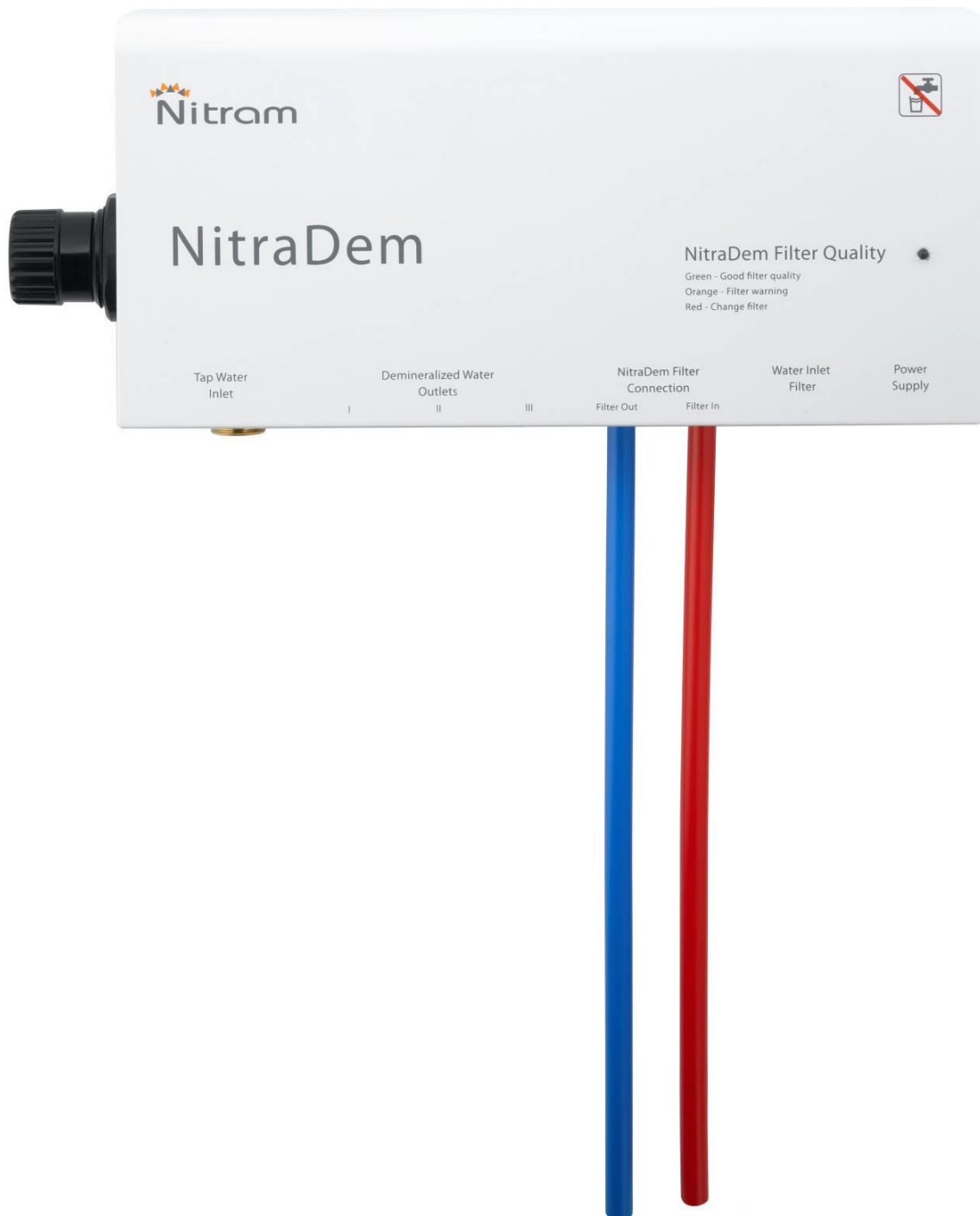


NITRADEM EA

USER MANUAL
ENGLISH



nitram 

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1. Introduction

The NitraDem EA water treatment system produces demineralized water for use in the DAC UNIVERSAL, DAC PROFESSIONAL and similar autoclaves.

In order to demineralize water, the NitraDem EA control panel must be connected to a NitraDem Filter.

The NitraDem EA control panel measures the water conductivity (the water conductivity does not exceed 3 $\mu\text{S}/\text{cm}$).

It is very important to make sure that this manual is easily accessible, so that it will be available at any time in the future. In case the NitraDem EA control panel is sold or the right to use it is transferred to a different owner, make sure that the manual always remains easily accessible. This is necessary to ensure that the new owner can use the NitraDem EA control panel properly and has all required information.

Be sure to read this manual carefully before installing and using the NitraDem EA.

