



Product Specification

Getinge 46-series

46-5

Washer-disinfector

Contents

Product Details 3

Technical Data and Drawings 9

Order Information..... 17

Getinge 46-series 46-5 Washer-disinfector

Product Details

Application

The Getinge 46-series is a line of fully automatic and microprocessor controlled washer-disinfectors. Processing cycles are factory programmed with recommended treatment parameters for pre-rinsing, cleaning, post-rinsing, thermal disinfection, final rinsing, and drying. Validated programs are secured by access codes. Detergents and rinse agents are automatically dispensed during cycles. The Getinge 46-series includes washer-disinfectors with single as well as double-door options. All models are designed according to EN ISO 15883 Part 1 & 2 Machine and Process design.

This specification shows the 46-5 model.

- Getinge 46-5 (maximum 5 levels)

Note! The customer is responsible for performing installation qualification, operating qualification, and performance qualification according to EN ISO 15883.

Intended use

The intended use of the 46-series washer-disinfector is to clean, thermally or chemically disinfect, and dry surgical goods. Typical goods for cleaning and thermal disinfection are:

- Instrument containers
- Anesthesia equipment
- Bowls
- Basins
- OP shoes
- Dental instruments
- Glassware, bottles and beakers
- Invasive surgical instruments, MIS instruments

Typical goods for cleaning and chemical disinfection are:

- OP shoes

Standards and codes

The Getinge 46-series complies with:

- MDD 93/42/EEC Medical Devices Directive.
 - IEC 61010 part 1 and 2 Safety requirements for electrical equipment.
 - UL61010-1: 2012 Safety requirements for electrical equipment.
 - CAN/CSA-C22.2: Safety requirements for electrical equipment.
 - EMC 2014/30/EC Electromagnetic Compatibility Directive.
 - WEEE 2012/19/EC Waste Electrical and Electronic Equipment Directive.
 - ROHS2 2011/67/EU Restrictions of Hazardous Substances.
 - ISO 15883 Parts 1 & 2 Machine and Process design.
 - ANSI/AAMI ST15883 Part 1 & 2 Machine and Process design.
 - Unrestricted air gaps for potable water intakes.
 - Microbiological test SPRI specification 74203.
 - OSHPD pre-approval OPM-0383-13 (2016 California building code). The Seismic Anchoring accessory is required.
-

Key features

- Rotary spray arms are fixed at the top and bottom of the chamber.
- Wash carts are equipped with rotary spray arms, between each level, to allow water and detergent to reach all surfaces for cleaning.
- MIS accessories automatically connect to water and drying air to clean and dry the inside of tubular instruments.
- All models are, as standard, equipped with independent temperature monitoring and validation test port according to EN ISO 15883.
- Data interface RS232 + RS485 for external printer.
- Full size glass door, chamber light, test port for water and a fine-meshed strainer are standard features.
- In the Getinge 46-series, the drying air is pre-heated in a unique heat exchanger before being heated to its optimum drying capacity in the heater box. This energy-saving process also means shorter drying times. A HEPA filter with differential pressure monitoring is a standard feature when the drying system with heat exchanger is selected.

Control system features

The PACS 350 modular PLC control system controls operation and maintenance of Getinge sterilizers and washer-disinfectors, featuring:

- CPU processor with battery backup
- Digital inputs and outputs for machine control
- Analog measuring inputs
- RS-232 COM port for serial communication
- RS-232/RS-485 COM port
- Up to 20 cycle program memory
- Communication via NetCom (option) with Getinge Online (real-time and historical information of machine performance and wash process)
- Communication via NetCom (option) with T-DOC independent Traceability and management system

The PACS 350 controls all system functions; both visually and audibly alerts the operator of cycle malfunctions and on demand provides visual indication of the chamber temperature.

Control panel

The machine is controlled and operated from the control panel, located above the soiled-side door. The panel interface is a durable LCD display with two rows (20 characters on each row). A screen saver extends the life of the backlit LCD display. Touching any key illuminates and reactivates the display.

The following indicators and function keys are located on the display:

- Program running
- Program complete
- Alarms
- Reset alarms
- Start cycle
- Program selection 1–6

The software memory supports up to 20 programs. There are six programmable buttons under the display for the most common programs. The other programs are accessed by entering the menu.

Standard features (no selection needed)

- Control panel with 6 program buttons
 - Single folding door operation
 - Tempered glass door with safe Vision In Process
 - Painted steel framework
 - Electrical heating of the water in the sump
 - Fine debris filter in the chamber
 - Unrestricted air gaps for potable water intakes
 - 2 x detergent dosing pumps
 - 2 x suction lance for 5 L (1 gal.) detergent containers
 - CW and HW inlet, bottom connection through flexible hoses (included)
 - Efficient heating insulation for the chamber, pipes and heating system
 - Pressure monitoring of the process water (required for EN ISO 15883)
-

Optional features (selection needed)

Note! To fulfill EN ISO 15883, flow monitoring and one of the process (batch) reports need to be selected and included in the unit. For more information, see the following pages and the order sheets.

