GETINGE

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GETINGE FD1800
TECHNICAL MANUAL
503712400

Service code 9817

Always with you

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Contents

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PREFACE

This technical manual is intended for maintenance and service personnel working with the Tornado/FD1800 flusher disinfector.
The service manual is divided into the following sections:

- Safety regulations
- Technical data
- Description of the design and operation of the machine
- Software description and menu tree
- Preventive maintenance
- Fault indications and troubleshooting
- Repair and adjustments
- Electrical diagram

The purpose of the technical manual is to provide information for the maintenance and service personnel whose job it is to ensure safe operation with optimum efficiency. Before starting work on the machine, the maintenance and service personnel must have read the safety instructions in this manual and familiarized themselves with the operation of the machine and its safety instructions.

Read the safety instructions in the technical manual before starting work on the machine.

The information in this manual describes the machine as dispatched from Getinge. There may be differences due to customization.
The machine is accompanied by the following documentation:

- User manual
- Installation manual
- Technical manual (this manual)
- Spare parts list

Getinge reserves the right to change the specification and design without prior notice. The information in this manual was up to date on the date of issue of the manual.

SAFETY REGULATIONS

This machine has been designed with a number of built-in safety devices. To avoid injury, it is highly important not to bypass or disable these safety devices.

General safety regulations

- Take care when handling the chemical agent used in the machine.
  Read the details on the container or contact the manufacturer:
  - if the agent comes into contact with the operator's eyes or skin or if the vapors are breathed in, etc.
  - about storing the agent and disposing of empty containers.
- The machine must be connected in accordance with the installation instructions.
- Read the instructions thoroughly before use.
- The machine may only be operated by adults.
- Installation and service work must be done by personnel trained for this machine.
- The door locks of the machine must never be bypassed.
- Leakage in the system, due to a worn door seal for example, must be repaired without delay.
- Before repair or service work is done, the personnel concerned must study the relevant documentation and service manuals.
- Before welding begins on or close to the machine, all wiring connected by plugs and sockets must be disconnected from all circuit boards of the control system.
- The machine must not be hosed down with water.
- Take care when using corrosive detergents.
- Precautions must be taken with hot water and steam.
- Run a program before starting servicing work. If this is not possible, disinfect the machine with disinfectant before starting servicing work.

In an emergency

- Switch off the main switch.
- Close shutoff valves in the water and (where present) steam supply lines.

Product liability

Any modification or incorrect use of the equipment without the approval of Getinge Disinfection AB invalidates Getinge Disinfection AB's product liability.
This product was manufactured by:
GETINGE DISINFECTION AB
Ljungadalsgatan 11, Box 1505
SE-351 15 Växjö, Sweden

CE 0413

Isolator switch

The machine must be fitted with a separate isolating device in the electric power supply. The isolating device must be easily accessible on a wall close to the machine.

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INTRODUCTION

Intended use of the machine

Flusher disinfector for emptying, cleaning and disinfecting bowls, urine bottles and buckets.

To meet the requirements of EN ISO 15883, the items must be placed in the proper holder, recommended by Getinge Disinfection AB.

The customer is responsible for ensuring that an Installation Qualification and a Performance Qualification according to ISO 15883 are carried out before the product is put into use.

Attention symbols

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

This symbol indicates a warning in the technical manual. It warns of a hazard that may lead to more or less severe injury and in certain cases mortal danger.

It also highlights warnings of possible damage to the machine.
This symbol highlights a warning in the text of the service manual dealing with the handling of components sensitive to ESD. The hazard that it warns about may result in damage to hardware and/or circuit boards.

If the machine has not been used for 72 hours, the steam generators and circulation pump must be drained. This must only be done by authorized service personnel.

Warning, hot surfaces. When the processor is finished, the surfaces can be very hot. Be careful when touching surfaces.

Warning: electrically live parts

Contamination risk
Service personnel can be infected by parts in the machine.

RCD

We recommend using a residual current device (RCD) with the machine.

Description

General

The flusher disinfector is designed for cleaning and disinfecting circulation items such as bedpans and urine bottles. In this context, disinfection means killing all vegetative bacteria, fungal spores and viruses, but not bacterial spores. A description of the mechanical design and general functions of the machine is given the instruction manual. This section contains a general description of the control system and schematic diagrams of the machine. For detailed information about the software and its settings, see the chapter entitled “Software description and settings”.

Function

The items are cleaned by flushing with cold and hot water through fixed and rotating nozzles. The water is drawn by a pump from the machine tank and fed to the flushing housing. The waste outlet of the machine is connected to the normal waste pipe system. The items are disinfected with steam and then cooled by flushing with water (the cooling phase can be eliminated by programming the machine accordingly).

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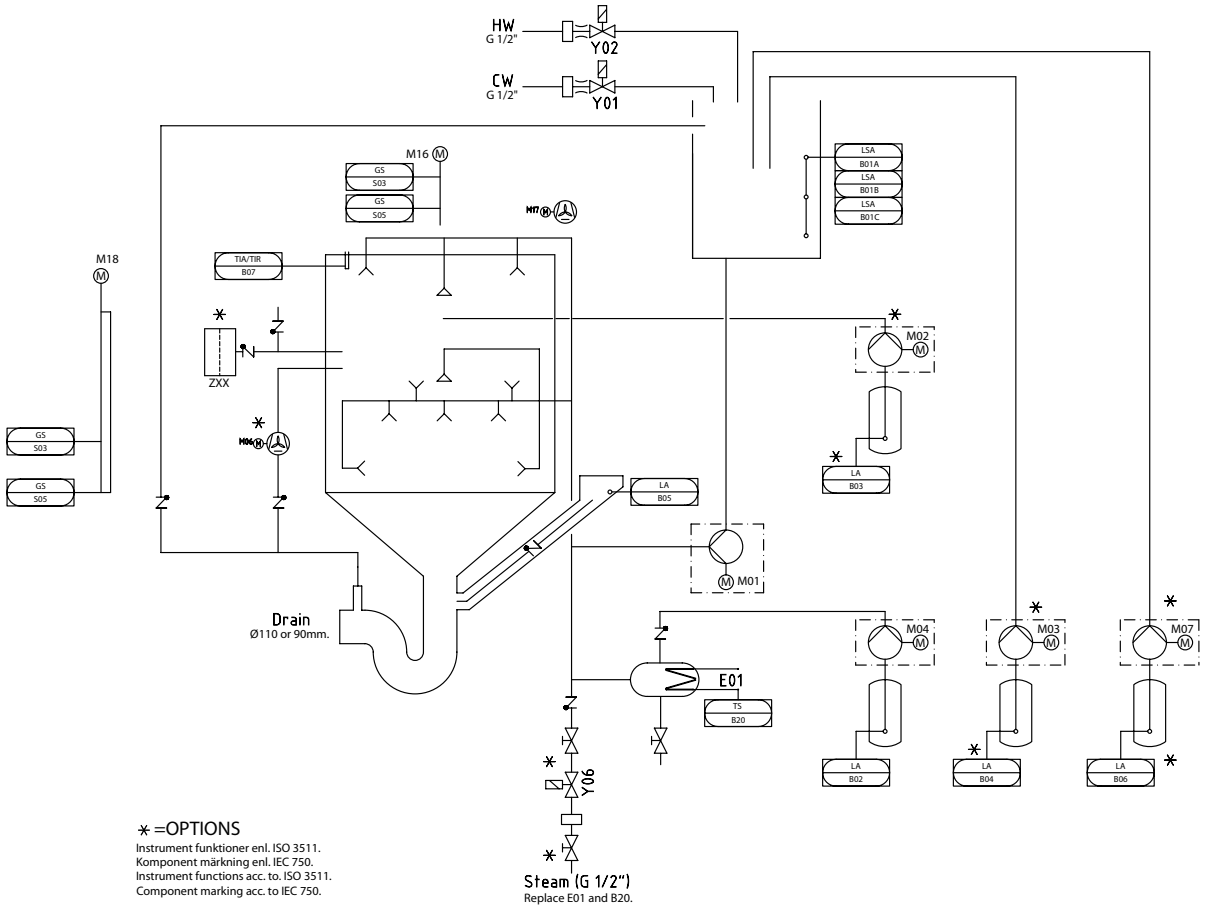
P&I diagram



Safe and simple

Disinfection is fully automatic

- safety and reliability can be kept high by continuous monitoring of the process.
- the dosing of descaler, the temperature and the disinfection time can all be altered with great precision to suit different conditions.
- the built-in service program makes troubleshooting and servicing far easier.

Operation is simple and the control buttons are few and clearly marked.

Simple service and installation

Valves and the electrical equipment are easily accessible for inspection and service from the front and from above.

Cooling

Cooling with ventilator (optional)

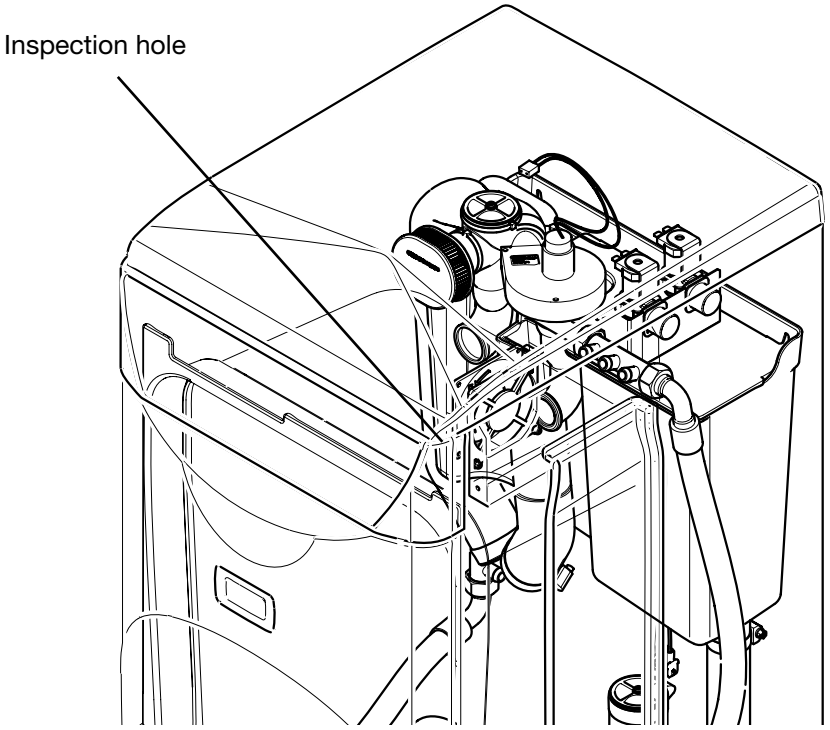
The items can be cooled by the ventilator fan sucking the warm air out from the chamber.

Internal cooling (optional)

Internal cooling takes water from the tank and the standard water supply.
This method is not recommended according to EN ISO 15883.

Inspection hole

The inspection hole is located in the front left corner of the chamber.
In order to access the inspection hole, remove the front plate.



The programs

Programs, standard set:

P1 Economy program for lightly soiled items.
P2 Normal program for normally soiled items.
P3 Intensive program for heavily soiled goods.

The following programs can also be selected:

P4 Normal program with detergent dosing (option).
P5 Intensive program with detergent dosing (option).
P6 Normal program with detergent dosing in tank and/or spray dosing in the chamber (option).
P7 Intensive program with detergent dosing and/or spray dosing in the chamber (option).
P8 Rim flushing program.
P10 Extra intensive program to meet the requirements of HTM 2030 (option).
P11 Extra intensive program with detergent dosing in tank, to meet the requirements of HTM 2030 (option).
P12 Extra intensive program with detergent dosing in tank and/or spray dosing in the chamber, to meet the requirements of HTM 2030 (option).
P14 Extra Extra intensive program to meet the requirements of Koller W and HTM 2030.
P15 Extra Extra intensive program with detergent dosing in tank or pump, to meet the requirements of Koller W and HTM 2030 (option).
P16 Extra Extra intensive program with detergent dosing in tank and/or spray dosing in the chamber, to meet the requirements of Koller W and HTM 2030 (option).
P18 Cooling phase with combined rinse-aid and descaler dosing in tank (option).
P19 Cooling phase with rinse-aid dosing in pump (option).
P20 Cooling phase with rinse-aid dosing in tank.

The process starts when the desired program is chosen (the yellow button by L lights up). (The normal program takes about five minutes.)
When the process is complete, the green lamp at M lights up and the door can be opened (manual door).
Machine with automatic door opens when the IR diode,  , is activated for at least 1 second.

The items may be hot at the end of the program. If the temperature of the items is above 60 °C, the display shows U7.