1.1 Intended Use

NitraDem EA is intended to supply demineralized water to DAC UNIVERSAL, DAC PROFESSIONAL or similar autoclaves and thermal disinfection units.

The water may also be used via a water pistol for manual cleaning of instruments which will subsequently be sterilized or thermally disinfected.

NitraDem EA can supply water to more than one unit as long as the combined required capacity is less than 0.6 liters of demineralized water per minute.

1.2 Contradictions

NitraDem EA is not intended to supply drinking water.

1.3 Disposal



The disposal of this product must comply with Directive 2012/19/EU of the European parliament and of the Council of 4 July 2012 on waste electrical and electronic equipment (WEEE) and relevant national regulations.



1.4 Structure of the document

To prevent personal injury and material damage, please observe the warning and safety information provided in this document. Such information is highlighted as follows:



CAUTION:

A possibly dangerous situation that could result in slight bodily injury.

NOTICE

A possibly harmful situation which could lead to damage of the product or an object in its environment.

IMPORTANT

Application instructions and other important information.

2. Installation

The NitraDem EA water treatment system consists of:

- NitraDem EA control panel
- NitraDem Filter
- Installation kit

2.1 Scope of delivery – NitraDem EA

- Power supply
- 2 m red tube
- 2 m blue tube
- 3 screws and 3 rawl plugs
- Drain valve
- User manual on a CD

2.2 Requirements concerning placing

NitraDem EA control panel: The NitraDem EA control panel must be mounted horizontally on a wall with a maximum distance of 3 meters to the autoclave(s).

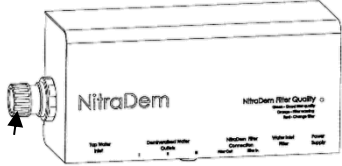
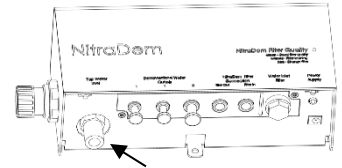
Mount the NitraDem EA control panel on the wall with appropriate screws.

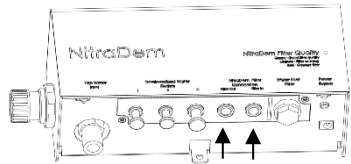
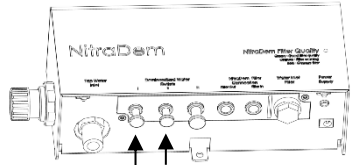
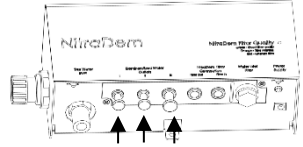
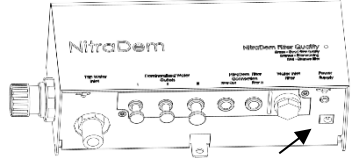
NOTICE: It is recommended that NitraDem EA control panel be hung on a wall (NOT in a cabinet) in a place that is visible and accessible.

NitraDem Filter: The NitraDem Filter must be placed lower than the control panel and within reach of the tubes from the control panel. Please note that the NitraDem Filter should be placed with the filter bottom on a level surface.

2.3 Installation instructions

NOTICE: Only technicians trained by the manufacturer with a training certificate issued by the manufacturer are qualified to perform the installation of the NitraDem EA.

<p>Step 1. Turn off the black water regulator on the left side of the NitraDem EA control panel.</p> <p>This is done by pulling out the water regulator turning knob and then turning it all the way backwards – away from yourself. When the knob cannot be turned further backwards (completely closed), press the knob in again to lock the closed position.</p>	
<p>Step 2. Connect the tap water tube to the Tap Water Inlet (1.66 cm / 3/8 inch male threaded).</p> <p>Please use the official NitraDem Installation kit for this purpose (REF 62 59 076 / 750101, see section 3.5 Accessories).</p> <p>NOTICE: Ensure to use the gaskets delivered with the Installation kit.</p> <p>Following specifications are required:</p> <ul style="list-style-type: none"> • Minimum water pressure: 2 bars • Maximum water pressure: 10 bars • Minimum water temperature: 0 °C • Maximum water temperature: 23 °C <p>NOTICE: To avoid constant water pressure in the NitraDem EA system, the water supply to the NitraDem EA control panel MUST be turned off at the end of the day.</p> <p>For this purpose, a stop-/ball tap should be installed on the water supply connection.</p>	