- Pass-through model (double doors)
- Dryer with heat exchanger, including differential pressure monitoring and test port for HEPA filter
- Steam heating of the process water
- Additional detergent dosing pumps 3+4
- Detergent flow monitoring of the dosing pumps (required for EN ISO 15883)
- Drain cooling
- Guide rails for the upper and lower base cart
- Line breaker for main power
- NetCom for communication with Getinge online and T-DOC
- Signal exchange box for an external interface
- Conductivity monitoring of the final rinse
- Process report (required for EN ISO 15883)
- DiW valve
- Set of 3 empty 5 L (1 gal.) detergent containers

References

Documentation

The following documentation is available for the machine and can be downloaded from Getinge Extranet.

Documentation	Contents	Paper	Electronic media	Available languages
User manual	Instructions for daily use.	✓	✓	Local EU-language.
Installation manual	Instructions for assembly, installation and commissioning.	✓	✓	English, German, French or Swedish.
Quick Guide	Simple instructions for frequently performed tasks. Should be accessible and visible in the working area.	✓	✓	Local EU-language.
Declaration of Conformity	Declaration of conformity with requirements in applicable directives.	✓	-	English.
Electrical diagrams	Collection of circuit diagrams.	-	✓	English.
Service manual	Instructions for service and preventive maintenance.	-	-	English, German, French or Swedish.
Spare Parts	List of available spare parts.	-	-	English.
Program sheets	Descriptions of Program groups (including programs and phases).	-	✓	English.
Installation drawings	Drawings for preparations and installation of the machine.	✓	✓	English.
Loading trolley	Spare parts manual, including user and installation instructions.	N/A	N/A	Not included. Delivered with the loading trolley (ordered separately).
- = Not included in the machine delivery		✓ = Included in the machine delivery		

Languages selectable for the control panel

Bulgarian (bg)	Japanese (ja)
Czech (cs)	Latvian (lv)
Danish (da)	Lithuanian (lt)
Dutch (nl)	Norwegian (no)
English (en)	Polish (pl)
Estonian (et)	Portuguese (pt)
Finnish (fi)	Romanian (ro)
French (fr)	Russian (ru)
German (de)	Slovak (sk)
Hungarian (hu)	Slovenian (sl)
Icelandic (is)	Spanish (es)
Italian (it)	Swedish (sv)

