Getinge GEW 8668 Biotech/Laboratory washer-dryer

High-throughput performance

GETINGE

Repetable, flexible and simple operation

A high performance machine developed exclusively for demanding applications in life science, biotech, biopharma and allied industries.

Getinge is committed to supporting industry professionals who accept personal responsibility for delivering repeatable results day after day. Every feature of the Getinge GEW 8668 washer-dryer is engineered to improve the user experience and minimize uncertainty.

Each Getinge machine is engineered with high-quality components chosen to enhance contamination control, encourage a sanitary process, promote best practices and deliver dependable outcomes critical to product, personnel and environmental protection in the biotech facility. Construction and design details, from highly polished stainless steel surfaces to enhanced ergonomic machine interfaces, are carefully integrated into a highly functional system critical to quality assurance.

Efficiency is integral to the Getinge GEW 8668 washer-dryer. Factory loaded wash and dry programs can be programmed on site with custom parameters to match the exact requirements of the local protocol. A combination of loading racks and a spacious interior chamber permit high density loading to reduce cycle frequency, accelerate throughput and reduce energy consumption.

Advanced control features offer simple single button operation of preset or locally programmed cycles selected from an intuitive touchscreen controller. The microprocessor-based Getinge G1 controller is managed through the Getinge CENTRIC graphic user interface to simplify cycle selection and operation.

Getinge GEW 8668 biotech / labware washer-dryer, double door pass-through door configuration with optional base frame.

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High-efficiency cabinet insulation retains heat, minimizes exterior surface temperature, saves energy and improves operator comfort in confined areas.

Integrated drying system with heat exchanger, temperature and (optional humidity) sensors accelerates drying time and increases throughput.

A front-access port permits easy DOP testing of HEPA filter integrity in situ using best practices.

The exclusive Getinge G1 microprocessor controller with Getinge CENTRIC one-touch operation simplifies user interface, permits visual verification of cycle process and accepts gloved touchscreen function entry.

Standard Ethernet port with optional data ports simplifies connections for digital documentation, process reports and network printer feeds as desired.

The vertical-down door eliminates space clearance in front of and above the machine; permits easier loading and unloading.

A spray wing monitor warns of rotation blockage due to a loading error, foaming or other obstruction and suspends cycle until corrected.

Front-mounted water sample port for testing in situ.

Low profile cabinet expands options for installation location.

Getinge Online

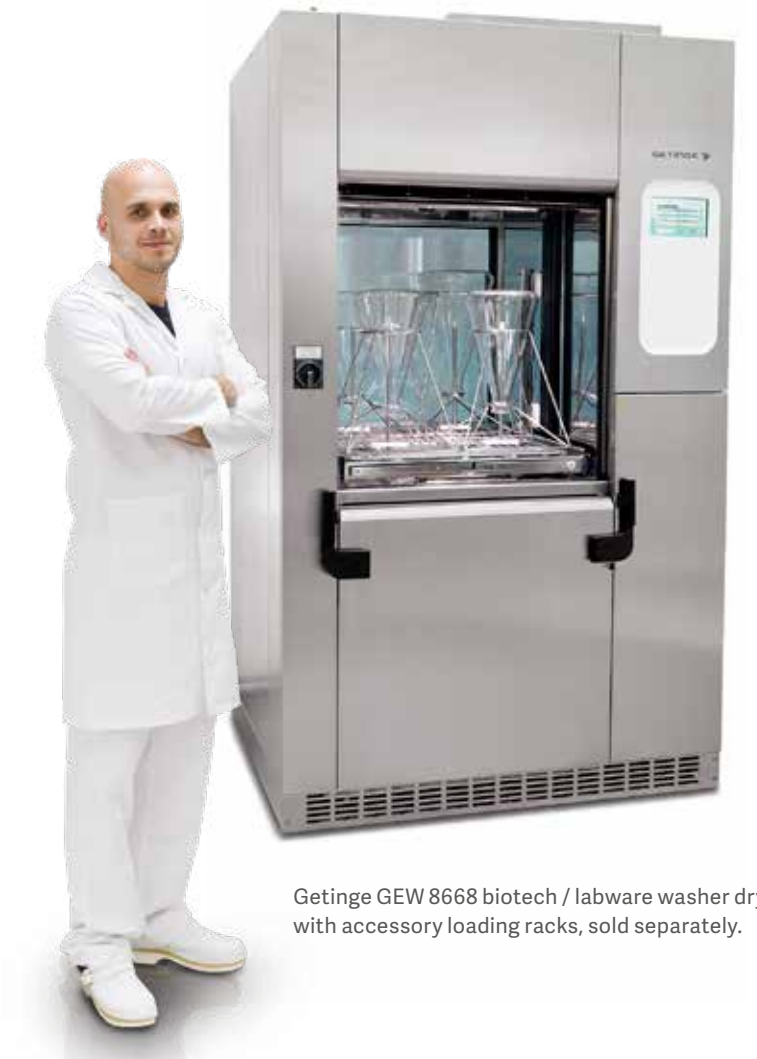
To maximize uptime, the Getinge Online service is a high security IT solution with a computer or smart phone interface to permit authorized remote access to valuable machine performance including real-time information, exception notifications, history and statistical data.

