Product specification

Getinge Vivus Cage & Rack Washer

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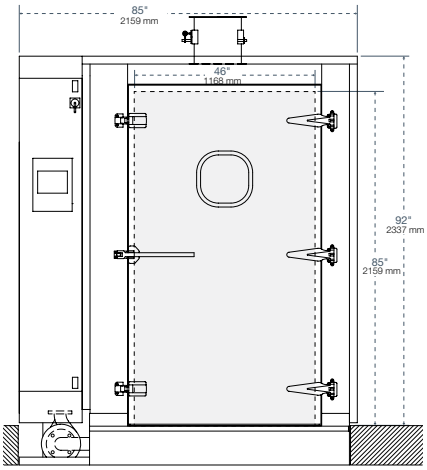

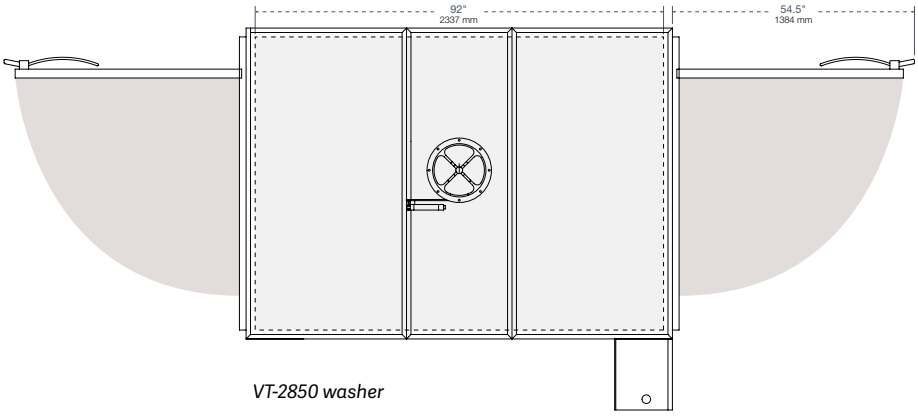

VT-2850 washer

Base Getinge Vivus Cage & Rack Washer

- **Door Configuration**
  Single or double door pass-through configuration
- **Dimensions**

Model	Chamber Size (w × h × d)	External Size (w × h × d)
VT 2850	46" × 85" × 92" (1168 × 2159 × 2337 mm)	85" × 96" × 99" (2159 × 2438 × 2515 mm)
VT 3350L	46" × 85" × 140" (1168 × 2159 × 3556 mm)	85" × 96" × 147" (2159 × 2438 × 3734 mm)
VT 3590WL	72" × 85" × 140" (1829 × 2159 × 3556 mm)	110" × 96" × 147" (2794 × 2438 × 3734 mm)

- **Location of Controls and Service Access**
  Right Hand Controls and Service
  Left Hand Controls and Service
- **Installation and Mounting**
  10" min (12" Standard) (254-305 mm) Deep
  Pit-Mounted Machine
  10" (254 mm) High Floor-Mounted Machine Base
  - Ramp for load and unload end
- **Cycle Functions**
  Prewash, Detergent Wash, Acid Wash, Acid Soak, Neutralization, First Rinse, Final Rinse/ Disinfection, Drying (optional) and Exhaust Phases

Drawings display front and top of VT 2850 washer.

VT 2850 washer.

General Specifications

All over the world equipment from Getinge supports the Life Science industry in their efforts to discover and produce cures. With insight into issues you face every day in the vivarium, we provide the best solutions to your challenges and serve as a partner that you can always rely on.

Getinge's worldwide reach and extensive installed product base provides the knowledge necessary to assist our customers in planning for optimal and efficient processes. With our premium equipment, consumables, project management, logistics, validation, service and training, you can count on Getinge – right from the start.

The Getinge Vivus Cage and Rack Washer ensures reliable, effective cleaning and drying with high throughput and efficiency.

Specifications Index

Intended Use

Intended for detergent solution washing, clean rinsing and drying of transport carts, cages, racked utensils and bottles used in research animal care laboratories and facilities.