Getinge 46-series

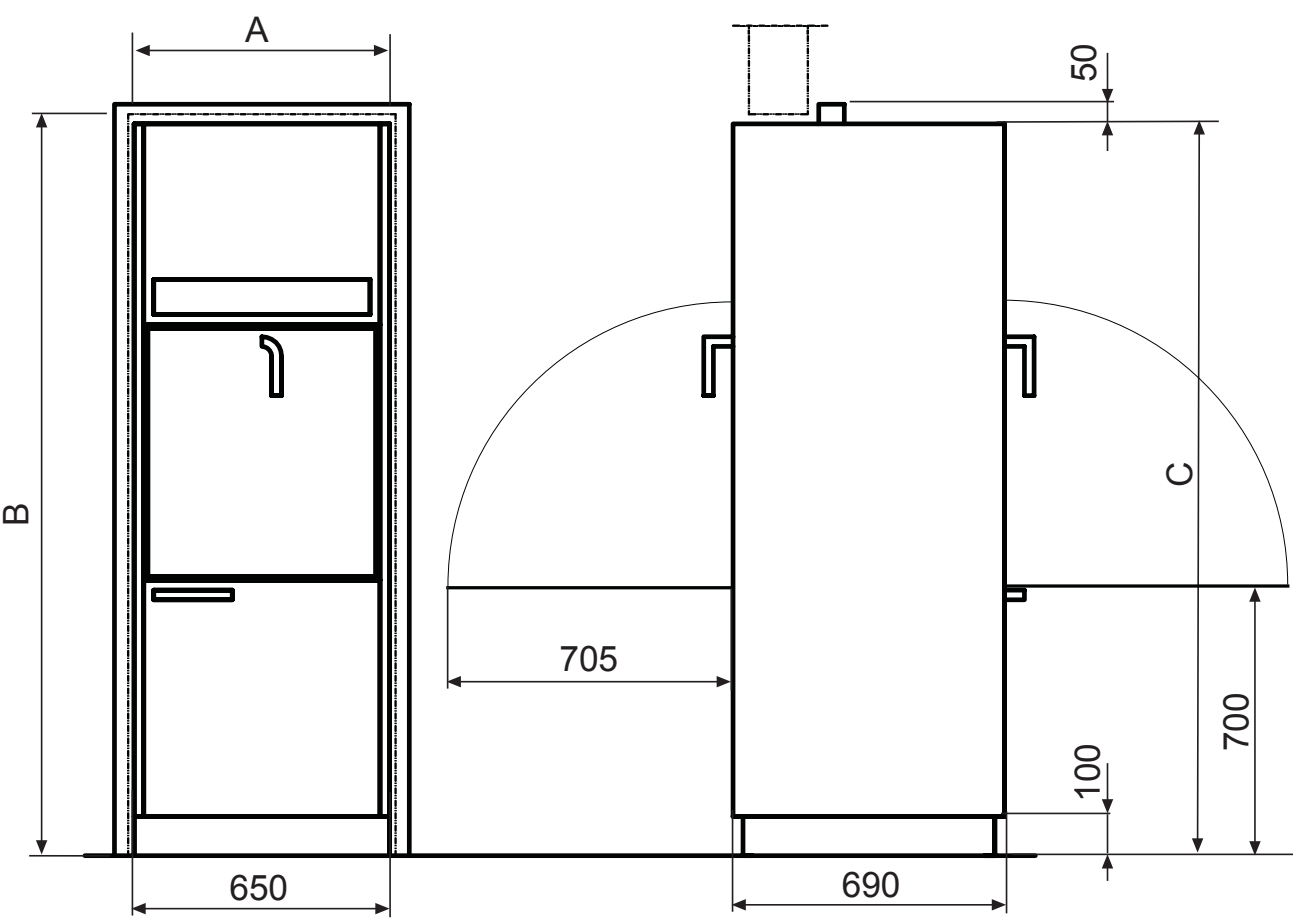
46-5

Washer-disinfector

Technical Data and Drawings

The drawings in this product specification should not be used for installation. For the latest versions and complete drawings for installation, see the separate Installation manual.