Service program

Function

In the service program, maintenance and service personnel can set parameters which control the operation of the machine. These parameters are divided into the following groups:

- Machine-independent settings
- Configuration
- Program selection
- Interval disinfection
- Inspection request
- Dose size
- Empty container alarm
- Disinfection
- Tank and water
- Fault statistics
- Program statistics
- Function test
- Activation of inputs and outputs
- Switching of inputs and outputs

The facility for changing line information is protected by authorization codes, so as not to put the operation of the machine at risk. There are four passwords with different levels of authorization:

- **Level A** for users; display only (code 0000)
- **Level B** for users; change (code 2000)
- **Level C** for service personnel, change
- **Level D** for service personnel, critical settings.

You can always view all higher-level program lines without the authorization code for those levels. The code only protects against changes.
The operator communicates with the service program via the pushbuttons on the front panel and via the display.

The information in the memory of the machine is structured as a number of lines, where every line has a two-digit line number (00 - 99). On every line there is either line information or a control for a certain function, e.g.:
On program line 11 you can switch child safety on or off.

Line	Parameter	Basic setting	Setting range	Authorization
11	Child safety	0	0=No, 1=Yes	BCD

A line can also contain several sub-line numbers. Each sub-line has a particular function, e.g.:
On program line 30, you can choose, with the aid of the sub-lines, which program (of up to 25) will start when a button or a combination of buttons is pressed.

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Line	Sub-line	Parameter	Basic setting	Setting range	Authorization
30	11	Program selection, button 1	1	00-25	CD
30	21	Program selection, button 2	2	00-25	CD
30	31	Program selection, buttons 2+5	4	00-25	CD
30	41	Program selection, button 3	3	00-25	CD
30	51	Program selection, buttons 3+5	5	00-25	CD
30	61	Program selection, button 4	8	00-25	CD

The table on the pages that follow lists all the line and sub-line numbers of the machine. This section also describes how to work with the service program. This is followed by a detailed description of each line number and its information.

Table of line numbers and line information

Line	Sub-line	Parameter	Basic setting	Setting range	Authorization
Lines 00-09: Machine-independent variables					
0	-	Authorization code		0000-9999	ABCD
1	-	Checking and retrieving settings		1=Basic, 2=Factory, 3=Work	CD
2	-	Machine type		FD1800, etc.	-
3	01	Program version (main version)		00.=00-99	-
3	02	Program version (sub-version)		.00=00-99	-
3	03	Program version (test version)		00-99	-
3	04	Program protocol	109	-	-
4	-	Serial number		0-999999	-
5	-	Language	1	1=DE, 2=SE, 3=EN, 4=FR, 5=IT, 7=DK, 8=HU, 9=ES, 10=CZ, 11=PL	CD
6	01	Date, year	97	00-99	BCD
6	02	Date, month	01	01-12	BCD
6	03	Date, day	01	1-31	BCD
7	01	Time, hours	00	00-24	BCD
7	02	Time, minutes	00	00-59	BCD
8	-	Demo	0	0 = Not active, 1 = Active	CD
9	01	Address, interface	1	0=None, 1=RS-232, 2=RS-485	CD
9	02	Address, network address	1	0-9999	CD
Lines 10-29: Configuration					
10	-	Start-up code	0	0 = Not active, 1 = Active	CD
11	-	Child safety	0	0 = Not active, 1 = Active	BCD
12	-	Disinfection configuration	1	1=Normal, 2=Spare	BCD
13	01	Dosing (button 2-3)	1	1=Manual, 2=Automatic	BCD
14	01	Sound on door closing	1	0=None, 1=50 ms, 100 ms	CD
14	02	Door type	1	1=Manual, 2=Automatic	CD
14	03	IR sensor interval	1.0	1-9.9 sec	DE
15	01	Acoustic alarm	0	0 = Not active, 1 = Active	CD
16	01	Feedback activation	0	0 = Not active, 1 = Active	DE
16	02	Feedback interval	0	0-255	DE
17	-	Temperature scale	1	1=Celsius, 2=Fahrenheit	CD
19	-	Mains frequency	1	1=50 Hz, 2=60 Hz	CD
20	-	Pump starting time	0.0	0-5.0 seconds	CD
21	-	Temperature indication (Red LED)	1	1=Temperature error, 2=Heating	CD
22	-	Temperature, condensate cooling	60	0-99 °C	CD
23	-	Time to crack open	2.0	0-9.9 seconds	CD
24	-	Waiting time cracked open	0	0-1800 seconds	CD
28	-	Run flushing program	0	0-20	CD
29	-	Set flushing program	1	1-3	CDE

Line	Sub-line	Parameter	Basic setting	Setting range	Authorization
Line 30: Program selection					
30	11	Program selection button 1	1	00=No program, 01-20 Program no.	CD
30	12	Program name button 1	Economy program		CD
30	21	Program selection button 2	2	00=No program, 01-20 Program no.	CD
30	22	Program name button 2	Normal program		CD
30	31	Program selection buttons 2+5	4	00=No program, 01-20 Program no.	CD
30	32	Program name button 2	Normal+Detergent		CD
30	41	Program selection button 3	3	00=No program, 01-20 Program no.	CD
30	42	Program name button 3	Intensive program		CD
30	51	Program selection buttons 3+5	5	00=No program, 01-20 Program no.	CD
30	52	Program name button 3+5	Intensive program+Detergent		CD
30	61	Program selection button 4	8	00=No program, 01-20 Program no.	CD
30	62	Program name button 4	Rim flushing		CD
30	71	Set pedal	2	0-25	CDE
30	72	Name pedal	2	0-10	CDE
30	81	Set pedal + button 5	0	0-25	CDE
30	82	Name pedal + button 5	3	0-10	CDE
30	91	Program selection IR	2		CD
30	92	Program name IR	2		CD
30	101	Program name IR + button 5	0		CD
30	102	Program IR + button 5	3		CD
30	150	IR function	0	0=No IR, 1=Open/close door, 3=Start program	CD
Line 31: Interval disinfection					
31	01	Interval disinfection	0	0 = Not active, 1 = Active	CD
31	02	Interval disinfection programs	1	00=No program 01-20=Program no.	CD
31	03	Limit for interval disinfection	9999	0-9999 program	CD
31	04	Processes remaining to interval disinfection	-	0-9999 program	CD
31	05	Reset interval disinfection	-	0=Zero	BCD
Line no. 32: Inspection request					
32	01	Processing of inspection requests	1	0=None, 1=Warning, 2=Stop	CD
32	02	Acknowledgement of inspection requests	-	0=Acknowledged	CD
32	03	Counter type for inspection requests	1	1=Connection hours, 2=Number of programs	CD
32	04	Limit for inspection requests	9999	0-9999	CD
32	05	Counter for inspection request	-	0-9999	-
Line 33: Dose size					
33	01	Dosing time, descaling	6	0-99 seconds	BCD
33	02	Dosing time rinse-aid	4	0-99 seconds	BCD
33	03	Dosing time, process agent	30	0-99 seconds	BCD
33	04	Dosing time spray agent	0.7	0-99 seconds	BCD

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Line	Sub-line	Parameter	Basic setting	Setting range	Authorization
Line 34: Empty container alarm					
34	01	Alarm descaling agent	0125	00=no alarm, 01.99=warning, no. of programs after low level, 02=stop	CD
34	01.01	Alarm descaling agent processes remaining	25	0-99	CDE
34	02	Alarm chemical agent	0200	00=no alarm, 01.99=warning, no. of programs after low level, 02=stop	CD
34	02.01	Alarm chemical agent processes remaining	0	0-99	DE
34	03	Alarm rinse-aid	0125	00=no alarm, 01.99=warning, no. of programs after low level, 02=stop	CD
34	03.01	Alarm rinse-aid processes remaining	25	0-99	CDE
34	04	Alarm, process agent	0110	00=no alarm, 01.99=warning, no. of programs after low level, 02=stop	CD
34	04.01	Alarm process agent processes remaining	10	0-99	CDE
34	05	Alarm spray agent	0110	00=no alarm, 01.99=warning, no. of programs after low level, 02=stop	CD
34	05.01	Alarm spray agent processes remaining	10	0-99	CDE
Lines 35-49: Disinfection					
35	-	Normal disinfection method	1	1=D-T, 2=C-T, 3=D-C-D, 4=C-K-D	CD
36	-	Reserve disinfection method	1	1=D-T, 2=C-T, 3=D-C-D, 4=C-K-D	CD
38	-	Lower disinfection temperature	91	80-95 ˚C	CD
39	-	Upper disinfection temperature	93	80-97 ˚C	CD
40	-	Disinfection temperature	85	80-95˚C	CD
41	-	Disinfection time	60	0-1800 seconds	CD
42	-	Max preheat time, steam generator	50	0-99 seconds	CD
43	-	Power sharing, steam generator	1	0=Not active, 1=Active	CD
44	1	Cooling method	1	0=None, 1=Internal, 2=External, 3=Extended	CDE
44	2	Global external cooling time	120	1-180 sec	CDE
44	3	Global extended cooling (after process)	120	0-180 sec	CDE
45	1	Handling auto-disinfection	0	0=None, 1=Warning, 2=Warning + autostart	CDE
45	2	Auto-disinfection starts from	8	Time 0-23	CDE
45	3	Auto-disinfection permitted until	20	Time 0-23	
46	-	Disinfection to A0	0	0, 60, 600	CDE
48	-	Dosage, chemical agent	70	0-99 seconds	CD
49	-	Chemical action time	0	0-600 seconds	CD

Line	Sub-line	Parameter	Basic setting	Setting range	Authorization
Lines no 50-57: Tank and water					
50	-	Tank level at rest	2	1=Empty tank, 2=Level B, 3= Level C	CD
51	-	Water type, filling at rest	1	1 = cold, 2 = hot, 3 = cold and hot	CD
52	-	Mix ratio	50	0-100 % cold water	CD
53	01	Type of rim flushing	1	0=None, 1=Internal	CD
54	-	Addition of softened water	0	0=none, 1=internal	CD
55	-	Time for soft water	5	0-99 seconds	CD
56	-	Flushing time cooling	0	0.0-99.9 seconds replaces line 45 in Eprom ver. 1.21	CD
57	01	Flushing time in the instruction “Pulsed flushing to level”	1.5	0.0-99.9 seconds	CD
57	02	Pause time in indication “Pulsed flushing to level”	1.0	0.0-99.9 seconds	CD
57	03	Pulses in the instruction “Pulsed flushing to level”	5	0.0-99.9 seconds	CD
Lines 60-63: Fault statistics					
60	-	Time of fault		0-9999 seconds	-
61	-	Instruction for last fault		0=not in flushing program, 1-999=program line	-
62	-	Counter, total number of faults		0-9999	-
63	01	Counter for fault code F1		0-99 faults	CD
63	nn	Counter for fault codes Fnn		0-99 faults	CD
Lines 70-74: Program statistics					
70	-	Max disinfection temperature		80-99 ˚C	-
71	-	Program time, last process		0-9999 seconds	-
72	-	Program time, total		0-99999 seconds	-
73	-	Counter for number of processes		0-99999	-
74	01	Counter, program 1		0-9999	CD
74	nn	Counter, program nn		0-9999	CD
Line 80: Function test					
80	-	Display test		1=activate LEDs and display	CD
81	01	Read input 1 (max 12)		0=off, 1=on	-
81	nn	Read input nn		0=off, 1=on	-
82	01	Control, outputs 1 (max. 16)		0 = off, 1 = on	CD
82	nn	Modulation output. nn		0=off, 1=on	CD
83	01	Read temperature C/F		0-250 ˚C/32-302 ˚F	-
83	02	Reading temperature C/F independent		0-250 ˚C/32-302 ˚F	-
85	-	Save config. in flash			
86	-	Load config. from flash			
87	-	Calibrate AD			
88	-	Calibrate independent AD			

