Equipment and solutions
for washing and decontamination
of animal housing, feeding bottles and fish tanks

Steelco

Contamination control solutions for the global Life Science industry

Located in modern factories near Venice in Italy, Steelco Group is a major global supplier of infection/contamination control equipment and solutions for the healthcare, laboratory and pharmaceutical sectors. Steelco's success is demonstrated by its strong growth, becoming the partner of choice for many of the world's leading companies who appreciate the company's:

Extensive product range

- Innovative washing equipment, customizing loading racks to customer needs.
- Diversified sterilization range.
- Automation systems to maximize productivity and safety.

Flexible solutions

- Ability to meet the most challenging processing needs.
- Only using the best proven and ready available "Non-Proprietary" components such as control systems and valves to reduce running costs and down time.

Experience and knowledge

- Strong track record of establishing long term global partnerships.
- Integrated in-house operations from incoming raw materials to installation, validation and technical support.
- Fully certified quality systems with deep knowledge of manufacturing standards.

Global footprint

- Global HQ in Italy with regional customer support centres in North America and Asia.
- Network of factory trained agencies in over 100 countries worldwide.

Quality system certification

In addition to having a certified Quality System as per ISO 9001 (and ISO 13485 for Medical Division), our products are subject to rigorous quality control systems and inspection.

This coupled with continuously training our technically specialized personnel ensures you receive best in class product solutions and support.

3D project layouts

Steelco offers complete "turnkey" solutions for washing and sterilization processes in the Life Science sector, with the ability to undertake all stages of a project from concept to delivering solutions that exceed customer expectations.

Steelco range of **washing and sterilizing systems** for life sciences:

Steam sterilizers
for pharma and research laboratories

Laboratory glassware
washer disinfectors

Pharmaceutical
washing and sterilization systems

Equipment and solutions
for washing and decontamination
of animal cages, feeding bottles and fish tanks

Steelco's experience and understanding of the workflow within the smallest facility to the largest research centre enables us to offer the safest and most cost effective solutions for your staff to work in, enabling them to provide the cleanest conditions possible for animals in their care.

Our range of solutions includes:

- Tailor made facility design

- From small stand alone units to automated high capacity systems

- Feeding bottle washing systems

- Bedding systems

- Tailor made automation solutions

- Environmental control systems

Steelco's close collaboration with leading establishments enables it to offer solutions that are recognised for their design, reliability, ergonomy, quality, operator safety, allergene protection and low running costs.

Function legend

Dedicated to

animal cages - fish tanks

animal cages - fish tanks lids, components and other smallware

feeding bottles

trolleys/pallets

Operating mode

fully automatic

semi automatic

manual

Washing chamber

AISI 316L   AISI 316L

small washers

Cage and feeding bottle washers

tunnel washers

Cages and racks washers

Automated tunnel washer

bedding systems

Bedding disposal and dispensing

feeding bottle washers

Feeding bottle washing, decapping, filling and recapping systems

Automated feeding bottle washing system

environment control

Decontamination locks

Machine main functions

- washing
- sanitization by rinsing at 85°C - 185°F
- decontamination
- hot air drying
- pass through safe barrier
- de- capping
- emptying
- filling
- re- capping
- disposal
- dispensing

Available upgrades

- productive or functionality upgrade with modules
- productive upgrade with robotized or automated loading - unloading

5

AC 1200 - AC 1300 - AC 1400
Animal feeding bottle, animal cage and fish tank

AC 1400

AC 1300

AC 1200

Pass-through versions with interlocked double door

Steelco cage and bottles equipment cleans and sanitizes all types of feeding bottles, animal cages and fish tanks. Steelco equipment assures outstanding washing and sanitization results.

Final rinse temperature is guaranteed to reach 85°C/185°F, water is sprayed through **an independent rinsing circuit**.

Washing chamber capacity

	AC 1200			AC 1200/2			AC 1300			AC 1300/2			AC 1400			AC 1400/2		
Chamber dimensions	W	D	H	W	D	H	W	D	H	W	D	H	W	D	H	W	D	H
mm	765	900	1130	765	970	1130	1550	730	1130	1550	800	1130	1550	900	1130	1550	970	1130
inches	30.12	35.43	44.49	30.12	38.19	44.49	61.02	28.74	44.49	61.02	31.50	44.49	61.02	35.43	44.49	61.02	38,19	44.49
Useful heights	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
mm	345	345	790	305	305	-	345	345	790	305	305	-	345	345	790	305	305	-
inches	13.58	13.58	31.10	12.00	12.00	-	13.58	13.58	31.10	12.00	12.00	-	13.58	13.58	31.10	12.00	12.00	-
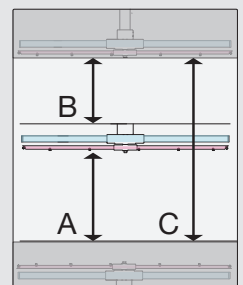
Key features

- Drop down/vertical sliding loading door.
- Pass-through configuration available.
- Chamber and doors entirely made of stainless steel AISI 316L, external body made of stainless steel AISI 304.
- Rotating spray arms positioned on the top, middle and bottom levels of the washing chamber.

- Independent rinsing circuit.
- Multi stage filtering system.
- Self-cleaning filter for the recirculation of the washing water.
- Washing pump pressure switch.
- Sanitization by rinsing at 85°C/185°F.
- Tank and sump temperature check.

- Equipped with 1 chemical dosing pump as standard, controlled by a micro-processor which allows to set the optimal dosing level for each type of cycle.
- The presence of detergent in the drum is monitored, in case of insufficient level, the control system warns with an alarm.
- RS 232 port for printer connection.

Optional features

- Additional chemical dosing pump
- Knock down configuration
- Flow meter for the checking chemical dosing

- Steam or hybrid heating
- Drain pump

- Exhaust fan
- Acquatic tank processing kit
- Double door pass through version

- Integrated printer
- PLC control panel

Aquatic Tank Processing Kit

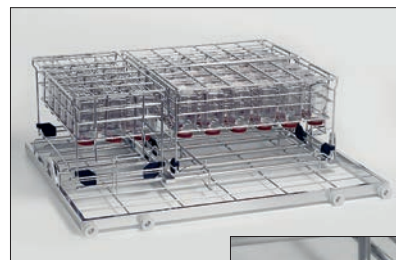Special configuration and process to ensure the elimination of any residual biofilm and algae left in aquatic tanks.

Multistage water filtering system

Self-cleaning filter for recirculation of the washing water.

Separated washing and rinsing circuits

Feeding bottle washing carts

Detail of bottle dedicated spray jets.
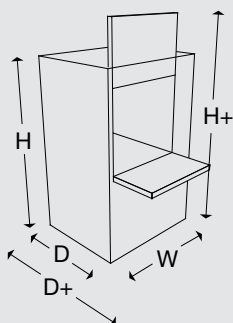
Easy maintenance

Easy access with sliding electric control panel.

Detergent cabinet with capacity of up to two 10 lt. / 2.64 US gal containers.

Washers dimensions

Single door		W	D	H	D+	H+
AC 1200	mm	1200	1000	1900	1475	2265
	inches	47.24	39.37	74.80	58.07	87.17
AC 1300	mm	1970	830	1900	1305	2265
	inches	69.29	32.68	74.80	51.38	87.17
AC 1400	mm	1970	1050	1900	1525	2265
	inches	77.56	41.34	74.80	60.04	87.17

Double door		W	D	H	D+	H+
AC 1200/2	mm	1245	1030	1900	1505	2265
	inches	49.02	40.55	74.80	59.25	87.17
AC 1300/2	mm	2015	860	1900	1335	2265
	inches	79.33	33.86	74.80	52.56	87.17
AC 1400/2	mm	2015	1080	1900	1555	2265
	inches	79.33	42.52	74.80	61.21	87.17

AC 1500

The ultimate generation of compact cage and bottle washer

Steelco AC1500 cabinet washer is the perfect solution for your small-medium facility needs or the ideal backup unit for your large vivarium.

