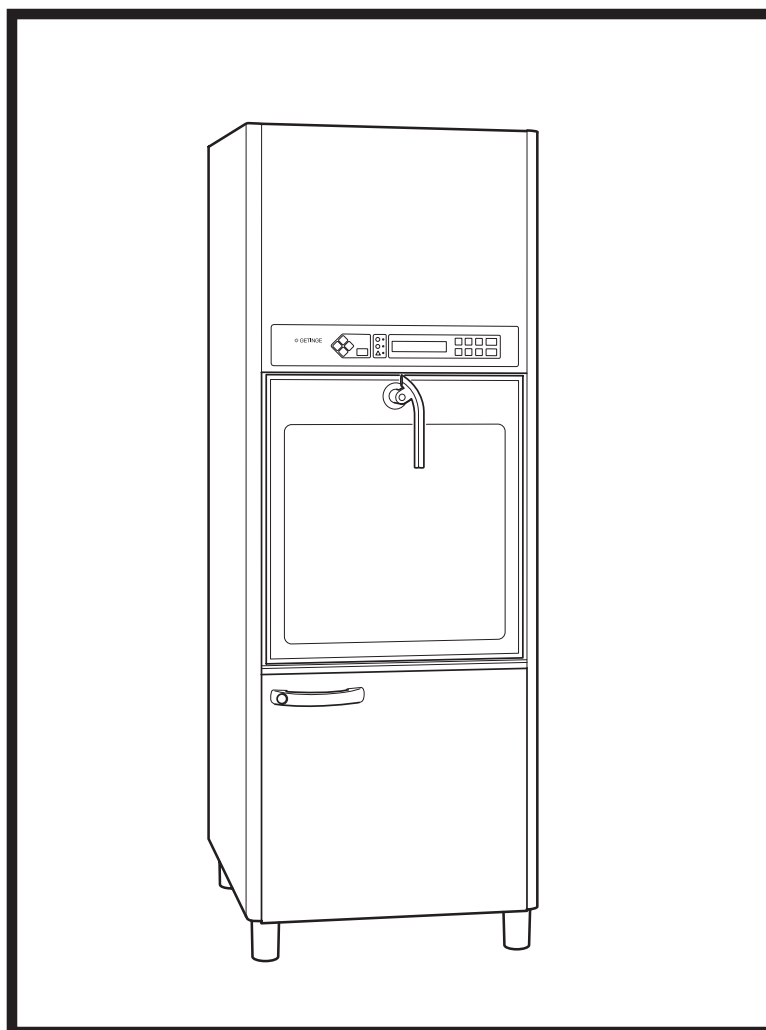


# USER MANUAL



## Washer disinfector 46-2,46-4,46-5

Mfg. no. SEV0440130-  
5018610-00



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## Safety regulations

This machine is designed with a number of built-in safety devices. To avoid injury, it is very important that these safety devices are not bypassed and thus disabled.



***The equipment must be used in accordance with the safety instructions below.  
If in doubt, contact a representative of the reseller without delay.***


### Important


- Read the instructions thoroughly before use.
- The equipment must only be used by personnel who know about it and are trained to use it. Personnel must also receive regular training on this equipment.
- Take care when handling the chemical detergent used in the machine. Read the details on the container or contact the manufacturer:
  - if detergent comes into contact with the operator's eyes or skin or if the vapours are breathed in, etc.
  - about storing the detergent and disposing of empty containers.
- Take care, because the machine uses hot water and possibly steam.
- Installation and service work must be done by personnel trained for this machine.
- Never bypass the door switch of the machine.
- Leakage in the system, due to a worn door seal for example, must be repaired without delay.
- The electric power is cut off before the machine cabinet is opened. (The machine cabinet contains electrical components).
- make sure that there is always detergent in the bottles. This is important both for the operation of the machine and for keeping the washing chamber free from discolorations.
- The machine must be kept clean if it is to work properly.
- Do not wash down or hose down the machine with water.

### Product liability

- Modifications to the equipment made without the approval of the manufacturer, or incorrect use, invalidate the manufacturer's product liability.

## **Symbols on the machine**

 Warning, see instructions for use.

 Warning, hot surface.

## **Isolating device**

The machine must always be fitted with a separate isolating device in the power supply, mounted in an easily accessible position on the wall.

## **Attention symbols**

Some of the warnings, instructions and advice in this manual are so important that we use special symbols to draw attention to them. The symbols used are as follows:



***This symbol indicates a warning in the text of the manual. The nature of what the warning relates to is such that it may result in more or less severe injury and in certain cases mortal danger.***

***It also highlights warnings to avoid damage to equipment.***

## General

The Getinge 46-Series are large capacity Washer Disinfectors for cleaning, disinfection and drying of moisture and temperature stable Surgical Instruments (rigid and tubular), Hollow ware, Glass ware, Baby bottles, Suction bottles, Wash bowls, Containers and for 46-4 and 46-5 also Anesthetic accessories.