<p>Step 3. The control panel is delivered with one red tube (8 mm) and one blue tube (8 mm), each has a length of 2 meters.</p> <p>Connect the red tube to the Filter In inlet and the blue tube to the Filter Out outlet.</p> <p>Connect the red and blue tubes to the red and blue tubes on the NitraDem Filter. The tubes must be inserted approx. 15 mm.</p> <p>NOTICE: If the tubes are shortened, ensure to cut them with tube scissors intended for this purpose. Also be sure to smoothen the ends of the tube, e.g. with sandpaper.</p>	
<p>Step 4. To tap off water from the control panel, please mount the drain valve (delivered with the control panel) or use the official water pistol (REF 62 59 084 / 750102, see section 3.5 Accessories).</p> <p>The drain valve and water pistol are mounted as follows: Remove the blind plug from Outlet I or II. Gently insert the tube of the drain valve or water pistol into the outlet.</p> <p>NOTICE: Please ensure that the arrow indicated on the drain valve points downwards.</p>	
<p>Step 5. Check that all connections, which are not used on the control panel, have a blind plug mounted (REF 64 90 820 / 750201).</p> <p>NOTICE: Please save the blind plugs, which have been dismantled as water will pour out of any outlet left without connection to an autoclave, drain valve, water pistol, drain or blind plug.</p> <p>Step 6. Turn on the black water regulator on the NitraDem EA control panel.</p>	
<p>Step 7. Connect the transformer cable to the Power Supply inlet and plug the other end of the power supply cable in a socket. Switch on the power to the control panel.</p>	
<p>Step 8. Pump out any possible air pockets in the NitraDem Filter by opening one of the Demineralized Water Outlets (I, II, III) on the NitraDem EA control panel. Please note that water will pour out of the outlet immediately after the air has been removed from the NitraDem Filter. Tap approximately 1 litre of water through the system or until the NitraDem Filter Quality diode lights green.</p> <p>The system is now ready for use.</p>	

3. Operating the NitraDem EA

3.1. Starting up the system

When the NitraDem EA is to be used, the black water regulator on the control panel and the power supply must be turned on. Then the system is ready for use.

NOTICE: If the NitraDem system has been closed for more than 3 days, it is recommended that the following be done before starting the autoclave:

More than 3 days:

If water has not been tapped from the system for more than 3 days, it is required that the system is flushed with at least 2 liters of water.

Procedure: Tap off 2 liters of water from one of the three (I, II, III) Demineralized Water Outlets on the NitraDem EA control panel.

More than 4 weeks

Do NOT leave the filter unused for a longer period of time. If water has NOT been tapped for a period of more than 4 weeks, the filter is to be replaced with a new NitraDem Filter (REF 61 98 431 / 750002).

Remember cleaning procedure according to section 5.

⚠ CAUTION: During system running never disconnect:

- The tubes or blind plugs
- The NitraDem Filter
- The water tank
- The Water Inlet Filter

3.2. Closing the system

NOTICE:

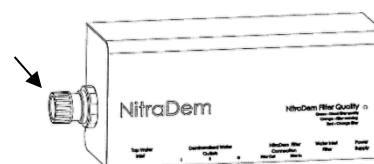
It is very important that the black water regulator on the control panel is turned off at nights, on weekends and during holidays.

If possible, it is also strongly recommended that the public water supply is turned off completely before leaving the clinic.

If the water regulator is not turned off, there is a risk that the clinic might be damaged from leaking water if a breakdown of the NitraDem EA system should occur.

Step 1. Turn off the black water regulator on the left side of the NitraDem control panel.

This is done by pulling out the black turning knob and then turning it all the way backwards – away from yourself. When the knob cannot be turned further backwards (completely closed), press the knob in again, to lock the closed position.



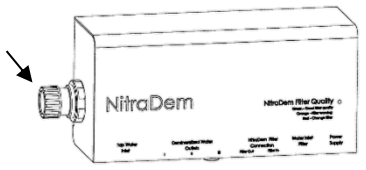
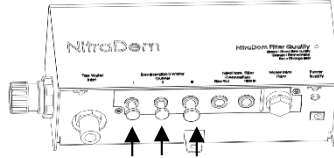

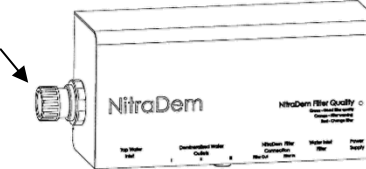
3.3. Water quality measurement

The NitraDem Filter Quality diode on the NitraDem EA control panel indicates the water quality.

- If the diode lights green, the system is running at optimum.
- If the diode lights orange, the NitraDem Filter must soon be replaced.
- If the diode lights red, the NitraDem Filter must be replaced. Failure to do this will result in the NitraDem EA control panel giving an acoustic alarm. Afterwards, the DAC UNIVERSAL will switch off due to “bad water”.