The patent pending three levels oscillating spray arms assure extremely low cycle time and utility consumptions with unmatchable washing results.

☑ *Automatic vertical sliding door made of double* **HST tempered glass***.*

☑ **Separate** *washing and rinsing* **circuits**

☑ **Two inclinable slide out trays** *for easy loading/unloading*

☑ **Oscillating** *spray arms*

☑ **Up to 32** *mice cages per load*

Washers dimensions
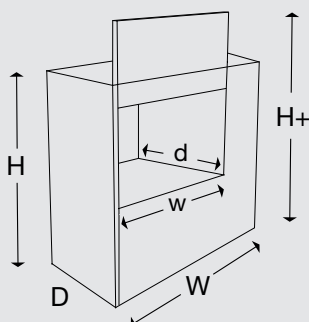
Overall dimensions		W	D	H	H+
Single door	mm	2050	920	2050	2450
	inches	80.71	36.22	80.71	96.46
Double door	mm	2050	965	2050	2450
	inches	80.71	38	80.71	96.46

Useful loading area		w	d	h1	h2	h3
Single and double door	mm	1320	735	330	330	770
	inches	51.97	28.94	13.00	13.00	30.32
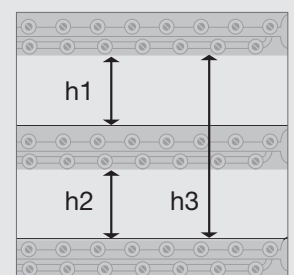
Key features

- Automatic vertical sliding door made of double **HST tempered glass**.
- Steam or electric **heating**
- Double door **pass-through** configuration available.
- Chamber and doors entirely made of stainless steel **AISI 316L**
- External body made of stainless steel **AISI 304**.
- **Oscillating spray arms** positioned on the **top**, **middle** and **bottom levels** of the washing chamber.
- **Two levels loading trays that slide** on rollers for a convenient loading and unloading.

- An **adjustable inclination system with three different possible angles** for optimized load presentation.
- **Independent** rinsing circuit.
- **Multi stage filtering** system.
- **Self-cleaning filter** for the recirculation of washing water.
- Washing **pump pressure** switch.
- **Sanitization** by rinsing at 85°C/185°F.
- Tank and sump **temperature check**.
- Equipped with **1 chemical dosing pump** as standard, controlled by a micro-processor which allows to set the optimal dosing level for each type of cycle.

- The presence of detergent in **the drum is monitored** and in case of low level, the control system warns with an alarm.
- Industrial PLC with **Touch Screen HMI** and **USB port.**
- RS 232 port for printer connection.
- **Detergent cabinet** with capacity of **up to four 20 lt** / 5,28 US gal containers.
- Tele-service ready
- Tablet connectivity ready
- Software utilities consumption E-meter
- Self-start feature.
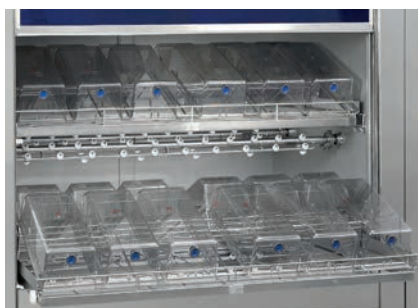
Two inclinable slide out trays for easy loading and unloading

Industrial PLC with Touch Screen HMI and USB port

Detergent cabinet with capacity of up to four 20 lt. / 5,28 US gal containers

Aquatic tank package

- Upgrade to wash pump with variable frequency drive
- 3 chemical dosage pumps
- Conductivity probe for the wash tank
- Flow meters to monitor the amount of chemicals used for different phases of the cycle

Additional features

- Double door pass through version
- Acquatic tank processing kit
- Integrated printer
- Chamber illumination
- Electrical drying system with blowers
- Steam drying system with blowers
- Drain pump
- Exhaust fan
- Additional dosage unit
- Remote dosage units (two dosage units are included)

- Steam condenser for non-vented application
- Steam condenser with heat recovery system for inlet water
- Flange for modular wall
- Knock down configuration
- SteelcoData View - cycle traceability software
- Upgrade to wash pump with variable frequency drive
- Water discharge cooling down system by injection of cold water on the drain line

- Water discharge cooling down in a drain tank with control of the water temperature
- Water discharge cooling down system and PH neutralization
- Steam drying system with blowers
- Conductivity meter for final rinse
- Conductivity meter for wash tank
- Flow meters
- On board thermal printer
- Volt free contact
- Chamber illumination

AC 7500 - AC 8500
Cage and rack washer

The Steelco AC 7500 and AC 8500 series cage and rack washers are **heavy duty, large capacity, hydro-spray washers** specifically designed **to support the throughput of medium and large size facilities**.
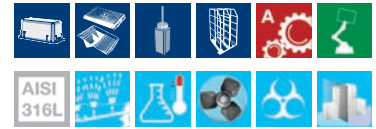
AC 7500

AC 8500

The wide range of solutions available matches any load **capacity**, **dimension** and **layout configuration** need.
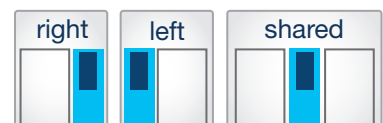

Horizontal sliding
Left or right door
AC 8500 version

Hinged door
Left or right door
AC 7500 version

Pit mounted or Floor loaded

right | left | shared
Technical area

Double or single door versions, also in **stainless steel door with inspection window**.

Running cost saving **of up to 95%** compare to conventional design

Time saving

75%

Water saving

95%

Energy saving

95%
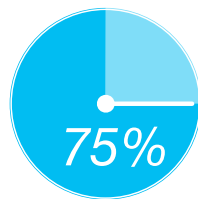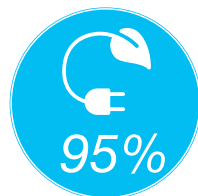
Automated loading/unloading systems

Steelco can provide tailor made automation solutions to maximize efficiency and decrease workplace related injuries.

Example of a fully automated loading and unloading system for transport trolleys.

AC 7500 - AC 8500
Key features

Spray nozzles
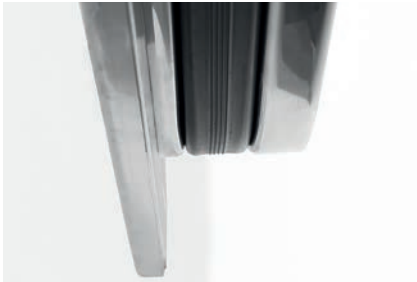

Standard stainless steel nozzles.

Oscillating spray arms

Horizontally mounted oscillating arms to wide spray pattern.

Chamber illumination

Internal chamber led lights. Multicolor lighting is available on request.

Chamber sealing

AC 7500 doors with integral inflatable gaskets to provide a sealed chamber for SPF barrier applications for decontamination and sanitization cycles.
On AC 8500 door seal integrity is ensured by mechanical pressure of the door on the perimetral seals.

Chamber floor

Solid grid weight bearing floor. Compact grids allow easy removal for maintenance and access to filters.

A tilting floor option is recommended when the process requires drying of surfaces.

Safety cables

Inside the washing chamber, safety cables provide emergency unlock and opening of the door/s.

