# *Operator's Manual*

## ***Deko 190GT*** Washer Disinfector

**Australia** Tel: 1300 347 944 | **New Zealand** Tel: 0800 902 054 | **Singapore** Tel: +65 9107 8943

# Table of Contents

# 1. Safety instructions and warnings

Read all instructions before using the machine. When using an electrical appliance, basic precautions should always be followed including the following.

Caution! The operator of this instrument is advised that if the equipment is used in a manner not specified in this manual, the protection provided by the equipment may be impaired.

**Warnings**

The manufacturer cannot be held responsible for damage caused when the appliance is not used according to the instructions, or for uses other than those for which it was intended.

This special commercial machine is suitable for the applications mentioned in the operating instructions. Do not use for purposes other than those for which it was designed, as these may be dangerous. The manufacturer cannot be held responsible for damage caused by improper use.

Do not allow children or unauthorised personnel access to the machine or its controls.

The process needs to be checked and documented by authorised persons regularly. See EN ISO 15883-1, -3, and IEC 61010-2-40.

The cycles must not be interrupted, as it would cause danger and affect the cleaning and disinfection result. If interruption occurs, do not make an attempt to open either door and start the process again. In case the fault condition occurs repeatedly, please call for service. In cases of emergency e.g. fire or flooding, cut off the services to the machine using the safety controls provided externally to the unit. The machine is completely isolated from the electricity supply only when it is unplugged or the circuit breaker is turned off. This must be done before any repair work is carried out.

The machine is constructed in accordance with current safety requirements. Any repairs shall only be carried out by an authorised and a suitably qualified and competent engineer.

The electrical safety of this machine can only be guaranteed if connected to an electrical system complying with all relevant regulations and checked by the regulating authority. The manufacturer cannot be held responsible for damage caused by incorrect wiring.

The machine shall only be installed by a suitably qualified and competent contractor. Before connecting the machine, the Installer shall check that the voltage and frequency of the electrical supply correspond with the details on the data plate of the machine.

Only genuine Rhima parts or accessories shall be used with the Deko 190 Washer Disinfector. The performance and safety of non-genuine parts or accessories cannot be guaranteed, and use of such parts or items may void the machine warranty. If you have specific questions about machine options or accessories, please call your supplier.

The water in this machine must not be used as drinking water.

Only use detergents, which intended to be used in automatic washer-disinfectors. Do not use solvents in your machine, as there may be a danger of explosion.

Take care when handling liquids such as detergents, rinsing or neutralising agents. These may contain acids or alkalis. Follow the instructions and safety procedures on the packaging carefully and wear protective gloves and goggles. Read the Material Safety Data Sheets.

Do not allow any acids or solvents, especially hydrochloric acid and chlorides, into the wash chamber.

Be careful when sorting instruments with sharp pointed ends. If possible, place the pointed end downwards.

Install special inserts in accordance with the instructions provided.

When using the machine be careful not to scald or burn yourself, especially by opening the door. Baskets and inserts must first be allowed to cool down. Any water, which may

have collected in incorrectly loaded items, will be very hot and should be emptied into the wash chamber.

Do not touch the inner surfaces of the wash chamber or the heating elements after the end of a program. You could burn yourself.

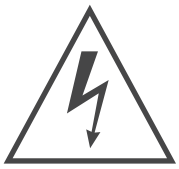
Do not hose the machine down to clean it.

Do not sit or lean on the open door. This could cause the machine to tip and be damaged.

When disposing of an old machine, make sure the door catch is removed. This will prevent children at play from being accidentally locked in.

Be careful when removing the panels and working inside the machine because of possible burrs and sharp edges. If possible, use safety gloves.

The manufacturer cannot be held responsible for damage caused by failure to heed the warning and safety instructions.

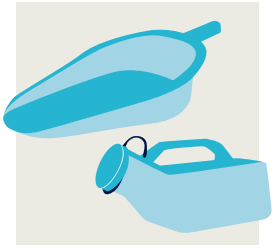


Dangerous voltage

Be aware of the steam discharge. The goods and racks are hot to handle. When you handle process chemicals - wear protection gloves and follow the suppliers' safety instructions.

# 2. Intended use of the machine

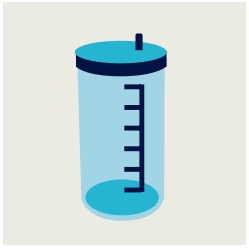
**Items suitable for processing in a thermal disinfector**
The DEKO 190 GT ward washer disinfector is suitable for automatic cleaning and thermal disinfection of human waste containers intended for re-use such as;


Bedpans and urine bottles


Bedpan buckets


Kidney bowls


Hospital bowls


Suction bottles

Products similar to the above and used for similar purposes.

When processed in the washer-disinfector, the medical devices may be intended for immediate use or may be intended to be packed and sterilised. In both cases the efficacy of the cleaning and disinfection is of major importance. In the first case this is for the well being of the patient, in the latter case it is for the safety of the staff who handles the items in the process.

All products, accessories, and other items to be cleaned and disinfected in the DEKO 190 GT ward washer disinfector should have the following properties:

- heat resistant to a temperature of up to 138°C
- corrosion resistance in the presence of heat and alkalinity

The high heat retention capacity of stainless steel allows for fast drying. Plastics and rubber have a lower heat retention capacity, thus needing a longer drying time after processing.