The machine has spray arms and dockings:

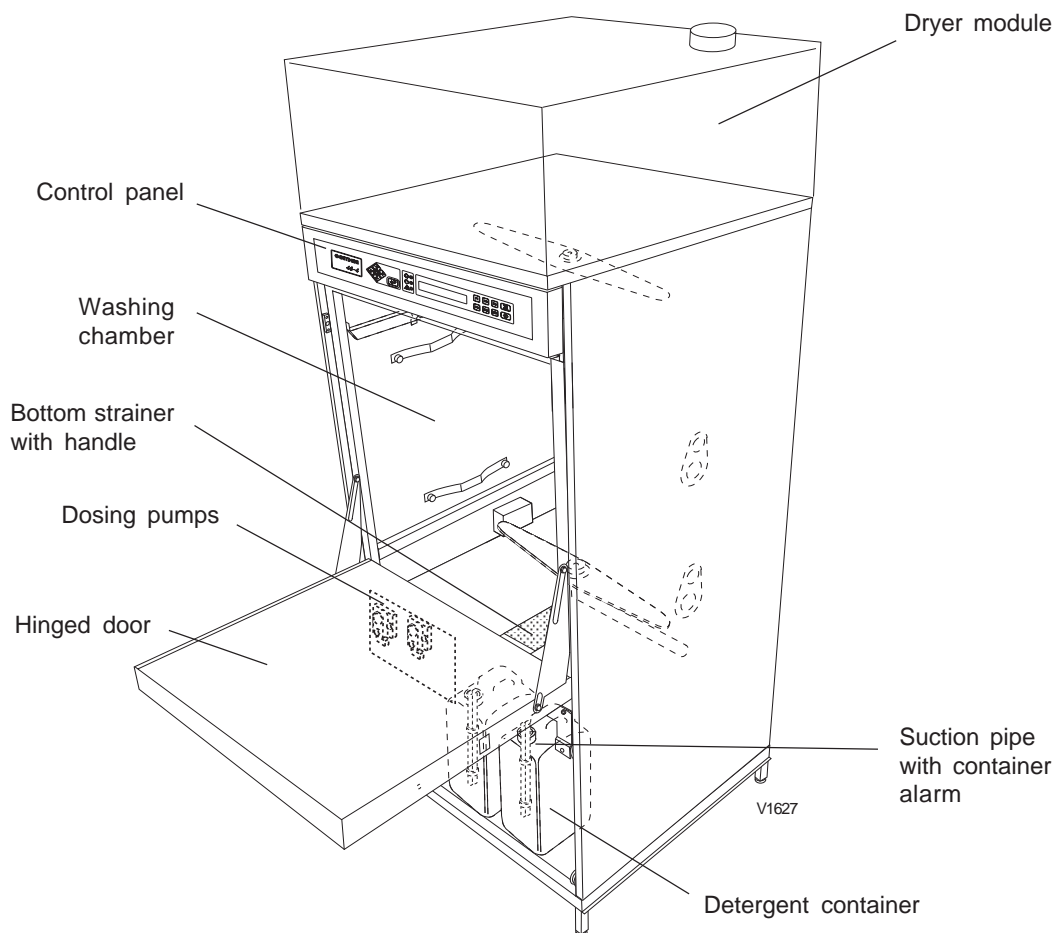
- 46-2 has three spray arms and one docking:
- 46-4 has two spray arms and two dockings:
- 46-5 has two spray arms and three dockings:

The machine can be equipped with several different accessories for different cleaning requirements. These accessories are presented in a special accessories catalogue.





There are several possible ways of installing and equipping the machine depending on its field of application:

- 46-2 has electrical heating. 46-4 and 46-5 have electric or steam heating.
- 46-2 is fitted with a single door. 46-4 and 46-5 are fitted with a single or double door.
- Connection of distilled or de-ionised water.
- Extra dosing pumps which allow chemical disinfection of heat-sensitive goods.
- With or without built-in drying system.
- Audible signal on process complete, fault code, etc.

The washer-disinfectator has been tested and approved to ISO 15883.



## Programmer

The machine has an electronic controller which can hold up to 10-15 programs. Six of these programs can be chosen with the program selection buttons. To choose other programs, press . The display now shows SELECT PROGRAM . Press  again, then choose a program with  and .