Water filtration
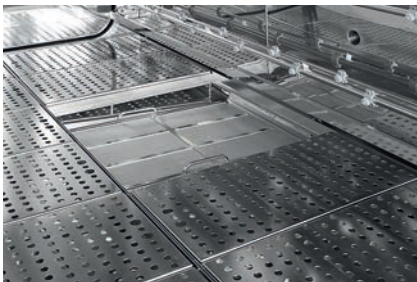
AC series washers are fitted with a 3 level multi filtration system. The gross and fine filters are located in the bottom of the chamber and remove particles greater than 2mm and 0.9mm (0,08" and 0.035").

The easy to reach extra fine filter, placed in the inlet of the wash tank, is a back flush self cleaning filter for the re-circulating washing water that traps particles larger than 0,5mm (0.02").

Pit installation

The need for a deep pit has in the past been a challenge for the installation of a rack washer, especially in refurbishment projects.

Pit reduced down to 100mm

100 mm
3 $^{15}/_{16}$"
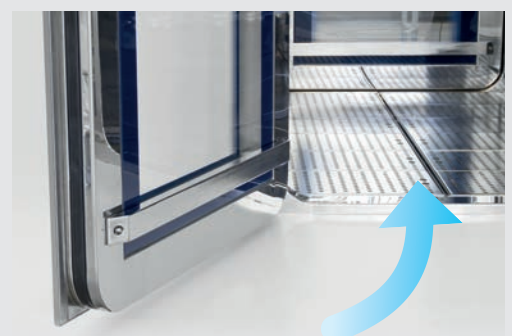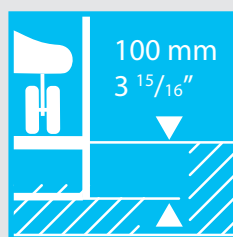
Process control
Data management and operator safety

Multi language touch screen control with auto-diagnostic function constantly monitors and displays current cycles status and alarms. Optimize process and personalized programs. GMP quality standard, data management is available for different operating modes:

- Detailed printed reports from a built-in printer.
- Remote data collection and management through Steelco SSV software.

Additional functions such as total access to machine and automation parameters are allowed by Steelco TeleSupport systems.
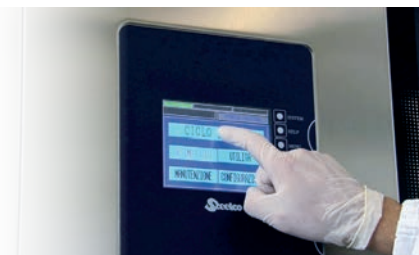
Control displays

Touch screen control displays are available in different sizes according to customer requirements.

Chemical dosing

Chemical dosing is precisely controlled using both time and flow based monitoring.

Decontamination options
to extend the range of application of your air-tight chamber

VH_2O_2 injection point

External generator

Internal generator

An air-tight chamber provides added flexibility to also use the unit as a:

- Hydrogen Peroxide or Chlorine Dioxide decontamination pass-through chamber.
- Chemical fogging chamber when fitted with an atomizer spraying disinfectant and compressed air circuit.
- Thermal sanitization by injecting clean steam into the chamber.

Without pit installation

In alternative at the pit installation the AC series **can be installed on the floor with a small ramp** for an easy loading/unloading of the trolleys.

Furthermore, Steelco offers a **lifting platform** (*not available for the hinged door version*) assuring the **same ergonomics and operator safety**.
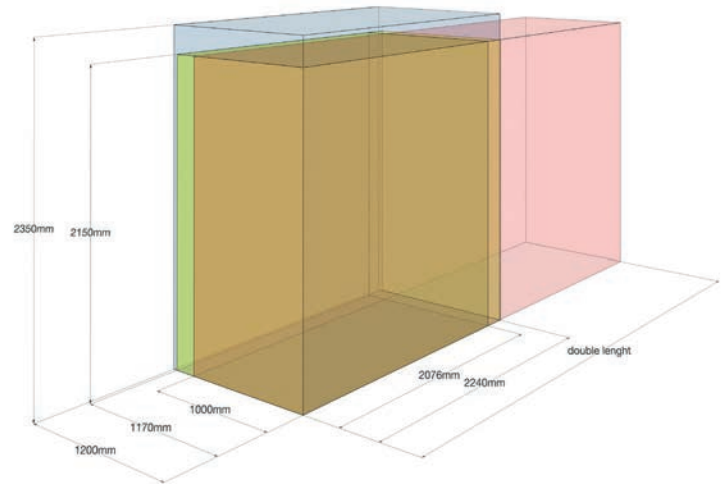
AC 7500 - AC 8500
Flexiblity configuration and Key options

The range of rack washers offers chambers with different widths and depths for single or doubled capacity loads.

2350mm 2150mm
1200mm
1170mm
1000mm
2076mm 2240mm
double lenght

Application flexibility

Standard configuration machines have separate wash and final rinse tanks and circuits that preheat water to the correct temperature to minimize cycle times.

Energy and water consumption saving solutions.

Additional wash tanks can be specified when a wide variety of different goods requiring different chemicals are used.

Final rinse tank

Washing solution 1 tank

Washing solution 2 tank
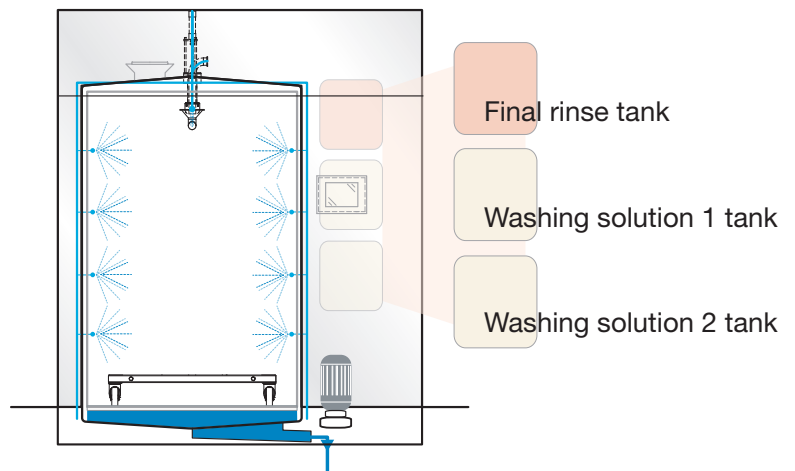
Easy maintenance

Maintenance access to all components can be done from the front and rear sides of the device.


Suitable for installation between walls.

NHP Option
Cage and rack washer

Heavy duty, large capacity, hydro-spray washer specifically designed to support the throughput of large animal cages and racks in medium and large size facilities.

The NHP option is equipped as standard with **3 pre heating water tanks and 2 dosing pumps** resulting in great flexibility in cycle setting.
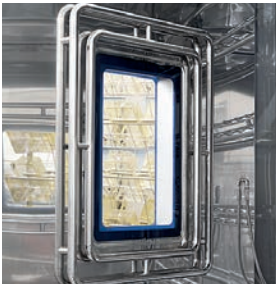
Inspection window in the inner side of the door is protected from the load.

Multiple horizontally and vertically mounted oscillating arms equipped with stainless steel spraying nozzles.
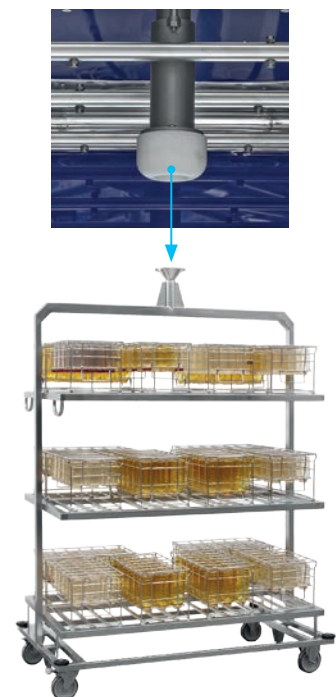
Aquatic tank cycle option

Configured with a special hydraulic circuit and 3 peristaltic liquid chemical dosing pumps with a dedicated washing and sanitization cycle.