Aluminium discolours. Aluminium only has a limited suitability for processing in this machine.

Carbon steel may corrode in the process.

Rhodium coated specula must be arranged so that their surfaces do not suffer any mechanical damage. Not all specula with glass are suitable for machine treatment.

In case you have any questions regarding the suitability of items for being processed in the Deko 190 Washer Disinfector, please contact Rhima for advice.

Please see EN ISO 15883-1 and EN ISO 15883-3 for fields of application and restrictions of use.

**Restrictions of use**
A number of medical devices are excluded from processing in a washer-disinfector altogether. Always follow the Medical Device Manufacturer's instructions for reprocessing the particular item. Re-usable medical devices including hazardous chemicals, gases, materials, parts, components and/or constructions, which do not tolerate water treatment, spray washing and/or heat above +55°C, disposable items, textiles & fabrics, wood, paper & pulp products, tissues and dissolving plastics must not be processed in the Deko 190 ward washer-disinfector.

Surplus liquids and fluids, cleaning waters and liquids, food waste, sand and similar refuse are not allowed to be emptied into the DEKO 190 ward washer disinfector.

# 3. Operating instructions

## 3.1. Washing and disinfection cycles

### 3.1.1 Standard cycles


**Short**

| Phase | °C | Time | ml |
|---|---|---|---|
| Flush, cold water | | ~5 s | |
| Flush, warm water | | ~5 s | |
| Circulation wash with detergent | | 2 min | 45 |
| Circulation rinse, hot water | | 15 s | |
| Disinfection | 90 | 1 min | |
| Approximate total time | | 10 min | |


**Normal**

| Phase | °C | Time | ml |
|---|---|---|---|
| Flush, cold water | | ~5 s | |
| Flush, warm water | | ~5 s | |
| Circulation wash with detergent | | 3 min | 45 |
| Circulation rinse, hot water | | 15 s | |
| Disinfection | 90 | 1 min | |
| Approximate total time | | 11 min | |


**Flush**

The following cycle is used for emptying only. The items must be washed and disinfected before taken into use.

| Phase | °C | Time | ml |
|---|---|---|---|
| Flush, cold water | | ~5 s | |
| Flush, warm water | | ~5 s | |
| Approximate total time | | 1 min | |


**Intensive**

| Phase | °C | Time | ml |
|---|---|---|---|
| Flush, cold water | | ~5 s | |
| Flush, warm water | | ~5 s | |
| Circulation wash with detergent | | 5 min | 45 |
| Circulation rinse, hot water | | 15 s | |
| Disinfection | 90 | 1 min | |
| Approximate total time | | 13 min | |

### 3.1.2 Standard cycles / AU, NZ


**Short**

| Phase | °C | Time | ml |
|---|---|---|---|
| Flush, cold water | | ~5 s | |
| Flush, cold water | | ~5 s | |
| Flush, warm water | | ~5 s | |
| Circulation wash with detergent | | 2 min | 45 |
| Circulation rinse, hot water | | 15 s | |
| Disinfection | 90 | 1 min | |
| Approximate total time | | 10 min | |


**Normal**

| Phase | °C | Time | ml |
|---|---|---|---|
| Flush, cold water | | ~5 s | |
| Flush, cold water | | ~5 s | |
| Flush, warm water | | ~5 s | |
| Circulation wash with detergent | | 3 min | 45 |
| Circulation rinse, hot water | | 15 s | |
| Disinfection | 90 | 1 min | |
| Approximate total time | | 11 min | |


**Flush**

The following cycle is used for emptying only. The items must be washed and disinfected before taken into use.

| Phase | °C | Time | ml |
|---|---|---|---|
| Flush, cold water | | ~5 s | |
| Flush, warm water | | ~5 s | |
| Approximate total time | | 1 min | |


**Intensive**

| Phase | °C | Time | ml |
|---|---|---|---|
| Flush, cold water | | ~5 s | |
| Flush, cold water | | ~5 s | |
| Flush, warm water | | ~5 s | |
| Circulation wash with detergent | | 5 min | 45 |
| Circulation rinse, hot water | | 15 s | |
| Disinfection | 90 | 1 min | |
| Approximate total time | | 13 min | |

## 3.2 Cycle parameters

**Recommended cycle phase values:**

| | Time min, sec [ t ] | Temperature ºC [T] | Detergent volume ml [Q] | Note |
|---|---|---|---|---|
| Cold water flush | | | | This is always the first phase |
| Warm water flush | | | | |
| Circulation wash | 60–1200 | | 0–99 | |
| Circulation rinse, hot water | 15–300 | | | Must be before disinfection |
| Disinfection | 1–300 | 75–95 | | |
| Wait | It's possible to program a 1–20 min waiting time at the end of the cycle | | | |

- All cycles will start automatically with the cold water flush (container emptying phase)
- Warm water flush use both cold and hot water, recommended after cold water flush
- Circulation wash includes time and detergent volume parameters
- Circulation hot water rinse must be before disinfection, only the rinsing time can be set
- Disinfection parameters are time and temperature
- Waiting time after the cycle can be used for cooling down the instruments

**Note.** The set disinfection time starts when the set temperature has been reached. Do not use raw water rinsing or washing after disinfection phase.

**Note.** If the cycle does not include disinfection phase, user will be cautioned before starting the cycle.

Read more from chapter 5 Programming, Maintenance manual.