Standard Safety Features

Double Door Pass-through – The unit contains manually operated, swing out, side-hinged cabinet type doors having pressure relief safety latches. Doors at each end of the chamber promote a convenient and aseptic flow of goods from a soiled work area to a clean preparation area. Optional door interlocks assure integrity of barrier wall by allowing only one door to be open at any given time. The system includes limit switches at each door location that are inter-wired with the automatic control system. Doors can be easily opened from within the chamber.

Stainless Steel Door with Safety Glass Window – Double pane safety-tempered glass provides a large port for viewing inside the chamber from both the loading and unloading side of the wash chamber. A double pane window provides excellent sound and heat abatement, as well as an extra measure of operator safety.

Level Chamber Floor – Chamber is fitted with removable sections of floor grates that provide drainage to the sump as well as a level walking and rolling surface to facilitate loading and unloading of materials.

Illuminated Chamber – The chamber is fully illuminated by a pair of LED lights mounted on top of the unit, shining through safety glass upper windows.

Chamber Guardrails – Fixed guardrails are fitted over the length of the chamber to prevent loads from contacting the reciprocating spray manifolds.

Personnel Safety Systems – Emergency push stop buttons are provided at all external door zones to immediately terminate all processing functions.

Dual emergency stop, color coded, stainless steel pull cables are provided inside the full length of the chamber to immediately terminate all processing functions by means of an electromechanical safety system.

Visual and audible alarms are provided at all external door zones. Once an emergency stop has occurred, alarms must be acknowledged, the controls and safety cables reset and the cycle re-activated to resume normal function.

Features and Benefits

The Getinge Vivus Cage and Rack Washer includes a suite of features and benefits designed for performance and operator safety.

Automatic Seven Phase Treatment Cycle – The standard treatment cycle consists of a prewash phase, a first agent wash phase, a second agent wash phase with an associated soak phase, a first and second rinse phase and a vapor removal phase. All cycle phases are adjustable from 0–60 minutes. All wash and rinse treatments are recirculated under pump pressure. The cycle, once activated, is completely automatic. Additional cycle treatment phases are available to assure effective cleaning and process repeatability.

Washer Sump/Base Frame – Sump tank holds an economical 50 gallons (190 liters) for the VT 2850, and for the VT 3350, and 90 gallons (340 liters) for the VT 3590. A 10-inch (254 mm) high base frame can be floor-mounted with ramps or recessed in a 10-inch deep pit. Ideal for installation on upper floors or into pre-existing pits.

Reciprocating Jet-Spray Manifold – Wash and rinse jets surround the load and continuously reciprocate from front to rear of the cabinet to deliver large volume, high impact spray to all surfaces of the load, capable of delivering 250 gallons a minute (925 liters/minute), at 85 ft of pressure head (254 kPa). A silent, reliable pneumatic actuator moves the jet headers smoothly and efficiently.

High-Volume/High-Pressure Wash – Solution from the sump is pressurized by a 10 HP (7.5 kW) pump for the VT 2850, (11.2 kW) pump for the VT 3350, and two 10HP (7.5 kW) pumps for the VT 3590. An average capacity of 280 gpm (1060 liters/minute) energizes the reciprocating spray manifold system at pressures exceeding 40 psi (276 kPa) assuring total impingement of the load for thorough cleaning.

Self-Cleaning Debris Filter – Before entering the pump, solutions are forced through a canister containing a removable fine mesh filter with perforations smaller than the jet spray nozzles to prevent clogged orifices. Upon completion of the treatment, the flow through the filter is reversed and debris is back-flushed. The fine mesh filter can be accessed easily by removing a sanitary tri-clamp and cap from the top of the canister. The filter maximizes uptime and reduces routine maintenance.

Agent Injection Ports with electrical Contacts – Washer is ready for quick connection of vendor-supplied detergent, acid and neutralizer pumps. Dosing is adjusted volumetrically from the operator touchscreen or by using vendor conductivity feeders which deliver the right concentration of chemicals into each phase.

Effluent Cooling – A temperature probe is placed ahead of the drain discharge. If the temperature of the solution rises above 140°F (60°C) a cold water valve automatically opens to mix cold water into the drain line to comply with municipal codes for wastewater.