Line	Sub-line	Parameter	Basic setting	Setting range	Authorization
Row 96: Activation inputs					
96	01	Activation, level A	1	0=input not active, 1=input active	CD
96	02	Activation, level B	1	0=input not active, 1=input active	CD
96	03	Activation, level C	1	0=input not active, 1=input active	CD
96	04	Activation, descaler, low level	1	0=input not active, 1=input active	CD
96	05	Activation descaler empty	0	0=input not active, 1=input active	CD
96	06	Activation chemical agent low level	0	0=input not active, 1=input active	CD
96	07	Activation chemical agent empty	0	0=input not active, 1=input active	CD
96	08	Activation rinse-aid low level	0	0=input not active, 1=input active	CD
96	09	Activation rinse-aid empty	0	0=input not active, 1=input active	CD
96	10	Activation, process agent, low level	0	0=input not active, 1=input active	CD
96	11	Activation, process agent, empty	0	0=input not active, 1=input active	CD
96	12	Activation spray agent low level	0	0=input not active, 1=input active	CD
96	13	Activation spray agent empty	0	0=input not active, 1=input active	CD
96	14	Activation, leakage sensor	1	0=input not active, 1=input active	CD
96	15	Activation, door closed	1	0=input not active, 1=input active	CD
96	16	Activation, door closed	1	0=input not active, 1=input active	CD
96	17	Door open (FD1810)	1	0=input not active, 1=input active	CDE
96	20	Safety switch door closing (FD1810)	1	0=input not active, 1=input active	CDE
96	21	Pedal (FD1810)	0	0=input not active, 1=input active	CDE
Line 97: Activation outputs					
97	01	Activation, pressure pump	1	0=input not active, 1=input active	CD
97	02	Activation, steam generator	1	0=input not active, 1=input active	CD
97	03	Activation, cold water	1	0=input not active, 1=input active	CD
97	04	Activation, hot water	1	0=input not active, 1=input active	CD
97	05	Activation, soft water	0	0=input not active, 1=input active	CD
97	06	PE system (rotary nozzle)	0	0=input not active, 1=input active	CDE
97	07	SP system (spray nozzle)	0	0=input not active, 1=input active	CDE
97	08	Extra nozzle	0	0=input not active, 1=input active	CDE
97	10	Activation, pump, descaling	1	0=input not active, 1=input active	CD
97	11	Activation pump chemical agent	0	0=input not active, 1=input active	CD
97	12	Activation pump rinse-aid	0	0=input not active, 1=input active	CD
97	13	Activation, pump, process agent	0	0=input not active, 1=input active	CD
97	14	Activation pump spray agent	0	0=input not active, 1=input active	CD
97	15	Activation, extra element, steam generator	1	0=input not active, 1=input active	CD
97	16	Activation, condensate cooler	0	0=input not active, 1=input active	CD
97	17	Activation, external cooling.	0	0=input not active, 1=input active	CD
97	23	Activation relay corresp. to yellow LED	0	0=input not active, 1=input active	CD
97	24	Activation relay corresp. to red LED	0	0=input not active, 1=input active	CD
97	25	Rim flushing	0	0=input not active, 1=input active	CDE

Line	Sub-line	Parameter	Basic setting	Setting range	Authorization
Line 98: Input connections					
98	01	Connection, level A	1	1-99	DE
98	02	Connection, level B	2	1-99	DE
98	03	Connection, level C	3	1-99	DE
98	04	Conn., descaler, low level	5	1-99	DE
98	05	Conn., descaler, empty	15	1-99	DE
98	06	Connection chemical agent low level	5	1-99	DE
98	07	Connection chemical agent empty	16	1-99	DE
98	08	Connection rinse-aid low level	6	1-99	DE
98	09	Connection rinse-aid empty	16	1-99	DE
98	10	Conn., process agent, low level	7	1-99	DE
98	11	Connection process agent empty	16	1-99	DE
98	12	Conn., spray agent, low level	8	1-99	DE
98	13	Connection spray agent empty	16	1-99	DE
98	14	Conn., leakage sensor	4	1-99	DE
98	16	Conn., door closed	11	1-99	DE
98	17	Connection, door open	12	1-99	DE
98	20	Safety switch door closing (FD1810)	13	1-99	DE
98	21	Pedal (FD1810)	14	1-99	DE
Line 99: Output connections					
99	01	Conn., pressure pump	6	1-99	DE
99	02	Conn., steam generator	7	1-99	DE
99	03	Conn., cold water	1	1-99	DE
99	04	Conn., hot water	2	1-99	DE
99	05	Connection soft water	8	1-99	DE
99	06	PE system (rotary nozzle)	14	1-99	DE
99	07	SP system (spray nozzle)	13	1-99	DE
99	08	Extra nozzle	15	1-99	DE
99	10	Connection pump, descaler	8	1-99	DE
99	11	Connection pump chemical agent	7	1-99	DE
99	12	Connection pump rinse-aid	5	1-99	DE
99	13	Connection pump, process agent	10	1-99	DE
99	14	Connection pump spray agent	9	1-99	DE
99	15	Connection, extra element, steam generator	12	1-99	DE
99	16	Connection, condensate cooler	3	1-99	DE
99	17	Connection, external cooling	4	1-99	DE
99	23	Connection relay corresp. to yellow LED	3	1-99	DE
99	24	Connection relay corresp. to red LED	4	1-99	DE

The service program

NOTE:
You must enter your authorization code before you can change anything in the programming; see under Authorization code.
If the reading is flashing it can be changed. If it is not flashing, either it cannot be changed or you do not have the authority to change it.

Accessing the service program

First press and hold . Then press and keep pressing both buttons for 10 seconds. The machine is now in service mode and line numbers ! appear on the display. Note that the correct authorization code must be entered before you can change the values displayed (see under “Authorization code”).


Enter the service program (keep both buttons pressed for 10 seconds).


Quit the service program (keep both buttons pressed for 4 seconds).
You must be in line number mode to quit the service program.


Increase line number or numerical value. For fast feed, hold the button down.


Decrease line number or numerical value. For fast feed, hold the button down.


Cancel entry without saving the new value.


Jump back to the previous display window reading.

Go to sub-line /go to numerical value/save numerical value/go to next numerical value.

Operator password (line number 0)

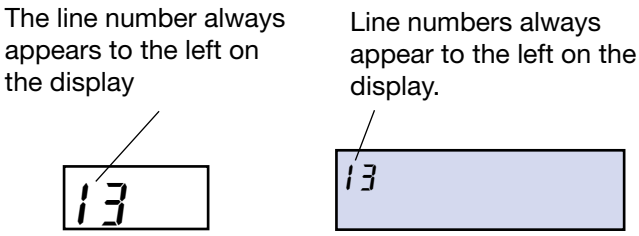
The machine has four authorization levels:

- Level A for users; display only (code 0000)
- Level B for users; change (code 2000)
- Level C for service personnel, change
- Level D for service personnel, critical settings.

The code only protects against changes.
The authorization code (password) is on line 0 and is entered in the same way as other numerical values, as described in the next section.

Check or change a numerical value on a line without a sub-line number

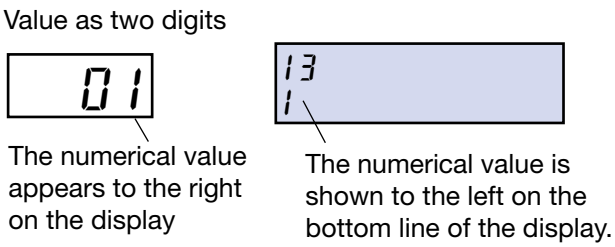
- Press  (increase line number) or  (reduce line number) so the display shows the right line number. Holding down the button scrolls the value up or down for as long as the button is pressed.



- Press:  . The numerical value for the line number is shown. The value flashes if you are authorized to change it.

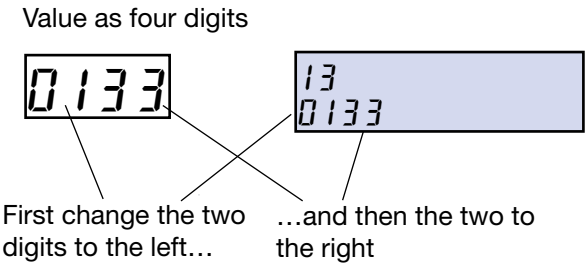
- To change the numerical value:

- If you want to change the value, press  (increase) or  (reduce) until the correct value is shown. Press  to store the new value in the memory of the computer.



- If the value has four digits, the two digits on the left flash first.

Change them and press  . The two digits on the right now flash and can be changed in the same way.



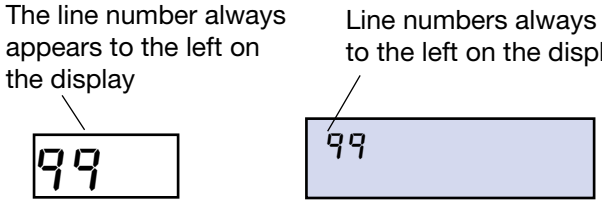
- When finished, press  once more to show the line number again.

- You can also just check the numerical value without changing it:

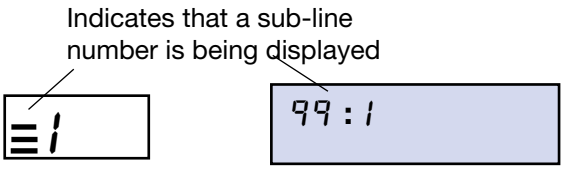
- When you are finished, press  . This brings you back to the line number.

Check or change a numerical value on a line with a sub-line number

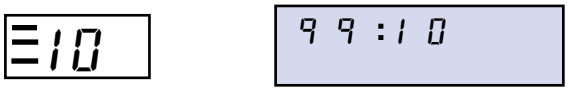
- Press  (increase line number) or  (reduce line number) so the display shows the correct line number. Holding down the button scrolls the value up or down for as long as the button is pressed.



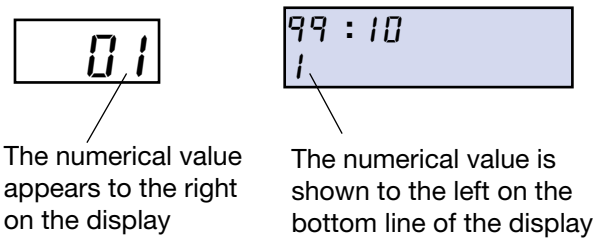
- Press INTENSr. Now the first sub-line number is shown. The three horizontal lines to the left of the number show that it is a sub-line number.



- If necessary, press  (increase line number) to reach the correct sub-line number.



- Press:  . Now the numerical value of the sub-line number is shown. The value flashes if you are authorized to change it.

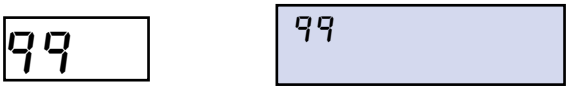


- Now you can change the numerical value:
- If you want to change the value, press  (increase) or  (reduce) until the correct value is shown. Press  to store the new value in the memory of the computer.
- When you have finished, press  once more to display the sub-line number again.
- When you want to quit the sub-line numbers:
- Press  . This returns you to the line number.
- Now you can continue to check or change further numerical values.

Quitting the service program

If there is a value on the display, press  to return to the line number.

Press  and  at the same time and hold for 4 seconds.



Machine-independent variables, lines 00-09

Authorization code

Line 0 Authorization level: ABCD

The machine has four authorization levels:

- Level A for users; display only (code 0000)
- Level B for users; change (code 2000)
- Level C for service personnel, change
- Level D for service personnel, critical settings.

Note: You can always view all level A program lines without the authorization code for other levels. The code only protects the programming from unauthorized changes.

Checking and retrieving settings

Line 1 Authorization level: CD

Used to retrieve entire sets of settings (all line numbers) and to check which set is being used. The following sets are available:

1 = Retrieve default settings

2 = Retrieve factory settings (the settings that were programmed before delivery)

3 = Use working setting

If a variable is changed after delivery of the machine, the value is automatically changed from 02 to 03.

Machine type

Line 2

Shows the machine type to which the program applies.

1000 = Low spec (SP1000)

2000 = High spec (Getinge 2000)

This value cannot be changed.

Program version

Line 3, sub-lines 01-04

Shows the program version of the chips on the computer board.

The various sub-lines show:

01 = main version

02 = sub-version

03 = test version

04 = protocol version

These values cannot be changed.

Consecutive number

Line 4

Shows the serial number of the machine.

This value cannot be changed.

Language.

Line 5 Authorization level: CD

Shows which language appears on the display when the machine is running. The following languages are available:

01 = German
02 = Swedish
03 = English
04 = French
05 = Italian
06 = Dutch
07 = Danish
08 = Hungarian
09 = Spanish
10 = Czech
11 = Polish
12 = Finnish
13 = Estonian
14 = Icelandic
15 = Latvian
16 = Lithuanian
17 = Norwegian
18 = Portuguese
19 = Slovak
20 = Slovene
21 = Russian
22 = Greek
23 = Bulgarian
24 = Rumanian

Date

Line 6, sub-lines 01-03 Authorization level: BCD

View and edit year, month and day.
The three sub-lines show:
01 = year
02 = month
03 = day

Time

Line 7, sub-lines 01-02 Authorization level: BCD

View and edit hours and minutes.
The two sub-lines show:
01 = hours
02 = minutes

<Doc_TEC><Doc_503712400><Rel_B><Lang_EN>

Dosing method

Line 13:1 Authorization level: BCD

With the function in Manual mode:

You must press  before starting the program to ensure that cleaning agent is added during the program.

With the function in Automatic mode:

Detergent is added automatically during each program. Press  if you do not want to add detergent during the program.

1 = Manual
2 = Automatic

Sound on door closing

Line 14:1 Authorization level: CD

When this function is activated, a signal is heard when the door is being closed. The signal may be short (50 ms) or long (100 ms).

00 = no signal
01 = Signal 50 ms
02 = Signal 100 ms

Door type

Line 14:2 Authorization level: CD

Changeover between manual, automatic door (option) and IR sensor (option)

1 = Manual
2 = Automatic (option)
3 = IR sensor interval (option)

Acoustic alarm

Line 15 Authorization level: CD

When this function is activated, a signal sounds at the end of the program and when a fault that causes a fault message on the display occurs.