The machine comes with a number of standard programs in the programmer (see the separate program sheet). Contact the manufacturer for customised programs.





**Programming may only be done by authorised personnel.**

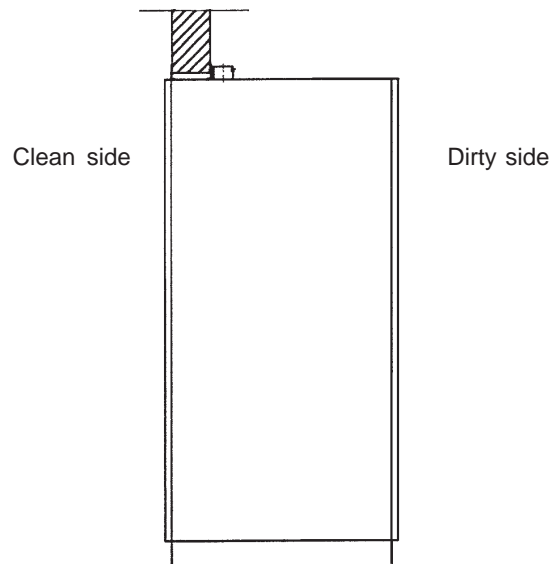
## Door function

46-2 is fitted with a single door. 46-5 and 46-5 are fitted either with a single door or with double doors.

Machines with double doors have a system of interlocks to ensure that only one door can be opened at a time. This means that the clean-side door must be closed before the dirty-side door can be opened.

When you press , the door is locked and a yellow lamp (process running) flashes for about 10 seconds. If you press  again during this "cancel time", the dirty-side door is unlocked and the door can be opened.

When the program is complete, a green lamp lights up on both sides (if there are double doors) and the clean-side door is unlocked. When the door has been opened manually, the green lamp goes out. With double doors, the clean-side door must be closed before the dirty-side door can be unlocked.



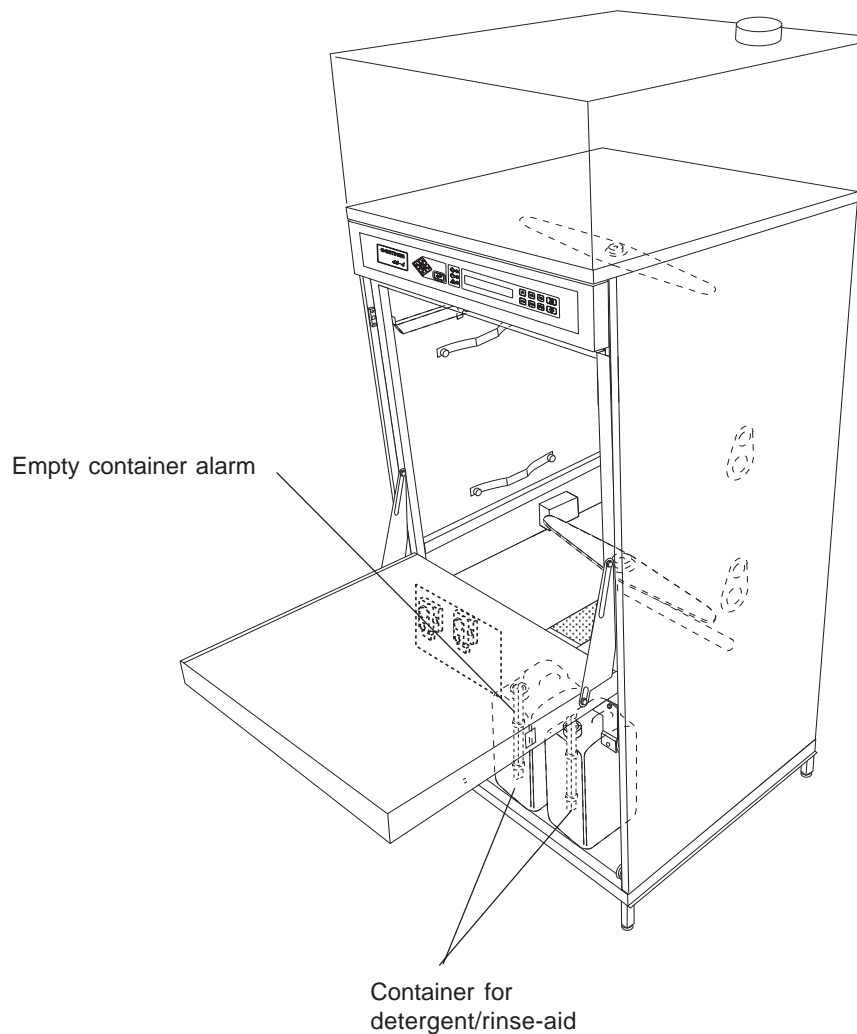
V398

## Dosing system

In standard form, the machine has two dosing systems. One is for alkaline detergent and one is for rinse-aid or acid detergent.