Manifold system option
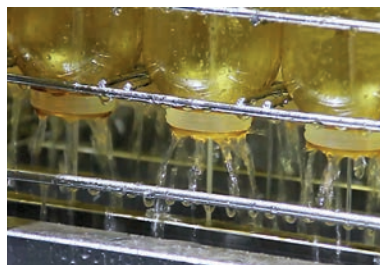
Automatic manifold for trolleys equipped with injection systems.

Loading racks

AC 3500
Automated tunnel washer

To meet the growing demand of compact systems for the automatic processing of animal cages, MITO AC 3500 provides an integrated and flexible solution for the processing of almost any type of commonly available cages on the market.

AC 3500 modules

The system is composed of modules with dedicated functions:

- Loading
- Pre-wash
- Acid/Alkaline wash
- Rinse and final rinse
- Drying
- Unloading

Modules can be added or removed for customized solutions.

Each tunnel chamber is provided with a vertical sliding glass door for visual inspection.

Animal cages and other miscellaneous items are placed into a loading conveyor which moves through the tunnel, passing through 5 processing phases:

1 pre-wash

2 chemical wash

3 pre-rinse

4 final fresh hot water rinse

5 hot air drying system

AC 3500 has been developed with water consumption reduction in mind. To that aim, the final rinse is then used in the pre-rinse phase and in turn the pre rinse water is used in the pre wash phase.

AC 3500's innovative water saving features, enable it to maximize water flow whilst at the same time minimize water consumption, thereby saving your facility money.

Modular system - It's possible to configure the tunnel washer by combining the following modules

| Loading module 1100 mm (43.3")	Pre-wash module 1500 mm (59.1")	Washing module 1500 mm (59.1")	Rinse module 1000 mm (39.4")	Standard Drying module 1500 mm (59.1")	Long Drying module 2500 mm (98.4")	Unloading module 1100 mm (43.3")	TOTAL LENGTH
●		●	●			●	4700 mm (185.0")
●		●	●	●		●	6200 mm (244.1")
●		●	●		●	●	7200 mm (283.5")
●	●	●	●	●		●	7700 mm (303.1")
●	●	●	●		●	●	8700 mm (342.5")

AC 3500
Key features

- **Chambers and filters made of stainless steel AISI 316L.**
- Visual inspection inside the chamber is possible at any time, thanks to the HST glass windows.

- Extremely smooth chamber surface, welded without seams assures a perfect drain.

- AC 3500 combines high pressure and flow rate to achieve outstanding washing and rinsing performance of up to 750 cages per hour.

Washing/rinsing chamber
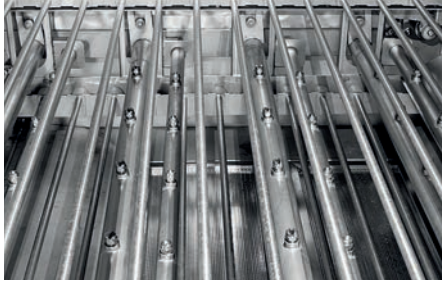
Spray arms and separate rinsing circuit. Dedicated water jets for high temperature final rinse.

Prewashing chamber

Pre-wash spray jets.

Hot air drying chamber

The design of the air circuits allow a uniform air distribution inside the drying chamber.

Loading table

Easy access cage debris filter.
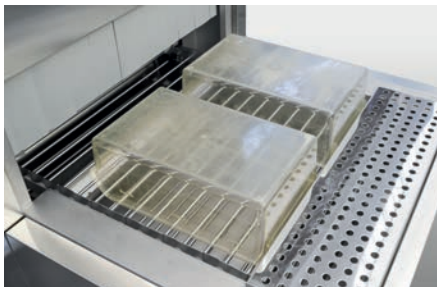
900mm (36"), 1100mm (44") or 1200mm (48'') belt width versions.

AC 3500 - Installation examples

Smart water filtering system
a way to increase productivity

Clogged filters is one of the main issues facing operators when processing cages. The amount of solid residues can easily clog the nozzles.

Steelco has developed a system for the fast and easy access to filters for their maintenance.

The main filter in the prewash chamber is flushed by flowing water that helps to keep it's surface clean. This way, a large amount of residues is collected by a filter which is easily accessible from the outside of the washer.

In Line Cage Inverter
Fully automated in Line Cage Inverter and Bedding Dispenser

The Steelco automatic inline bedding dispenser is a unit dedicated to accurate dispensing of any kind of conveyed free flow bedding that can be positioned in line on the unloading side of a cage tunnel washer.

The unit can be equipped with up to 5 bedding delivery points with automatic detection of cage presence. Number of delivery points may vary upon conveyor width.

Bedding can be fed by a centralized vacuum system or by an on-board loading funnel.
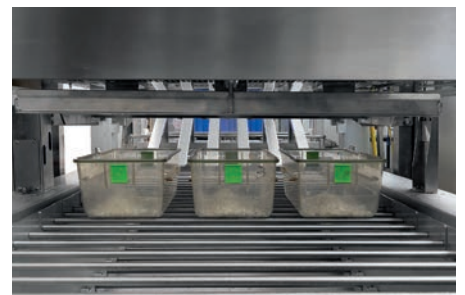
The unit normally receives the cages from an automatic cage inverter that turns the cages upside down directly on the belt conveyor of the bedding dispenser.
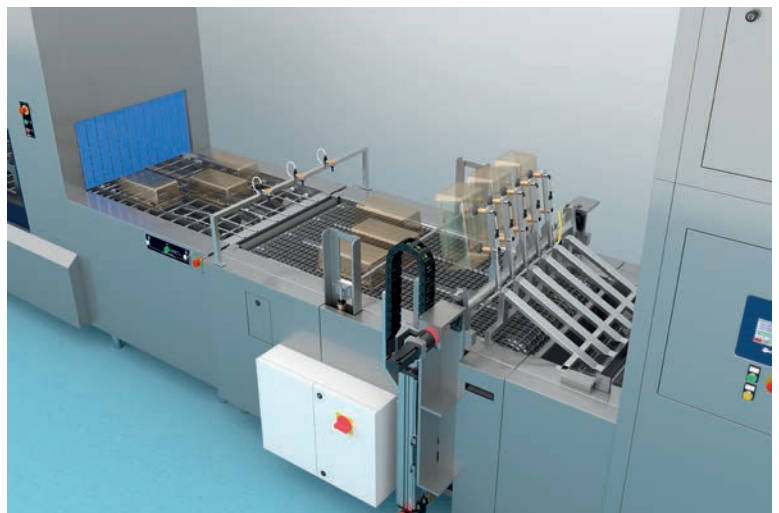
Cage inverter is equipped with a photo-cell positioning sensor

Details of the pneumatic suction caps system

The dosing system uses photo-cell positioning sensor to detect dimensions and presence of the cages to start dispensing.

AC SYSTEMS
Wide range of automated solutions for life science

AC SYSTEM is the automated solutions range from Steelco for Life Sciences.

- **No special cage support grids**
- **Automatic cage recognition**
- **Includes autoloading trolley washer**
- **Only 1 robot needed either end of machine**

Steelco TeleSupport - Connection to the washing central

With the tele-support software/service, a remote operator is able to verify the full functionality of installed devices.