00 = no signal
01 = signal

Feedback

Line 16 Authorization level: DE

The feedback function is activated and adjusted.

01 = Activation of feedback
02 = Interval for feedback

Temperature scale

Line 17 Authorization level: CD

Selecting °C or °F. The display shows temperatures in the selected unit.

1 = °Celsius
2 = °Fahrenheit

Mains frequency

Line 19 Authorization level: CD

Adaptation to the frequency of the electricity supply network.
1 = 50 Hz
2 = 60 Hz

Pump starting time

Line 20 Authorization level: CD

Setting always 0.0

Temperature indication (red LED)

Line 21 Authorization level: CD

Choose between two functions for the red LED on the panel:
01 = The LED is lit if the disinfection temperature has not been reached during the program.
02 = The LED is lit during heating and the disinfection temperature has not been reached.

Temperature, condensate cooling

Line 22 Authorization level: CD

Temperature above which condensate cooling must be activated.
0 - 99 in steps of 1 °C. Default value: 60 °C.
32 - 210 °F in steps of 1 °F. Default value: 140 °F.

Time to crack open

Line 23 Authorization level: CD

Time of activation of “door release” so that the door cracks open for 0-9.9 seconds.

Waiting time cracked open

Line 24 Authorization level: CD

Time for which the door must stay cracked open with a cracked-open time of 0-1800 seconds.

Run flushing program

Line 28 Authorization level: CD

Specifies which flushing program is to be called if the value of the parameter “flushing program” in the flushing program instruction “Run flushing program” is 20.
0-20

Set flushing program

Line 29 Authority level: CDE

Sets which flushing programs are available on the respective buttons.
1-3

Program selection and program name

Line number 30, Sub-line numbers 11 - 62 Authorization level: CD

Function for determining which program is to be linked to the program selection buttons. In the standard version, the following six programs, among others, may be linked to any chosen button:

The numbers of the programs are as follows. They can be linked to the various buttons:

P1 Economy program for lightly soiled items.
P2 Normal program for normally soiled items.
P3 Intensive program for heavily soiled goods.
P4 Normal program with detergent dosing (option).
P5 Intensive program with detergent dosing (option).
P6 Normal program with detergent dosing in tank and/or spray dosing in the chamber (option).
P7 Intensive program with detergent dosing and/or spray dosing in the chamber (option).
P8 Rim flushing program.
P10 Extra intensive program to meet the requirements of HTM 2030 (option).
P11 Extra intensive program with detergent dosing in tank, to meet the requirements of HTM 2030 (option).
P12 Extra intensive program with detergent dosing in tank and/or spray dosing in the chamber, to meet the requirements of HTM 2030 (option).
P14 Extra Extra intensive program to meet the requirements of Koller W and HTM 2030.
P15 Extra Extra intensive program with detergent dosing in tank or pump, to meet the requirements of Koller W and HTM 2030 (option).
P16 Extra Extra intensive program with detergent dosing in tank and/or spray dosing in the chamber, to meet the requirements of Koller W and HTM 2030 (option).
P18 Cooling phase with combined rinse-aid and descaler dosing in tank (option).
P19 Cooling phase with rinse-aid dosing in pump (option).
P20 Cooling phase with rinse-aid dosing in tank.

These are the standard programs that come with the machine. Many more special programs for different requirements and environments are available.

As standard, you can choose from the following program names for the buttons:

Economy program
Normal program
Intensive program:
Normal + process agent
Intensive + process agent
Rim flushing

Contact Getinge Disinfection for further information about these programs. Each sub-line number corresponds to a button or a combination of buttons. Choose programs and program names for the buttons, based on the equipment of the machine.
The sub-line numbers are as follows:

11 = Program selection button  (normally programmed 1. Economy program here).

12 = Program name button  .

21 = Program selection button  (normally programmed 2. Normal program here).

22 = Program name button  .

31 = Program selection buttons  and  pressed simultaneously (normally programmed 4. Normal program + process agent here).

32 = Program name buttons  and  pressed together.

41 = Program selection button  (normally programmed 3. Intensive program here).

42 = Program selection button  .

51 = Program selection buttons  and  pressed together (normally programmed 5. Intensive program + process agent here).

52 = Program name buttons  and  pressed together.

61 = Program selection buttons  (normally programmed 8. Rim flushing here).

62 = Program name button  .

71 = Program selection for pedal
72 = Name the program for the pedal
81 = Program selection for pedal + button 5
82 = Program name for pedal + button 5
91 = Program selection IR
92 = Program name IR
101 = Program selection IR + button 5
102 = Program name IR + button 5
150 = IR function

<Doc_TEC><Doc_503712400><Rel_B><Lang_EN>

Interval disinfection, line 31

Interval disinfection active

Line 31, sub-line 01 Authorization level: CD

Here you can activate or deactivate the interval disinfection function.

00 = Not active

01 = Active

Interval disinfection programs

Line 31, sub-line 02 Authorization level: CD

Choose the program to be run on interval disinfection. The programs, which are described in detail under “Program selection”, have the following numerical values:

00 = No program

01 = Economy program

02 = Normal program

03 = Intensive program

04 = Normal program + dosing

05 = Intensive program + dosing

Limit for interval disinfection

Line 31, sub-line 03 Authorization level: CD

Set the number of programs performed between interval disinfections.

0 - 9999 in steps of one.

Processes remaining to interval disinfection

Line 31, sub-line 04

Number of programs to the next interval disinfection. The value cannot be changed but it can be reset; see line 31, sub-line 05.

Reset interval disinfection

Line 31, sub-line 05 Authorization level: BCD

Zeroing of the counter of number of processes remaining to interval disinfection; see line 31, sub-line 04.

See line 31, sub-line 04

00 = reset counter

Inspection request, line 32

This function is used to get a continuous maintenance service of the machine. When the function is active, a message stating that an inspection is due appears on the display after a certain number of hours or program runs.

Processing of inspection requests

Line 32, sub-line 01 Authorization level: CD

The function can be enabled or disabled in two ways:

00 = Function disabled

01 = A warning message appears on the display when an inspection is due. The machine can be run.

02 = A warning message appears on the display when an inspection is due. The machine cannot be run.

Acknowledgement of inspection requests

Line 32, Sub-line 02 Authorization level: CD

Used by service technicians to remove the warning message and to zero the inspection request counter. After this, the fault message must be acknowledged.

00 = acknowledgement of inspection requests.

Counter type for inspection requests

Line 32, sub-line 03 Authorization level: CD

The intervals between inspections can be defined in two ways:

01 = counts the time for which the machine has been connected to the power supply, regardless of whether or not the machine has been working.

02 = Counts the number of programs run.

Limit for inspection requests

Line 32, sub-line 04 Authorization level: CD

Set the number of hours/programs run between inspection requests.

0 - 9999 in steps of one.

Counter for inspection request

Line 32, sub-line 05

Number of hours/programs to the next inspection request. This value cannot be changed. It is set to zero when an inspection request is acknowledged; see line number 32, sub-line number 02.

Dosage, line 33

Line 33, sub-lines 01 - 04 Authorization level: BCD

Here you can set the dosing time for the various agents used during a process. The various sub-lines correspond to the following agents:

Sub-line 01
Dosing time, descaler.
0 - 99 seconds in one-second steps.

Sub-line 02
Dosing time, rinse-aid.
0 - 99 seconds in one-second steps.

Sub-line 03
Dosing time for process agent.
0 - 99 seconds in one-second steps.

Sub-line 04
Dosing time, spray agent.
0 – 9.9 seconds in 0.1-second steps.

Empty container alarm, line 34

Line 34, sub-lines 01 - 05 Authorization level: CD

Here you can specify how the empty container alarms from the various containers are managed.

The value consists of two or four digits:

00 = No alarm

0199 = 01 = an alarm must be given. The last two digits, 00 - 99, specify the number of processes than can still be run after the warning.

02 = A fault alarm must be given. The machine cannot run until the alarm has been acted on.

The various sub-lines correspond to the following agents:

01 = Alarm for descaler.
01.01 = Alarm for descaler processes remaining.

02 = Alarm for chemical agent.
02.01 = Alarm for chemical agent processes remaining.

03 = Alarm for rinse-aid.
03.01 = Alarm for rinse-aid processes remaining.

04 = Alarm for process agent.
04.01 = Alarm for process agent remaining

05 = Alarm for spray agent.
05.01 = Alarm for spray agent processes remaining.

Disinfection, lines 35 - 49

Normal disinfection method

Line 35 Authorization level: CD

There is a choice of four disinfection methods:

01 = D-T-D, Decentral-Thermal-Disinfection
02 = C-T-D, Central-Thermal-Disinfection
03 = D-C-D, Decentral-Chemical-Disinfection)

Standby disinfection method

Line 36 Authorization level: CD

There is a choice of four disinfection methods:
01 = D-T-D, Decentral-Thermal-Disinfection
02 = C-T-D, Central-Thermal-Disinfection
03 = D-C-D, Decentral-Chemical-Disinfection)

Lower disinfection temperature

Line 38 Authorization level: CD

The heating is switched on at this temperature.

Upper disinfection temperature

Line 39 Authorization level: CD

The heating switches off at this temperature. The upper disinfection temperature must be 2 degrees above the lower disinfection temperature and above the disinfection temperature.

Disinfection temperature

Line 40 Authorization level: CD

When this temperature is reached, the disinfection time in line 41 starts to count down.

Disinfection time

Line 41 Authorization level: CD

Time for thermal disinfection.
0 - 1800 seconds in one-second steps.

Max preheating time

Line 42 Authorization level: CD

Maximum time for preheating of the steam generator.
0 - 99 seconds in one-second steps.

Power sharing, steam generator

Line 43 Authorization level: CD

The steam generator has three elements. When this function is active, only two elements are switched on when the water pump is on. This only applies to single-phase machines.
00 = Not active
01 = Active

Cooling method

Line 44 Authority level: CDE

Choose a method for cooling the washed items after disinfection.
00 = Cooling method
01 = Global external cooling time
02 = Global extended external cooling time (after process)

<Doc_TEC><Doc_503712400><Rel_B><Lang_EN>

Handling auto-disinfection

Line 45 Authority level: CDE

This selection determines how auto-disinfection is handled.
01 = Selection of how to handle auto-disinfection
02 = What is the earliest time that auto-disinfection should begin
03 = What is the latest time that auto-disinfection should begin

Dosage, chemical agent

Line 48 Authorization level: CD

The chemical agent is a substance that is dosed into the tank in the final phase of the program. Here you can specify the time for which the dosing will run.
0 - 99 seconds in one-second steps.

Chemical action time

Line 49 Authorization level: CD

Here you can specify the time for which the chemical agent will act without it being possible to remove the goods from the machine. The door is kept locked for the set time.
0 - 600 seconds in one-second steps.

Tank and water, lines 50 - 55

Tank level at rest

Line 50 Authorization level: CD

Specify the level to which the tank must be refilled when the program is complete.
01 = low level (empty)
02 = intermediate level
03 = high level

Water level, filling at rest

Line 51 Authorization level: CD

Specify the type of water to fill the tank with when the process is finished.
The value consists of two digits:
01 = Cold water
02 = Hot water
03 = 03 means that both hot and cold water must be used (for mix ratio see line 52).

Mix ratio, water

Line 52 Authorization level: CD

Specifies the proportion of hot water as a percentage, where 100 = hot water only.

Type of rim flushing

Line 53:01 Authorization level: CD

Specify whether rim flushing will take place.
00 = No rim flushing
01 = Rim flushing in the machine

Addition of softened water

Line 54 Authorization level: CD

Specify whether soft water is to be added and if so where. The time for which the water will be added is specified at line 55.
00 = No soft water is to be added.
01 = Soft water is to be added in the tank.
02 = Soft water is to be added in the steam generator.

Time for soft water

Line 55 Authorization level: CD

Length of time for which soft water is to be added if the answer to line 54 was 01 or 02.
00 - 99 seconds in one-second steps.

Flushing time, cooling (internal)

Line 56 Authorization level: CD

The cooling phase flushes for 4 seconds. If more cooling is required, the time can be extended by 0.0 – 99.9 seconds.

Pump time (flushing time) in the instruction “Pulse flushing to level”

Line 57, sub-line 01 Authorization level: CD

0.0 - 9.9 seconds in 0.1-second steps.

Pause time in the instruction “Pulse flushing to level”

Line 57, sub-line 02 Authorization level: CD

0.0 - 9.9 seconds in 0.1-second steps.

Pulses in the instruction “Pulse flushing to level”

Line 57, sub-line 03 Authorization level: CD

0.0 - 9.9 seconds in 0.1-second steps.

GETINGE

GETINGE GROUP

Fault statistics, lines 60 - 63

Time of fault

Line 60

Shows the number of seconds for which the program had been running when the fault occurred.

00 - 9999 seconds

This value cannot be changed.

Instruction for last fault

Line 61

Show the program line in the relevant program where the fault occurred.

