

DEKO 25iX WASHER DISINFECTOR

**rhima**

OPERATORS MANUAL





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## **1 SAFETY INSTRUCTIONS AND WARNINGS**

When using an electrical appliance, basic precautions should always be followed including the following:

### **OPERATOR TRAINING**

The responsible body shall ensure that all personnel who operate or maintain our machine are trained in its operation and in its safe use. Furthermore to organize regular training of all personnel concerned with the operation and maintenance of the machine.

### **READ ALL INSTRUCTIONS BEFORE USING THE MACHINE**

### **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. Use only for purposes machine was designed. 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, -2, and IEC 61010-2-040.

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 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.

Installation must be done by 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 Franke parts or accessories shall be used with the DEKO 25 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 recommended by Franke. Do not use solvents in your machine due 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.

Empty all containers and glassware before placing in machine. 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. Place the pointed end downwards if possible.

Install special inserts in accordance with the instructions provided.

When using the machine be careful not to scald or burn yourself. Baskets and inserts must first be allowed to cool down. Water may have collected in incorrectly loaded items is 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 program. You could burn yourself.

Do not spray water on the machine.

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

When disposing old machine, make sure the door catch is removed. This will prevent children to be accidentally locked in.

Be careful when removing the panels and working inside the machine because of possible burrs and sharp edges. Use safety gloves if possible.

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

#### USED SAFETY SYMBOLS



**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

The DEKO 25 Washer Disinfector is suitable for automatic cleaning and thermal disinfection of medical devices intended for re-use such as;

- \* Surgical instruments
- \* Instrument trays
- \* Instruments for minimum invasive surgery
- \* Rigid endoscopes
- \* Anaesthetic and respiratory equipment
- \* Hollowware
- \* Glassware and
- \* Transit containers

More information in standards:

- ISO/FDIS 15883-1 Washer-disinfectors, Part1: General requirements, definitions and tests
- ISO/FDIS 15883-2 Washer-disinfectors, Part2: Requirements and tests for washer-disinfectors

When processed in the instrument washer-disinfector, the medical devices may be intended for immediate use or 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 instruments in the process of inspecting, testing and packing the instruments.

The efficacy of disinfection may be impaired if soil removal is incomplete before the start of the disinfection process. Some medical devices may require pre-treatment e.g. soaking, brushing, ultra sonic pre-cleaning, lumen irrigation or any combination of these techniques.

### RESTRICTIONS IN 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 Celsius degrees, disposable items, textiles & fabrics, wood, paper & pulp products, tissues and dissolving plastics must not be processed in the DEKO 25 washer-disinfector. The DEKO 25 is not designed for the processing of thermo labile flexible endoscopes (covered in EN ISO15883-1 and15883-4) or re-usable human waste containers (covered in EN ISO15883-1 and 15883-3), laundry or articles used for general catering purposes. DEKO 25 is not intended for the sterilisation of the load as specified in other standards e.g. EN285.

### **Instruments suitable for processing in a thermal disinfecter**

All instruments, accessories, and other items to be cleaned and disinfected in the DEKO 25 Washer Disinfecter 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. In this case a separate drying cabinet is recommended.

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

Carbon steel may corrode in the process. Please try the corrosion resistance of carbon steel instruments with initially one instrument, or do not process carbon steel items at all.

Dental hand pieces, drill bits, grinders, root canal instruments or other rotating instruments only have a limited suitability for the thermal disinfecter. Please ask the manufacturer's advice on the suitability for processing their items in this system.

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 instruments for being processed in the DEKO 25 Washer Disinfecter, please contact the instrument manufacturer for advice.

### 3 STORAGE CONDITIONS

Ambient or room temperature 0 °C - +50 °C  
Relative humidity, non-condensing 10-90 %  
Max. storage time 1 year  
Atmosphere Non-corrosive

### 4 OPERATING CONDITIONS

#### Electrical ratings

This machine is designed for

Voltage ratings: see 5.4 Electrical connections (Maintenance manual).

#### Pollution degree

- Pollution degree 2

#### Installation category

- Installation category II

#### Maximum relative humidity

80 % for temperatures up to 31 °C

#### Operating temperature range

- 5 °C to 40 °C

#### Maximum altitude

- Up to 2000 m

#### Voltage fluctuation limits of the mains supply

- ± 10 % of the nominal voltage

#### Over voltage category

Category II (Note! 61010-1, second edition 2001-02 specifies over voltage categories only for measuring equipment)

## 5 OPERATING INSTRUCTIONS

### 5.1 Washing and disinfection cycles

#### 5.1.1 Standard cycles / DEKO 25

INSTRUMENT PROGRAM, WASH 5 min			
Phase	°C	mm:ss	ml
Rinse, cold water		01:00	
Rinse, cold water		01:00	
Wash with detergent	55	05:00	30
Rinse, warm water	55	02:00	
Disinfection $A_0 = 600$	90	01:00	
Approximate total time with heating		30:00	

ANAESTHESIA PROGRAM, WASH 7 min			
Phase	°C	mm:ss	ml
Rinse, warmwater	45	02:00	
Wash with detergent	55	07:00	30
Rinse, warm water	55	02:00	
Disinfection $A_0 = 600$	90	01:00	
Approximate total time with heating		32:00	

PLASTICS PROGRAM WITH DISINFECTION			
Phase	°C	mm:ss	ml
Rinse, warm water	45	01:00	
Wash with detergent	55	03:00	30
Rinse, warm water	55	01:00	
Disinfection $A_0 = 600$	80	10:00	
Approximate total time with heating		40:00	