Steelco TeleSupport main functions:

- Checking full system integrity and equipment functioning
- Access and management of the cameras to monitor the system.
- Total access to the parameters of the machines allowing the management of the washing programs (times, temperatures, chemical dosing...) and direct corrective actions and/or software updates.
- Synchronous access to the parameters of the machine and all robotic automations installed.

System access:

Access to the Steelco TeleSupport system is often shared between Steelco, facility management and the user.

For confidentiality reasons, access can be restricted to certain periods or special situations.
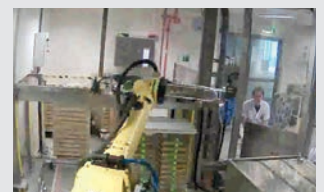
Automated loading/unloading system

Modern facilities for animal laboratory research require automation to deal with the increasing demand of productivity. Steelco's machines can be provided with an automation system even as a future upgrade.

The automation system features:

- Transport pallets for the handling of stackable cages
- Automatic conveyors for loading and unloading stations
- Programmed robots for the emptying and loading of dirty cages on the tunnel washer belt as well as picking up, filling with new bedding and stacking them on cage transport pallets
- Control station in the loading zone

Trays and/or pallets are placed on the machine conveyor belt.

In case of integration with an automated system several HMIs are included to make the system as user friendly as possible.
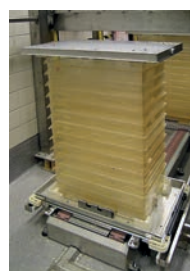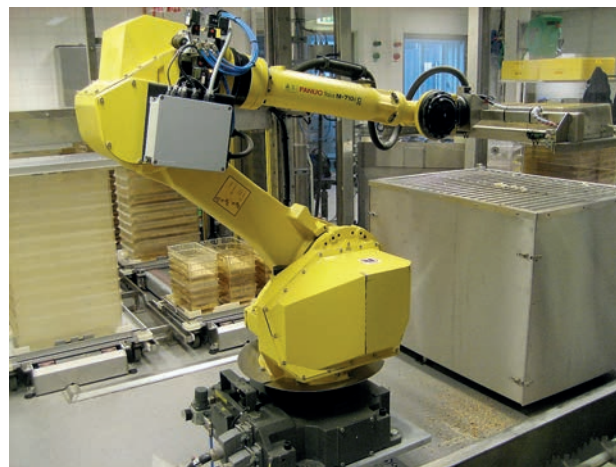
Pallet cage system

Plastic separators for trays enable compatibility of our pallet transport solution with most existing cage systems.

Customized solutions are available to meet end user needs.

Steelco SuperVisor - Data management and remote monitoring of connected devices

SSV software verifies the functionality of the system through an intuitive graphic interface to allow immediate verification of:

- Device status, **alarms**, blocks
- **Data** logging of **consumption**
- Data logging of alarms
- **Machine productivity** and **statistics**

Steelco SuperVisor software allows data export in standard formats

Machine productivity and statistics

If the cage reprocessing system of the facility is equipped with an RFID system to identify the cage transport pallets, productivity statistics can be obtained for any cage model type.

Machine documentation

The main screen of the software also allows quick access to the technical documentation of the machine including: manuals, hydraulic - pneumatic - electrical system schematics, piping & instrumentation diagram.
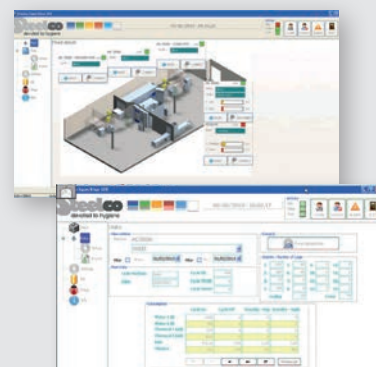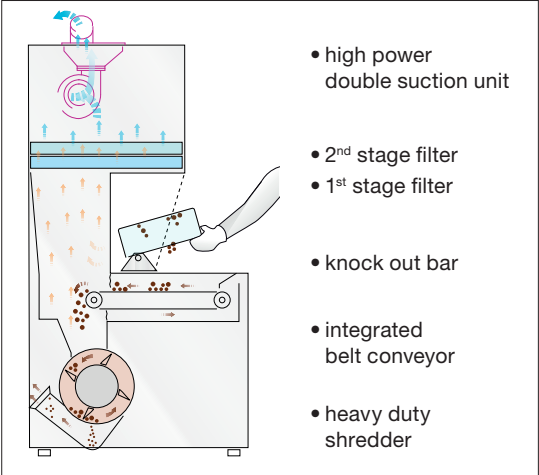
Dumping station with shredder
for vacuum system connection

Steelco dumping stations with shredder are available as stand alone units to be connected to an existing vacuum system.
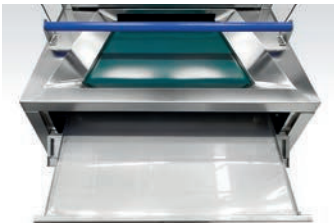
The device is suitable for all type of bedding (dry or wet), food and enrichments with no clogging risk.

The standard configuration, suitable for integration with centralized vacuum systems, can be equipped with an allergene containment unit to provide a high degree of air cleanliness around the operator.

- high power double suction unit

- 2nd stage filter
- 1st stage filter

- knock out bar

- integrated belt conveyor

- heavy duty shredder

Optional

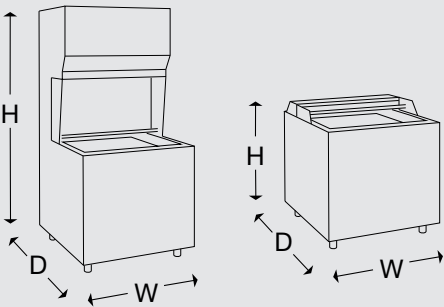- Allergene containment unit

Removable tray for the collection of residues

The tray can be easily removed for cleaning maintenance

Allergene containment unit details

Dimensions

Dumping station (with shredder)		W	D	H
with allergene containment unit	mm	1200	1100	2100
	inches	47.24	43.31	82.68
without allergene containment unit	mm	1200	1100	1100
	inches	47.24	43.31	43.31

22

Bedding dispenser
stand alone unit

Steelco bedding dispenser provides accurate dispensing of mostly any kind of free flow bedding.

In order to protect the operator from dust exposure, the dispenser is equipped with an efficient air suction system.

Key features

- **Structure and panels made of stainless steel AISI 304.**
- Standard equipped with 2 dispensing ports.
- Suitable for conveyed filling as well as manual bedding refill at ergonomic height.
- Soft touch control panel with LCD display and up to 40 pre set quantity programs.

Cage flipping device (Gravity type)

In addition to the stand alone bedding dispensers, Steelco can provide in-line dispensing solutions connected with a centralized vacuum system and allergene containment unit.

In a high productivity solution, the in line dispensing system is normally integrated with the automatic cage inverter.
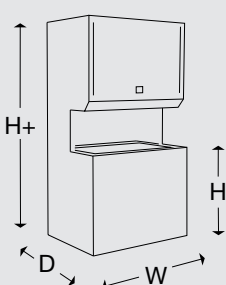
This device automatically inverts upside down cages coming out from a tunnel cage washer. The automatic system is designed to be compatible with the different type of cages and to align them perfectly for the next bedding dispensing phase.

With AC 3500 machine through cage inverter system

Through robot system

Bedding dispenser	W	D	H	H+
mm	1000	750	850	1950
inches	39.37	29.53	33.46	76.77

MITO FBS
Semiautomatic feeding bottle washing with integrated filling system

MITO FBS **automatically empties, washes, rinses and fills 18 bottles per cycle**.