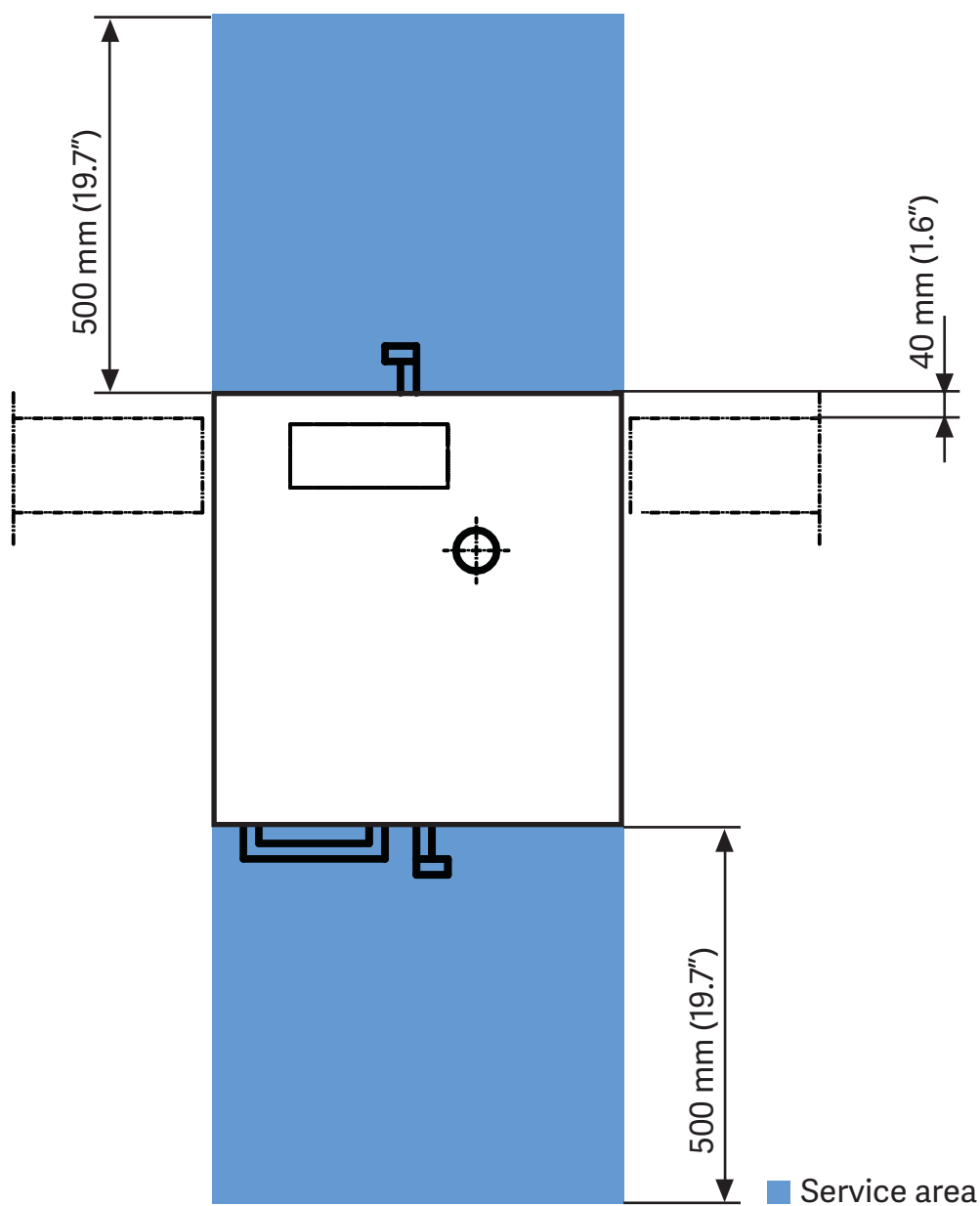
Dimensions - side view

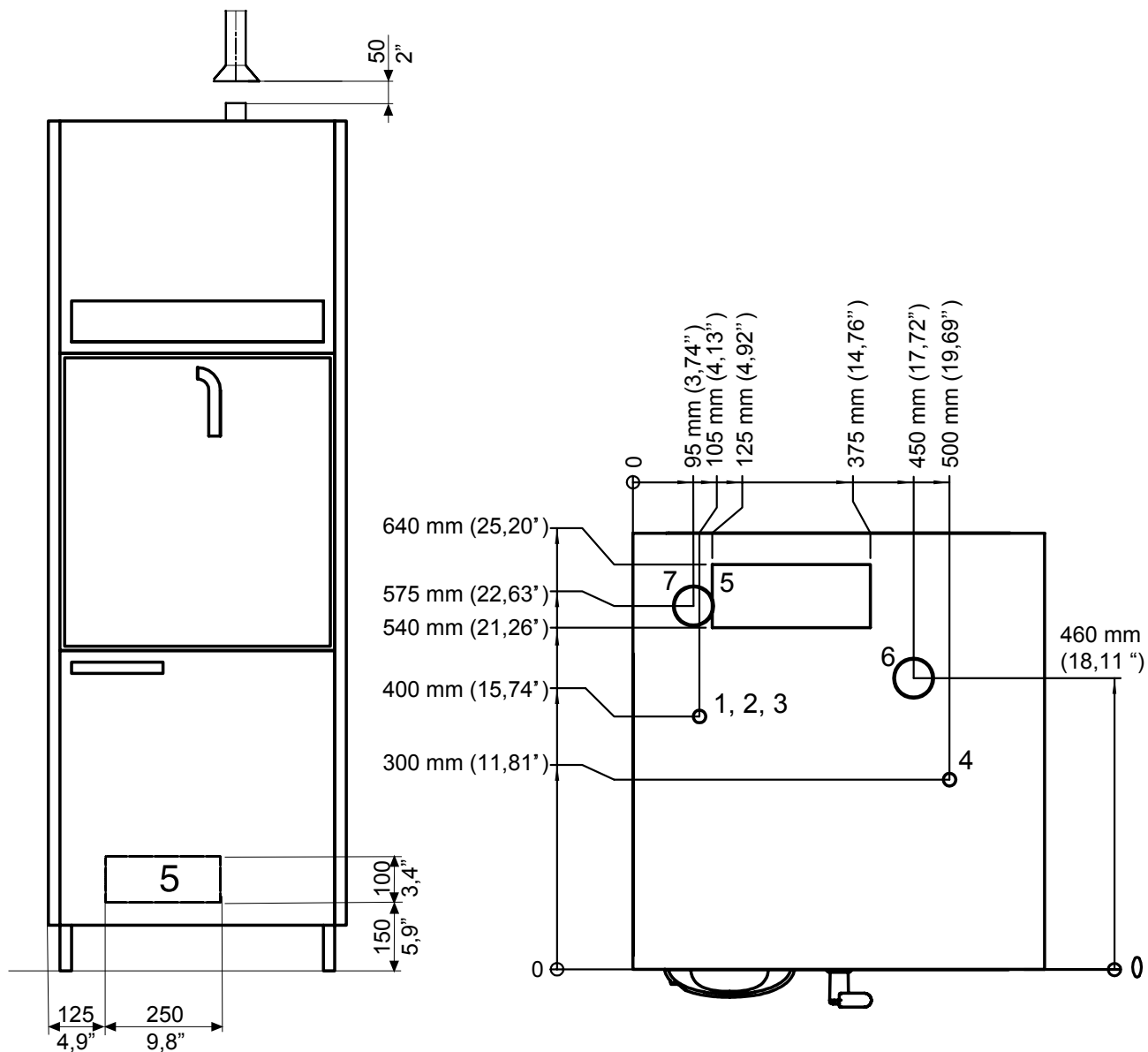


The figure shows trim panels (option) for double door (pass-through) models recessed into a barrier wall. The trim panels cover the gap between the wall and the machine.