### 5.1.2 Laboratory cycles / 25 CL

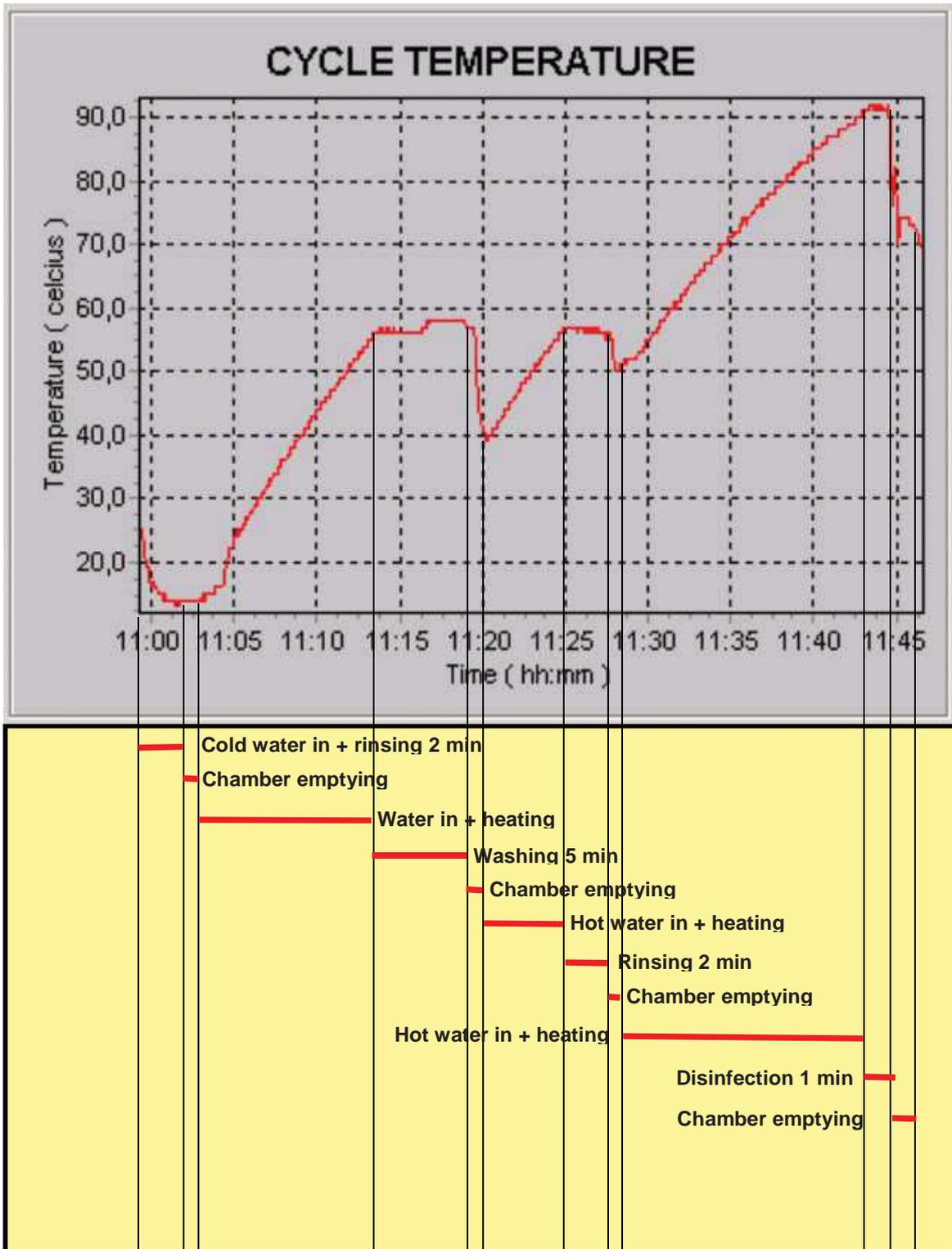
<b>SHORT LAB</b>			
<b>Phase</b>	<b>°C</b>	<b>mm:ss</b>	<b>ml</b>
Rinse, warm water	45	2:00	
Wash with detergent	55	7:00	30
Rinse, warm water	55	2:00	
Rinse, warm water	55	2:00	
Rinse, pure water	45	2:00	
Approximate total time with heating		30:00	

<b>LONG LAB</b>			
<b>Phase</b>	<b>°C</b>	<b>mm:ss</b>	<b>ml</b>
Rinse, warm water	45	2:00	
Wash with detergent	55	10:00	30
Rinse, warm water	55	2:00	
Rinse, pure water	45	2:00	
Rinse, pure water	45	2:00	
Approximate total time with heating		35:00	

<b>SHORT LAB ( INCL. DISINFECTION )</b>			
<b>Phase</b>	<b>°C</b>	<b>mm:ss</b>	<b>ml</b>
Rinse, warm water	45	2:00	
Wash with detergent	55	7:00	30
Rinse, warm water	55	2:00	
Rinse, warm water	55	2:00	
Disinfection, pure water	90	1:00	
Approximate total time with heating		35:00	

Remove unnecessary shelves and racks from the machine. Water valves in the wash chamber are unnecessarily open decreasing water pressure.

### 5.1.3 Process diagram



Read more from chapter 10.0 Programming (Maintenance manual).

## 5.2 Values of the cycles

Recommended phase values of the cycles.

	Time, min,sec [ t ]	Temperature, °C [ T ]	Chemical volume, ml [Q]	Detergent container, nr	Using of pure water	Dosing temperature, °C [ T ]
CW-rinse (rinsing with cold water)	00,10-10	NA	NA	NA	Yes/No	NA
Wash	1 - 25	20-80	15-200	1/2	Yes/No	20-80
HW-rinse (rinsing with hot water)	1 - 25	20-80	NA	NA	Yes/No	NA
Disinfection	1 - 60	75-95	0-10	NA	Yes/No	NA
Waiting time	It's possible to program a waiting time at the end of the cycle 1-10 min					
<p>- <b>Cold water rinse:</b> Only time can be adjusted</p> <p>- <b>Wash:</b> Time, temperature, chemical volume, chemical container number and chemical dosing point can be adjusted</p> <p>- <b>Hot water rinse:</b> Time and temperature can be adjusted (Note! Selected temperature must be above hot water supply temperature)</p> <p>- <b>Disinfection:</b> Time, temperature and rinse aid volume can be adjusted</p> <p>- <b>Waiting time:</b> Waiting time after the cycle can be used for cooling down the instruments</p> <p>- Pure water can be selected in all water process phases</p> <p><b>Note!</b></p> <p>Do not use raw water rinsing or washing after disinfection phase. Set time calculation starts when the required water level and set temperature have been reached</p>						

Read more from chapter 10.0 Programming (Maintenance manual).

## 5.3 Process chemicals and variables

DEKO 25 can be equipped with the maximum of 2 adjustable dosage pumps for process chemicals. As standard the machine has one detergent pump only.

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 bio burden 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 WD. 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 surgical instruments alkaline detergents in the pH range 8 -- 14 are preferred. Usually they may also be used for respiratory equipment. 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 degrees Celsius, 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 7.5 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 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 Silicon.

Chemical hoses are marked with the symbols: Detergent  Rinse aid 



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

## 5.4 Required conditions

See Technical specifications 6.0 and Installation instructions 7.0 (Maintenance manual).

### Water quality

DEKO 25 is designed to operate with potable water (WHO-Guidelines for drinking water quality 1996 refers) supplied directly to it, or with potable water supplied to the water treatment equipment supplying the machine. Water treatment equipment may include e.g. a softener, de-ioniser or reverse osmosis plant, as necessary. Note that many of the attributes of the water supplied to the machine can affect the efficacy and/or efficiency of the process. These include hardness, pH, microbial purity as well as various reactive anions and cations.

Should purified water be required for the process, in addition to the direct supply of potable water, the machine can be equipped with an additional solenoid valve, and in case of a non-pressurised supply, also with an extra feed pump. In order to ensure freedom from microbial contamination, rinse water used in a possible final rinse after disinfection shall be treated as required. For testing the water quality please see EN ISO 15883-1 Chapter 6.4.

### Quality of water used in the type tests

For reference, the quality of water used in the process, excluding any final rinse after disinfection, the following values were determined during the microbiological type tests:

Conductivity: 16,4 mS/m

PH: 8,1

Oxidisable substances (Redox potential): UH 482 mV

Total hardness (Salts of  $\text{Ca}^{2+}$ ,  $\text{Mg}^{2+}$ ,  $\text{Sr}^{2+}$  expressed as  $\text{mmol CaCO}_3$ ): 0,59 mmol/l

Total dissolved solids (TDS) determined as evaporative residue: 96 mg/l

## 5.5 Requirements on detergent in Deko washer-disinfectors

1. Use only liquid detergents.
2. The detergent must be non-foaming. 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 automatic foam removal control will start.