The machine cannot be started until detergent has been added. If the detergent bottle is empty "ADD DETERGENT" appears on the display.

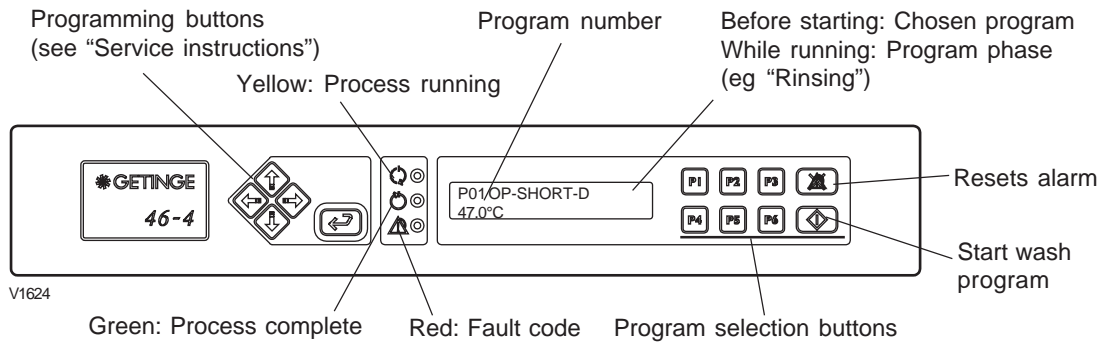
A third and a fourth dosing system for chemical disinfection of heat-sensitive goods or instrument milk, for example, can be installed.



## Drying

If the machine does not have a dryer, we recommend that the goods are dried in a separate drying cabinet.

## Operating instructions



- Load the goods to be washed on to the trolley and run the trolley into the machine. Examples showing how to load the trolley are shown on the goods positioning sign.
  - Make sure that the washer arms can rotate freely without touching the goods. Close the door.
  - Choose a program in one of the following ways:
    - by pressing one of the program selection buttons **P1** - **P6**
    - by pressing **↩**. The display now shows SELECT CYCLE. Press **↩** again and choose a program with **⬆** and **⬇**.
    - Press **↩** to confirm.
- You can see the machine programs on the separate program sheet.
- Press **⬆**. While the program is running, a yellow lamp at **⬆** is lit and the program phase (eg "R.i.n.s.e") is shown on the display. Press **↩** to see the current temperature and press **↩** again for the remaining time.
  - When the program is complete, a green lamp lights up at **⬆** and the door is unlocked (with double doors, the clean-side door).



**If the goods have not cooled down after a process, be sure to handle them with care, to avoid burns.**

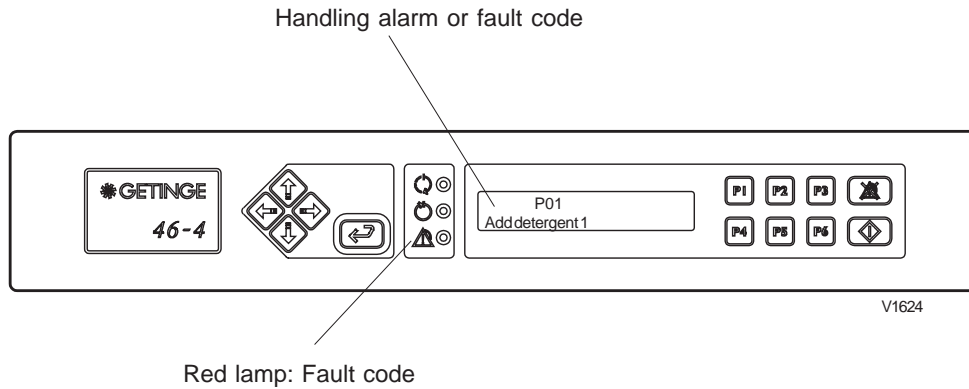
- Empty the machine (and if the machine has double doors, close the clean-side door).
- If the same program is to be used again, there is no need to select the program again. Simply press **⬆** once.
- When you press **⬆**, a yellow lamp flashes for 10 seconds. During this time, the program can be aborted by pressing **⬆** again.

**Note:**


**The display switches to rest mode after 30 minutes and returns automatically when a program is started or selected.**



## Fault indications



### A red lamp lights up

If the red lamp at  lights up, the process has stopped because of a process fault. If a handling alarm is given, see below for the action to take. For other alarms, call service personnel.