00 = Fault not in the program

01 - 9999 = Program line

This value cannot be changed.

Counter, total number of faults

Line 62

Counter for the total number of faults since the machine was installed.

00 - 9999

This value cannot be changed or zeroed.

Counters, fault codes F1 - F13

Line number 63, Sub-line numbers 01 - 13 Authorization code: CD

Each fault code has its own counter with the same sub-line number as the fault code.

Fault code	Meaning
F1	Temperature sensor fault
F2	Level sensor fault, tank
F3	Level sensor fault, detergent
F4	Door logic error
F5	Logic error, machine configuration
F6	Inspection request
F7	Disinfection temperature not reached
F8	Door open/unlocked during process
F9	Setting incorrect
F10	Could not reach/maintain requested tank level
F11	Leakage
F12	Door cannot be locked
F14	Running time, door
F18	Wrong machine type

The counters can be zeroed by pressing  .

Program statistics, lines 70 - 74

Max disinfection temperature

Line 70
Highest temperature reached in the last program that was run.
80 °C to 99 °C
This value cannot be changed.

Program time, last program

Line 71
Program time in for the last program to be run.
00 - 9999 seconds
This value cannot be changed.

Program time, total

Line 72
Total duration of all programs run since the machine was installed.
00 - 9999 hours
This value cannot be changed.

Counter for number of programs

Line 73
Total number of programs started since the machine was installed.
00 - 9999
This value cannot be changed.

Counters, program 1 - program nn

Line 74, Sub-lines 01 - nn Authorization code: CD
Each program has its own counter with the same sub-line number as the number of the program.

The counters can be zeroed by pressing  .

Function test, lines 80 - 83

Display test

Line 80 Authorization level: CD

Press ENTER. All LEDs light up and all segments on the display flash. The LEDs and the display return automatically normal after a short time.

Reading inputs 1 - 14

Line 81, sub-lines 00 - 14 Authorization level: CD

All digital inputs can be read. The sub-line number corresponds to the number of the input, as follows (connection: line 98, activation; line 96):

Input	Function
01	Low level, tank
02	Intermediate level, tank
03	High level, tank
04	Leakage sensor
05	Level, descaler/chemical agent
06	Rinse-aid
07	Level spraying agent
08	Level, process agent
11	Door closed
12	Door locked

00 = Input not active
01 = Input active

Control, outputs 1 - 12

Line 82, sub-lines 1 - 12 Authorization level: CD

Note:
For certain outputs to be activated, the door must be closed and locked.

All digital outputs can be controlled. The sub-line number corresponds to the number of the output, as follows (connection: line 99, activation: line 97):

Output	Function
01	Valve, cold water
02	Valve, hot water.
03	Valve condensate cooling/Yellow LED
04	External cooling/Red LED
05	Pump, rinse-aid
06	Main pump
07	Steam generator
08	Pump cooling/ Valve soft water
09	Spray pump
10	Pump, process agent
12	Third element
19	Door closing
20	Door opening

00 = Output not active
01 = Output active

Read temperature

Line 83
Read current temperature sensor value.
0 - 150 °C / 32 - 302 °F in one-degree steps.
This value cannot be changed.

Save config. in flash

Line 85
Saves the configuration in the flash memory.

Load config from flash

Line 86
Loads the configuration from the flash memory.

Calibrate with AD

Line 87
For calibration of temp sensor with AD converter.

Calibrate with independent AD

Line 88
For calibration of independent temp sensor with AD transformer.

Activation, inputs

Line number 96, Sub-line numbers 01 - 17 Authority level: CDE

This line number is used to tell the software which logical inputs are installed. Some sub-line numbers are not included. They are reserved for future use.

For each input, specify:

00 = input not installed

01 = input installed

The sub-line numbers correspond to the following inputs:

Sub-line No	Function
01	Activation, low level, tank
02	Activation intermediate level tank
03	Activation high level tank
04	Activation descaler, low level
05	Activation descaler empty
06	Activation chemical agent low level
07	Activation chemical agent empty
08	Activation rinse-aid low level
09	Activation rinse-aid empty
10	Activation, process agent, low level
11	Activation, process agent, empty
12	Activation spray agent low level
13	Activation spray agent empty
14	Activation, leakage sensor
15	Activation, door closed
16	Activation, door locked
17	Door open (FD1810)
20	Safety switch door closing (FD1810)
21	Pedal (FD1810)

Activation, outputs

Line 97, sub-lines 01 - 20 Authorization level: CD

This line number is used to tell the software which logical outputs are installed. Some sub-line numbers are not included. They are reserved for future use.

For each output, specify:

00 = output not installed

01 = output installed

The sub-line numbers correspond to the following outputs:

Sub-line No	Function
01	Activation, pressure pump
02	Activation, steam generator
03	Activation, cold water
04	Activation, hot water
05	Activation, soft water
09	Activation external rim flushing
10	Activation, pump, descaling
11	Activation pump chemical agent
12	Activation pump rinse-aid
13	Activation, pump, process agent
14	Activation pump spray agent
15	Activation, extra element, steam generator
16	Activation, condensate cooler
17	Activation, external cooling.
20	Activation door lock
23	Activation relay corresp. to yellow LED
24	Activation relay corresp. to red LED
25	Rim flushing

Input connections

Line 98, sub-lines 01 - 17 Authorization level: D

This line number is used to tell the software which physical inputs are connected to each logical input. Some sub-line numbers are not included. They are reserved for future use. The sub-line numbers correspond to the following logical inputs: The “Physical inputs” column shows the default connection:

Sub-line No	Function	Physical input
01	Conn., low level, tank	1
02	Conn. intermediate level tank	2
03	Conn., high level, tank	3
04	Conn., descaler, low level	5
05	Connection descaler empty	16
06	Connection chemical agent low level	5
07	Connection chemical agent empty	16
08	Connection rinse-aid low level	6
09	Connection rinse-aid empty	16
10	Conn., process agent, low level	7
11	Connection process agent empty	16
12	Conn., spray agent, low level	8
13	Connection spray agent empty	16
14	Conn., leakage sensor, waste outlet	4
15	Conn., door closed	11
20	Safety switch door closing (FD1810)	13
21	Pedal (FD1810)	14

Output connections

Line 99, sub-lines 01 - 20 Authorization level: D

This line number is used to tell the software which physical outputs are connected to each logical output.

The sub-line numbers correspond to the following logical outputs: The “Physical output” column shows the connections set at the factory:

Sub-line No	Function	Physical output
01	Conn., pressure pump	6
02	Conn., steam generator	7
03	Conn., cold water	1
04	Conn., hot water	2
05	Conn., soft water	8
06	PE system (rotary nozzle)	14
07	SP system (spray nozzle)	13
08	Extra nozzle	15
10	Connection pump, descaler	8
11	Connection pump chemical agent	7
12	Connection pump rinse-aid	5
13	Connection pump, process agent	10
14	Connection pump spray agent	9
15	Connection, extra element, steam generator	12
16	Connection, condensate cooler	3
17	Connection, external cooling	4
23	Connection relay corresp. to yellow LED	3
24	Connection relay corresp. to red LED	4

Fault indications

Fault message

For certain faults in the process, information about the cause of the fault is given on the display on the front panel. The fault messages must be acknowledged when the fault has been put right. For further information see under “Acknowledging a fault message.”
The following fault messages may appear:

Fault codes (must be acknowledged):

Fault code	Meaning
F1	Temperature sensor fault
F2	Level sensor fault, tank
F3	Level sensor fault, detergent
F4	Door logic error
F5	Logic error, machine configuration
F6	Inspection request
F7	Disinfection temperature not reached
F8	Door open/unlocked during process
F9	Checksum error
F10	Could not reach/maintain requested tank level
F11	Leakage
F12	Door cannot be locked
F14	Running time, door
F18	Wrong machine type

Warning codes (acknowledgement not needed):

Warning	Meaning
U1	Descaler, low level
U2	Low level chemical agent
U3	Low level rinse-aid
U4	Process agent, low level
U5	Low level spray agent
U6	Inspection request
U7	Warning of high goods temperature
U8	External communication

Warning codes that require action before the machine is restarted:

Warning	Meaning
H6	Start attempt with door open
H7	Battery fault

Acknowledging a fault message

This must only be done by authorized personnel.

Some messages need to be acknowledged before the machine can be returned to run mode. When the cause of the fault has been found and the fault has been put right, the fault message is acknowledged as follows:

First press the  button, then the  button. Keep both buttons pressed at the same time for 10 seconds.

Resetting the machine

This must only be done by authorized personnel.

When resetting a machine,  ,  and  must be pressed at the same time for 20 seconds.

GETINGE

GETINGE GROUP

Table of faults and possible actions

This must only be done by authorized personnel.

The machine is connected to the electricity supply and some components are live

Error	Possible cause / Action
The display is black	Check the circuit breaker The electronics unit is not working.
The machine stops and the lamp at ⚠ O lights up. Fault code F7 displays.	Overheat cutout has tripped because: - the temperature sensor is set too high - the temperature sensor is not working - there is foaming agent in the steam generator - there is a blockage in the pipe to the steam generator. Elements in the steam generator are coated with limescale or are not working. The contactor which controls the steam generator is faulty (check the coil). Fault in the electronics unit
A yellow, green or red lamp does not light up.	The respective bulb has blown. Test the function by cutting the power and then turning it back on with the isolator switch. All lamps must light up and the buzzer must sound.
The machine does not clean the items.	Check filters and nozzles. Tank water filling is not working. The main pump is not working. The jet nozzle does not rotate.
The dosing pump is not delivering enough detergent.	The check valve on the steam generator is not working. The dosing pump is not working / hose needs replacing. Air leak

PREVENTIVE MAINTENANCE

The required maintenance intervals depend largely on the quality of the incoming water and how often the machine is used. The maintenance interval will have to be determined in each individual case. We recommend that the stated maintenance operations are done once or twice a year.

Periodic maintenance

This must only be done by authorized personnel.

The machine is connected to the electricity supply and some components are live.

	Activity / Component	Interval		
	Inspection / Replacement	**Every year**	**Every other year**	**Time required**
1	**General**			
1.1	Check the cabling and connection points (page 48)	•		10 min
1.2	Check whether the fan is functioning properly, and clean as needed (free-standing model) (page 49)	•		5 min
1.3	Check the adhesion and condition of the panel decal (page 49)	•		1 min
1.4	Check that the door lock and breaker are functioning properly (page 49)	•		10 min
2	**Dryer**			
2.1	Replace HEPA filter (page 49)	•		10 min
2.2	Check the function and connection for the fan (page 49)	•		5 min
2.3	Inspect the check valves in terms of their function and clean as needed (page 50)	•		10 min
2.4	Check the seal and attachment of hoses to the dryer (page 50)		•	15 min
3	**The chamber**			
3.1	Check the rotating nozzles in terms of their rotation and clean as necessary (page 50)	•		5-30 min
3.2	Check the fixed nozzles and clean as necessary (page 52)	•		5-30 min
3.3	Check for leakage in the nozzle attachments and the hose connections to the chamber (page 52)		•	15 min
3.4	Check the temperature sensors in terms for leakage and function. Calibrate as needed (page 52)	•		15 min
3.5	Check the door seal and chamber seal and clean as needed Change the seal as needed (page 53)	•		5 min
3.6	Check the mounting for the item holder and adjust as needed (page 53)	•		5 min
3.7	Check for leakage at the wide waste connection to the chamber (page 53)		•	5 min
3.8	Cleaning the flushing chamber internally (page 53)	•		15 min
3.9	Adjusting the door and door spring as necessary (page 53)		•	15 min

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	Activity / Component	Interval		
	Inspection / Replacement	**Every year**	**Every other year**	**Time required**
4	**Process tank**			
4.1	Clean as needed (page 54)		•	15 min
4.2	Check the level indicator function (page 54)		•	5 min
4.3	Check the function and any leakage in the valves. Clean as needed (page 54)		•	5 min
4.4	Check the hose connections with the tank for leakage and loose fittings (page 54)		•	5 min
4.5	Check the filter in the incoming media (page 54)		•	15 min
5	**Steam generator**			
5.1	Check the connections to the steam generator for leakage and make sure the covering insulation is intact and no hot surfaces are exposed (page 55)	•		5 min
5.2	Check the function of the steam generator (page 55)	•		10 min
5.3	Cleaning the steam generator as needed (page 55)	•		30 min
6	**Circulation pump**			
6.1	Check the mounting and connectors in terms of their function and leakage (page 57)		•	5 min
7	**Dosing system**			
7.1	Check the hoses between the dosing pump and the detergent holder for leakage. Replace as necessary (page 57)	•		5-20 min
7.2	Check the dosage amount. Adjust if necessary. (page 57)	•		15 min
7.3	Replacing a hose in the dosing pump (page 58)	•		10 min
7.4	Check the empty container alarm in terms of its function and any leakage. Clean or replace as necessary (page 58)	•		5 min
7.5	Check that the door to the dishwasher closes properly (option IPX4 (page 58)	•		5 min
8	**Drainage connection**			
8.1	Check the waste connection for leakage and their connections (page 59)	•		5 min
9	**Automatic door**			
9.1	Check of automatic door (page 59)	•		10 min
10	**Test run (at each service)**			
10.1	Run a complete process and be sure there are no deviations according to the periodic check points (page 59)			
10.2	Log temperatures during a process and check against the pre-set disinfection value (page 59)			
10.3	If needed, perform an appropriate cleaning test depending on the type of items and holder (page 59)			

The time required is estimated as an average and may vary depending on the installation settings, operating conditions and equipment level.