3. The liquid must be free of particles so that nozzles or detergent pump valves will not block.
4. Normally detergents being used are highly alkaline. PH-value is between 10 and 14.

A strongly alkaline liquid will corrode aluminium and its colouring. Please use special washing agents for aluminium items.

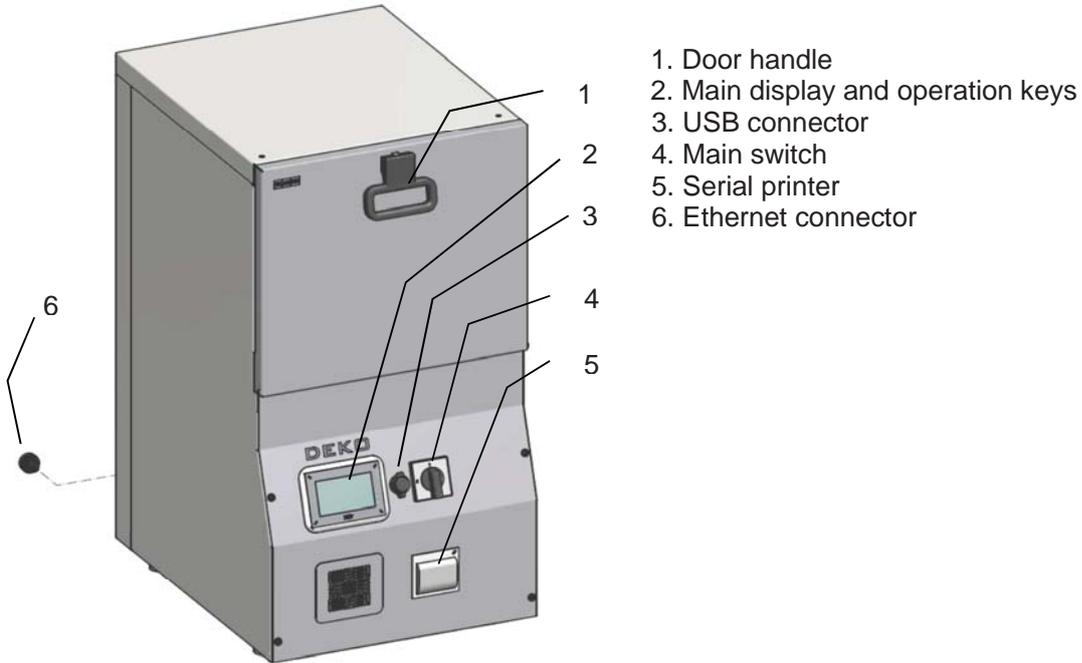
The detergents are powerful and must be handled with care. In case of accidental contact with the skin or clothing wash immediately with clean water. For eyes, seek immediate medical attention.

5. Recommended dosage is normally 2-5 g/l.  
The used concentration of detergent is related to
  - The degree of water hardness
  - The degree of uncleanness
  - The water temperature

Usually washing temperature should be approx. +50...60 °C, With blood washing temperature is lower.

## 5.6 Controls

### 5.6.1 Operating systems



Touch screen display for user interface

USER = user mode  
 PROGRAMMING = programming cycles  
 SERVICE = service mode



Alphanumeric keyboard to enter characters



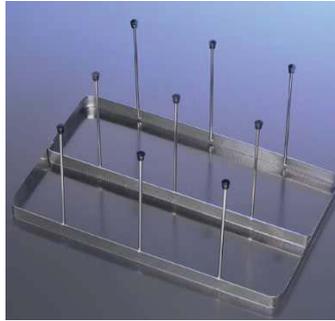
#### Note !

The door is interlocked without power.

## 5.6.2 Various racks for various loads



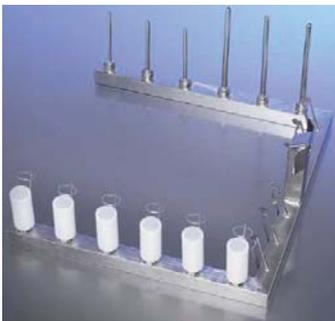
Top wash basket  
incl. wash arm



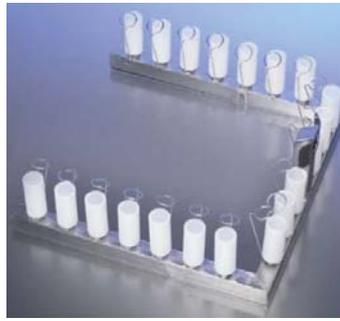
Peg rack



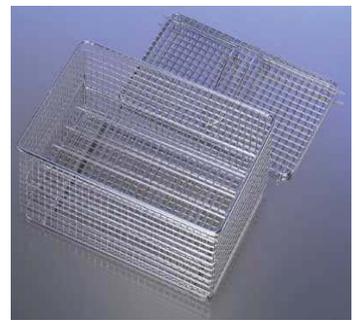
Kidney bowl rack



Injector rack for  
angle pcs and turbines



Injector rack for  
angle pcs and turbines



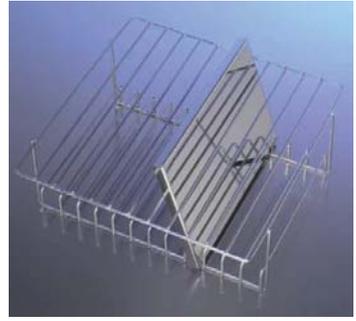
Microscope slide  
container



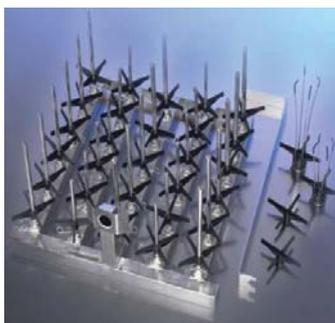
Utensil basket with lid



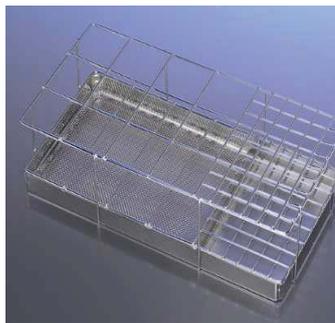
Petri dish rack



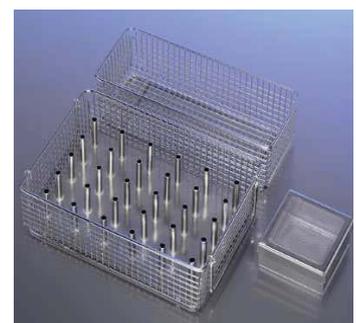
Tray holder



Bottle rack



Mirror container



Box for needles and  
bore bits

### 5.6.3 Starting a cycle

1. Open all water supply valves (cold, hot, distilled water).
2. Switch the machine ON.

Main menu is displayed once the system starts up:

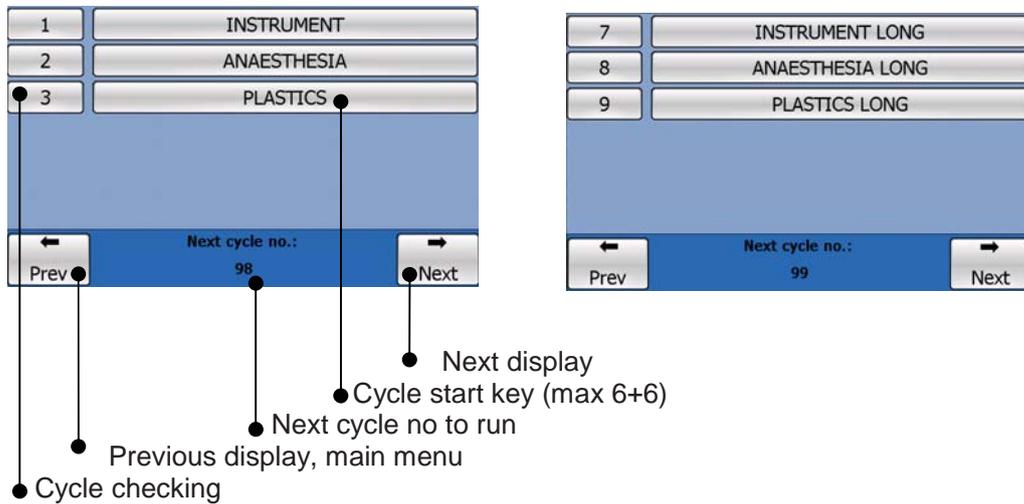


3. Press "USER" key to enter in user mode



## 5.6.4 USER-mode

START displays below illustrates the choice of max 6+6 different cycles.



### Start the cycle

Open the door, load the machine and close the door



Start the wanted cycle by pressing the start key. If needed, by pressing “Cycle checking” key, the steps and variables of the cycle can be checked.

**NOTE!** The cycle variables i.e. temperatures, times and chemical dosage volumes, are pre-set and cannot be adjusted prior to, or during the cycle. Possible changes to the pre-set cycles may only be made by using a special code and into the cycle set-up. Validated, factory set cycles, however, cannot be modified.

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





Read the baskets and instruments (option)



Enter the user ID if required.



The selected cycle may be cancelled by pressing the CANCEL key within 5 sec's.



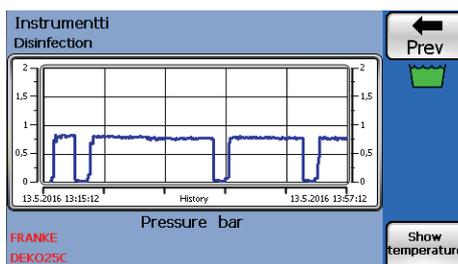
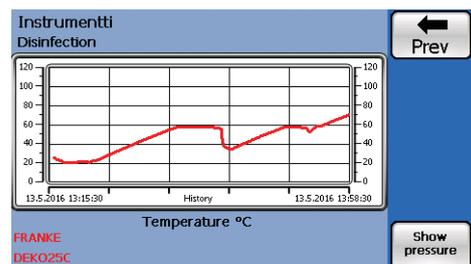
If the cycle does not include disinfection phase this will be warned on display



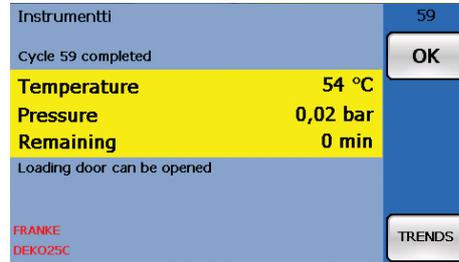
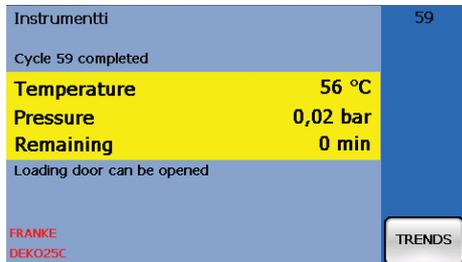
During a cycle the display will indicate:

Name of cycle / cycle phase / chamber temperature / pump pressure / remaining cycle time / ongoing cycle number and 'Trends' key for temperature and pressure graph viewing.

The complete cycle is saved on SD-memory card, see 5.6.5.  
All events are printed (option) during the cycle. (See 5.7 Panel printer)



## End of cycle

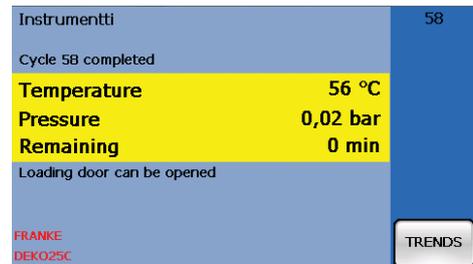


The end of the cycle will be indicated with an audible buzzer and the text "loading door can be opened."

Open the door and unload the chamber.

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

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



Press OK and return to the Cycle start view.

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



### 5.6.5 Process recording

Cycles are recorded automatically on SD memory card and/or on FTP server by Ethernet connection.

#### Recording on SD Memory Card:

The SD Memory Card shall be inserted in its place of the terminal.

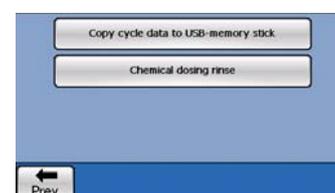
The machine automatically creates a folder named Cycle Data on the empty Memory Card and under the Cycle Data folder is created every day (when the machine is in use) a "date folder" which is named after the date (e.g. 2003-04-03). All washing cycle files are recorded under the date folders. Format of the recorded cycle file is e.g. AH01\_00952.dko:

First 4 characters (here AH01) mean the individual name of the machine.  
Last 5 characters (here 00952) mean the batch number in question.

The cycle files can be opened by using SD-card reader or saving on USB-memory stick

#### How to copy cycle files on USB memory stick:

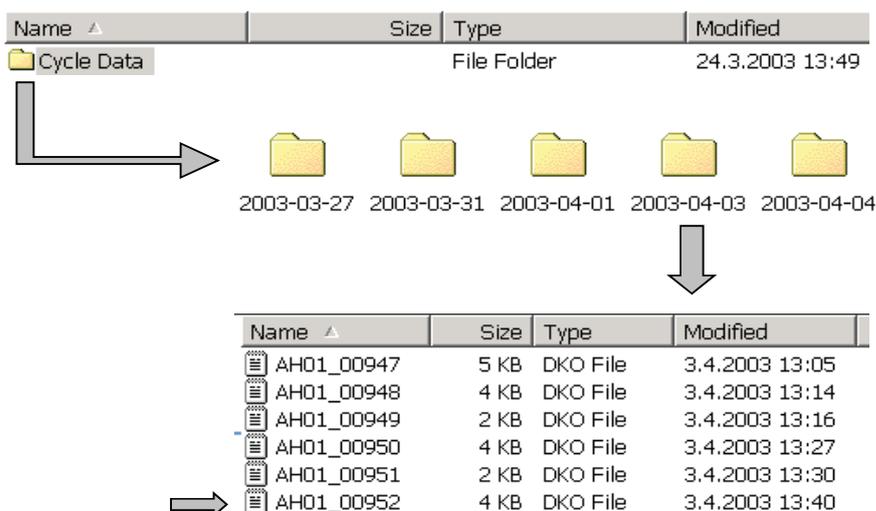
Insert an empty USB memory stick to connector above the terminal. In user's mode press "Next" –key to find "Copy cycle data to USB memory stick"-key, by pressing it the copying starts automatically. Wait until you see on the display that all files have been copied on the memory stick. Now the stick can be removed and the cycles can be viewed with computer.