### Handling alarms

Add detergent 1

Handling alarms appear on the display in plain text. The machine cannot be started until the fault has been put right. The following handling alarms can be displayed:

<b>Add detergent 1</b>	Empty container alarm 1. If detergent 1 is finished, a handling code is generated. The alarm is reset automatically when detergent is added.
<b>Add detergent 2</b>	Empty container alarm 2. If detergent 2 is finished, a handling code is generated. The alarm is reset automatically when detergent is added.
<b>Add detergent 3</b>	Empty container alarm 3. If detergent 3 is finished, an operation code is generated. ( <i>Option</i> ). The alarm is reset automatically when detergent is added.
<b>Add detergent 4</b> ( <i>Option</i> ).	Empty container alarm 4. If detergent 4 is finished, an operation code is generated. The alarm is reset automatically when detergent is added.

**Note:**

**When the handling alarm “Add detergent 1-4” appears, there is always enough detergent for one run.**

**Fault codes**

 F01

Fault codes indicate that a serious fault has occurred in the washing process. The fault must be put right by an authorised service technician.

The following fault codes may occur:

<b>Fault code</b>	<b>Description of fault</b>
F00	Power failure
F01	Motor cutout has tripped.
F02	Water filling takes more than 10 minutes.
F03	Draining takes longer than five minutes or there is water remaining in the washing chamber at the end of the draining phase.
F04	Water leakage in the drying unit.
F05	Dirty-side door does not lock within 10 seconds of program start or the door is opened while a program is running.
F06	Dirty-side door does not unlock within 10 seconds of the end of a program.
F09	Dirty-side door does not lock within 10 seconds of program start or if the door is opened while a program is running.
F10	Dirty-side door does not unlock within 10 seconds of the end of a program.
F15	Not enough detergent 1 dosed.
F16	Not enough detergent 2 dosed.
F19	Not enough detergent 3 dosed.
F20	Not enough detergent 4 dosed.
F23	High conductivity.
F24	Low pressure in drying unit.
F25	High pressure in drying unit.
F26	Low pressure from circulation pump.
F27	High pressure from circulation pump.



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<b>Fault code</b>	<b>Description of fault</b>
F28	Low temperature in drying unit.
F30	Incorrect temperature in washing chamber.
F31	Incorrect temperature in washing chamber.
F32	Incorrect temperature in drying unit.
F33	Incorrect temperature in washing chamber.
F34	Incorrect temperature in washing chamber.
F36	Fault message from independent monitoring system

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### ***Acknowledgement of fault code***

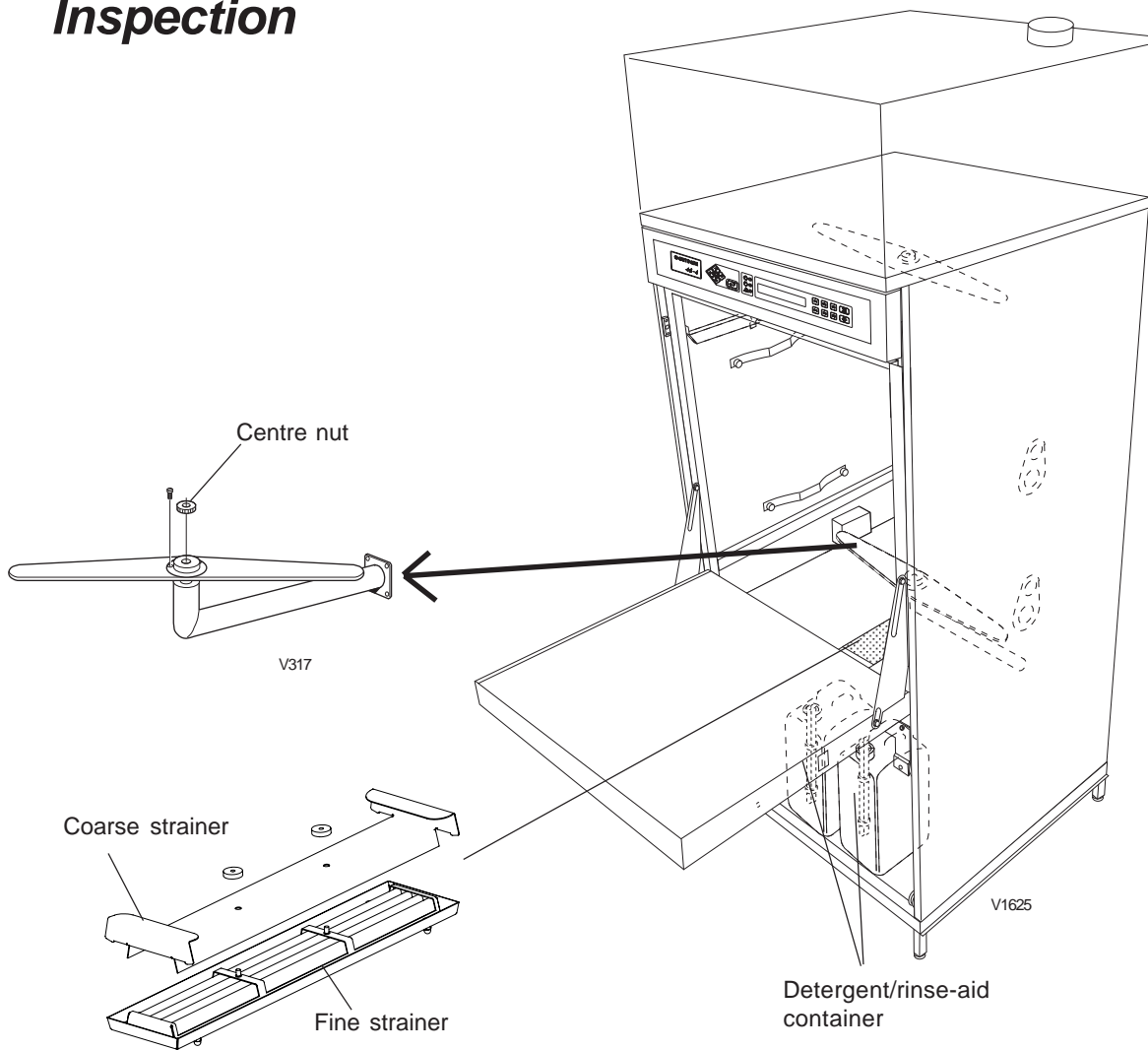
Acknowledge the fault code by:

- pressing . The alarm signal stops. The machine is still locked but the current process has been aborted.
- correct the fault or open the door to gain access to the goods. Pressing  again drains liquid from the machine and the dirty side door is unlocked.

***NOTE:***

***The goods in the machine are not clean. Start a new process.***

## Inspection

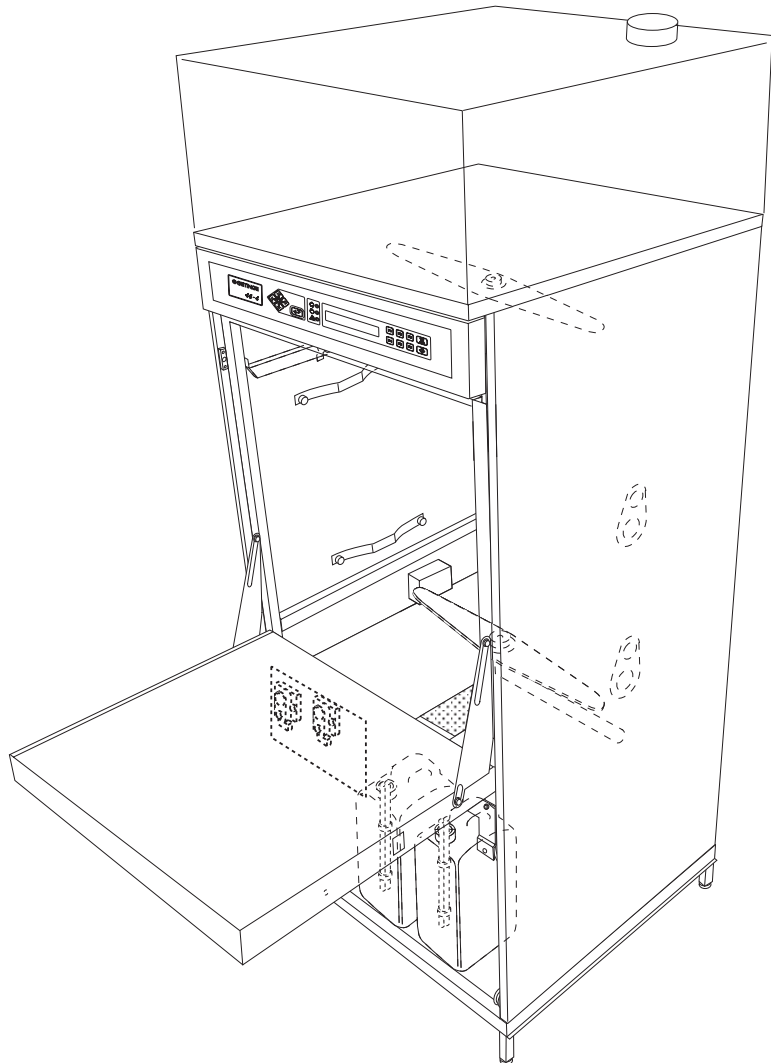


## Daily

- Check that there are no objects in the bottom of the washing chamber.
- Check that the spray arms can rotate freely. Check that the holes in the spray arms are not blocked.