	A Minimum wall opening mm (in)	B Minimum wall opening mm (in)	C Height of machine mm (in)
46-5	680 mm (26.8")	1955 mm (77.0")	1930 mm (76.0")

Dimensions - top view



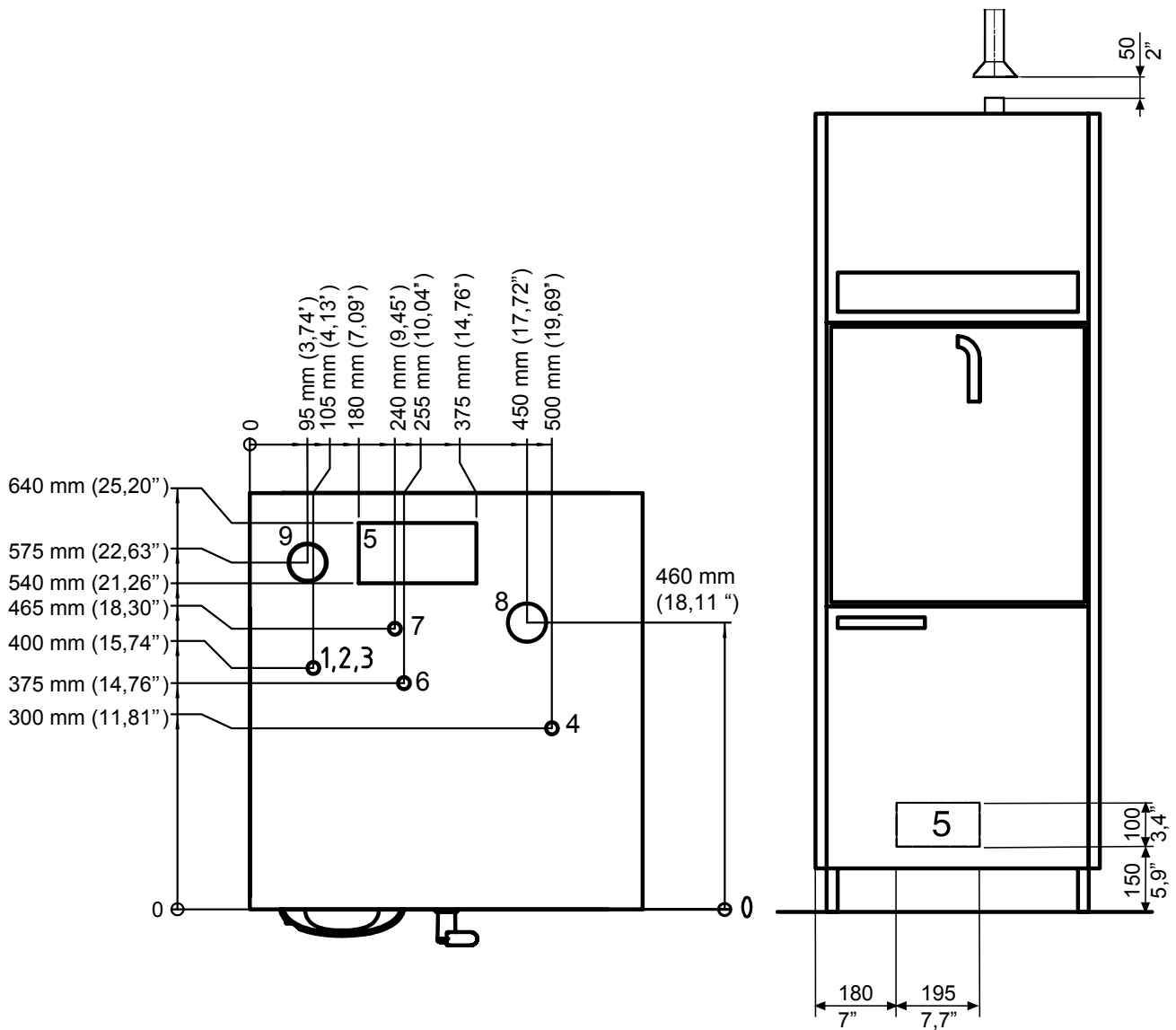


Connections electrical heating

- 1 Distilled/deionized water, 160 mm (6.3") above floor *.
- 2 Hot water connection by a 3000 mm (118.1") flexible hose (supplied) *.
- 3 Cold water connection by a 3000 mm (118.1") flexible hose (supplied) *.
- 4 Electrical connection, 500 mm (19.7") above floor.
- 5 Drainage, adjustable within this range (C/L of outlet pipe).
- 6 Exhaust air at ceiling (46-5 with dryer).
- 7 Exhaust air at ceiling (46-5 without dryer).

* A flexible hose can be connected from above directly to each valve 1400 mm (55.1") above the floor.

Connections steam heating



- 1 Distilled/deionized water 160 mm (6.3") above the floor.
- 2 Hot water connection by a 3000 mm (118.1") flexible hose (supplied) *.
- 3 Cold water connection by a 3000 mm (118.1") flexible hose (supplied) *.
- 4 Electrical connection, 500 mm (19.7") above floor.
- 5 Drainage, adjustable within this range (C/L of outlet pipe).
- 6 Steam connection, 200 mm (7.9") above floor.
- 7 Condensate connection, 200 mm (7.9") above floor.
- 8 Exhaust air at ceiling (46-5 with dryer).
- 9 Exhaust air at ceiling (46-5 without dryer).