Easy to use, quick to customize and adaptable to your process

Quiet operation
Noise reduction design minimizes sound for quiet operation.

Cool surface
High-performance insulation contains heat and limits energy consumption.

GEW 8668 standard features
Manual or automatic loading
Vertical-down door
Compact 1.1 m2 (11.8 sq.ft.) footprint
Loading rack injectors deliver liquid and HEPA filtered air
Stainless steel interior chamber surfaces and water circulation pathways
Multiple flowing rinses
Self-contained dosing pumps
Dual-purpose internal heat exchanger
Multiple levels of commissioning can be selected as required.



Getinge GEW 8668 biotech / labware washer dryer, with accessory loading racks, sold separately.

Touchscreen control interface

The microprocessor-based Getinge G1 PLC controller is managed through the Getinge CENTRIC graphic user interface, a 7" color touchscreen panel with iconic monitoring of cycles in situ.

Door configuration

Single door or double door pass-through configurations are available for multiple processing requirements.

View-In-Process door

A View-In-Process (VIP) door with activated interior light permits visual monitoring of cycle progress.

Sequenced wash, rinse and dry functions deliver repeatable results

Cleaning and performance

Washing and drying is fully automatic upon initiation of the one-touch cycle start icon.

A series of preset programs are loaded into the machine at the factory, and more can be custom programmed on site by an authorized user.

The typical cleaning cycle includes a combination of pre-rinses, washes, intermediate rinses, neutralization, final rinses, disinfection, conductivity monitoring and external and injector drying with HEPA filtered air.

Multiple flowing rinses accelerate serial dilution to clear the chamber sump and load of detergents or chemicals in advance of the next cycle function. Additives injected during the wash and rinse processes are programmed according to volume demand for detergents, acid rinses and neutralization rinses.

Self-contained dosing pumps deliver detergent and rinse additives as programmed.

Rotary spray arms above and below the interior load deliver high-volume, low-pressure wash and rinse cycles based on programmed sequences and timing.

Precision cleaning and drying of the load is enhanced by loading rack injectors that deliver liquid and HEPA filtered air inside the vessels.

Construction and materials

Cabinet materials are engineered for best performance in sanitary applications.

- Interior chamber surfaces water circulation pathways are fabricated from AISI 316L stainless steel and polished to a smooth surface to assure sanitary conditions. Other washer-dryer materials are FDA compliant.
- A polished stainless steel filter screen protects the pump from debris; the screen lifts out easily without tools for cleaning.
- Stainless steel spray wings include jet tips that remove easily without tools for easy cleaning.

Plumbing and water circulation system

A high-efficiency, energy-saving recirculating water pump is fabricated from AISI 316/316L, with a pump housing and impeller polished to Ra≤0,8µm smoothness to eliminate residual chemical build-up. Critical parts are fabricated from AISI 316L stainless steel.