## 3.3 Water quality

The machine is designed to use drinking water (WHO Guideline on Drinking Water Quality, 1996) or water purified by treatment equipment that include for example, a water softener, a deionizer or, if nessesary a reverse osmosis device. Note that many factors in water quality can affect process efficiency. Effective factors include water hardness, pH, microbiological purity and several reactive anions and cations. Water quality testing is described in EN ISO 15883-1.

Detergents are powerful and must be handled with care. In case of accidental contact with skin or clothing rinse immediately with plenty of clean water.In case detergent gets in contact with eyes, seek immediate medical attention.

## 3.4 Process chemicals

DEKO 190 GT ward washer disinfector is equipped with one adjustable dosage pump for detergent.As an option the machine can be equipped with a descaling liquid pump.

Please note that the nature of the item to be processed can require additional actions such as dismantling for separate processing, the pre-cleaning of difficult surfaces (inaccessible sites) by a manual process etc. prior to the item being processed by the machine. Such pre-cleaning can be necessary to reduce the initial bioburden and/or contamination. Please consult the manufacturer of the medical device for processing instructions and note that the cleaning agents and disinfectants used by manual processing must be carefully flushed away with water before the items are loaded into the washer-disinfector. Failure to do so, may cause excessive foaming and/or pressure drop in the water recirculation system decreasing the cleaning efficacy and extending the cycle time.

Depending on the materials of the medical device being processed a variety of different cleaning agents may be used. Generally, detergents shall be liquid, non-foaming, non-abrasive, free rinsing and biodegradable and have the authorities' approvals for their intended use, as required.

For chromium steel alkaline detergents in the pH range 8 -- 14 are preferred. Acid based detergents should only be used for stainless steel items. Medical devices made of aluminium need specific washing agents designed especially for them. Please note that different chemicals may require different process temperatures and times e.g. enzymatic cleaners a temperature between 30 - max 45°C whereas an alkaline one a temperature between 60 to 90 degrees. The instructions from the manufacturer of the chemical e.g. regarding the concentration and temperature shall be followed. Volume of water in the washing phase is 11 litres.

Please follow the instructions of the manufacturer of the chemical additive for safe handling, data on the biocompatibility (e.g. the maximum permitted residual level on devices). Note that the residual level, which can be tolerated, will depend upon the nature of the chemical and the intended use of the product being cleaned. The specified performance may not be achieved if other process chemicals than those, which have been tested during type testing, or separately with certain process variables, are used.

**Note.** When using special chemicals, pls find out from the chemical supplier the suitability for chamber material AISI 304 (EN 1.4301, BS 304 S31) and chemical dosing system materials PVC and Silicone.

Chemical hoses are marked with the symbols:

Detergent: 

## 3.5 Detergent requirements

- Use only liquid detergents.
- The detergent must not foam. Even a small amount of foam will substantially decrease the cleaning effect.
- In case there is plenty of foam in the system the machine is unable to clean the goods and the automatic foam removal control will start. The machine will take clean water in and flush the foam into the outlet.
- The liquid must be free of particles so that the nozzle or the valves of the detergent pump will not get blocked.
- Normally detergents being used are highly alkaline with a pH-value between 10 and 14.
- A strongly alkaline liquid will corrode aluminium and its colouring.
- Please use special washing agents for aluminium items.
- The detergents are powerful and must be handled with care.
- In case of accidental contact with the skin or clothing wash immediately
- with clean water. For eyes, seek immediate medical attention.
- Tighten the stopper properly in order to prevent accidental spilling. If air tight it could implode container.
- Recommended dosage is normally 2–5 ml/l.
- The used concentration of detergent is related to
  - the degree of water hardness
  - the degree of uncleanness
  - the water temperature
- Usually the temperature of washing water should be approx. +60 0C, in case of blood somewhat lower.

# 4. Loading the machine

## 4.1 Loading

**Opening the door**
Open the door by turning the door handle upwards and pull the door open.

**Bedpan bucket**
is placed on the grating turned down from the back wall of the wash chamber; the mouth of the bucket must be to the left. Before placing the bucket on the grating it is emptied into the machine. Lid and seating are placed between the supporting rails of the side and back walls.

Start the **"NORMAL"**-cycle.

**Bedpans**
are placed in the stationary turning stand in the door when the stand is in upper position. Bedpans are emptied automatically when the door is being closed.

Start the **"NORMAL"**-cycle.

**Urine bottles**
(4 pcs) are pushed over the spray tubes in the door “stomach side” turned upwards. Urine bottles can be washed together with bedpans, bedpan buckets or wash pans. Urine bottles can not be washed when an instrument basket is being used.

Start the **“SHORT”**-cycle.

**Suction bottles**
are washed on the special racks

Start the **”INTENSIVE”**-cycle.

**Other objects**
as kidney bowls are washed on the grating; they must be placed upside down on the grating.

Small items are washed in the basket.

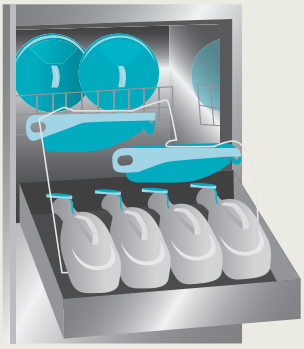
**Note!** Do not pour any liquid or other substances into the chamber which may cause foaming.