If the arms need cleaning, remove them by unscrewing the central nut. The arms can then be lifted off and washed clean. Check that the arms can rotate freely when re-installed.

- Remove and clean the strainer in the bottom of the washing chamber.
- If necessary for cleaning, open the strainer with the two nuts.
- Open the detergent door and check that there is detergent/rinse-aid in the containers.
- Check that the trolley docks properly with the water connections. If the trolley does not dock properly, adjust the spring.



### ***If necessary***

#### *Washing chamber*

Keep the washing chamber free of limescale deposits. Remove any remaining deposits as follows:

- Open the door and dispense 200 ml Lime-Away descaler (sold by Henkel) or NEODISHER BU (sold by Dr. Weigert) into the wash chamber.
- Close the door and run the descaling program.

*NOTE: Do not have any goods in the machine with this program. It is only for descaling the machine and insert.*

## Program printout

An example of a program printout is shown below. In the example the program P02 OP-D, programmed on program selection button **P2** is used in:

```

PROGRAM:P2 OP-D
DATE:13/04/2004
PROCESS START:13:44:46
MACHINE NAME:46-4
MACHINE NO:1
CYCLE COUNTER:1

PARAMETER
WASH DOS TEMP 35.0C
WASH DOS 1 00:01:00
WASH TEMP. 60.0C
WASH TIME 00:03:00
FINAL R DOS TEMP 80.0C
FINAL R DOS 3 00:00:21
DISINF TIME 00:01:00
DISINF TEMP 90.0C
DRYING TEMP9 0.0C
DRYING TIME 00:18:00

SIGNALS
A107 TEMP INDEP. CHAMB

PROGTIME A107

PH1-START
00:00:00 30.8

PH2-DRAINING 10 s
00:00:00 31.2

PH220-PRE RINSE CW
00:00:10 31.0

PH20-DRAINING 40 s
00:02:42 16.2

PH25-WASHING
00:03:51 18.1
00:05:52 35.2
DOS START

00:06:53 39.9
DOS.STOP

00:11:17 60.0
00:12:17 608
00:13:17 61.9
00:14:17 61.5

PH20-DRAINING 40 s
00:14:18 61.5

PH330-RINSE 1
00:15:29 61.5

PH20-DRAINING 40 s
00:17:39 55.1

PH360-RINSE 2
00:18:46 55.5

PH20-DRAINING 40 s
00:20:55 53.2

PH440-FINAL RINSE
00:22:03 53.5
00:27:53 80.1
DOS.START

00:28:15 81.5
DOS.STOP

00:30:26 90.0

PH450-DISINFECTION
00:30:27 90.1
00:31:26 92.3

PH20-DRAINING 40 s
00:31:28 92.3

PH900-DRYING
00:32:36 91.7
00:51:27 80.8

PH1000-ENDING
00:52:43 81.1

SIGNATURE: .....
```

## ***Program***

<b>Machine</b>	<b>Program</b>
46-2 with dryer	5016029-13
46-2 with dryer + dist. water conn.	5016029-14
46-4 with dryer	5016030-13
46-4 with dryer + dist. water conn.	5016030-14
46-5 with dryer	5016031-13
46-5 with dryer + dist. water conn.	5016031-14

## Hospital A<sub>0</sub> 600 (90 °C - 1 min)

This program sheet applies to 46-4: 5016030-13,-14  
46-5: 5016031-13,-14

Programs	Program selection button/ Program number	Type of goods
INST./POLY	1	Instruments, circulation goods
INST./POLY (ENZ)	2	Instruments, circulation goods
AN/MIS	3	Anaesthesia tubing, mic-instruments
-	4	-
-	5	-
-	6	-
DRYING	P10 *	Drying.
DESCALING	P11 *	Descaling of chamber, inserts, washer arms and washer vanes. Dose 200 ml Lime-Away descaler (sold by Henkel) or NEODISHER BU (sold by Dr. Weigert) into the wash chamber. <b>NOTE: Do not have any goods in the machine with this program. It is only for descaling the machine.</b>

\* For choosing this program, see instructions for use.