A precision hydraulic circuit and pipe orientation with low radius bends distributes liquid through rotating spray arms and injectors to maximize pressure to the load. Piping and major parts are strategically inclined or sloped to permit residual water to collect at a lowest point. Tri-clamp connectors are used where required to comply with best practices for sanitary system design.

The pump impeller is manufactured from AISI 316L polished stainless steel to extend pump life, reduce friction for maximum circulation efficiency and satisfy industry demand for minimal surface texture. Optional pump pressure feedback monitoring and conductivity control can be provided to refine the washer-dryer process.

Drying system

The dual-purpose internal heat exchanger preheats drying air and functions as an exhaust air condenser to accelerate drying time and minimize energy and water consumption.

The exterior (and interior load if injector racks are used) is dried through a forced-air cycle generated by two powerful blowers driven by non-dust producing brushless motors.

Ambient air is drawn from the room and passed through heating elements before flowing through the H14 rated HEPA filter.

A pressure monitor assures proper filter operation and activates an alarm in case of a fault in the airflow rate.

To minimize energy consumption, a single-pass HEPA filtered airflow is introduced to the chamber and ventilated to the heat exchanger where forced-air blending heats incoming air to reduce drying time and improve throughput.

Sustainability and energy management

Proper management of washer-dryer effluent minimizes waste, reduces energy and improves operator comfort. The model GEW 8668 Biotech/ Labware washer- dryer has been designed to help meet sustainability objectives mandated by corporate or third-party oversight.

- Internal heat exchangers recycle energy generated using high-performance, rapid response electric heating elements with self-regulating temperatures.
- Heat exchangers minimize exhausted elevated humidity and temperature as a byproduct of the washing process and reduce the conditioning burden on building HVAC systems. Reduction in cooling water demand lowers total life cycle costs.

Automation saves labor, increases throughput

Automation

The Getinge commitment to safety includes a suite of construction techniques, monitors, alarms and ergonomic functions designed to support automation, protect the operator, the washer load, the facility and the environment.

The Getinge Automation System maximizes efficiency and improves throughput. Based on the Getinge Air Glide System (AGS) it is a highly flexible loading and transport process providing maximum productivity and total automation. It is especially useful where staffing is limited and space is at a premium.

The principle of the Getinge Air Glide System (AGS) is “no waiting”. When a washer-dryer becomes available, a shuttle automatically retrieves the next wash-cart and delivers it to the available machine. No supervision is required.

Getinge Online

The Getinge GEW 8668 washer-dryer is equipped with a standard Ethernet connection to permit secure networking to services available from Getinge IT Solutions or third-party providers.