**Hint!** Foaming problems (Faults 11 & 10) can be reduced by adding an extra “cold water flush”-phase.

Close the door and lock the door by turning the door handle downwards.

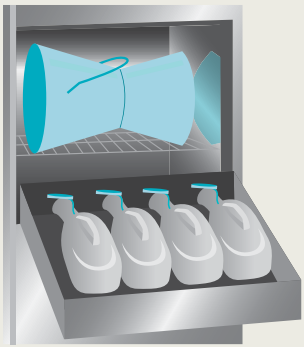
## Loading examples and accessories

2 bedpans with lids and 4 urine bottles



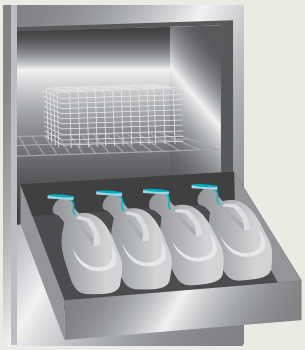
Racks for different kind of bedpans

Bedpan bucket and 5 urine bottles

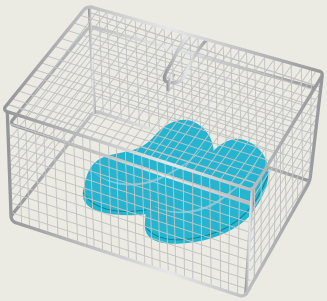


4 wash basins and 4 urine bottles

Basket for small items and 4 urine bottles

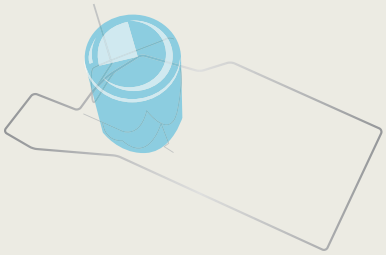


Utensil basket

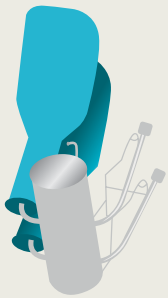


Shoe rack

Suction bottle rack



Rack for 4 extra urine bottles



Kidney bowl rack

See items suitable for processing in a thermal disinfector on page 6.

## 4.2 Controls

### 4.2.1 Operating systems

**1** Main display and operation keys

**2** Main switch

**3** Door handle

**4** Detergent container
(lockable door as option)

**Note.** The door is interlocked without power.


**Touch screen display for user interface**

| | |
|---|---|
| USER: | User mode |
| PROGRAMMING: | Programming cycles |
| SERVICE: | Service mode |



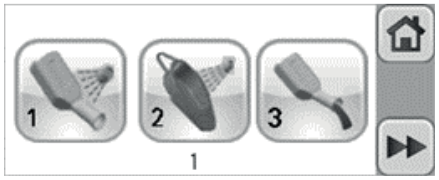
**Alphanumeric keyboard to enter characters**

ESC = Backwards
AC = Delete all
DEL = Delete a character
ENT = ENTER
KEY =Switch between numbers and letters

### 4.2.2 Running a cycle

**1.** Open all water supply taps (cold and hot water) and steam + condensate valves in steam model machine.

**2.** Switch the machine ON, after ca. 45 sec the following display appears and the machine is ready for use => see 4. RUN mode.




Standard user's run mode page 1.


Standard user's run mode page 2.


To start
SHORT -cycle


To start
NORMAL -cycle


To start
FLUSH -cycle


To start
INTENSIVE -cycle



Empty spaces, programmable by the customer

The next cycle number can be seen on the bottom of the display.

**3.** By pressing "HOME" key other modes can be selected.

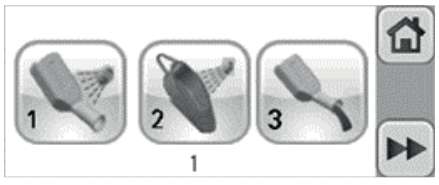
**4.** RUN mode. Open the door by turning the door handle upwards and pull the door open. Load the machine.

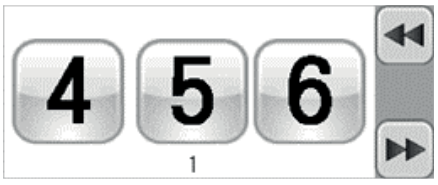
To main menu (HOME)

Back to previous display (main menu)

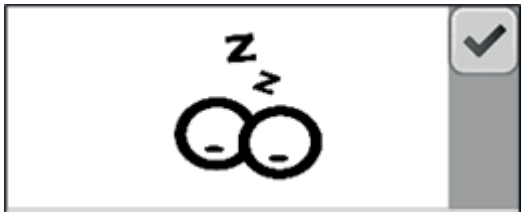
To next display (programs 4–8)

### 4.2.3 Start the cycle

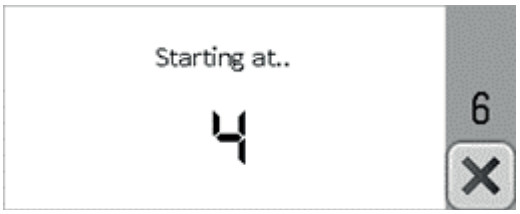


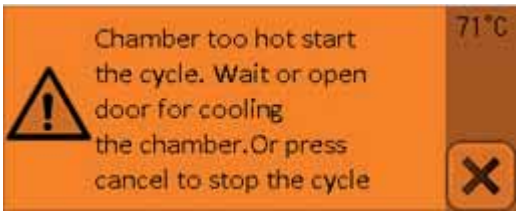

Start the wanted cycle by pressing the start icon key or the number key on next page.