## Hospital A<sub>0</sub> 600 (90 °C - 1 min)

This program sheet applies to 46-2: 5016029-13,-14

Programs	Program selection button/ Program number	Type of goods
INST./POLY	1	Instruments, circulation goods
INST./POLY (ENZ)	2	Instruments, circulation goods
-	4	-
-	5	-
-	6	-
DRYING	P10 *	Drying.
DESCALING	P11 *	Descaling of chamber, inserts, washer arms and washer vanes. Dose 200 ml Lime-Away descaler (sold by Henkel) or NEODISHER BU (sold by Dr. Weigert) into the wash chamber. <b>NOTE: Do not have any goods in the machine with this program. It is only for descaling the machine.</b>

\* For choosing this program, see instructions for use.

es.



## Detergents

The machine has been tested with Getinge detergents. We recommend that you use Getinge detergent or detergent from a reputable manufacturer.

### Getinge detergent for mechanical washing of:

**A** - Surgical instruments    **B** - MIS-instruments  
**C** - Anesthesia equipment    **D** - OP-shoes  
**E** - Containers    **F** - Baby-bottles    **G** - Lab glassware

Products	Alkalinity	Surfactants	Phosphates	Enzymes	Suitable for optics and anodized Alu.	Goods to be washed
Getinge Wash Normal	Amines	+	-	+	+	A, B, C, D, E
Getinge Wash Extra	Alkaline salts	-	+	-	(+)	A, C, D, (E), F
Getinge Wash Intensive	Caustic soda	+	-	-	-	A, C, D, F
Getinge Wash Enzyme	-	+	-	+	+	A, B, C, D, E
Getinge Wash LAB	Caustic soda	-	-	-	-	G

### Acidic detergents and neutralizing agents

Products	Acids	Effects	Prewash for lab glassware	Dosage
Getinge Neutralization P	Phosphoric acid, citric acid	Neutralization of alkaline residues, removal of mineral residues, e.g. rust and lime	Removal of mineral residues	First rinse after the alkaline wash for neutralization or prewash
Getinge Neutralization	Citric acids	Neutralization of alkaline residues		First rinse after the alkaline wash

### Lubricants and rinse aids

Products	Ingredients	Effects	Dosage
Getinge Instrumentmilk	Paraffinum perliquidum emulsifying agents	Lubrication of instruments	Final rinse
Getinge Rinse	Surfactants	Reduction of surface tension of water, improved drying	Final rinse

### Flusher detergents

Products	Alkali	Dispersion agents	Complexing agents	Surfactants
GD Wash	+	-	++	+
GD Flush	-	++	+	-

Getinge detergents can be ordered from Getinge resellers.

## Technical data

Weight		
Machine 46-2 without dryer	150	kg
Machine 46-2 with dryer	150	kg
Machine 46-4 without dryer	150	kg
Machine 46-4 with dryer	180	kg
Machine 46-5 without dryer	155	kg
Machine 46-5 with dryer	185	kg
Width		
	650	mm
Depth		
	690	mm
Height		
Machine 46-2 without dryer	1600	mm
Machine 46-2 with dryer	1600	mm
Machine 46-4 without dryer	1600	mm
Machine 46-4 with dryer	1860	mm
Machine 46-5 without dryer	1670	mm
Machine 46-5 with dryer	1930	mm
Chamber size		
Machine 46-2, 46-4	H=590mm, W=550mm, D=620mm	
	Operational volume	201 litres
	Total volume	280 litres
Machine 46-5	H=660mm, W=550mm, D=620mm	
	Operational volume	225 litres
	Total volume	305 litres
Environment requirements:		
Air humidity	max 80% at 31 °C	
Room temperature	5 - 40 °C	
Water consumption		
	approx 15 litres/phase	
Cold water		
Connection	15 (1/2") mm	
Pressure	100-800 kPa	
Flow rate	min 20 l/min	
Hot water		
Temperature	45-60 °C	
Connection	15 (1/2") mm	
Pressure	100-800 kPa	
Flow rate	min 20 l/min	
Dist./de-ion. water		
Connection	20 (3/4") mm	
Pressure	50-900 kPa	(if the pressure is below 50 kPa a separate feed pump must be connected)
Flow rate	min 20 l/min	
Steam		
Connection	15 (1/2") mm	
Pressure	300-500 kPa	
Consumption	0,5 kg/min at 300 kPa	
Waste, water	ø 50 mm	Capacity 30l/min
Waste, air	ø 63 mm	125-150 m <sup>3</sup> /h 35 °C, Humidity 100% 40 sec < 40% after 2 min.
Max outside temperature	50 °C	
Sound level	60 dB (A)	
Electrical connection	See Alternative connection	



*This product is manufactured by:*  
*GETINGE DISINFECTION AB, Ljungadalsgatan 11, Box 1505, 351 15 Växjö, Sweden*