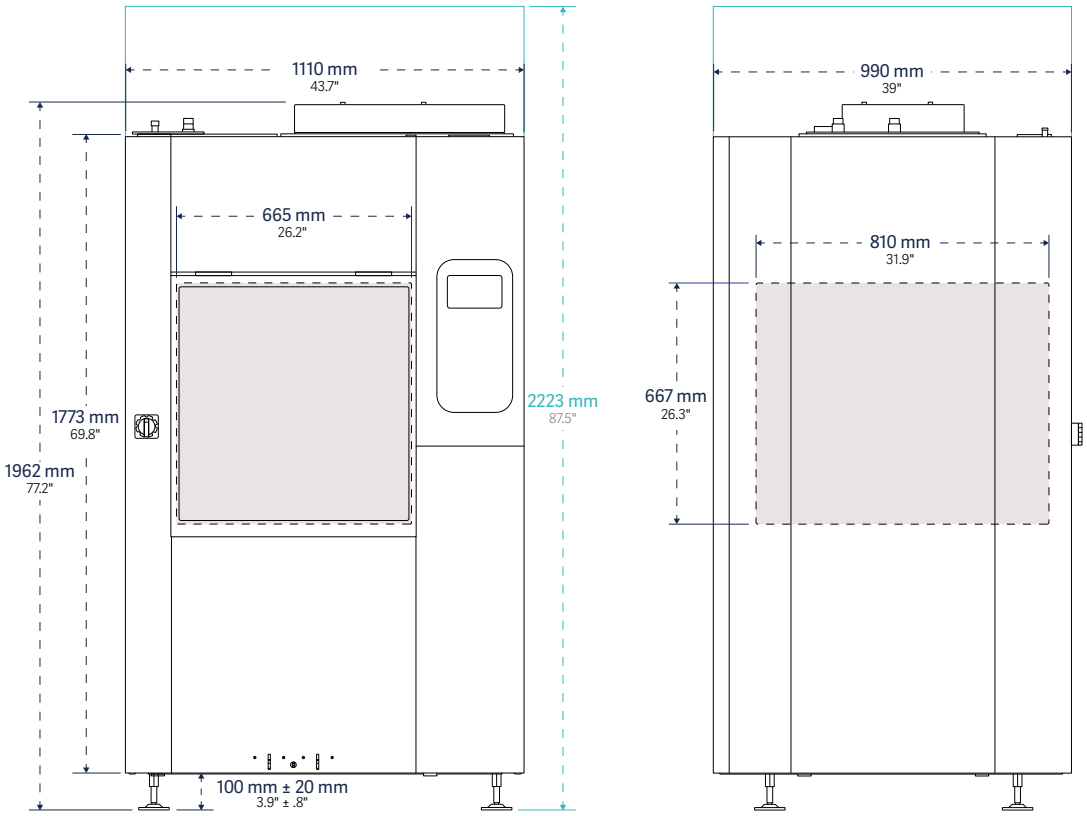
The Getinge Online program provides real-time and historical information on machine performance and wash process documentation.

Additional Getinge Online services can be customized for asset management and traceability.

Advanced automation capabilities offer a range of automated loading, unloading, auto cycle select and process start-up solutions that minimize the need for staff intervention while increasing productivity.

Compact footprint, low profile design

Drawings display front and side of unit, with door swing allowance.



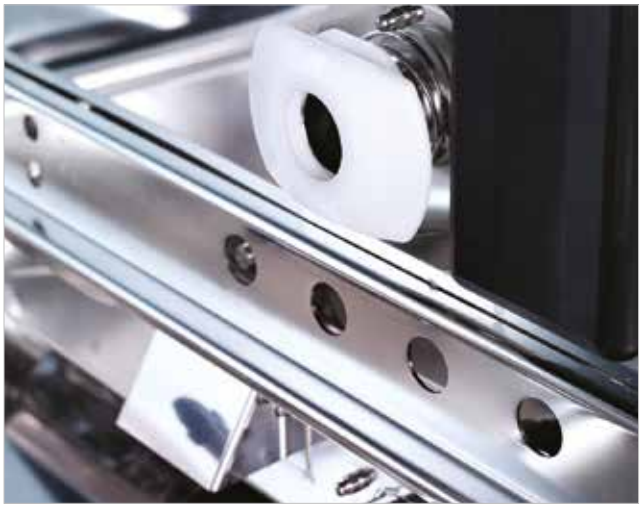
Model	Interior dimensions W x H x D	Exterior dimensions W x H x D	Interior volume effective L (gal)	Interior volume gross L (gal)	Net weight Empty kg (lb)
GEW8668	665 x 667 x 810 mm 26.2″ x 26.3″ x 31.9″	1110 x 1962 x 990 mm 43.7″ x 77.2″ x 39″ *1110 x 2223 x 990 mm 43.7″ x 87.5″ x 39″	351 (93)	480 (127)	400 (880)

*Exterior height allowance of 2223 mm (87.5") required if optional membrane pump is required. Pump is located exterior to the cabinet, top mounted.

Operating conditions
Heat reject 1500W maximum
Noise level* 58 dB(A)
*According to Machinery Directive 2006/42/EC, as measured 1 m distance, 1.6 m above the floor, combined propagation in free fields on hard surface.