#### **WARNING:**

**The memory card must only be removed or inserted into the machine in standby mode. Attempting to remove the memory card at any other time may result in permanent damage to the card.**

**When transferring files from the memory card to the PC removal of the card must not take place during use as again this may result in permanent damage to the card.**



#### Recording on FTP-server:

This feature is an OPTION. If the machine is connected with local network (Ethernet), the recorded cycle data can be saved on FTP-server.

Below is the recorded cycle **AH01\_00952.dko** opened by Notepad (is installed in every PC).  
 Using the Notepad program the file can be seen in text format. (Temp1:= controlling temperature sensor;  
 Temp2:= verifying temperature sensor; Pres1:= controlling pressure sensor; Pres2:= verifying pressure sensor (option))

Machine Number: AH01  
 Instrument Trays:

Batch Number: 952  
 Institution Name: FRANKE  
 Operator ID-Number: 2314  
 Cycle Start Time: 07/03/2006 10:41:47  
 Cycle Name: INSTRUMENT  
 Validated Cycle: FALSE

Time:	Temp1:	Temp2:	Pres1:	Pres2:
-10:41:49	21	21	0.01	0.00
Cold water rinse start				
-10:41:51	21	21	0.02	0.00
.....				
-10:45:32	19	19	1.05	0.08
Cold water rinse end				
Wash 55°C start				
-10:46:31	20	19	0.01	0.01
.....				
-10:57:56	46	46	0.68	0.69
Detergent dosed: 20 ml				
-10:57:58	46	46	1.13	1.15
.....				
-11:01:34	56	56	1.12	1.13
Temperature attained T:56°C p:0.64 bar				
-11:01:36	56	56	1.08	1.10
.....				
-11:06:36	57	57	1.13	1.15
Wash end T:57°C p:0.65 bar				
-11:06:38	56	57	1.16	1.18
Rinse start				
-11:07:33	56	56	0.01	0.01
.....				
-11:19:29	56	56	0.66	0.65
Temperature attained T:56°C p:0.61 bar				
-11:19:31	56	56	1.16	1.17
.....				
-11:21:30	56	56	1.13	1.15
Rinse end T:56°C p:0.68 bar				
Disinfection 90°C start				
-11:22:29	56	56	0.02	0.01
.....				
-11:44:51	91	91	0.65	0.65
Temperature attained T:91°C p:0.73 bar				
-11:44:53	91	91	1.03	1.05
.....				
-11:45:30	92	92	1.06	1.07
Rinse aid dosed: 0 ml				
-11:45:32	92	92	0.64	0.57
.....				
-11:45:52	92	93	0.63	0.63
Disinfection Time: 60 s				
Disinfection end T:93°C p:0.63 bar				
Waiting time 2 min				
-11:49:25	63	64	0.01	0.01
.....				
-11:51:24	63	63	0.01	0.00
Cycle End Time: 07/03/2006 11:51:24				
Cycle PASS				

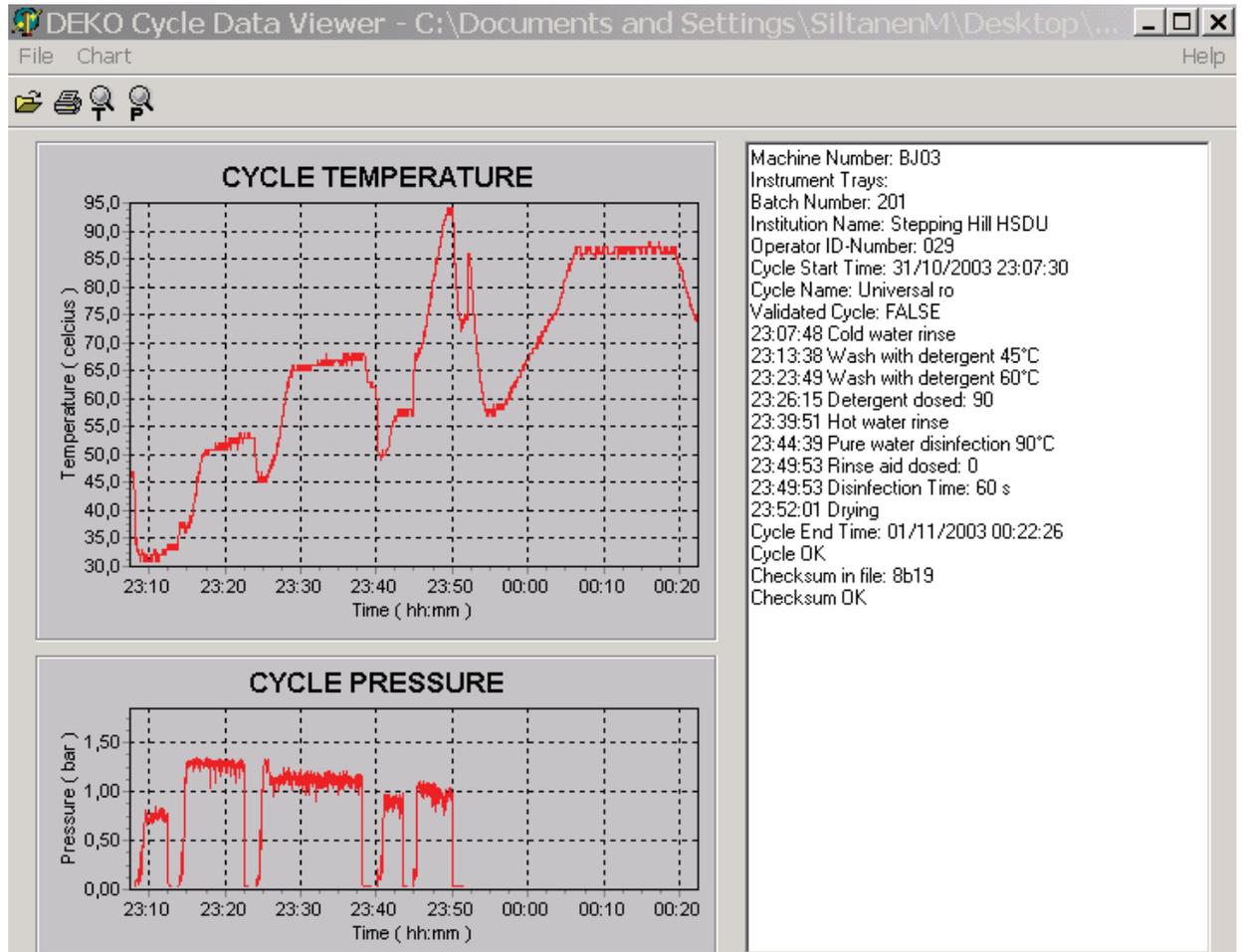
CheckSum: d56a

## 5.6.6 Viewer

The recorded cycle curves can be seen using Deko Cycle Data Viewer-program.  
The program is opened by double clicking the Shortcut of the viewer:



The wanted cycle data is opened by pressing -key and then double clicking the data file.