* A flexible hose can be connected from above directly to each valve 1400 mm (55.1") above the floor.

Dimensions and volumes

Outer dimensions

	Height	Depth	Width
46-5 with dryer	1930 mm (76.0")	690 mm (27.2")	650 mm (25.6")

Chamber dimensions (effective)

	Height	Depth	Width
46-5	660 mm (26.0")	620 mm (24.4")	550 mm (21.7")

Chamber volumes

	Operational volume	Total volume
46-5	225 L (59.4 gal.)	305 L (80.6 gal.)

Weight including water and load

	Total weight	Loading per machine foot	Floor area loading per machine foot
46-5 Single door (without dryer)	279 kg (615.09 lb.)	0.68 kN (152.87 lbf)	378 kN/m ² (7894.69 lbf/ft ²)
46-5 Double door (without dryer)	296 kg (652.57 lb.)	0.73 kN (164.11 lbf)	401 kN/m ² (8375.06 lbf/ft ²)
46-5 Single door (with dryer)	309 kg (681.23 lb.)	0.76 kN (170.85 lbf)	419 kN/m ² (8751.00 lbf/ft ²)
46-5 Double door (with dryer)	326 kg (718.71 lb.)	0.80 kN (179.85 lbf)	442 kN/m ² (9231.36 lbf/ft ²)

Package sizes and weights

	Weight	Height	Depth	Length
46-5 Single door (without dryer)	217 kg (478.4 lb.)	2200 mm (86.6")	850 mm (33.5")	980 mm (38.6")
46-5 Double door (without dryer)	235 kg (518.1 lb.)	2200 mm (86.6")	850 mm (33.5")	980 mm (38.6")
46-5 Single door (with dryer)	247 kg (544.5 lb.)	2200 mm (86.6")	850 mm (33.5")	980 mm (38.6")
46-5 Double door (with dryer)	265 kg (584.2 lb.)	2200 mm (86.6")	850 mm (33.5")	980 mm (38.6")

Utility requirements

Water connections

Water type	Connection	Pressure	Flow rate minimum	Temperature maximum
Cold water	ISO G-1/2" Female	100-800 kPa (14.5-116.0 Psi)	20 L/min (5.3 gal./min)	20 °C (68 °F)
Hot water	ISO G-1/2" Female	100-800 kPa (14.5-116.0 Psi)	20 L/min (5.3 gal./min)	45-60 °C (113-140 °F)
Dist. water/De-ion water	ISO G-3/4" Male	100-800 kPa (14.5-116.0 Psi) ¹	20 L/min (5.3 gal./min)	90 °C (194 °F)

¹ PTFE tape is recommended for sealing the connections.

Steam and condensate (option)

Water type	Connection	Pressure	Flow rate minimum	Temperature maximum
Steam	ISO G-1/2" Female	300-500 kPa (45.5-72.5 Psi)	0.5 kg/min (300 kPa)	160 °C (320 °F)
Condensate	ISO G-1/2" Female	N/A	N/A	N/A

Ventilation requirements

Air quantity	Maximum 150 m³/h (5297.2 ft³/h)	Refers to the air flow during the drying phase.
Temperature	Maximum 90 °C (194 °F)	Refers to the start of the drying phase. The temperature falls to about 60 °C (333.1 °F) after a few seconds, and stays roughly at this level for about 20 minutes.
Air humidity	60-100 %	

Operating and environmental conditions

Operating conditions

Air humidity	Maximum 80 % up to 31 °C (88 °F) decreasing linearly to 50 % at 40 °C (104 °F)
Temperature	5-40 °C (41-104 °F)
Installation height	Maximum 2000 m (6561.7 ft) above sea level
Pollution degree	2
Overvoltage category	CAT II
Connection to mains supply	Permanent
Mains supply voltage fluctuations	+/-10 %

Storage and transport conditions

Note! The machine must be kept in its package during storage and transport.

Surrounding temperature	-20 to 70 °C (-4 to 158 °F)
Surrounding air humidity	Maximum 90 % at 30 °C (86 °F)

Technical data

Water consumption

46-5	Approximately 22-23 L/phase (5.8-6.1 gal./phase)
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Heat emission to the room

Max 2000 W	Hot air during drying
Max 1100 W	During disinfection at 90°C (194°F)

Heat emission from front and door (clean side)

100 W	Hot air during drying
55 W	During disinfection at 90°C (194°F)

Circulation system

Design pressure	200 kPa (20.0 Psi)
Working pressure max	100 kPa (14.5 Psi)
Design temperature	100°C (212°F)
Working temperature	93°C (200°F)

Sound level

The following table shows the sound power level as linear octave band values and as co-weighted, A-weighted sound power level, both equivalent to L_{wA} and maximum of L_{wAFmax} *

Calculated sound power level L_w for the test object, dB ref 1 pW.