Standards and codes
2006/42/EC
ETL Standard: IEC/EN/UL/CAN/CSA 61010-1
EMC (electromagnetic compatibility)
See model GEW 8668 product specification publication for additional information.

Factory ready for final configuration



Smooth, mirror polished interior and plumbing surfaces help assure sanitary performance and resistance to residual materials. Loading racks with injectors automatically connect to the water and drying air circulation system upon loading into the chamber.

Plumbing and exhaust requirement

Utility	Unit connection	Supply pressure requirement	Flow requirement	Temperature
Cold water	ISO G ¾", male	200–600 kPa (29–87 psi)	Min 30 L/min (8 gpm)	Max 20°C (68°F)
Hot water	ISO G ¾", male	200–600 kPa (29–87 psi)	Min 30 L/min (8 gpm)	45–60°C (113–140°F)
Purified water for injection	Tri-clamp 1"	See flow requirement	Min 30 L/min (8 gpm)	Max 90°C (194°F)
Drain pump	ø50 mm (2")	40 L/min (10 gpm); with drain cooling 70 L/min (18 gpm)		Max 90°C (194°F)
Gravity drain	ø8 mm (0.3")	8 L/min (2 gpm)		Max 90°C (194°F)
Steam	ISO G ½", male	300–500 kPa (44–72 psi)	0.9–1.0 kg/min (300 kPa)	Max 160°C (320°F)
Condensate	ISO G ½", male	30 kPa (4 psi) maximum back pressure		
Machine exhaust			250 m3/h (147 CFM)	90°C (194°F)
Building exhaust			510 m3/h (300 CFM); with damper	

Electrical requirement
Please contact your Getinge sales representative for electrical connection information.

Intuitive, one-touch, CENTRIC interface

Controls

The Getinge GEW 8668 is engineered for repeatability, flexibility and simplicity. The Getinge G1 microprocessor controller with Getinge CENTRIC interface permits one-touch operation.

- All functions are accessed through the Getinge Centric 7" color touchscreen panel with intuitive graphical interface and iconic monitoring of cycles in situ.
- Generic wash cycles developed through industry history and best practices are factory loaded for user convenience. New cycles can be assigned as preset cycle numbers via password protected access.

Operational safety

Interlock switches are included on all doors. The washer will not operate unless the door is closed and secured. For pass-through washers, only one door can be opened at a time.

If an obstruction occurs during closing or opening a force sensor quickly stops and reverses the door action in process. Once the obstruction has been cleared, the door can be opened or closed as desired.

A low chemical sensor prevents washer cycle start-up when detergent or additive levels are insufficient to properly complete the cycle. If a level falls below minimums during a cycle, the washer will continue as programmed.

The Getinge CENTRIC controller includes a touchscreen interface with an icon directory to access primary screens from an intuitive menu. Sub-menu screens display additional icon directories specific to the screen functions.

CENTRIC interface

- 7" color touchscreen interface
- 800 x 480 pixel resolution display
- Factory loaded standard wash cycles
- Additional custom program options

Creating custom cycles

Cycle functions, times, dwells, temperatures and other parameters can be programmed to create additional cycles.

- **Pre-Rinse 1, 2.** Time, temperature and media are adjustable as desired. Can be repeated up to 10 times. Chamber is filled. Circulation pump applies full pressure to spray arms and/or injectors.
- **Wash 1, 2, 3.** Time, temperature and media are adjustable as desired. Chamber is filled. Dosing pumps provide detergent or additives.
- **Neutralization.** Time, temperature and media are adjustable as desired. Can be repeated up to 10 times. Chamber is filled. Dosing pumps provide additives selected.
- **Post rinse 1, 2.** Time, temperature and media are adjustable as desired. Can be repeated up to 10 times.
- **Final rinse.** Time, temperature and media are adjustable as desired. Can be repeated up to 3 times. Can be repeated until conductivity level reaches target, or generate an alarm if not reached.
- **Sample test.** Up to 300 second pause during final rinse permits water collection. Requires manual resume order.
- **Disinfection.** Combined with Final Rinse. Parameters set to comply with EN ISO 15883-1:2009 (Annex B) criteria.
- **Drying.** Time and temperature are adjustable as desired. Heat can be turned OFF for cooling period.
- **Fan drain.** Occurs at end of draining phase. Drying fans initiate a "blow out" of water in the circulation system. Forces remaining water to drain. Drying time is adjustable from 0 to 180 seconds.