Zoom temperature: Select a rectangular area from the display by pressing left button of the mouse and release the button. By pressing right button the curve can be moved on the display. Quit zooming.



Zoom pressure: Same as above.



Print Charts: By pressing PRINT CHARTS key, first question is "Do you use colorprinter". Select No, if you do not have a colorprinter.



### 5.6.7 Malfunction and faults

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



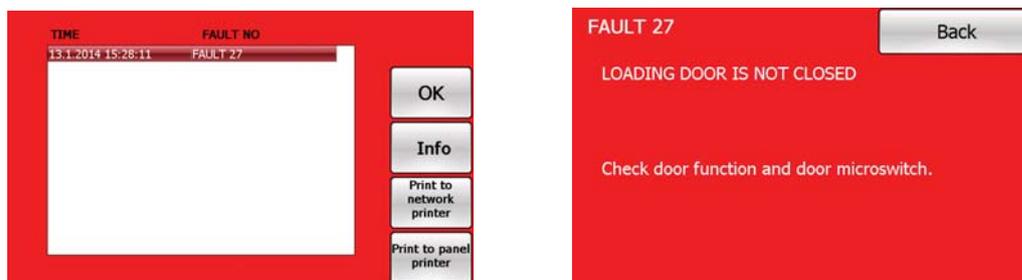
Press “CONTINUE” key to confirm the warning message.

#### Warning messages

Warning text	Explanation
Please check water taps are open	Comes in the beginning of the cycle without pump pressure.
No disinfection	Warns the user, if the cycle does not include disinfection
Cycle nr. xx OK, No disinfection	Warns the user, if the cycle did not include disinfection
Loading door is open	Loading door open or not closed correctly
Chemical tank 1 empty	Replace chemical tank #1
Chemical tank 2 empty	Replace chemical tank #2
Rinse aid tank empty	Replace rinse aid tank
Periodic service is needed	Inform the service to perform periodic service
Power cut off during the cycle	There has been a power failure during the last cycle THE CYCLE MUST BE RUN AGAIN !
Check parameters	Call service
Set parameters	Call service, machine must be configured
Cycle loading failed	Call service
USB memory card is missing	Call service
Check SD-memory card	Call service
Error while saving a report	Call service
Error while printing a report	Call service
Transfer of ftp file failed	Call service
Parameter of machine type	Call service
Internal communication error	Call service
Check calibration values	Call service
Check machine date and time	Call service
PLC and HMI software versions are not compatible	Call service

## Fault messages

In a Fault condition the fault display appears with the fault code. On unloading side the FAULT-led turns red. By pressing **Info** the possible cause and recommended actions for the repair will be displayed. Service shall always be contacted and called for, if a Fault condition occurs.



**By inserting the service code the chamber will be emptied automatically to avoid danger of hot water.**

**The load must be reprocessed (the selected cycle must be run again) always after incomplete cycle !**

Nr	Fault message	Nr	Fault message
1	Loading door has opened during the cycle.	23	Water temperature below the set value
3	Controlling temperature sensor has short circuit.		
4	Controlling temperature sensor has open circuit.	25	Loading door lock not interlocked
5	Verifying temperature sensor has short circuit.	26	Loading door stayed interlocked
6	Verifying temperature sensor has open circuit.	27	Door is not closed.
7	Water intake is blocked.		
8	There is water in the chamber.	32	Loading door interlock opened during cycle
9	Water heating failed	33	Pressure transmitter has open circuit
10	Water circulation pressure too low.	34	Chemical flow 1 fault
11	Overflow, water level too high.	35	Chemical flow 2 fault
12	Water drained from chamber at wrong time.		
13	Water temperature above set limit	38	Chemical tank 1 empty
14	Water circulation pressure dropped too low	39	Chemical tank 2 empty
16	Difference between temperature sensors is too high	41	Rinse aid tank empty
21	Water pump thermal relay has been tripped	52	Electric board temperature too high

**See appendix 1 for detailed instructions.**

## 5.7 Panel printer

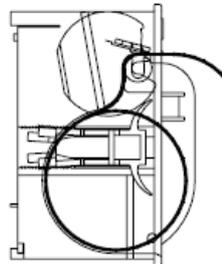
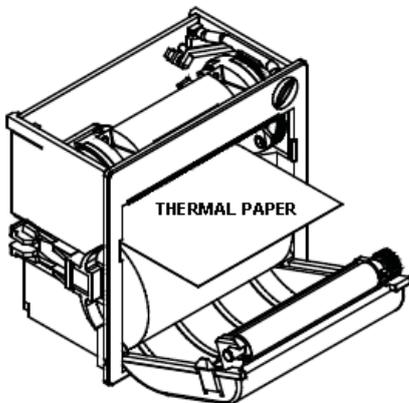
DEKO 25 is equipped with a panel printer. It prints cycle report with all basic data and events. The printer is a thermal printer and the paper report is archiveable.

Cycle report is printed automatically during the process.

There is one button with a led on top right to feed paper and to indicate the status of printer.



The thermal paper with preservability of 10 years can be ordered from Franke or it's representatives.



Install the paper according to the picture above.

Cycle Report:  
 Owner: PMK Hospital  
 Machine: 4  
 Cycle Name: INSTRUMENT  
 Cycle number: 1452  
 Cycle start time: 06-08-17  
 15:45:03  
 15:45:10 CW rinse start  
 15:46:34 CW rinse end  
 15:46:37 Wash start  
 15:47:26 Chem flow OK  
 15:47:30 Chem : set 50 ml  
 T:47 °C  
 15:47:35 Temperature attained  
 T:50 °C p: 0.73 bar  
 15:48:30 Wash end  
 15:48:33 HW rinse start  
 15:49:30 Temperature attained  
 T:50 °C p: 0.74 bar  
 15:49:30 HW rinse end  
 15:49:33 Disinfection 90 °C start  
 15:55:21 Temperature attained  
 T: 90 °C p: 0.70 bar  
 15:56:26 Disinfection end  
 T:91 °C p: 0.71 bar  
 15:55:25 Disinfection time 60s  
 Cycle end time:06-08-17  
 15:56:35  
 Cycle passed

-----  
 signature

Cycle print

## 5.8 Purge and disinfection

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 pipe work of the machine have been designed so that any remaining process water shall flow towards the discharge point of the machine.