This workstation is suitable for small facilities, providing a complete **bottle and cap** reprocessing solution on a cost effetive budget.

MITO FBS is a modular system and can be configured of multifunctional loading and unloading tables and accessories.

MITO FBS

bottle emptying station

The core of the system

A rotating system enables automatic bottle emptying, washing, rinsing and filling.

Water distribution system:
① filling system
② top rinsing system
③ washing system
④ bottom rinsing system

Bottle treatment

Loading of the bottle crates

Rotation for bottle emptying, washing and rinsing

Back rotation for bottle filling

Bottle filling

Caps treatment

Caps crate rotation forward - backward during the wash phase

Unloading of the caps crate

MITO FBS - Key features

MITO FBS

- Chamber entirely made of stainless steel AISI 316L.
- Independent washing and rinsing system.
- Individual nozzles for full bottles coverage during washing/rinsing phases.
- Disinfection by rinsing at 85°C/185°F.
- Washing water filtration system to protect the recirculation and drain pumps from debris. Easily removable water filtration system.
- Three default settings for bottle filling.
- Microprocessor control system with RS232 port for external connection. LCD Display control panel, provided with up to 40 programs capacity.

Manual de-capper

- Patented individual cap remover.

Bottle dripping station

- Serves as unloading table for the MITO FBS washing system.
- The top surface is made of AISI 316L stainless steel and slopes towards a central drain.
- Access to the lockable bottom storage.

Bottle emptying station

- Serves as loading table for the MITO FBS washing system.
- Top surface and sink are made of stainless steel AISI 316L.
- Access to the lockable bottom storage.
- Emptying station can be equipped with rinsing taps and manual cap remover.

Ultrasonic bath version

- The sink is provided with a sliding cover.
- Automatic treatment cycle. LED display and timer for cycle control.
- Pump for automatic chemical dosing. Checking of the chemical quantity through a low level alarm.
- Ultrasonic generator fitted with a radio frequency interference filter and with power control from 0 to 100%. The ultrasonic frequency is modulated in order to avoid dead areas and ensure full chamber coverage.

Semiautomatic complete solution

This solution shows a loading table with ultrasonic bath equipped with a rinsing tap and a manual de-capper followed by a washing and filling machine and an unloading table for "in line" operation.

Caps washing and disinfection

During the washing phase the caps crate is rotated backwards and forwards, ensuring a better water coverage.
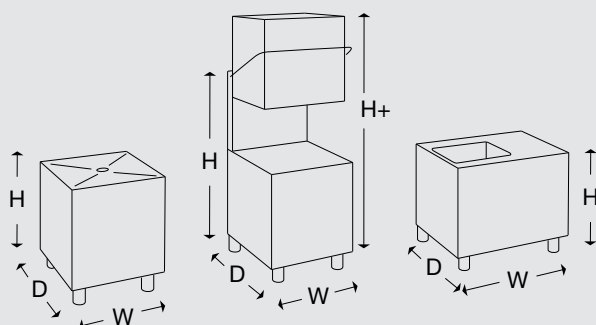
Manual decapper

Caps crate

Bottle emptying station with ultrasonic bath

Washer and module dimensions		W	D	H	H+
Hood type washer	mm	650	700	1465	1885
	inches	25.59	27.56	57.68	74.21
Emptying station	mm	1000	700	850	-
	inches	39.37	27.56	33.46	-
Ultrasonic bath emptying station	mm	1300	700	850	-
	inches	51.18	27.56	33.46	-
Dripping station	mm	600	700	850	-
	inches	23.62	27.56	33.46	-

MITO 2B
Semiautomatic feeding bottle washing system

MITO 2B is a hood type **bottle washer/ sanitizer** with a capacity to process 2x18 bottle crates per cycle.

MITO 2B system shares the multifunctional loading tables and smart accessories of MITO FBS system, plus a dedicated module for bottle filling.

MITO 2B is suitable for small size facilities and can be supplied with a semiautomatic bottle recapping module that significantly reduces operating time.

Key features

- **Chamber entirely made of stainless steel AISI 316L.**
- Independent washing and rinsing system.
- Disinfection by rinsing at 85°C/185°F.
- Washing water filtration system designed to protect recirculation and drain pumps from debris. The filter is easily removable for cleaning.
- Individual nozzles for full bottles coverage during the wash and rinse cycles.
- Microprocessor control system with RS232 port for external connection.
- LCD Display control panel, with up to 40 programs capacity.

MITO 2B

MITO filling module
## Semiautomatic feeding bottle filling station

Filling module for one or two bottle crates.
This module can be manually loaded or automatically conveyed.
The bottle filling starts automatically once the crates are correctly positioned. The system is offered with a 3 position timer for setting different bottle filling volumes.

Key features

- **Serves as unloading table for MITO 2B washing system.**
- **Top surface is made of AISI 316L stainless steel and slopes towards a central drain.**
- Access to the lockable bottom storage.

Optional
- Interchangeable filling grid for different crate bottles size
- Customized solution combined with drinking water acidification unit
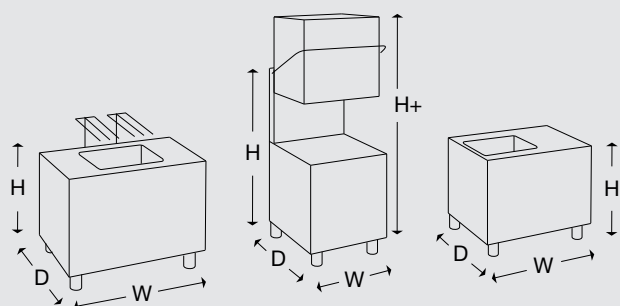
| Washer and module dimensions		W	D	H	H+
Hood type washer	mm	650	700	1465	1885
	inches	25.59	27.56	57.68	74.21
Emptying station	mm	1000	700	850	-
	inches	39.37	27.56	33.46	-
Ultrasonic bath emptying station	mm	1300	700	850	-
	inches	51.18	27.56	33.46	-
Filling station	mm	1000	700	850	-
	inches	39.37	27.56	33.46	-

MITO PT
Automatic pass-through feeding bottle washers

Mito PT has been developed to provide a flexible solution for bottle feeding processing.

MITO PT can wash and rinse automatically up to 18 bottles in a crate per cycle and can process different type of bottles. An upgraded version with a powerful drying system is also available.

Suitable for pass-through applications
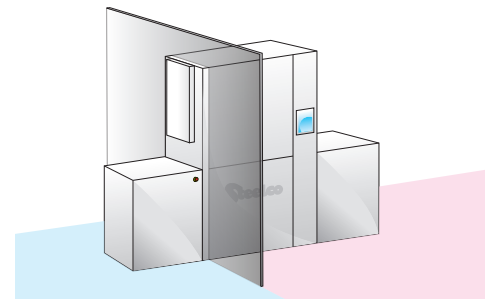
MITO PT is a double door module, suitable for in line and conventional barrier pass-through application.

MITO PT with built in hot air drying unit

Feeding bottle washer enhanced with a powerful drying unit. This system ensures a complete drying of bottles in order to allow for a longer waiting time before the sterilization process starts.
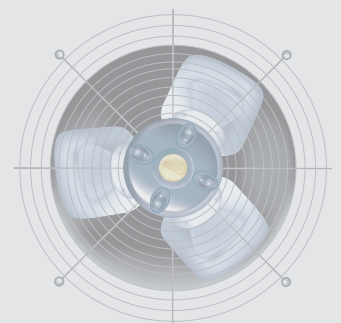
MITO PT - Key features

- **Chamber and doors entirely made of stainless steel AISI 316L**, external body AISI 304.
- The unit is designed and constructed with extreme care, finished with smooth and seam free washing chamber.