Interface displays

Program Selection.
The Program Selection screen lists factory presets, as well as additional presets added through administrator access.

Cycle in Process.
A real-time status screen displays time remaining until cycle completion and links to cycle detail screens with the touch of a button.

Cycle Completed.
The green Cycle Completed screen confirms completion of the cycle and indicates the washer is safe to unload

Warning Message.
The amber Warning Message screen provides a status report to prompt refill of detergent and rinse agents.

Alarm Message.
The red Alarm Message screen confirms the reason for a system shutdown and prompts correction action needed in advance of a restart.

Monitoring, communications and alarms

Monitoring of all functions is visually illustrated on the Getinge CENTRIC touchscreen display. Communication ports offer multiple data pathways to local or remote monitoring.

Integral pressure, flow and conductivity monitoring assures performance to specifications. An independent alarm system reads data from proximity sensors and other measuring devices within the system. While warnings offer system advisories, alarms actively suspend washer-dryer operation until the fault is corrected.

The primary temperature sensor is protected by an independent temperature sensor. Temperature deviation triggers a fault code and suspends the cycle. Monitoring reverts to standby mode when the machine is not in use.

A standard Ethernet port is included for connecting the optional Getinge Online system. An optional USB port concealed within the service area permits direct connection to peripheral devices for cycle tracking and data capture in pdf format.

CENTRIC monitoring	
Spray wing monitoring	To eliminate inadvertent spray arm blockages from inappropriate loading or chemical foaming the spray arm supervisor monitors rotation speed. The system activates an alarm and stops the cycle if rotation deviates from set limits.
Chemical flow meters	Detergent low control assures correct chemical dosing volume for each cycle. If a dosing deviation occurs, a fault code will trigger the alarm and stop the process.
Conductivity	A conductivity sensor monitors the final rinse phase. If conductivity exceeds a set value which does not meet validated parameters, an alarm is triggered and process stops.
Differential pressure	Pressure over the HEPA filter is monitored to ensure full functionality. If the HEPA filter is broken or clogged a fault code is generated and the process stops. In addition, the pressure sensors monitor the drying fan functionality to ensure that the load meets process drying requirements.
DOP test ports	Built-in ports permit easy access for DOP testing to assure HEPA filter integrity.
Dry cycle	The chamber humidity level can be set to manage drying time automatically to reduce time and energy consumption when operating at less than full capacity.
Independent temperature	The independent temperature sensor monitors interior chamber temperature, activates fault codes and stops the cycle if out of range. This ensures that the cycle does not deviate from the validated process.
Water circulation pressure sensor	The validated cycle is maintained by process water pressure within the desired range. Pressure deviation will activate an alarm and stop the cycle.
Water sampling port, sampling valve	Process water can be collected and analyzed to ensure fulfilment of process requirements.

Value added by choice

Options

The model GEW 8668 is based on a standard construction and control system. To offer the most flexibility in installation and application, Getinge offers a series of options developed to finish the selection process and to simplify ordering.

Validation, IQ/OQ documentation, multi-lingual manuals, conformity and other third-party certificates are available by arrangement.