If the machine is unused for a period of ten minutes it will go into standby mode. By pressing " ✓ " key this will bring the machine out of standby and open the door interlock.




The selected cycle may be cancelled by pressing " ✕ " key within 5 sec's.




**Note!** The cycle will not start if the chamber temperature is too high. Cool the chamber by opening the door.


If the selected cycle does not include disinfection phase (e.g. emptying cycle), a notice will appear on display, this must be accepted by pressing " ✓ " key or cancelled by" ✕ " key.


During a cycle the display indicates:

| | |
|---|---|
| Selected cycle number | "6" |
| Cycle phase | "CW Flush" |
| Chamber temperature | "24 $^{0}$C" |
| Remaining cycle time | "13 min" |

### 4.2.4 End of cycle


The end of the cycle is indicated with an audible buzzer and the text "Loading door can be opened". Press "OK", open the door and unload the chamber.

Open the door by turning the door handle upwards and pull the door open.

Beware of hot steam coming from the chamber after opening the door !

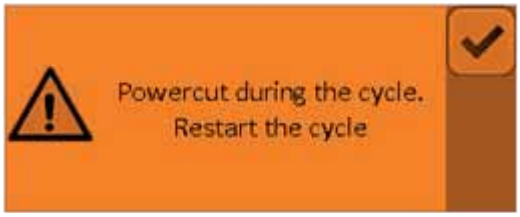
Beware of hot items and load carriers after opening the door. It's recommended to allow load items to cool down sufficient time (e.g. 1 min) before unloading !

**Note!** The door is interlocked without power.


**Note!** If the cycle did not include disinfection phase, this will be warned on display.

### 4.2.5 Malfunctions

WARNING situations, which can be controlled by the User, are being indicated as shown below. If the recommended actions have been taken, press the " ✔ " key. After the fifth indication (door open or lack of chemical) the machine will switch over into FAULT condition


### 4.2.6 Warning notifications

| Warning text | Explanation |
|---|---|
| Chemical tank empty | Change or re-fill the detergent container 1. |
| Close door | The loading door is open or not closed correctly. |
| Chamber too hot for starting the cycle.<br>Wait or open the door for cooling the chamber. Or press cancel to stop the cycle. | A new cycle will not start if the chamber temperature is over 60 ºC. |
| No disinfection | Must be confirmed by the user if the cycle does not include disinfection phase. |
| Cycle OK, No disinfection | Must be confirmed by the user if the cycle does not include disinfection phase. |
| Open water valves | Water valves shall be open when starting. |
| Power cut during the cycle | There has been a power cut and the cycle must be restarted. |
| Parameters are not OK | Contact service / Deko distributor |

**Banner warnings**

Banner warnings appear as scrolling text at the top of the user screens and in the warning log of service display. See maintenance APPENDIX 1 and maintenance manual for more instructions.

## 4.3 Incomplete operating cycle

Fault display appears if the asked actions have not been taken or some detector/component is broken.
Service shall always be contacted and called for, if a fault condition occurs.

In a Fault condition an ERROR code will be displayed identifying a possible cause of the fault.

See the list of malfunctions, APPENDIX I.


Actions in Fault case are described in maintenance manual "6.3 Fault log".

After an incomplete operating cycle all items in washing chamber must be washed and disinfected again!

# 5. Recycling and disposal instructions

Packing materials are recyclable and shall be disposed of in accordance with local regulations.

Electronic control cards and components shall be removed and delivered to respective collection locations.

Machine framework and other metal parts can be recycled and delivered to metal collection locations.

Please follow the instructions and regulations of the local authorities by on the disposal of a used machine.

Chemicals (e.g. detergents) shall be disposed of according to the instructions of the chemical's supplier.

The device is marked with a recycling symbol, so be it must not be disposed of as mixed waste in the EU. (WEEE Directive 2002/96 / EC on waste electrical and electronic equipment).

Please beware of using appropriate safety wear (eg. gloves, respirator) when disassembling the machine. It shall always be assumed that there may be harmful microorganisms present.

# 6. Procedure in case of serious incident

**A notice to the user**
Any serious incident that has occurred in relation to the device should be reported to the manufacturer/local distributor and the competent authority of the Member State in which the user is established.