It is recommended to run a short cycle with disinfection if the machine has not been used in 24 hours.

Warning: Chamber and pipe work may contain harmful micro-organisms after malfunction!

## 5.9 Methods of cleaning

Daily:

Check that all the sprayers rotate freely and 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:

Clean the outlet sieve by brushing it a few times with the brush.  
Clean the outer stainless steel panels with diluted washing agent and soft washcloth.

Cleaning of the chamber:

Ask from the chemical supplier a special chemical with an acidic pH value for cleaning of washer disinfector's chamber surfaces (stubborn lime, dirt and rust stains and oxide films).  
The dosing volume is generally informed as ml / water volume or % / water volume.  
E.g. if the recommended dosage is 1 %, it means with Deko 25 (water volume 8.5 l)  
75 ml of chemical ( $7.5 \text{ l} * 1 \% / 100 = 0.75 \text{ l} (= 75 \text{ ml})$ ).

The non-foaming special chemical shall be poured into open bowl and put on the washing shelf.  
The chemical is diluted automatically into the washing water during the cycle.  
Note ! Do not pour acid based chemical to the chamber bottom, it may cause damages to the parts and surfaces.

The cleaning cycle is made in programming mode, see maintenance manual chap. 10.

An example of cleaning cycle:

Wash	20 min	55 °C
Hot water rinse	2 min	55 °C
Hot water rinse	2 min	55 °C

Ask more detailed information about the dosage and temperatures from the chemical supplier.



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

## 5.10 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.

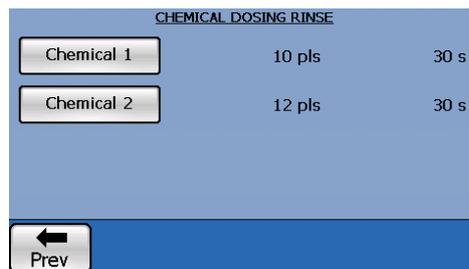
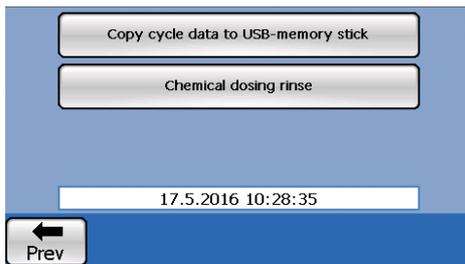
Fill a container with hot tap water and put the detergent suction tubes into the container. In user's mode press "Next" –key to find "Chemical dosing rinse"-key, by pressing it the chemical dosing systems in use can be flushed.

e.g. by pressing "Chemical 1"-key the pump starts and rotates for 30 sec

If the dosing system is in order, the number of pulses are about 4000 with water.

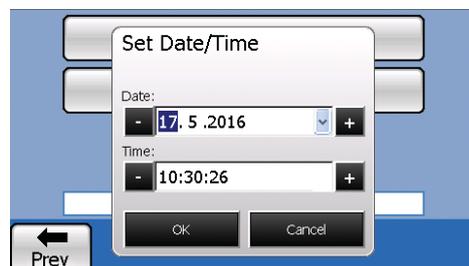
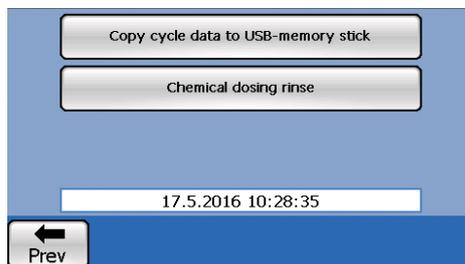
If needed repeat the flushing.

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



## 5.11 Set the date and time in user's mode

It's possible to set the date and time also in user's mode by pressing the time window.



## 6 TESTING

Tests for operational, performance and routine testing are described in standard **EN ISO 15883-1**, Washer-disinfectors Part 1: General requirements, definitions and tests; Chapter 6 Testing for conformity and in the Informative Annex D.

See also **EN ISO 15883-2**, Washer-disinfectors-Part 2: Requirements and tests for washer-disinfectors employing thermal disinfection for surgical instruments, anaesthetic equipment, hollowware, utensils, glassware etc.

They may be used in type tests, work tests, and in validation and re-validation tests, or in periodic routine tests carried out by the user.

## 7 RECYCLING AND DISPOSAL INSTRUCTIONS

Packing materials are recyclable. Dispose in accordance with local regulations.

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

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

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

## 8 DECLARATION OF CONFORMITY

Manufacturer: FRANKE MEDICAL OY

Address: Vartiokuja 1, 76850 Naarajärvi, FINLAND

Hereby declares that:

DEKO 25 complies with the following Directives:

- Medical Device Directive (93/42/EEC)
- The Restriction of Hazardous Substances Directive (RoHS 2011/65/EU)

And that the following harmonized standards have been applied:

- EN 61010-1 Safety requirements for electrical equipment for measurement, control, and laboratory use  
General requirements
- IEC 61010-2-040 Particular requirements for washer disinfectors used in medical, pharmaceutical, veterinary and laboratory fields.
- EN 61326-1 Electrical equipment for measurement, control and laboratory use.  
EMC requirements.
- EN ISO 13485 Medical devices. Quality management systems. Requirements for regulatory purposes (ISO 13485:2003)
- ISO/FDIS 15883-1 Washer-disinfectors, Part1: General requirements, definitions and tests
- ISO/FDIS 15883-2 Washer-disinfectors, Part2: Requirements and tests for washer-disinfectors employing thermal disinfection for surgical instruments, anaesthetic equipment, hollowware, utensils, glassware etc.



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 Franke Medical Oy are evaluated by **VTT** which Notified Body is no. 0537 under the Council Directive 93/42/EEC.

(Signature)  
Antero Asikainen, Managing Director

## 9 WARRANTY TERMS AND CONDITIONS

Dear Deko Customer,

Rhima Australia warrants the Deko Washer Disinfectors to be free from defects in material and workmanship under "normal use and service", which does not include normal wear and tear or preventative maintenance service. Specifically not covered by warranty are service calls to adjust thermostats, detergent dispensers, user errors, racks and accessories, commissioning or any other service requirement not strictly related to defects in material or workmanship.

Rhima Australia will repair or replace any parts, **which in Rhima Australia's sole judgment**, are defective in material and/or workmanship. No responsibility will be accepted for repairs, defects or damages due to improper installation, misuse or neglect. The Deko machines are manufactured with great care; prior to delivery they must pass an extensive quality control. If your machine shows any material or manufacturing defect, you will have a legitimate claim.