Water Saver – Each cycle saves the last rinse phase water for reuse in the prewash phase of the next cycle. Saving the final rinse will reduce cycle consumption by 50 gallons (190 liters) for the VT 2850 and VT 3350 or 90 gallons (340 liters) for the VT 3590.

Stainless Steel Heating Coil – A stainless steel heating coil located in the sump is used to rapidly elevate and maintain the sump water temperature at the specified setpoint. Wash and rinse temperatures are adjustable from 120°-195°F (50°–90°C).

Wash and Rinse Treatment Temperature Guarantee – The selected wash and/or rinse treatment periods will not begin timing until the recirculated wash and/or rinse treatment solution temperature reaches the desired, programmable, setpoint assuring a minimum temperature during the entire treatment period. Wash and/or rinse phase temperature guarantee selection and temperature setpoints may be locked in by supervisors to ensure security of desired treatment temperatures for proper disinfection.

pH Neutralization – Standard washer features a non-monitored time-based volumetric-type injection for the purpose of neutralizing acidic or alkaline solutions prior to discharge to the drain. Non-monitored neutralization of acid solutions can be treated in the sump prior to discharge. A monitored pH neutralization utilizing a dedicated holding tank can also be purchased as an option.

Quality Statement

Confidence in Getinge group is the most important quality criteria. This is the hallmark of all of our external and internal commitments, activities, and products. Products and services supplied by Getinge conform to agreed terms and expectations. The achievement of these quality goals is the basis to stay competitive and help you maintain a successful enterprise.

Standards & Codes

UL508A

ASME Code section VIII, Div 1

Cycle/Phase Description

Placing Load in Chamber – Place bottles, cages, utensils or containers on the interior load grid.

Start of Processing – Select the required cycle and press the START button. The sequence of phases will vary depending on the intended use of the cycle or the preprogrammed intent of the cycle. The following describes a sample factory set program typical for the life science environment.

Prewash – Hot water fills the sump or water remaining in the sump from the last final rinse phase of the previous cycle is recirculated through the jet spray system under pump pressure. Phase time and temperature are user programmable from 0–60 minutes and from 120°–190°F (49–88°C) respectively.

Drain – Upon completion of the timed prewash phase, the pump is energized and the sump solution is sent to the drain where it will be injected with cold water.

Wash 1 – Hot water fills the sump for the first phase of the session. Once full, the circulation pump will start and a pressurized cleaning solution will be forced into the spray manifold nozzles and onto the load. Phase time and temperature are user-programmable from 0–60 minutes and from 120–190°F (49–88°C) respectively.

> **Agent Saver Feature:** If the agent saver feature is initiated, the hot agent solution from the agent solution reservoir fills the sump and is recirculated through the jet spray system. At the end of the treatment, the agent solution is returned to the agent solution saving tank (tank required).

Drain – Upon completion of the timed wash phase, the pump is energized and the sump solution is sent to the agent solution savings tank or to the building waste line where it will be injected with cold water.

Wash 2 – Hot water fills the sump for the second phase of the cycle. Once full, the circulation pump will start and pressurized cleaning solution will be forced into the spray manifold nozzles and onto the load. Phase time and temperature are user-programmable from 0–60 minutes and from 120–190°F (49–88°C) respectively.

> **Agent Saver Feature:** If the agent saver feature is initiated, the hot agent solution from the agent solution reservoir fills the sump and is recirculated through the jet spray system. At the end of the treatment, the agent solution is returned to the agent solution saving tank. (tank required).
>
> **Soak:** A subsequent soak period may be programmed from 0–60 minutes, to permit the agent solution to work on the load before proceeding to the next treatment phase.

Drain – Upon completion of the timed wash phase, the pump is energized and the sump solution is sent to the agent solution savings tank or to the building waste line where it will be injected with cold water.

First Rinse – Upon completion of the drain phase, fresh hot water fills the sump. Once full, the circulation pump is energized and rinse water is forced into the spray manifold nozzles and onto the load. Phase time and temperature are user programmable from 0–60 minutes and from 120°–190°F (49–88°C) respectively.