# 7. Declaration of conformity

- No ... (unique identification of the product): NA
- Name and address of the manufacturer:
  **KWC Nordics Oy, Vartiokuja 1,**
  **76850 Naarajärvi, FINLAND**
- This declaration of conformity is issued under the sole responsibility of the manufacturer **KWC Nordics Oy**
- Object of the declaration: **DEKO 190, Ward Washer Disinfector** intended for use for emptying, flushing, cleaning and thermal disinfection of containers used to hold human waste for disposal by one operating cycle.
- The object of the declaration described above is in conformity with the relevant Community harmonization legislation:
  **The quality system for the design, manufacture and final inspection of the aforesaid product has been evaluated and meets the provisions of Council Directive 93/42/EEC as set out in Annex II (excluding section4). And the Restriction of Hazardous Substances Directive (RoHs 2011/65/EU).**

References to the relevant harmonized standards used or references to the specifications in relation to which conformity is declared:

- **EN 61010-1:2010**
  Safety requirements for electrical equipment for measurement, control, and laboratory use, General requirements
- **EN 61010-2-040:2015**
  Particular requirements for ward disinfectors used in medical, pharmaceutical, veterinary and laboratory fields.
- **EN 61326-1:2013**
  Electrical equipment for measurement, control and laboratory use EMC requirements.
- **EN ISO 13485:2016**
  Medical devices. Quality management systems. Requirements for regulatory purposes
- **EN ISO 14971:2012**
  Medical devices. Application of risk management to medical devices.
- **EN 1717:2000**
  Protection against pollution of potable water in water installations and general requirements of devices to prevent pollution by backflow
- **EN ISO 15883-1:2006**
  Washer-disinfectors, Part 1: General requirements, definitions and tests
- **EN ISO 15883-3:2006**
  Washer-disinfectors, Part 3: Requirements and tests for washer-disinfectors employing thermal disinfection for human waste containers.
- **ISO 15883-5:2021**
  Washer-disinfectors, Part 5: Performance requirements and test method criteria for demonstrating cleaning efficacy.

CE 0537

This product complies with the essential requirements of the applicable European laws and Directives with respect to safety, health, environment and consumer protection. Design, manufacture and final inspection in KWC Nordics Oy are evaluated by Eurofins Expert Services Oy which Notified Body is no. 0537 under the Council Directive 93/42/EEC.

Antero Asikainen, Managing Director

# Appendix 1:
# List of malfunctions

| Nr | Explanation | Actions |
|---|---|---|
| 1 | Door opened during the cycle. | Check and adjust microswitch of the door and function of the interlock. |
| 2 | Open circuit in controlling temperature sensor T1. | Check the sensor and connections. If necessary, change the sensor. |
| 3 | Short circuit in controlling temperature sensor T1. | Check the sensor and connections. If necessary, change the sensor. |
| 4 | Open circuit in verifying temperature sensor T2. | Check the sensor and connections. If necessary, change the sensor. |
| 5 | Short circuit in verifying temperature sensor T2. | Check the sensor and connections. If necessary, change the sensor. |
| 6 | Disinfection temperature over set value. | Temperature 15 °C over set value.<br>Check heating coils and contactor; steam pressure and steam valve in steam heated machines. |
| 7 | Power supply phases in wrong order. | Pump is running wrong direction, change phase order of the power cable. |
| 8 | The machine does not get water. | Check water supply solenoid valves, mud filter and water level switch in tank, air valves must be open. |
| 9 | Water level switch of the tank does not change position or circulation water pump does not work. There is water in the tank/chamber when there should not be any. | Check water level switch and pump.<br>Check function of air valves.<br>Drain blocked? Leakage of water valves? |
| 10 | Fault in heating, temperature does not rise (20 °C /10 min). | Check heating contactor, coils and overheating protector. Steam supply in steam heated models.<br>There is water in chamber bottom (water trap) => check the function of siphonage valve.<br>Air valve(s) are not open. foam in steam generator. |
| 11 | Low circulatin water pressure. | Check circulation pump and it's running direction. Foaming?<br>Check pressure sensor. Air valves and siphonage valve must be closed during recirculation wash.<br>Chamber outlet or drain sieve blocked?<br>Check function of tank valve (part 2.40); only in open air gap models. |
| 12 | Temperature difference between sensors T1 and T2 is over 2 °C. | Calibrate the temperature sensors T1 and T2. |
| 13 | Water tank is not empty. | Check pump is running. Check function of water level switch. Drain blocked? |
| 14 | Door is not interlocked. | Check the function of interlock and micro-switch (manual door model). |
| 15 | Door lock does not open (automatic door only). | Check and adjust lockmotor and microswitches. |
| 16 | Door is open (automatic door only). | Check and adjust doormotor and microswitches. |
| 17 | Door does not open (automatic door only). | Check and adjust doormotor and microswitches. |
| 18 | Thermal relay of circulation water pump tripped. | Check the reason for pump's overload (obstacles inside piping?)<br>Reset the thermal relay. |
| 19 | Door lock opened during the cycle. | Check and adjust microswitch of the door lock. |
| 20 | Temperature has dropped under the set value. | During disinfection the temperature has dropped under the set value. Check: heating coils, contactor and overheating protector. Foam or scale in steam generator? Check steam pressure and valves in steam heated machines. |
| 21 | Fault in detergent flow sensor. | Check flow sensor and dosing system. |
| 22 | Temperature difference between sensors T1 and T2 is over 10 °C. | By starting the machine the temperature difference between sensors ia over 10 °C, calibrate temperature sensors T1 and T2. |
| 23 | Chemical container empty. | Fill/change the container, check detector. |
| 24 | Door is not closed in the beginning of the cycle. | Check door microswitch and door functions. |
| 25 | Pressure sensor p1 has short circuit. | Check the sensor and connections.<br>If necessary, change the sensor. |
| 26 | Electric board temperature too high. | Automatic thermostat max 50 °C on electric board.<br>Does the fan run? Ambient temperature >50 °C? |