The following conditions apply and if in doubt, please refer to our general terms and conditions;

1. Within the warranty period we shall repair any faults with your Deko machine, free of charge, if caused by a material or manufacturing defect. Replaced defective parts will be returned to us and become our property. Warranty is 12 months on parts. In state capitals (within a 30 km radius of GPO) a 3-month warranty on labour, to replace defective parts, applies. All other areas are not covered by a labour warranty, unless specifically mentioned in writing. In any case, **warranty repairs are only carried out within normal business hours** (Monday to Friday, 08.00-17.00 hrs, excluding public holidays).
2. The warranty period starts on the commissioning date. The commissioning must be undertaken within 1 month of machine delivery or warranty will commence from the delivery date.
3. A warranty claim is not valid for defects caused by tampering or repair work carried out by unauthorized persons. This also applies to the fitting of additional accessories, which were not designed for our machines.
4. If a machine, which has been repaired within the warranty period, develops the same fault within 3 months after the repair, the fault will be repaired free of charge, if the cause for this defect is inexperienced repair work, or a material or manufacturing defect of the replaced spare parts, or of the replaced machine. Otherwise the warranty period will not be extended by warranty work.
5. Additional or different claims, especially those for damages caused outside the machine are invalid, unless a liability is enforced by law.
6. All warranty call outs must be approved by Rhima and have an order number.
7. The following is expressly excluded from warranty claims:
  - service or parts relating to blockages due to misuse
  - defects to racks and accessories
  - service or parts relating to inlet and outlet hoses
  - adjustments to temperatures, (water)levels, detergents etc
  - incorrect use or incorrect installation
  - any breakdown due to external influences (high or low water temperature /pressure/ quality, interruption of electricity supply etc)
8. If you call, please have the following information ready:
  - date of purchase ( see invoice/receipt)
  - type of defect / description
  - Machine serial number \*

For full information on warranty conditions, please refer to our general terms and conditions, which are available on request.

**\* EACH MACHINE HAS A SERIAL NUMBER. WARRANTY CLAIMS WITHOUT THIS NUMBER WILL NOT BE TAKEN INTO CONSIDERATION. THIS NUMBER IS LOCATED INSIDE THE DETERGENT DOOR ON THE LEFT SIDE PANEL.**



## 10 APPENDIX I: FAULT LIST.

Nr	Fault message	Explanation
1	Loading door has opened during the cycle.	Check and adjust solenoid lock and microswitch of the door.
3	Controlling temperature sensor has short circuit.	Check connections or change sensor
4	Controlling temperature sensor has open circuit.	Check connections or change sensor
5	Verifying temperature sensor has short circuit.	Check connections or change sensor
6	Verifying temperature sensor has open circuit.	Check connections or change sensor
7	Water intake is blocked.	Check water supply solenoid valves and water level switch. Clean mud filter. Check the taps are open.
8	There is water in the chamber.	Check the level switch, outlet pump and drain.
9	Water heating failed	Check the heating contactors, overheating protector and heating coils.
10	Water circulation pressure too low.	The most common cause for this fault is closed taps. Check the pressure transmitter, circulation pump, and water inlets.
11	Overflow, water level too high.	Check the inlet valves for leakage. Check water levels and drain outlet.
12	Water drained from chamber at wrong time.	Check drain outlet function. Check the anti-siphon valve of the draining hose is not stuck.
13	Water temperature above set limit	Check contactors, check hot water supply temperature
14	Water circulation pressure dropped too low	Check foaming, check pump function, chamber sieve, pressure sensor.
16	Difference between temperature sensors is too high	Calibrate sensors Values of both sensors can be looked in component testing mode.
21	Water pump thermal relay has been tripped	Reset thermal relay, check the pump and reason for pump overload.
23	Water temperature below the set value	Check heating contactors, overheating protector and heating coils.
25	Loading door lock not interlocked	Check door interlock functions
26	Loading door stayed interlocked	Check door interlock functions
27	Door is not closed.	Check door micro switch
32	Loading door interlock opened during cycle	Check door interlock functions
33	Pressure transmitter has open circuit	Check pressure transmitter and cabling
34	Chemical flow 1 fault	Check flow switch and dosing system Flush in user's mode, see 5.10
35	Chemical flow 2 fault	Check flow switch and dosing system Check flow switch and dosing system Flush in user's mode, see 5.10
38	Chemical tank 1 empty	Fill tank, check level detector
39	Chemical tank 2 empty	Fill tank, check level detector
41	Rinse aid tank empty	Fill tank, check level detector
52	Electric board temperature too high	Automatic thermostat max 50 °C on electric board. Does the fan run ? Ambient temperature >50 °C?



## 11 APPENDIX II: USER INSTRUCTIONS

# USER INSTRUCTIONS



Replacing detergent containers	38
Cleaning spray arms & nozzles	38
Checking free rotation of the wash arms	39
Checking functioning of wash arm water connectors	39
Cleaning outlet filter	39

## Replacement of detergent containers



1. Take out the detergent container.



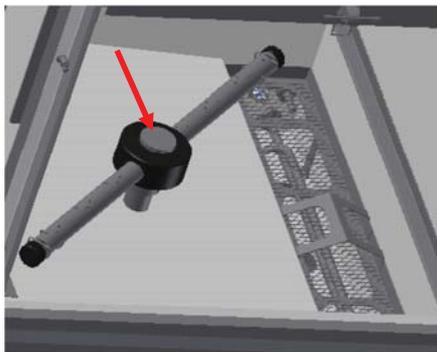
2. Remove the suction pipe from the container.  
3. Replace the container.



4. When necessary adjust the length of the suction pipe

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

## Cleaning spray arms & nozzles

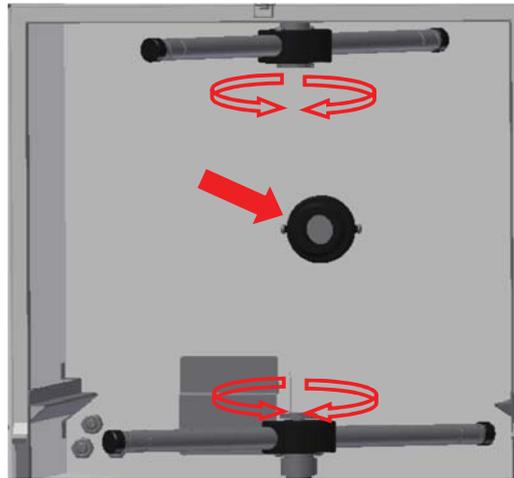


1. Unscrew the locking screw and remove the wash arm.



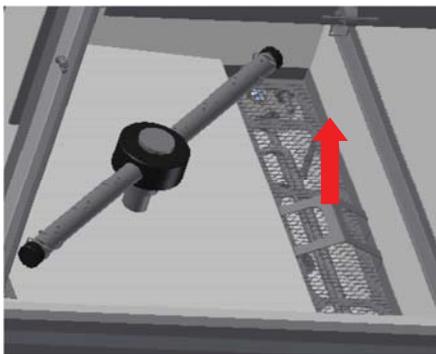
2. Open the caps (turn and pull) at both ends of the arm and clean thoroughly.

## Free rotation of wash arms and function of water connector



1. Check that wash arms rotates freely
2. Check the operation of the water connector by pressing/releasing it  
- detach and clean if necessary

## Cleaning the outlet sieve



1. Remove the sieve by lifting



2. Flush and clean.



Quality  
ISO 9001



Version 1.0

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