Drain – Upon completion of the timed rinse phase, the pump is energized and the sump solution is sent to the building waste line where it will be injected with cold water.

Final Rinse – Upon completion of the drain phase, fresh hot water fills the sump. Once full, the circulation pump is energized and rinse water is forced into the spray manifold nozzles and onto the load. Phase time and temperature are user programmable from 0–60 minutes and from 120°–190°F (49–88°C) respectively.

Exhaust – Unit stands idle for a sufficient period of time for the facility vent system to remove vapor from within the chamber. Phase time is user programmable from 0–60 minutes. Programmable, non-recirculated forced air dryer is available. (See Optional Washer Features)

End of Cycle – Upon completion of the cycle, the cycle complete light is illuminated with an audible signal on the unload side operator panel. Operators can now open the unload door and remove the load.

Removing Load from the Chamber – Remove the load to a safe position outside the chamber.

Getinge Vivus Cage & Rack Washer

Ordering information

Make your selections:

☐ = Standard selection

◯ = Optional selection

Model/Size

The Getinge Vivus Cage and Rack washer comes standard in three sizes to choose from (Select One):

	Model	Chamber Size (w × h × d)	External Size (w × h × d)
☐	VT 2850	46" × 85" × 92" (1168 × 2159 × 2337 mm)	85" × 96" × 99" (2159 × 2438 × 2515 mm)
☐	VT 3350L	46" × 85" × 140" (1168 × 2159 × 3556 mm)	85" × 96" × 147" (2159 × 2438 × 3734 mm)
☐	VT 3590WL	72" × 85" × 140" (1829 × 2159 × 3556 mm)	110" × 96" × 147" (2794 × 2438 × 3734 mm)
◯	Custom – Consult Factory		

Location of Service Access / Controls

☐ Right Hand Service Access and Control

☐ Left Hand Service Access and Control

◯ Control Panel – Remotely Installed

Installation and Mounting

The washer is available in right hand service access/control or left hand service access/control to suit your individual application.

☐ Pit-Mounted

☐ Floor-Mounted with Ramps

Voltage Supply

Select electrical connection needed.

☐ 480 Volt, 3-phase, 60Hz - Standard

◯ 208 Volt, 3-wire, 3-phase, 60Hz

◯ 208 Volt, 4-wire, 3-phase, 60Hz

◯ 240 Volt, 3-wire, 3-phase, 60Hz

◯ Define electrical connection _____

Wall Trim Options

The washer is available with several installation panel options.

- [ ] Freestanding (Standard)
- ◯ Cabinet Wall Trim Panels (1"-8")
- ◯ Service Enclosure
- ◯ Stainless Steel Modular Walls

Tank Options

- ◯ Detergent Solutions Tank – a side-mounted tank can be provided to allow for wash solution to be saved or discarded at the end of the wash phase, determined by the cycle program. The tank automatically refreshes itself at a programmable rate. An automatic descale cycle is standard.
- ◯ Acid Solutions Tank – a side-mounted tank can be provided to allow for acid solution to be saved or discarded at the end of the acid wash phase, determined by the cycle program. The tank automatically refreshes itself at a programmable rate.
- ◯ Monitored pH Neutralization tank – if local regulation requires effluent solutions to adhere to provable upper and lower pH limits, a tank is provided to receive, and neutralize all effluent before going to drain.

Spray System Options

- ◯ This option is needed if the utility of hot water supply is lower than 140 degress (60 degress Celcius). Instantaneous Hot Water – a stainless steel heat exchanger is provided to raise the temperature of the incoming water by ~80°F (27°C).
- ◯ Tech Wash – This cycle has two phases: wash and rinse. During the wash cycle, detergent is dosed volumetrically into the existing sump water and the wash phase runs for a preset time, once complete, the timed rinse begins. During the rinse phase, fresh hot water flows through the outboard heat exchanger and through the entirely separate rinse circuit. The temperature of this water is controlled within a narrow range (generally 200–205°F (93–96°C). Water use is thus reduced to 50-100 gallons (189–378 liters) per load as the only fresh water is for the final rinse. Detergent consumption is halved, steam and electrical usage is sharply reduced per cage due to the shorter cycle time and cycle time is reduced from ~25 minutes to ~10 minutes. (Above instantaneous hot water must be purchased)
- ◯ Auto Watering Rack flush – hoses positioned at each end of the wash compartment can be connected to auto-watering racks to flush the lines and prevent infiltration of contaminants.