- Self cleaning sump with rounded edges.
- Separate washing and rinsing circuits to avoid cross contamination.
- Two stage water filtration system.
- Bottles sanitization by rinsing at up to 85°C/185°F

- Provided as standard with dosing unit and flow meter.
- PLC control system with 5.7" touch screen LCD display.
- Up to 10 washing/rinsing cycle programs.
- Programming protection through 3 password levels.

Optional

- Full glass doors for visual inspection of the process
- Dedicated water tank for additional final rinse
- RS 232 printer connection for process documentation of relevant cycle data

- Integrated printer on front panel
- Conductivity control for DI water tank

- Speed controlled exhaust fan for vapour extraction

Single phase cycle

The bottles are placed into a crate in an "upside down" position and are automatically loaded, washed and sanitized through internal and external rinsing.
Once the washing cycle has been completed, the crate is unloaded from the clean side and collected onto a buffering conveyor.

**Loading/unloading buffering conveyors**

Buffering conveyors for the automatic loading and unloading of the crates.
MITO PT can be completed with manual or automatic de-capping and emptying tables as well as manual or automatic filling and recapping stations.

Examples of Steelco installations

feeding bottle washers

Washers dimensions and productivity per cycle
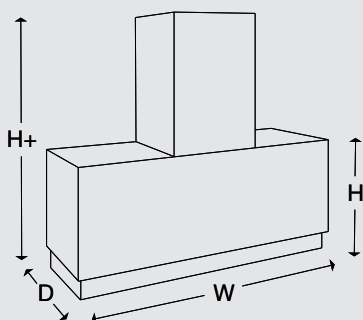
		W	D	H	H+	Productivity crates/hour
MITO PT	mm	2180	760	2000	900	up to 30 (540 feeding bottles)
	inches	88.83	29.92	78.74	35.43	
MITO PT air drying	mm	2800	760	2000	900	up to 10 (180 feeding bottles)
	inches	110.24	29.92	78.74	35.43	

De-Capper
Automatic cap remover and emptying station

This unit automatically de-caps feeding bottles. It comes as a stand alone unit or it can be integrated into an existing bottle line.

Steelco De-capper can be customized to accept different sizes and models of bottles and caps.

This automated system reduces the risk to staff of repetitive strain injuries caused by moving heavy crates.

Key features

- Entirely made of AISI 304 stainless steel.
- 1 x 18 bottle crate capacity.
- Automatic loading and unloading tables with 2 crates capacity.
- Touch screen display.

Optional

- Full glass doors for visual inspection of the process

Ergonomy

The removed caps are automatically conveyed into two **canisters placed inside a drawer** which is easily accessible from the machine loading side.

Full automatic solution combining decapping and washing systems.
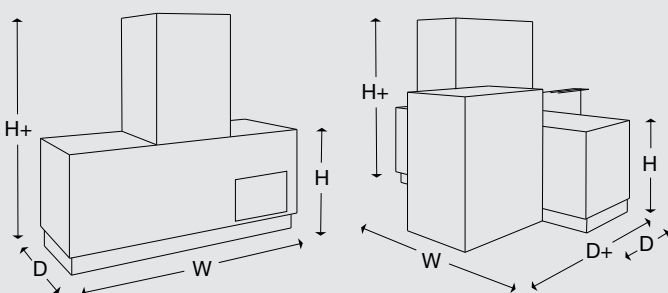
	W	D	D+	H	H+	Productivity crates/hour
De-Capper mm	2320	760	-	900	1990	up to 60 (540 feeding bottles)
inches	91.34	29.92	-	35.43	78.34	
Re-Capper mm	2700	760	1745	900	1900	up to 60 (540 feeding bottles)
inches	106.30	29.92	68.70	35.43	74.80	

Re-Capper
Automatic filling and re-capping station

When compact means complete!

This unit automatically recaps feeding bottles. It comes as a stand alone unit and can be integrated into an existing bottle line.

This automatic device is able to fill and re-cap 1 bottle crate in 1 minute and can be combined with different types of washing devices, reducing the need for staff.
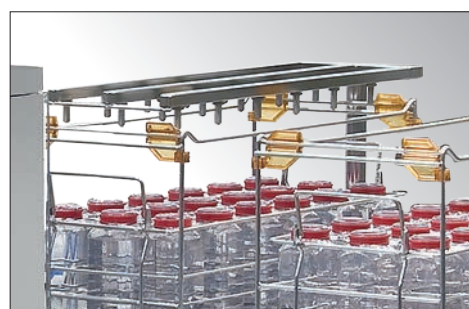
Key features

- Entirely made of AISI 304 stainless steel.
- 1x18 bottles crate capacity.
- Automatic loading table with 1 crate capacity.
- Automatic loading table with 2 crates capacity.
- Touch screen display.

System integration

Existing washing machine

cap remover and bottle emptying system

filling and re-capping device
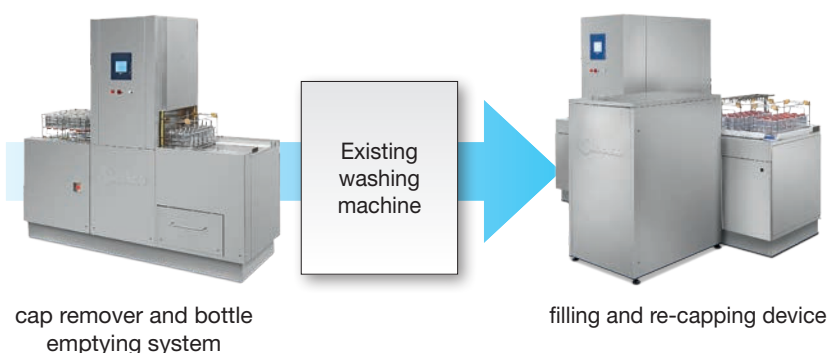
Auto start function

The filling system starts automatically once the crate is positioned

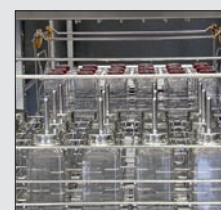## 5 phases cycle
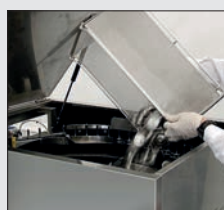
Cap loading

Manual or automatic bottle crates loading

Automatic bottle filling

Automatic bottle recapping

Manual or automatic bottle crate unloading

MITO FB COMBI
the comprehensive approach
## for the sanitization of feeding bottles

The most compact, multifunctional and automated system
for the simultaneous disinfection of feeding bottles and caps.

- Less than **4 m² footprint**

- **High reprocessing capacity** with a considerable
  saving of time and personnel

- Suitable for in line and conventional barrier
  pass-through applications

**High productivity within
a compact solution**

Decapping, emptying, washing, sanitization, filling and recapping: **all in one solution within a small footprint**.
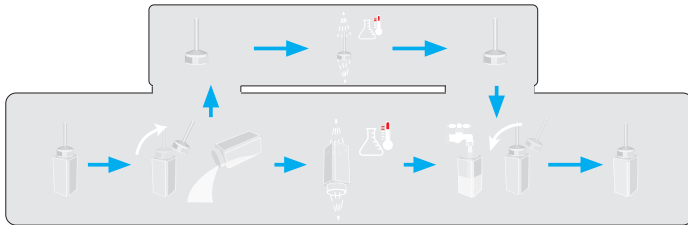
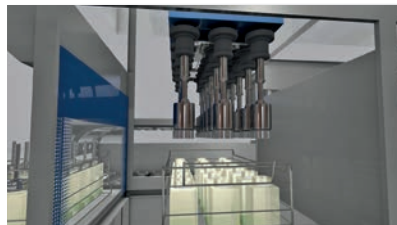Perfect solution for robotic loading/unloading systems, the MITO FB COMBI ensures optimal results efficiently.