Function check

This must only be done by authorized personnel.

The machine is connected to the electricity supply and some components are live.

Instructions, cable, switch

- Check that a goods placing sign and quick help instructions have been put up on the wall behind the disinfector.
- Check that the isolator switch on the wall is working and that the connecting cable is undamaged and free from defects.

Filters and valves

All supply lines must be closed when working on the pipe system.

- Check that check valves and manual shutoff valves are working properly.
- Check the filters and the flow limiters in the supply line (see under Cleaning the filters). Clean if necessary.
- Check all pipe couplings. Tighten and seal if necessary.

Controls

Check the panel lights by:

- switching off the power with the isolator switch.
- and switching the power on again.

All the lamps on the panel must light up and the buzzer must sound.

1 General

1.1 Checking electrical cables and connection points

The purpose of checking the cabling and connection points is primarily to avoid personal injury as well as damage to the machine itself.

1. Check that the power cord to the electrical unit is intact, free of errors and installed as per the instructions.
2. Check that all cables are connected to the terminal block for the technical unit.
3. Check fuses.
   F03-C 13A (parts of the heavy-current components of the machine)
   Fuses on the machine except the steam generator
4. Check the connection points for the pump.
5. Check the connections on the steam generator
6. All cables should be connected to the unit.

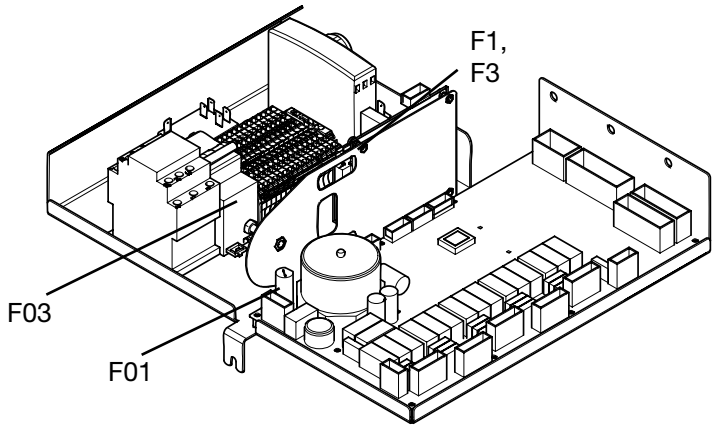
1.1.1. Check of fuses

This must only be done by authorized personnel.

The machine is connected to the electricity supply and some components are live.

The disinfector has the following 4 fuses

- F1400 mA T - This fuse is fit on the door closing board
- F3 200 mA T - This fuse is fit on the door closing board
- F01 - 500 mA T CPU - Relay board
- F03 - 2-poled automatic fuse C13 A, which protects parts of the heavy-current components of the machine



Check the fuses as follows:

- Switch off the isolator switch of the machine.
- Pull out the panel and remove the cover.
- Switch on the isolator switch of the machine.
- Check

- that voltage is present and is within tolerance and that the fuses are OK.
- If there is no voltage or if the voltage is outside tolerance, go to the next step.

- The fault is in the power supply to the machine, e.g., fuse F01 or F03.

1.2 Checking the ventilation fan

The purpose of checking the ventilation fans is to avoid excessively high temperatures developing in components during operation.

1. Check that the fan rotates and blows air.
2. Clean the fan blades if there is dirt on them.

Checking the fan is necessary because abnormal temperatures can occur during operation. If the fan does not work, the function of various components can be affected negatively.

1.3 Checking the panel decal

The purpose of checking the panel decal is so that the machine has the esthetically and hygienically correct appearance and that users select the correct functions.

1. Check that the panel decal is firmly in place in the right location and it is not torn or cracked.
2. Check that the symbols on the display are clear and legible.

1.4 Checking the door lock

The purpose of checking the door lock is to ensure that the door is locked during the process.

1. Check that the door lock and catch on the door are attached firmly.
2. Check the connections on the sensors and locking motor and make sure there is no damage.

Regularly checking the door lock prevents the machine from accidentally stopping. The control system is programmed to detect faults in the sensors or motors. The machine will issue an alarm in the event of an error. See the list of fault codes.

2 Ventilator

The following inspection points must be performed in order to ensure the process. Deviating from this puts not only the drying process at risk, but the cleanliness of the items can also be affected and electronic components can be damaged as a result of leaking steam (due to high temperature and humidity). Leaking steam can also lengthen the process time.

2.1 Replacing a HEPA filter

Not changing the filter poses the risk of the filter becoming clogged with impaired ventilation capacity as a result.

2.2 Check fans in terms of their function/connection.

If the fan doesn't work, the ventilation process will malfunction and leakage can cause problems in terms of the drying process losing capacity or even breaking down due to counter pressure in the drainage line.
The fans should be checked and cleaned as needed. The fan should be replaced as needed, e.g. after it breaks down or when a drop in performance is detected, seal/tighten leaking connections.

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2.3 Check the function of the check valves and clean as necessary.

The check valves are important not just for the ventilation process. In addition to reduced ventilation, leakage can also occur. Clean the contact surfaces and replace broken parts as needed.

2.4 Check hoses to ventilator for leakage/loose connections.

Cracked or leaking hoses and connections can result in impaired ventilation capacity or leakage.
Replace damaged hoses or tighten connections as needed.

3 The chamber

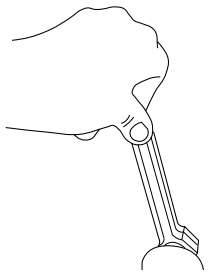
3.1 Checking rotating nozzles

This inspection is done to prevent a slower rotation speed on the nozzle or the nozzle becoming clogged with dirt, deposits and to ensure that the area between the nozzle and the chamber is tight.
Failure to check the nozzles can result in impaired cleaning. Install the blue nozzle head and clean it on the inside and outside. Check that the nozzle rotates freely without any friction. Mount the nozzle head back again.
Check that the nut that attaches the nozzle to the chamber wall is tight.

The nozzle must be removed for cleaning. This can be done in either of the following ways.

3.1.1. Unscrewing with fixed wrench

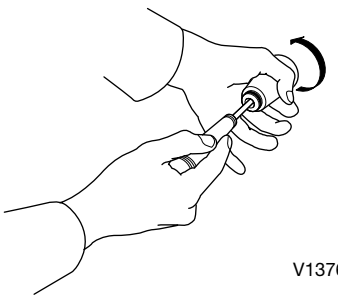
Use a fixed wrench (size 10 mm) to lock the nut between the nozzle and the rotating nozzle. Then unscrew the nozzle by hand. Clean the nozzle components mechanically and refit the nozzle.


V574

3.1.2 Unscrewing with a screwdriver

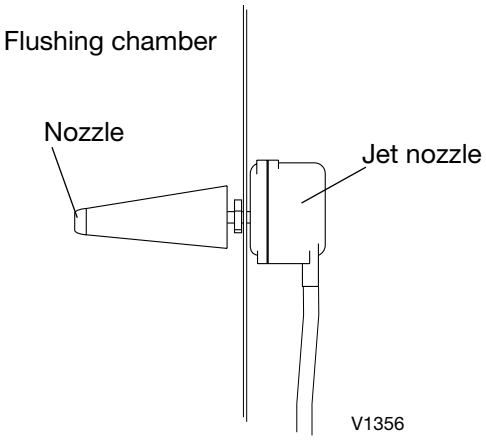
Hold the nozzle and unscrew the nozzle head. Then insert a screwdriver into the nozzle and position the blade in the slot. Holding the screwdriver firmly, unscrew the nozzle. Clean the nozzle components mechanically and refit the nozzle.


V1375

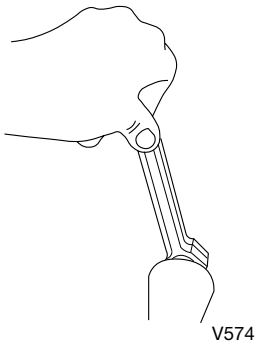

V1376

3.1.3. Replacing a jet nozzle

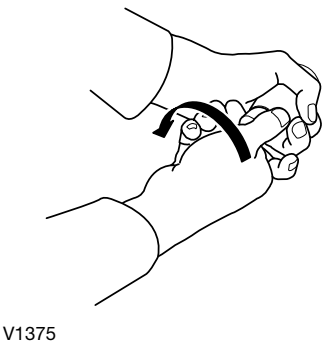
This must only be done by authorized personnel.

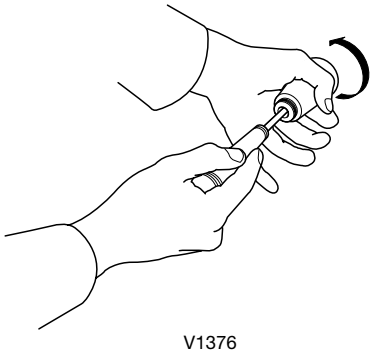


- **Alternative 1.** Use a fixed wrench (size 10 mm) to lock the nut between the nozzle and the rotating nozzle. Then unscrew the nozzle by hand.



- **Alternative 2.** Hold the nozzle and unscrew the nozzle head. Then insert a screwdriver into the nozzle and position the blade in the slot. Holding the screwdriver firmly, unscrew the nozzle.





- Take out the nozzle at the back of the chamber and disconnect the nozzle from the hose. The pump head can be removed to make this operation easier. Disconnect the hoses and the two fixing screws under the pump shelf. Move the pump forward and lift it out.
- After replacement/repair, refit in the reverse order.

3.2 Checking fixed nozzles

This is inspected to prevent the nozzle from becoming clogged with dirt and deposits, etc. Failure to perform the inspection can result in poor cleaning results.
Unscrew the nozzle from the chamber and clean it inside and out. Mount the nozzle back again.

3.3 Checking nozzle attachments and hose connections for the nozzles

This is done to minimize the risk of leakage from the chamber and from the hose system's connections to the nozzles at the back and on the side of the chamber. Failure to perform inspections can result in leakage.
Check that the nozzles are properly attached to the inside chamber wall. Tighten them if loose. Check that the hose connection at the back of the nozzle is sealed tight.

3.4 Checking temperature sensors

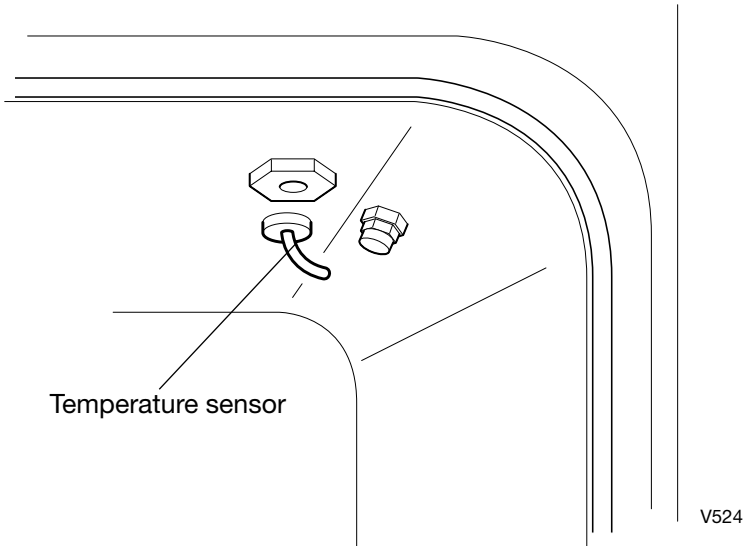
This inspection is performed to check that the temperature sensor is working (provides the correct temperature) and that the lead-in on the top of the chamber is tight. Failure to perform an inspection can result in poor cleaning results as well as leaking. To check for leaking, first run a process. Then remove the front and top of the machine. Pull off the front and lift off the top. Loosen the screw on the front edge of the unit and lift up the unit. Check that the surface around the lead-in for the temperature sensor is dry. Replace the lead-in if necessary. In order to check whether the temperature sensor needs to be calibrated, compare the temperature in an oil bath. The proper control temperature is 80-90 °C. If the temperature in the machine is incorrect, the temperature sensor must be recalibrated.

3.4.1 Replacing a temperature sensor

This must only be done by authorized personnel.

The machine is connected to the electricity supply and some components are live.

- Remove the old temperature sensor by pulling it out of the seal.
- Push the new sensor in through the seal.