  Manifold Cart Coupling/Bottle Washing – a specially designed bottle cart with a rotating spray arm is provided along with the necessary hardware and software to allow up to six full baskets of water bottles to be processed. The docking connection between the chamber and the bottle wash cart can be selected accordingly;
- ◯ Chamber wall docking connection
- ◯ Chamber floor docking connection

Control Options

An industrial-grade, fully modular programmable logic control panel with a color touchscreen operator interface provides user-friendly access to all machine functions. Four individual treatment routines can be named and programmed by supervisory personnel with complete flexibility as to treatment phases, times, temperatures and chemicals. The programming function as well as service functions are access-restricted functions and protected by pin codes, which limit the operator accessibility to these specific functions.

- ☐ Enhanced Communication – ports are provided to enable RS232 communication with a third-party reporting software. – Standard
- ◯ Ethernet Communication
- ◯ Printer – a panel-mounted printer with paper return is provided to record all pertinent cycle information in real time.

Other Equipment Options

- ☐ Double Door Pass-through – Standard
- ◯ Optional door interlocks assure integrity of barrier wall by allowing only one door to be open at any given time.
- ◯ Single Door – facilities that do not require pass-through operation, the unload door is replaced with an insulated stationary panel.
- ◯ Dryer – fresh air is pulled into the dryer unit by a powerful motorized fan. The fan forces air over steam heating elements at a high velocity. Drying air is quickly heated to 220–240°F (104–115°C) before entering the chamber. Hot air is forced through multiple ports in the chamber rapidly reaching all surfaces of the load. Heat and air turbulence combine to quickly dry loads and shorten process times. Phase time and temperature are user-programmable from 0–60 minutes.
- ◯ Exhaust Fan – if building exhaust is inadequate, an integral exhaust fan can be provided.
- ◯ Vapor Condenser – in a situation where neither connection to building exhaust nor ventilation to the outside are possible, a condensing device is provided to reduce the temperature and moisture content of the exhaust in order to effectively utilize the existing facilities. Engineering must be consulted. Building chilled process water is required for this option.
- ◯ Air Compressor – a small oil-less air compressor can be provided if building compressed air is unavailable. The compressor can be integral to the unit or remotely mounted.
- ◯ Rack Tilt Ramps – interior ramps can be provided to tilt racks in place and prevent the build-up of water on large flat surfaces, for instances of static cage racks.
- ◯ Seismic Restraints – appropriately designed and sized stainless steel anchor brackets are provided to be bolted to the floor after unit installation in order to comply with local seismic codes.

Materials and Construction

Wash chamber is constructed of multiple modules, a sump wall, and roof panels. The interior walls are AISI 304 stain- less steel with a #3 finish for long lasting durability. Exterior panels are AISI 304 stainless steel with a #3 finish.

Doors are constructed of Stainless Steel with a double paned tempered safety glass window.

Interior of double pane chamber ceiling, wall panels, and doors are insulated with two-inch (2", 50 mm) thick, compressed Fiberglas™ Batt insulation to reduce heat loss.

Solution retention/reuse tanks are 304 stainless steel. Process piping, valves, inline heat exchanger, steam coils, manifold tubes, sump base, removable filter screens and chamber floor are made of 304 stainless steel. All 304 stain- less steel triclamp connections are used for easy removal of key process components. Gaskets and hoses are EPDM, PTFE, or silicone.

Knocked down shipment – the unit is fully assembled and tested at the factory and then shipped disassembled to fit through a 36" × 84" (914 × 2134 mm) door for entry into existing facilities.