# List of banner warnings

Banner warnings appear as scrolling text at the top of the user screens and in the warning log of service display. Read Maintenance manual for more.

| Code | Warning | Explanation |
|---|---|---|
| W100 | PLC / HMI program version mismatch | Version numbers of PLC and HMI softwares must be same. See first page in service mode. |
| W101 | Parameters not OK. Check parameters | e.g. when replacing PLC the parameters must be set. |
| W102 | Peridiocal service required. Contact local service | The set service counter value has been achieved. |
| W103 | Temperature calibration 50 0C not done | Calibrated value at 50 0C is missing. |
| W104 | Temperature calibration 90 0C not done | Calibrated value at 90 0C  is missing. |
| W105 | Detergent calibration not done | Calibrated value is missing. |
| W300 | SD memory card not in place or write protected | Files from SD memory card can't be read or write |
| W301 | SD memory card full | Less than 1 kbyte space on SD memory card |
| W302 | Parameters not loaded from SD | Fault when reading a file from SD memory card. |
| W303 | Cycle recipes not loaded from SD | Fault when reading a file from SD memory card. |
| W304 | Calibration values not loaded from SD | Fault when reading a file from SD memory card. |
| W305 | Cycle report save to SD failed | Fault when saving data to SD memory card. |
| W900 | PLC not at run | Logic module in not in RUN mode |
| W901 | PLC error | Fault in logic module. |
| W902 | HMI error | Fault in display. |
| W903 | Comm error | Communication between PLC and HMI does not work. |
| W904 | PLC program missing | The application software is missing in logic module. |

# Appendix 2: User maintenance

## Purging and disinfecting the machine

All parts of the machine supplying fluids to the load or chamber are purged and disinfected during a normal operating cycle. The wash chamber and pipework of the machine have been designed so that any remaining process water shall flow towards the discharge point of the machine.

Should the machine not have been used for a period longer than 24 hours, it is recommended that a short cycle including disinfection be run before placing a load into the machine for processing. However, all the cycles validated and sealed by the manufacturer include a disinfection phase as the last phase of the process.

Service engineers shall pay attention to the state of the machine before dismantling any parts of the chamber or pipework. Unless informed otherwise, it shall always be assumed that there may be harmful microorganisms present by a Fault condition or water system breakdown.

## Methods of cleaning

- **Daily:** Check that all the sprayers rotate freely and the spray holes are open.
- In case the fixed or rotating nozzles get blocked the cleaning effect will deteriorate.
- Please take care of keeping the nozzles clear.
- **Weekly:** Use a toilet brush and clean the outlet sieve by brushing it a few times
- Clean the outer stainless steel panels with diluted washing agent and soft washcloth; flush, wipe and dry.

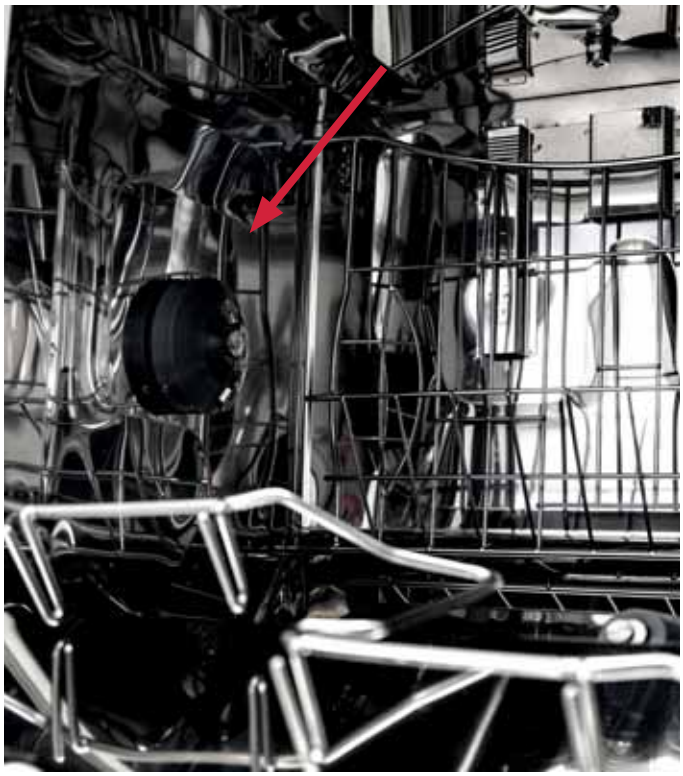
**Flushing of chemical dosing systems**
To avoid problems in chemical dosing like solidified detergent and blocked piping it's very important to flush the system regularly with hot water.

It's recommended to flush the dosing systems every two weeks and always whenever the detergent container is changed.

Fill a container with hot tap water and put the detergent suction tubes into the container. In user's mode press " ◀◀ " –key to find "Chemical dosing flush ▶ "-key. By pressing it the chemical dosing system can be flushed. Repeat the flushing 3 times.

Put the suction tubes into the detergent container and turn on the pumps once again to refill the system with the current detergent.