Automatic loading table

Loading table with a capacity of two cages and compatible with automatic or robotic loading systems.
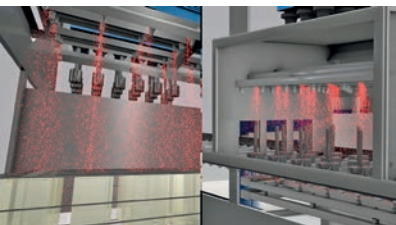
Decapping and emptying

The caps of the bottles are removed and placed on the dedicated washing line. The remaining water in the bottles is automatically emptied.

Washing chamber stations

Bottles and caps are washed separately in interlocked chambers.
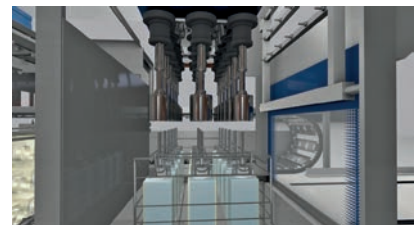
Sanitization phase

Sanitization is performed by rinsing with individual nozzles for bottle and caps.

Filling phase

Bottle filling automatically starts once the crate is correctly positioned. Bottle filling volume is controlled by the system.

Recapping phase

At the end of the process, the bottles are automatically capped with the same initials caps.

MITO FB COMBI - Key features

☑ **High productivity, fully automated**
Compatible with robotic loading and unloading functions

☑ **Compact solution**
Less than 4 m² footprint

☑ **Versatile**
Compatible with caps and feeding bottles available on the market

☑ **Advanced control system**
Constantly monitors and displays the current cycle status and alarms.

Allows the user to optimise the washing process and customize cycle programs.
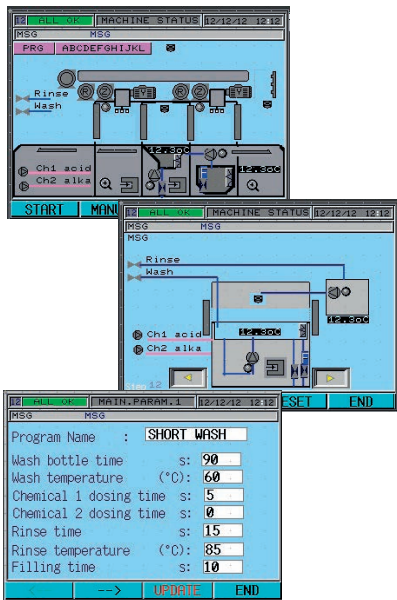
- Fully automatic process, 1x18 bottle crate capacity.
- PLC control system with 5.7" touch screen LCD display. 3 password level protection programming.
- Chambers entirely made of stainless steel AISI 316L, external body made of AISI 304.
- Full transparent external doors for visual inspection of the process.
- Independent washing and rinsing systems to avoid cross contamination. Individual nozzles are dedicated to outer and inner surface of the bottles.
- Sanitization by rinsing up to 90°C / 194°F.
- Washing and rinsing chambers fitted with stainless steel interlocked sliding doors.
- Double HST glass door for washing chamber visual inspection.
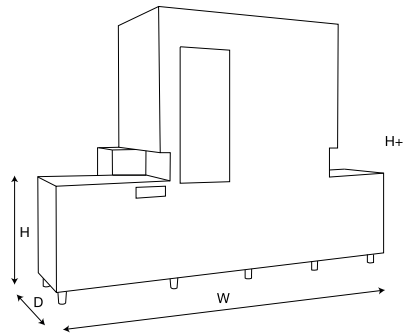
Washer system dimensions

	W	D	H	H+
mm	**3395**	1165	875	2490
inches	**133.66**	45.87	35.5	98.03

Crates and trolleys
for feeding bottles

The range of Steelco accessories dedicated to sanitizing bottles for animal feed is **aimed at facilitating the tasks of the operator**. An example of this is the smart solution to open and lock the lid of the bottle crates.
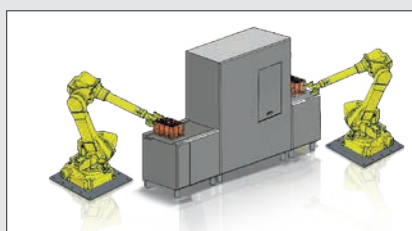
Collecting crates for bottle caps and autoclavable stainless steel transport trolleys are also available.
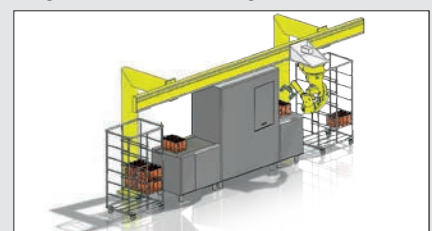
Robot technology

Increased productivity thanks to robotized or automated loading/unloading.

Double robot configuration

Single robot on rail configuration

Decontamination lock
Multiple decontamination method chamber

Decontamination lock with integrated H_2O_2 generator

Steelco decontamination lock is a tight seal chamber that can be used with multiple decontamination methods.
The decon lock can be integrated with any type of existing vapor generators and is available with double interlocking doors as well as single door.

Decontamination lock access doors are equipped with two independent separately controlled integral inflatable gaskets.
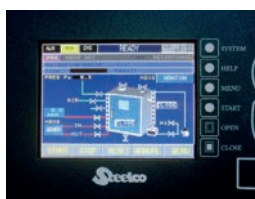
Steelco control panel allows the setting of the cycle and the monitoring of the entire process.

Controls
- Touch screen panel
- Emergency push-buttons (on both sides)
- Internal safety for "man on board" with emergency circuit
- Emergency light signals
- Main switch button

- Gas monitoring system
- Sampling test point
- Interlocking doors
- Inflatable gasket control
- Control system interfaces with generators for signal exchange

- **Completely made of corrosion resistant stainless steel AISI 316L.**

- FAT-SAT-IQ-OQ for full validation available.

Optional

- Full glass doors for visual inspection of the process
- Exhaust air duct filters
- Decontamination product dosing

- Catalizer
- Fogging disinfection system
- Ventilators

- Filtration unit
- Anti skid floor
- Self cleaning system

Fogging atomizer

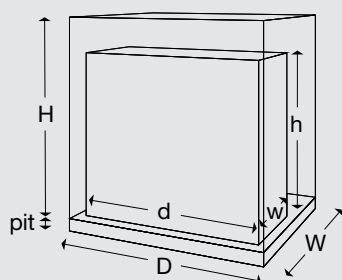Gas injection point

High speed aeration unit

Ext. generator connection

Chamber sealing

Dimensions

	external dimensions					chamber dimensions		
	W	D	H	H+	*H+	w	d	h
mm	2200	2314	2440	2460	2610	1170	2300	2150
inches	86.61	91.10	96.06	96.85	102.76	46	90	84.65

* Decontamination lock equipped with drain.
Overall dimension may change depending on option configuration

environment control

Steelco — Miele Group Member

ARES - flexible endoscope automated reprocessing system

Steam sterilizing autoclaves

Laboratory glassware washer disinfectors

Dental washer disinfectors

Flusher disinfectors

Washer disinfectors for central of sterilization departments

Washing and sterilizing systems for lifescience and pharmaceutical applications

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