Feature	
Pass-through cabinet	Double door design permits dirty side loading and clean side unloading. Door interlocks assure clean side integrity. See Dual Controls.
Dual controls (pass-through model)	Getinge Centric user interface screen on dirty and clean side. System programmable from dirty side only.
Steam heating (electric heat is standard)	Optional steam heating coil connection options can be placed at the bottom or top of the machine.
Water source connections	Hot and cold municipal water connection and PW/WFI connections are standard. Membrane valve for purified or WFI connections optional.
Dosing pumps, peristaltic	Two pumps are included. Up to two more pumps can be added.
Dosing flow control, peristaltic pump	Additional flow meters can be installed to assure correct chemical dosing volume added within the cycle.
Dosing pumps, membrane	Membrane pumps (two pumps maximum) are suggested if a high dosing tolerance is required. Pumps include a built in flow meter.
Pressure monitoring	Assures that the machine is not running a process with a circulating water pressure that is too low or too high. A 3rd party calibration certificate is attached.
Spray arm monitoring	Monitors spray arm rotation speed and send an alarm if rotation deviates from the set limits.
Conductivity control, final rinse	Conductivity control of final rinse water. Triggers an alarm if conductivity exceeds set value.

Feature	
Drying sensor	Measures the drying air humidity, adjusts time as required to reduce cycle time and energy consumption.
Drain cooling	Automatically injects cold water to reduce hot effluent temperature to 60°C (140°F) or less before discharging to the building waste system.
Audible alarm	Increases safety margin if alarm is activated. Sound is adjustable up to 85 dB(A).
Air Barrier (pass-through model)	For double door machines only. Reduces potential air flow between dirty side and clean side.
Process reports	Process performance data can be printed or stored on a USB. Includes start date and time, phase description, detergent used (if flowmeter is selected), temperature and any alarms during process.
Built-in printer, soiled side	Printer, dirty side. Not available in combination with AGS.
Built-in printer, clean side	Printer, clean side. Not available in combination with AGS.
USB Port, soiled side	Not in combination with printer.
Network printing	Permits printout of process reports including process charts.
Network storage	Permits storage and printing of process reports in pdf format.
Automatic cycle selection	Bar code scanner built-in to machine.
Automatic loading system outfitting	Includes interfaces to specified loading and unloading system.
Detergent container kit See product specifications for details.	Includes three empty 5 liter (1.3 gal) containers.

Accessories

Getinge offers a wide range of accessories for different types of loads and capacity needs.
To view the total assortment, please refer to the Getinge Loading Equipment brochure.

Spray arm supervision by RFID tag indicates the number of spray wings per cart, monitors the rotation speed of the spray arm and sends an alarm if the rotation deviates from the set limits.

Multiple 12-injector cart showing 4 injectors in use with load supports.

Load supports for glassware.

Compliance and acceptance

Documentation and commissioning options	Basic-level	Extended-level	High-level
Operator manual, local EU language	■	■	■
Installation manual, local EU language	■	■	■
Service manual, English, German, French	■	■	■
Spare parts list, English	■	■	■
P&I diagram, English	■	■	■
Electrical diagram, English	■	■	■
Quality inspection certificate	■	■	■
Declaration of conformity, 2006/42/EC	■	■	■
3rd party calibration certificate, chamber temperature sensor	■	■	■
3rd party calibration certificate, water pressure sensor (if selected)	■	■	■
Process water contact, general conformity documentation	■		
No commissioning	■		
Bill of material list		■	■
Process water contact materials, 3.1 certificate to EN 10204:2004 for stainless steel 301/302/316/316L		■	■
Process water contact materials for other material not stainless steel: 2.1 certificate to EN 10204:2004		■	■
External final test protocol commissioning (EFT), 1 day		■	
Standardized start up test protocol (SUTP), Attached, Delivered for Qualification at Site		■	
Component specification			■
Standardized factory acceptance test, as built, duration 3-4 days			■
Standardized installation and operation qualification protocol, as built, attached, delivered for qualification at site			■

Commitment to quality

Confidence in Getinge products begins with a corporate commitment to quality at all levels, and communication with our customers. As product improvements continue, specifications remain subject to change without notice.

GETINGE

Getinge is a global provider of innovative solutions for Life Science companies and institutions, operating rooms, intensive care units and sterilization departments. Based on our firsthand experience and close partnerships with Life Science companies, clinical experts, healthcare professionals and medtech specialists, we are improving everyday life for people – today and tomorrow.

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