3.5 Checking the door seal and chamber seal

The inspection is done to check the seal on the door (the seal at the bottom edge of the door) and the chamber seal (the seal that runs along the front edge of the chamber). Failure to perform this inspection can result in unwanted leakage of water and steam.

Start by checking to make sure both seals are intact and have not become loose from their tracks.
To check for water leakage, open the doors to the machine's detergent cabinet and then start a process. Check that there are no water drops leaking from the chamber during the process. In order to check for leaking steam, wait until the rinse cycle is over and the steam generator starts to work. Check that no steam pushes out through the seam between chamber and the door. Replace the seal(s) if needed.

3.6 Checking fastening points for item holder

This inspection is done to ensure that the 3 fastening points for the item holders on the inner door are tight. Failure to perform this inspection may result in the item holder moving around when the door is closed, resulting in the item not being cleaned as intended.
Check that all item holders that are used are properly attached at the fastening points. If the fastening points cannot be adjusted, the item holder can be adjusted by lightly twisting it. The item holder may become deformed if not handled carefully.

3.7 Checking the overflow connection

This inspection is done to ensure that no water is leaking out from the overflow connection. Since the overflow drain has a built-in function that warns if the chamber overflows, failure to perform the inspection can result in leakage during regular functioning and major leakage if the regular drain becomes clogged.
You must run a process in order to check the seal on the overflow drain. Use a flashlight to check the connection for leaking water.
If there is a leak, tighten the hose clamp or the clamp that holds the overflow drain line to the chamber and recheck for leakage during the process.

3.8 Internal cleaning of the chamber

This removes the coating that has formed in the chamber. If it is not removed, additional dirt and debris can quickly build up in the chamber. Use a descaler designed for washing machines to remove it. WARNING! Strong, concentrated descaling agents in the steam generator or steam boiler can be damaging for the machine.

3.9 Adjusting door and door springs

Check that the spring brakes the door so that is closes gently. Make sure that the door also closes properly. Check that the door does not fit too close to the sealing for the chamber at the upper edge when closing the door. This can result in unnecessary wear and tear on the chamber seal.

4 Process tank

4.1 Process tank

In order to maintain good hygiene and proper functioning, the process tank should be cleaned regularly.
If this is not done, there is an increased risk of bacterial growth in the tank, which can cause hygiene problems.
Clean the tank with a descaling agent designed for washing machines.

4.2 Checking level sensors

In order to maintain good hygiene and proper functioning, the level sensor should be checked and cleaned every other year.
If this is not done, there is an increased risk of a breakdown or false alarm.
Checking the function of the level sensor in the process tank
Check the level sensor by ensuring that the floats are not stuck but pass freely on the level sensor.

4.3 Checking intake valves

In order to ensure a proper supply of water, the valves at the water connection points should be inspected every other year.
If this is not done, the risk of leakage or the tank filling slowly increases, which can cause operational disturbances.
Check the valves on the water connector by removing and cleaning the flow limiter and filter. The outflow of the valve should be cleaned in order to prevent the shaft from breaking and causing water leakage.

4.4 Inspecting hoses

In order to maintain proper drying results and avoiding hot air from entering the machine, the hoses for the drying system should be inspected every other year.
If this is not done, there is an increased risk that the drying results may not be sufficient.
Inspect the hoses visually for cracks or leakage at the connection points.

4.5 Cleaning the filter in the supply line

The filters and flow limiters in the supply lines (hot water and cold water) should be checked regularly and cleaned if necessary.

5 Steam generator

5.1 Checking the steam generator

Check the connections for the steam generator for leakage and that the insulation is intact so that no hot surfaces are exposed.

5.2 Checking the function of the steam generator

5.3 Cleaning the steam generator

Cleaning the steam generator as needed

This must only be done by authorized personnel.

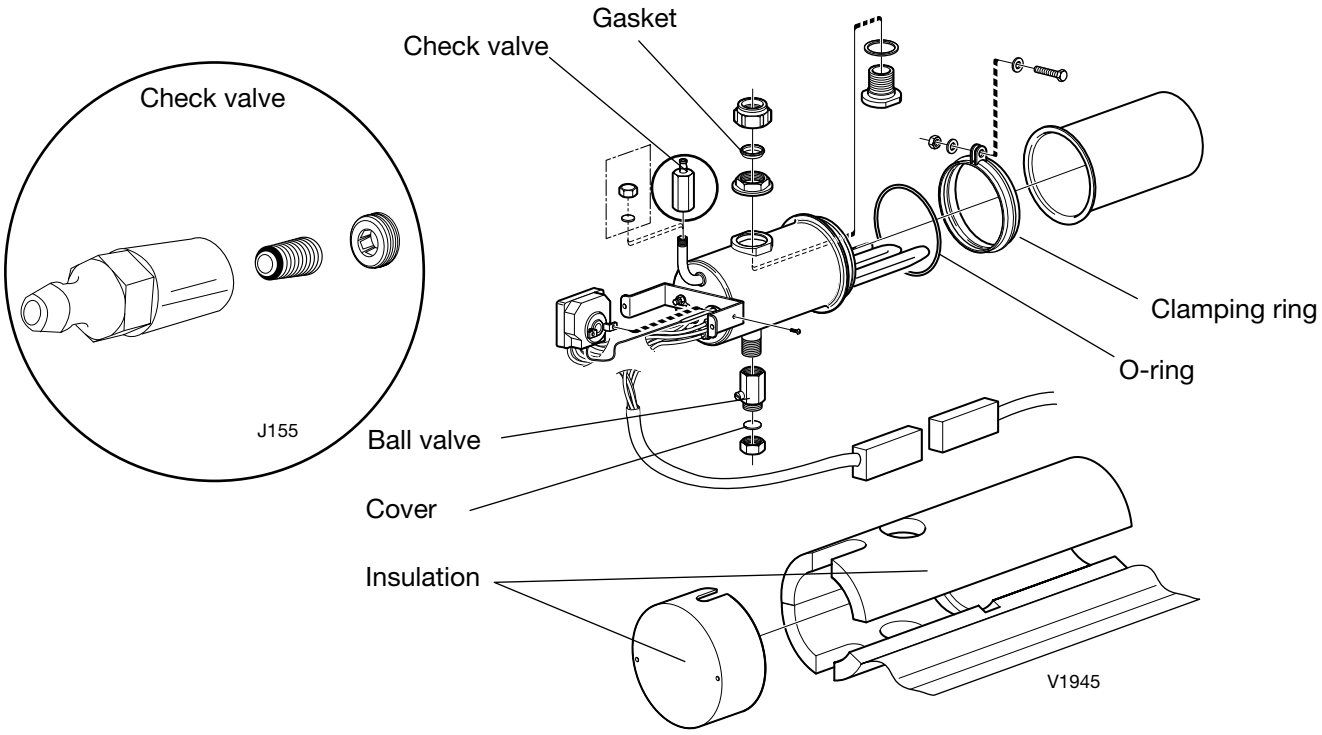
Make sure that the machine's power is switched off before starting work.

Hot water

If the water is hard (above about 6 dH) there is a risk of limescale deposits forming on the elements of the steam generator. The elements should be checked and cleaned once or twice a year. The overheat cutout is in the steam generator elements.

- Remove the cover below the ball valve. Empty the steam generator by opening the ball valve.
- Remove the hose and the check valve.
- Remove the entire steam generator from the pipe system of the machine. Before the steam generator can be opened, the insulation must be removed and then the clamping ring.
- Remove any limescale deposits on the elements with limescale remover or mechanically (take care, since the elements are welded to the end panel).
- Before re-assembling the steam generator, replace the O-ring between the halves of the tank. Then fit the clamping ring. Tighten carefully to avoid damaging the O-ring.
- Re-fit the insulation and secure it with adhesive tape.
- Fit the cover to the ball valve, making sure that the ball valve is closed.
- Install the steam generator on the pipe system. The gasket between the steam generator and the pipe system of the machine must be replaced.
- Refit the hose and non-return valve.
- If there is leakage from the check valve, dismantle the check valve and clean the sealing surfaces in the valve body and on the O-ring. On re-assembly, the locking screw must be screwed in until it bottoms in the valve body.

If the problems are severe, we recommend increasing the dosing amount (see under item "7.2 Checking the dosage amount" on page 57).



5.3.1 Overheat protection

This must only be done by authorized personnel.

The machine is connected to the electricity supply and some components are live.

The steam generator has an overheat cutout which trips if the temperature in the steam generator becomes too high. The overheat cutout is fit in the elements of the steam generator. If the element overheats, the power is cut to the element and fault code F7 appears because the disinfection temperature has not been achieved. When the fault code has been reset, the machine can be restarted. The steam generator is reset automatically. To make sure that the overheat cutout does not trip immediately, the steam generator should be allowed to cool down before a new process is started.

NOTE:
Before restarting the machine, always find out why the overheat cutout tripped.

The fuse may have tripped because the temperature sensor is faulty, because of incorrect operation, because of foaming additive or because the water supply is shut off or blocked.

6 Circulation pump

The main pump is a very important component for the machine to function. It has a direct impact on cleaning. If you suspect a problem or a reduction in function for this component, replace it immediately.

6.1 Checking the circulation pump

Check the mounting for the pump so that it is secure and not making any noises during operation. Check that the connections are tight and no water is leaking from the pump house. Dosing with strong chemicals can damage the O-rings in the pump, causing leakage. Careless handling of the pump during repairs can damage the ceramic shaft seal, resulting in leakage.

7 Dosing system

The dosing system is a very important part of the process and the following inspection points help ensure proper functioning. Defects can result in impaired cleaning or failure to clean and/or calcium deposits developing.

7.1 Checking the hoses between pumps and containers

Hoses can harden and become brittle depending on which chemicals are used. Replace the hoses regularly to avoid leaks.

7.2 Checking the dosage amount

Check the dosage amount to ensure that the correct amount is used according to the manufacturer's specifications. Adjust as necessary according to the instructions.

The detergent/descaler in the containers may be corrosive. Wear safety glasses and protective gloves.

- Pour 100 ml of detergent/descaler into a measuring glass and push the suction hose down into it. Check that the suction hose and pump are full of detergent/descaler. Run a program with dosing. Lift up the suction hose and check that the correct amount has been used and that detergent/descaler is not forced back when the pump stops. The amount used must conform to the manufacturer's recommendations.
- If dosing is incorrect on a machine with dosing via the steam generator, the back valve of the steam generator must be inspected.
- Regarding the dosing amounts, see the container for the respective agent.
- The hose between the pump and the detergent container must be check yearly and replaced every other year.

7.2.1 Setting dosages

This must only be done by authorized personnel.

The pumps in the various systems cannot be adjusted. All adjustments are done by varying the running time of the pump during the cleaning program. Adjustment is done in the service program.
The machine may be fitted with the following dosing systems:

Dosing system	Default	Setting range	Line
Descaling agent	6	0-99 seconds	8
Rinse-aid	0	0-99 seconds	9
Process agent	23	0-99 seconds	10

7.3 Replacing a hose in the dosing pump

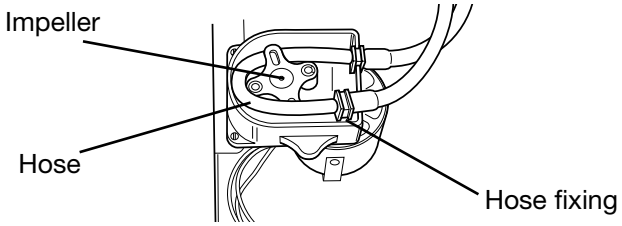
Wear and tear in combination with chemicals can accelerate deterioration of the hose. All changes to the hose's condition can alter the amount of detergent/descaler added and thereby have a negative impact on the process. Replace the hose(s) regularly.

This must only be done by authorized personnel.

Make sure that the machine's power is switched off before starting work.

- Remove the cover of the pump.
- Release one of the hose fixings and pull the hose upwards while spinning the impeller by hand at the same time.
- When the hose is free from the impeller: install the new hose.
- Secure one of the hose fixings and press down the hose while spinning the impeller by hand at the same time.
- When the hose is down in the pump housing, put back the other hose fixing as well and refit the cover.

NOTE: Do not take out the impeller!



7.4 Check the empty container alarm regarding function/sealing.

In the worst case, a missed alarm signal for an empty container can result in the process running without the cleaning and/or descaling agent being added, with dirty items as a result.
Clean the empty container alarm and replace it regularly.

7.5 Checking that the door to the dishwasher closes properly (option)

Check the door spring, so that it closes properly.

8 Drainage connection

The drain removes contaminated water and any potential leakage will end up in the machine and out on the floor by the machine.

8.1 Check the drain connections for leakage

Seal/tighten the connections as needed.
Replace any cracked or defective parts.

9 Automatic door (option)

9.1 Checking the automatic door

- Make sure that the door stops when it closes if the door is held.
- Check that the door stops when the door opens if it is held.