Utility Requirements

	VT 2850	VT 3350 L	VT 3590 WL
Electrical	60Hz, 3-phase, 7.5 kW	60Hz, 3-phase, 7.5 kW	60Hz, 3-phase, 15 kW
	208V – 3 wire 208V – 4 wire 240V 480V		
Steam	2" FPT 30–80 psi (206-551 kPa) 1000 lb./hr max (454 kg) 400 lb./hr avg (181 kg)	2" FPT 30–80 psi (206-551 kPa) 1000 lb./hr max (454 kg) 500 lb./hr avg (227 kg)	2" FPT 30–80 psi (206-551 kPa) 1000 lb./hr max (454 kg) 600 lb./hr avg (272 kg)
Condensate	1" FPT		
Hot Water	1" FPT, 35 psi (241 kPa) 140–180°F (60–82°C) 200 Gal/Load max (757 liters)	1" FPT, 35 psi (241 kPa) 140–180°F (60–82°C) 200 Gal/Load max (757 liters)	1" FPT, 35 psi (241 kPa) 140–180°F (60–82°C) 320 Gal/Load max (1211 liters)
Drain	2" FPT 140°F (60°C) max 120 gpm max (454 liters)	2" FPT 140°F (60°C) max 120 gpm max (454 liters)	2" FPT 140°F (60°C) max 150 gpm max (568 liters)
Exhaust	12" Dia. (305 mm) 400 SCFM (676 m³/h) 180°F (82°C) Saturated		
Compressed Air	½" FPT, 80 psi (552 kPa) 6 SCFM (10,1 m³/h)	½" FPT, 80 psi (552 kPa) 6 SCFM (10,1 m³/h)	½" FPT, 80 psi (552 kPa) 8 SCFM (13,5 m³/h)
Cold Water	1" FPT, 35 psi (241 kPa)		

	VT 2850	VT 3350 L	VT 3590 WL
Shipping Weight	6000 lb. (2722 kg)	7000 lb. (3175 kg)	8000 lb. (3629 kg)
Dynamic Weight as Installed	2200 lb. (997 kg)	2400 lb. (1088 kg)	2300 lb. (1043 kg)
Cage Capacity			
Standard Mouse	100	160	320
Standard Rat	48	76	152
Sump Capacity	50 gallons (189 liters)	70 gallons (265 liters)	80 gallons (303 liters)
Heat Radiation			
Typical Door End	6000 btu/hr	6000 btu/hr	9000 btu/hr
Typical Service Side	25000 btu/hr	28000 btu/hr	28000 btu/hr
Typical Blank Side	2000 btu/hr	2400 btu/hr	2400 btu/hr

Notes to Utilities Table:

- A dedicated disconnect switch shall be installed by others in accordance with all NEC and local electrical codes.
- Condensate shall be connected by others to a non-pressurized gravity main. The maximum condensate lift shall not exceed 15 feet (4572 mm).
- Steam pressure is not to exceed 80 psi dynamic and 90 psi static. Pressure fluctuation not to exceed+/- 10% of set pressure after installation. Peak flow rates are dependent on sight conditions and are sized for optimal performance. Variations in water and steam pressure could impact cycle times respectively. Factory shall be consulted for steam pressures below 30 psi (206 kPa) dynamic.
- Hot water consumption will vary with the options supplied.
- Drain shall be installed by others such that there is an air gap between the discharge point and the floor drain, or otherwise in strict accordance with local plumbing codes.
- Exhaust connection shall be made by others using non-corroding materials and all ductwork shall be sealed and pitched towards the machine. Any low points shall have individual lines installed. Effluent vapor is 180°F (82°C), 100% saturated air. The vent connection is a 12" inside diameter. 1/2" static pressure at point of machine connection required.

Notes

GETINGE

With a firm belief that every person and community should have access to the best possible care, Getinge provides hospitals and life science institutions with products and solutions aiming to improve clinical results and optimize workflows. The offering includes products and solutions for intensive care, cardiovascular procedures, operating rooms, sterile reprocessing and life science. Getinge employs over 10,000 people worldwide and the products are sold in more than 135 countries.

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EC REP

www.getinge.com

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