400	2042
VS 10/1 SC G2					1250	1900	
VS 12/1 G2	670	700	2060	925	950	2400	2342
VS 12/1 SC G2					1250	1900	
Double door models							
VS 4/2 G2	670	700	710	333	950	2400	992
VS 4/2 SC G2					1250	1900	
VS 6/2 G2	670	700	1010	474	950	2400	1292
VS 6/2 SC G2					1250	1900	
VS 8/2 G2	670	700	1310	614	950	2400	1592
VS 8/2 SC G2					1250	1900	
VS 10/2 G2	670	700	1760	825	950	2400	2042
VS 10/2 SC G2					1250	1900	
VS 12/2 G2	670	700	2060	966	950	2400	2342
VS 12/2 SC G2					1250	1900	

Loading height: 850 mm above finished floor.

VS H G2 Series

6 - 9 - 12 - 15 - 18 STU



Model	Chamber (WxHxD) - mm			Litres	Overall (WxHxD) - mm		
Single door							
VS 6/1 H G2	670	1100	720	530	1660	1900	1004 (*)
VS 9/1 H G2	670	1100	1062	782	1660	1900	1346 (*)
VS 12/1 H G2	670	1100	1404	1034	1660	1900	1688 (*)
VS 15/1 H G2	670	1100	1746	1286	1660	1900	2030 (*)
VS 18/1 H G2	670	1100	2088	1538	1660	1900	2372 (*)
Double door models							
VS 6/2 H G2	670	1100	720	530	1660	1900	1004 (*)
VS 9/2 H G2	670	1100	1062	782	1660	1900	1346 (*)
VS 12/2 H G2	670	1100	1404	1034	1660	1900	1688 (*)
VS 15/2 H G2	670	1100	1746	1286	1660	1900	2030 (*)
VS 18/2 H G2	670	1100	2088	1538	1660	1900	2372 (*)

(*) footprint (for outer dimensions add 11 mm for the panels). Loading height: 300 mm above finished floor.

Technical Data

Components and versions

Compliance with standards	**VS 4/6/8/10/12 G2**	**VS 4/6/8/10/12 SC G2**	**VS 6/9/12/15/18 H G2**
EN 285	•	•	•
European machine directive 2006/42/EC and Medical Device Regulation 2017/745/EU	•	•	•
European machine directive 2006/42/EC and Medical Device Directive 93/42/EEC	•	-	•
PED marking 2014/68/EU	•	•	•
Chamber and door			
Sliding door opening (horizontal, vertical)	↓	↓	⇆
Chamber jacket in AISI 316 L	o	o	o
Chamber, door and jacket in AISI 316 Ti	o	o	o
Chamber and door polish finishing	o	o	o
Technical area			
Configuration Left or Right technical area	-	L/R	L/R
Front access for service	•	•	•
Load capacity			
Number of STU	4/6/8/10/12	4/6/8/10/12	6/9/12/15/18
Number of levels of the loading racks	up to 3	up to 3	up to 4
Easy Load System	o	o	-
Loading/unloading automation	o	o	o
ATS automatic transfer system	-	o	o
Control system and traceability			
7” touch screen HMI	•	•	•
10” touch screen HMI	o	o	o
Barcode reader for cycle parameter recognition	o	o	o
Integrated printer	•	•	•
Ethernet port	•	•	•
5 minutes power save UPS (Uninterruptible Power Supply)	o	o	o
Process cycles			
Working programs: 121°C/ 249.8°F and 134°C/273.2°F	•	•	•
Test/service programs: heating, vacuum, steam penetration (e.g. Bowie & Dick, Helix)	•	•	•
Custom programs: process needs to be validated under customer responsibility	•	•	•
Prion cycle: activated Steelco service technician, process needs to be validated under customer responsibility	•	•	•
Auto start function	o	o	o
Process monitoring			
4D^{IR} sensor - built in	o	o	o
NCG sensor - built in	o	o	o
Air detector	o	o	o
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	o	o	o
ECO options			
ECO 1 - Water saving, drain cooling	•	•	•
ECO 2 - Water saving with chiller system	o	o	o

• = Standard o = Option - = Not available

Steelco

Miele Group Member

Customization.
Innovation.
Excellence.

STEELCO - Miele Group Member
Headquarters:
Via Balegante, 27 - 31039
Riese Pio X (TV) - Italy
Ph. +39 0423 7561
Fax +39 0423 755528
info@steelcogroup.com
www.steelcogroup.com

Branches:

STEELCO AUSTRIA
Wals-Siezenheim, Austria
info-at@steelcogroup.com

STEELCO BELGIUM
Mollem, Belgium
info-be@steelcogroup.com

STEELCO BENELUX
Vianen, Netherlands
info-benelux@steelcogroup.com

STEELCO CHINA
Shanghai, China
info-cn@steelcogroup.com

STEELCO FRANCE
Paris, France
info-fr@steelcogroup.com

STEELCO GERMANY
Gütersloh, Germany
info-de@steelcogroup.com

STEELCO HUNGARY
Budapest, Hungary
info-hu@steelcogroup.com

STEELCO MEA
Dubai, UAE
info-mea@steelcogroup.com

STEELCO MEXICO
CDMX, Mexico
info-mx@steelcogroup.com

STEELCO NORDIC
Glostrup, Denmark
info-nordic@steelcogroup.com

STEELCO NORGE
Nesbru, Norway
info-no@steelcogroup.com

STEELCO SPAIN
Madrid, Spain
info-es@steelcogroup.com

STEELCO SWITZERLAND
Spreitenbach, Switzerland
info-ch@steelcogroup.com

STEELCO USA
West Palm Beach, USA
info-usa@steelcogroup.com

CE 0051

Machines certified
MDR 2017/745/EU and
MDD 93/42/EEC

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