10 Test run (at each service date)

10.1 Temperature check

- Check the temperature during the disinfection phase and the length of the phase when the disinfection temperature has been reached, against the temperature curve supplied.
- The measuring equipment must be capable of registering temperature and time continuously.
- High-performance equipment is essential for reliable measuring results, because of the relatively rapid temperature changes.
- The recommended measurement point when checking the temperature is on the internal surface of the goods (e.g. at the bottom of the pan).

10.2 Temperature logging and control during processing

- Log the temperature during a process by using an external temperature logger. Compare the actual temperature to the temperature setting.

10.3 Performing cleaning tests

- Perform tests with holders and items when a dissatisfactory cleaning result is suspected. Use a suitable cleaning test for the purpose.

Draining the machine

If the machine will not be used for more than 72 hours, Getinge Disinfection recommends draining the steam generator and circulation pump.

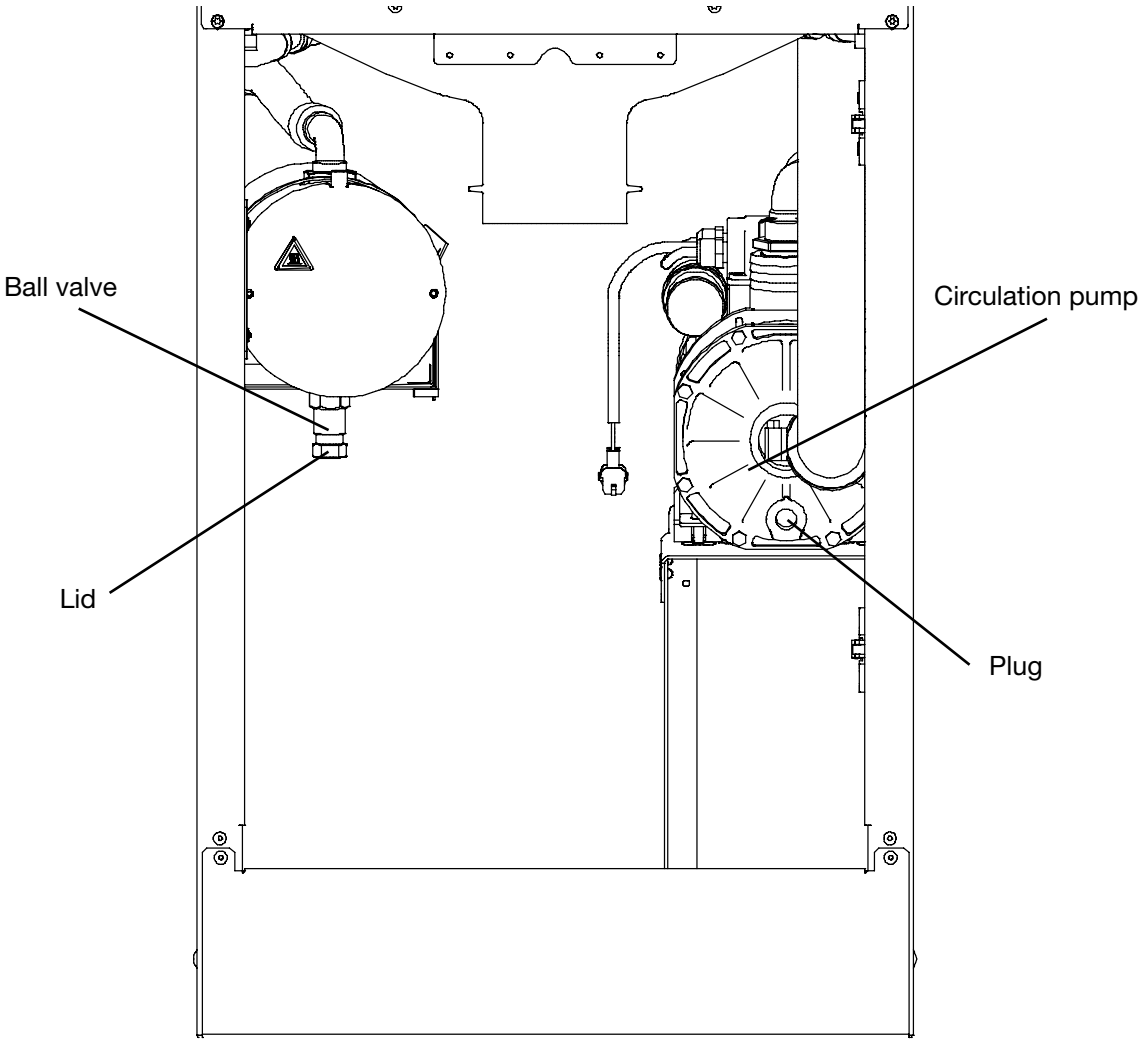
Draining the steam generator

Unscrew the cover from the underside of the ball valve on the steam generator. Open the ball valve and drain the steam generator. When it is empty, close the ball valve and put it back and close the cover.

Draining the circulation pump

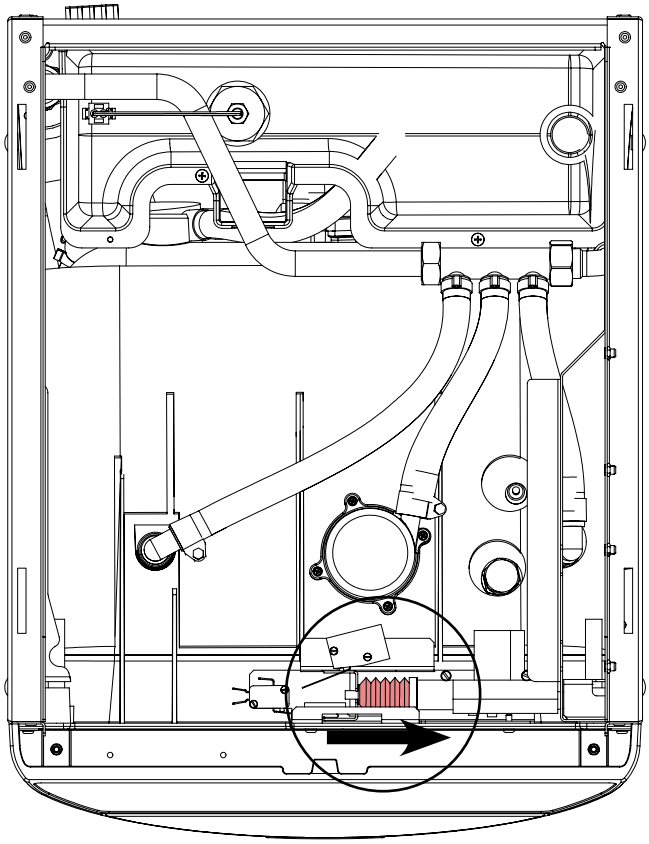
Unscrew the plug on the lower front edge of the pump and drain all the water from the pump. Replace the plug and make sure it isn't leaking.

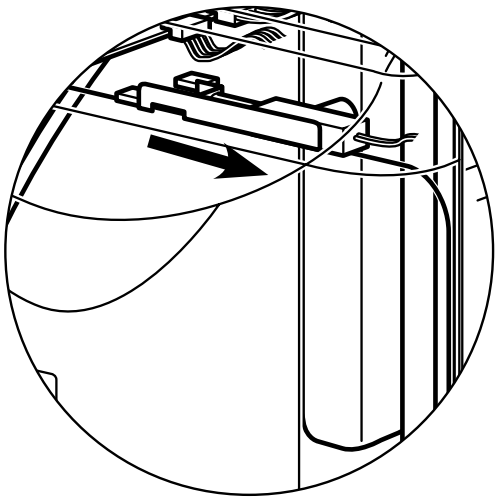
Warm water can be found inside the steam generator and the pump



Opening the door in the event of a power failure

Remove the cover from the machine to access the locking mechanism. Push the locking mechanism to the side. Then open the door.





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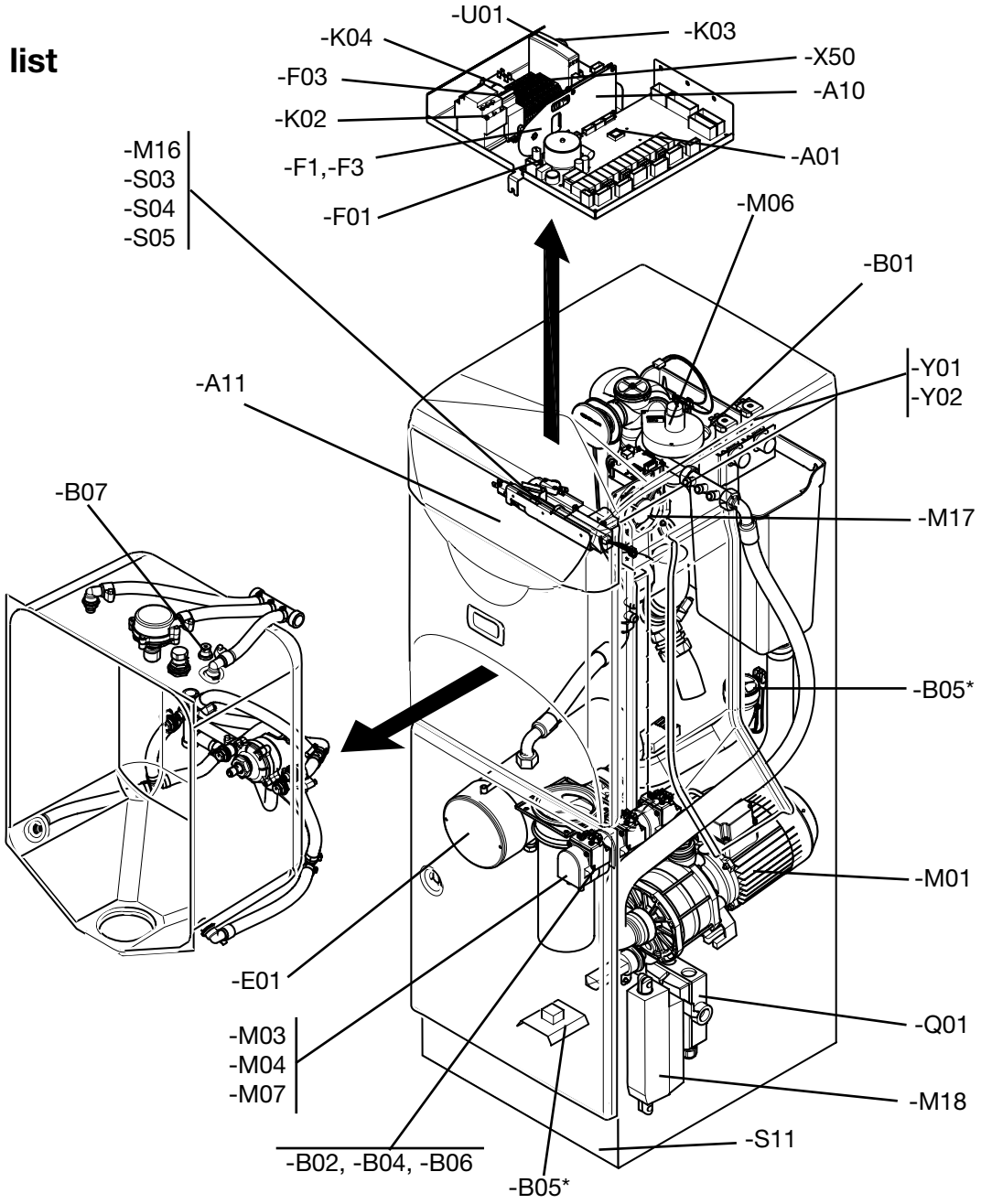
Component list



-A01	Control system, processor board	-F3	Fuse door lock board 200mAT	-S03	Limit switch, door closed
-A10	Control card lock motor	-F03	Fuse 2-poled C13	-S04	Switch door closed (fan)
-A11	Display keypad	-K02	Contactor, electric element in steam generator	-S05	Limit switch, door locked
-B01	Level sensor, tank	-K03	Relay ventilator fan	-S11	Pedal
-B02	Level sensor, descaling	-K04	Automatic door:	-T02	Transformer 1-phase
-B04	Level sensor, process	-M01	Motor, main pump	-T03	Transformer 3-phase
-B05	Leakage sensor *(2 possible positions)	-M03	Motor, process pump	-T04	Transformer 3-phase 415VAC
-B06	Level sensor, rinse-aid	-M04	Motor, descaler pump	-U01	Power supply 24VDC
-B07	Temperature sensor Pt-1000 (two sensors in one sensor body)	-M06	Ventilator fan	-Y01	Solenoid valve, cold water
		-M07	Motor, rinse-aid pump	-Y02	Solenoid valve, hot water
-E01	Electric element in steam generator	-M16	Locking motor	-X50	Terminal strip
-F01	Fuse on PACS board 500mAT	-M17	Cooling fan	-Q01	Main circuit breaker
-F1	Fuse locking door board 400mAT	-M18	Motor, door		
Note: Some components are extra equipment.					

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