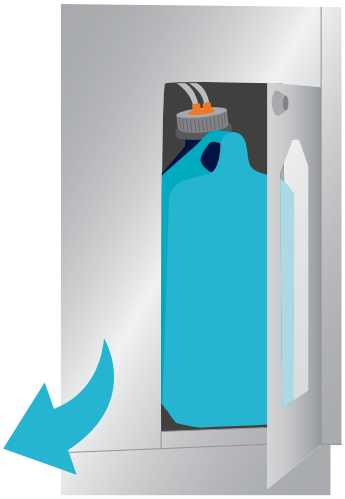
**Cleaning of spray washers & nozzles**



Check that the nozzle holes in the side and bottom washers are free of foreign objects and clean. Check that the side and bottom washers rotate freely by grasping the washer by hand and rotating the washer. If the washer does not rotate freely, it must be cleaned.

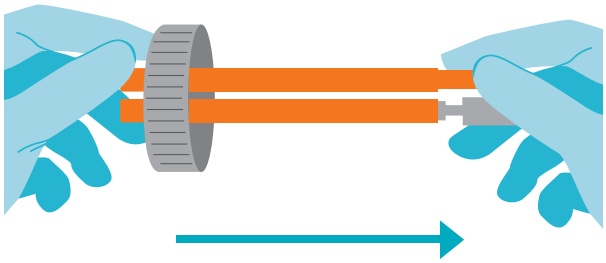
Make sure the machine takes detergent. Monitor detergent consumption with a marker pen the liquid level in the detergent container and the date on which the machine is used.

**Replacement of detergent container**



**1. Take out the detergent container.**

**2. Remove the suction pipe from the container. Replace the container.**
Note! Flushing the detergent system is recomended when changing the detergent container.



**3. When necessary adjust the length of the suction pipe and place it in the new container**
The telescopic suction tube for the detergent is adjusted to its longest position. When the suction tube is placed in the detergent container, the tube is pushed to the bottom of the container, so that the machine also takes the detergent from the bottom of the container.

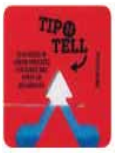
**4. For controlling the consumption of detergent, it is recommended to mark with date the level**.

When you handle process chemicals - wear protection gloves and follow the suppliers' safety instructions.

# Important Warranty Information

Thank you for purchasing one of our appliances. This product has been designed and built according to the latest technological innovations and with correct installation, daily cleaning, and regular maintenance, it should provide many years of reliable service in commercial environments.

**TAKING DELIVERY OF YOUR RHIMA WASHER DISINFECTOR**




When taking delivery of your appliance, please take careful note of any damage to the packaging, or if the 'TIP'n'TELL indicates a fall has occurred during transportation.
Take photographs of any damage and/or the 'TIP'n'TELL' indicator, alert the delivery driver and refuse delivery if appropriate as Rhima Australia will not be held responsible for damages caused by third parties during transport or caused whilst unloading and placement of the appliance.

**WARRANTY CONDITIONS AND COVERAGE**

Your Rhima appliance is warranted against defects in materials or workmanship for a period Rhima Australia of 12 calendar months from date of purchase, unless additional warranty has been purchased at time of sale, or if the appliance is covered by a Service Agreement that includes a warranty extension component. In order to prevent potential premature failure of components, the appliance must be cleaned daily by the operator and serviced regularly by a Rhima technician or Rhima authorised service agent.

The following conditions and limitations apply in Rhima's sole judgement, to Warranty service:

1. To obtain a warranty service, purchaser must contact the Rhima Service department in your region quoting the model and serial number of your appliance
2. Repairs or adjustments by unauthorised persons may void warranty and under no circumstances will Rhima be held liable to reimburse a third-party or the owner for un-authorised repairs carried out on this product.
3. Warranty does not include travel time to customer sites if located more than 75kms outside of capital cities. Travel time will be quoted depending on customer location. Rhima may, at its discretion, choose not to charge travel time if an authorised service agent is located within 75km of the customer site.
4. Warranty service is only performed during business hours *(Mon-Fri 08.30-17.00 hrs)* excluding public holidays. If Warranty service is required outside of the normal business hours, additional costs will be applicable, and advised at time of booking.
5. Warranty does not include Validation services to ensure compliance with ISO15883 and AS4187 or regular preventative maintenance services required. A validation and preventative maintenance program/agreement can be quoted on request to ensure your appliance is operating safely, efficiently, reliably and to the relevant AS4187 and ISO15883 standards.
6. Warranty does not include rectification of issues due to incorrect installation, incorrect water supply pressures or temperatures, blocked building drains, unsuitable detergents/chemicals being used, physical damage, electrical surges, or other acts of god.
7. Warranty does not include adjustments to wash or disinfection temperatures, or detergent.
8. Warranty does not include rectification of issues due to foreign objects in drains including wipes, small bowls or instruments, etc. failure of water inlet valves, or failures deemed due to fair wear and tear
9. Warranty does not include issues found to be due to incorrect use, operational issues, or lack of cleaning or maintenance or defects to racks or accessories.

**For a full list of warranty conditions, inclusions and exclusions, please refer our website in the applicable region by scaning the supplied QR code below.**

Rhima Australia

Rhima New Zealand

Rhima Singapore

**Australia** Tel: 1300 347 944
**New Zealand** Tel: 0800 902 054
**Singapore** Tel: +65 9107 8943



# DETERGENTS

To request detergents or rinse additive contact your local Rhima Service centre below:

Australia: **1300 347 944**
New Zealand: **0800 902 054**
Singapore: **+65 9107 8943**


**Mediwash**

5 Litre

For washing glass & instrument washing