Octave band frequency (Hz)	125	250	500	1000	2000	4000	8000	L_{wA}	L_{wAFmax}
Corrections terms (Kok)	63	67	62	59	58	57	54	66	83

The calculated sound power level implies different L_pA sound levels in different types of spaces. With a larger room volume, the sound level decreases slightly and with a smaller room volume, it increases slightly. The table below shows examples of what to expect in practice.

The calculated L_pA sound level for the test object in a 70 m³ (235,8 ft³) room is dB ref 20 µPa.

Type of room	Description	Operator position ¹ (dBA)	3 m from the machine (dBA)
Hard sound	All tile, plaster, concrete surfaces or similar, i.e. no sound absorbents and no furniture.	65	66
Normally damped	Some sound absorption from furniture and textiles.	61	60
Damped	Full-cover absorbent ceiling and some furniture, such as tables, chairs and textiles.	58	56

¹The term operator position means 1 m (3.4") from the machine and 1.5 m (5.1") above the floor. All the figures are for one machine.

Electrical data

Electrical heating

Voltage (V)	Connection	Frequency (Hz)	Maximum operating current (A)	Maximum fuse (A)
415	3N+PE	50	15.0	C16
400	3N+PE	60	14.6	C16
400	3N+PE	50	14.6	C16
380	3N+PE	60	14.0	C16
380	3N+PE	50	14.0	C16
240	3+PE	60	20.7	C25
230	3+PE	60	25.4	C30
230	3+PE	50	25.4	C32
220	3+PE	60	26.5	C30
208	3+PE	60	25.5	C30
200	3+PE	60	24.8	C32
200	3+PE	50	24.8	C32

Steam heating with dryer

Voltage (V)	Connection	Frequency (Hz)	Maximum operating current (A)	Maximum fuse (A)
415	3N+PE	50	4.9	C10
400	3N+PE	60	5.1	C10
400	3N+PE	50	5.1	C10
380	3N+PE	60	5.3	C10
380	3N+PE	50	5.3	C10
240	3+PE	60	8.4	C10
230	3+PE	60	8.8	C10
230	3+PE	50	8.8	C10
220	3+PE	60	9.2	C10
208	3+PE	60	9.7	C15
200	3+PE	60	10.1	C15
200	3+PE	50	10.1	C15

Steam heating without dryer

Voltage (V)	Connection	Frequency (Hz)	Maximum operating current (A)	Maximum fuse (A)
415	3N+PE	50	1.5	C10
400	3N+PE	60	1.6	C10
400	3N+PE	50	1.6	C10
380	3N+PE	60	1.7	C10
380	3N+PE	50	1.7	C10
240	3+PE	60	2.7	C10
230	3+PE	60	2.8	C10
230	3+PE	50	2.8	C10
220	3+PE	60	2.9	C10
208	3+PE	60	3.1	C10
200	3+PE	60	3.2	C10
200	3+PE	50	3.2	C10

Getinge 46-series 46-5 Washer-disinfector

Order Information

About this form

This part of the document is an order form. Mark your selections.

- ☐ Standard selection (included in base price)
- ☐ Optional selection (not included in base price, additional cost)

Customer reference

State project name, project no., customer name, etc.

Documentation

State the country for the correct language in the enclosed manuals.

Language/control panel

Select the language, for the touchscreen. See the table in the section “Languages selectable for the control panel” on page 7.

Model

46-5

Program group selection

- ☐ HOSPITAL A₀ 3000
 - ☐ HOSPITAL A₀ 600
 - ☐ CHINA (only for the Chinese market)
 - ☐ LIFE SCIENCE (adapted for: LAB, Biotech and Life Science)
-

Door selection

In pass-through machines, the door interlock assures the integrity of a barrier wall by allowing only one door to be open at a time. All doors are equipped with a see-through window and chamber light.

- ☐ Single door
 - ☐ Double doors (pass-through model)
-

Dryer

Note! This is required to comply with EN ISO 15883.

- ☐ No dryer
 - ☐ Dryer with heat exchanger. The electrically heated dryer includes a fan and a HEPA filter with differential pressure monitoring.
-

Main voltage power supply

Note! Only one selection is possible.

50 Hz units

- ☐ 415 V, 3N+PE, 50 Hz
- ☐ 400 V, 3N+PE, 50 Hz
- ☐ 380 V, 3N+PE, 50 Hz
- ☐ 230 V, 3+PE, 50 Hz
- ☐ 200 V, 3+PE, 50 Hz

60 Hz units

- ☐ 400 V, 3N+PE, 60 Hz
 - ☐ 380 V, 3N+PE, 60 Hz
 - ☐ 240 V, 3+PE, 60 Hz
 - ☐ 230 V, 3+PE, 60 Hz
 - ☐ 220 V, 3+PE, 60 Hz
 - ☐ 208 V, 3+PE, 60 Hz
 - ☐ 200 V, 3+PE, 60 Hz
-

Heating of wash, rinse, and disinfection water

As standard, all models are equipped with electrical sump heating.

- ☐ Electrical heating, coil behind the filter
 - ☐ Steam heating, coil behind the filter
-

Detergent dosing pumps

Two pumps are included as standard.

- ☐ Dosing pump 1: Cleaning detergent. Dosing pump 2: See the following table.
- ☐ Dosing pump 3: For additional process chemicals
- ☐ Dosing pump 4: For additional process chemicals

Pre-configured Dose pump	HOSPITAL A ₀ 3000	HOSPITAL A ₀ 600	CHINA	LIFE SCIENCE
1 Cleaning detergent	✓	✓	✓	✓
2 Rinse Aid	-	✓	-	-
2 Neutralizing chemical	✓	-	-	✓
2 Enzymatic detergent	-	-	✓	-
2 Rinse Aid	-	-	✓	-
4 Disinfection chemical	*	-	-	-
- = Not used in programs ✓ = Used in programs * = Used in hidden program				

Detergent flow monitoring

Note! This is required to comply with EN ISO 15883.

With flow control the dosing is volume based. Liquids with a higher viscosity than 10 cSt can clog the flow monitoring function.

- ☐ No flow monitoring
- ☐ Detergent flow monitoring for 2 dosing pumps
- ☐ Detergent flow monitoring for 3 dosing pumps
- ☐ Detergent flow monitoring for 4 dosing pumps

Drain cooling

As hot solutions from the drain tank and condensate from the heat exchanger enter the water trap, cold water is automatically injected to reduce the temperature to 60 °C (140 °F) or less before it enters the building waste system.

- ☐ No drain cooling
- ☐ Monitored drain cooling with 60 °C (140 °F) maximum drain temperature

Guide rails

- ☐ No guide rails
- ☐ Guide rails and spray arm (for machines with upper and lower carts)

Line breaker

- ☐ No line breaker
- ☐ Line breaker
-

NetCom

NetCom is a factory installed communication solution for exporting process information to a USB connected storage drive (USB included in NetCom option) or to T-DOC Independent Traceability and management system and/or Getinge Online (real time and historical information about the machine performance and the wash process).

NetCom is required for:

- Communication with Getinge Online (real-time and historical information of machine performance and wash process).
- Communication with T-DOC independent Traceability and management system.

- ☐ No NetCom
- ☐ NetCom (USB included)
-

Signal exchange

Electrical contacts provided for external communication of process running, process complete, and alarms.

- ☐ No signal exchange box
- ☐ Signal exchange box
-

Conductivity monitoring of final rinse

- ☐ No conductivity monitoring
- ☐ Conductivity monitoring of final rinse water, with repeated rinse function
-

Process report

Note! Process report is required to comply with EN ISO 15883 and can be done either with a built-in paper printer or digitally with USB/NetCom.

Cycle printouts/batch report data can be printed. The information includes program start date and time, phase description, disinfection time, amount of detergent (if flowmeters are used), temperature, and alarms triggered during a program.

- ☐ Built-in printer on the soiled side (SS)
- ☐ Built-in printer on the clean side (CS)
-

Deionized water valve (DiW)

As standard, all models are equipped with 1.5 m (59") hoses and valves for cold and hot water. The hoses are connected at floor level. Additional connection for deionized water can be selected.

☐ No DiW connection

☐ DiW valve

Thermal disinfection type

The method of disinfection can be selected and set accordingly on delivery.

☐ Disinfection phase time and temperature controlled

☐ Disinfection phase time and temperature controlled, additional A_0 value calculated and printed

☐ Disinfection phase A_0 value controlled

Container

☐ No detergent containers

☐ Set of 3 empty 5 L (1.3 gal.) detergent containers

Accessories

Machine accessories

Note! For more detailed information about available accessories and wash carts, see the separate loading equipment catalogue.

Article No.	Description
6001891675	Seismic anchoring
6002031101	Gross debris filter
6024936001	Loading trolley
6001277202	Drain bottle for loading trolley
501765031	Trim panels for pass-through machines, 1 x 46-5
501765032	Trim panels for pass-through machines, 2 x 46-5
501765033	Trim panels for pass-through machines, 3 x 46-5
501765034	Trim panels for pass-through machines, 4 x 46-5

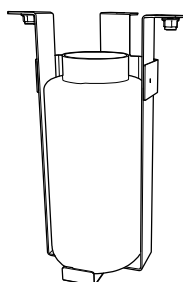
Loading trolley (6024936001)

The loading trolley is used to dock and lock the wash carts in the machine or at the loading or unloading point. The trolley can be equipped with a runoff. The four swivel castors make it easy to maneuver the trolley. The maximum weight of the load on the trolley is 60 kg (132 lb.).



Drain bottle (6001277202)

Collection vessel for runoff water from the load.





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

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