3.4 Changing the NitraDem Filter

To change the NitraDem Filter, follow the steps below:

<p>Step 1. Turn off the power supply to the NitraDem EA control panel.</p> <p>Step 2. Turn off the black water regulator on the left side of the control panel.</p> <p>This is done by pulling out the black turning knob and then turning it all the way backwards – away from yourself. When the knob cannot be turned further backwards (completely closed), press the knob in again, to lock the closed position.</p>	
<p>Step 3. Tap off the residual water from the used NitraDem Filter by using one of the three (I, II, III) Demineralized Water Outlets on the NitraDem EA control panel – continue until water stops flowing.</p>	
<p>Step 4. Dismount the old NitraDem Filter by disconnecting both the red and the blue tubes at the NitraDem Filter box. This is done by gently pressing the small red ring on the quick connect coupling while simultaneously gently pulling the tube.</p> <p>Step 5. Open the Press/Pull lid on the new NitraDem Filter box (REF 61 98 431 / 750002).</p> <p>Step 6. Connect the tubes from the control panel to the NitraDem Filter by gently pressing the tubes into the quick connect coupling. Connect the red tube from the NitraDem Filter to the red tube on the control panel. Connect the blue tube from the NitraDem Filter to the blue tube on the control panel.</p> <p>NOTICE: Pull the tubes gently to ensure that they are securely and correctly attached.</p>	
<p>Step 7. Turn on the black water regulator on the NitraDem EA and the power supply.</p> <p>NOTICE: It is important to pump out any possible air pockets in the new NitraDem Filter. Do so by opening one of the Demineralized Water Outlets (I, II, III) on the NitraDem EA control panel. Please note that water will pour out of the outlet immediately after the air has been removed from the NitraDem Filter. Tap approximately 1 litre of water through the system or until the NitraDem Filter Quality diode lights green.</p>	

3.5 Accessories

It is recommended that the NitraDem Installation kit is used when installing the NitraDem EA. The Installation kit includes 3 different fittings and a 2 metre long hose for connecting the NitraDem EA control panel to the water supply.

To facilitate draining, it is recommended to use the water pistol. It is equipped with an approximately 1.4 m long tube.

Installation kit



REF 62 59 076 /
750101

Water pistol



REF 62 59 084 /
750102

4. Errors

Should the NitraDem EA control panel indicate an error (visually or acoustically), please consult the table below:

Error	Solution
The NitraDem Filter Quality diode is showing a red light.	Change the NitraDem Filter (see section 3.4).
The NitraDem Filter has just been changed, but the NitraDem Filter Quality diode on the control panel is lighting orange or red.	Tap off approximately 1 litre of water from the system. If this does not solve your problem, change to another/new NitraDem Filter (see section 3.4). If the error persists, contact your authorized NitraDem supplier.
The NitraDem control panel is giving an acoustic signal but the diode is still showing green light.	Turn off the water regulator and the power to the NitraDem EA system. Contact your authorized NitraDem supplier.
Leakage from the control panel or from the filter.	Turn off the water regulator and the power to the NitraDem EA system. Contact your authorized NitraDem supplier.
The amount of water coming from the NitraDem EA control panel is very low	Pump out any air pockets in the NitraDem Filter by opening one of the Demineralized Water Outlets (I, II, III) on the NitraDem EA control panel (see section 3.4, step 7). If the error persists, contact your authorized NitraDem supplier.

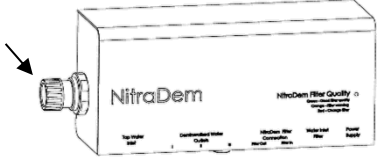
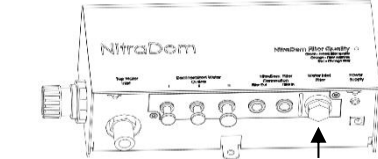
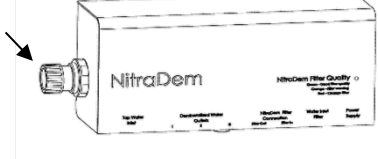
5. Cleaning and maintenance

5.1 Maintenance plan for the NitraDem system

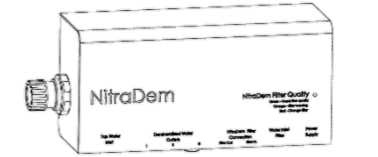
Task	Frequency	Guidance
Cleaning of the Water Inlet Filter	Weekly	See section 5.2
Exterior cleaning of the control panel	When needed	See section 5.3

⚠ CAUTION: Failure to comply with the maintenance plan can cause system malfunction and breakdown.

5.2 Cleaning of the Water Inlet Filter

<p>Step 1. Turn off the power supply to the NitraDem EA control panel.</p> <p>Step 2. Turn off the black water regulator on the left side of the control panel.</p> <p>This is done by pulling out the water regulator knob and then turning the knob all the way backwards – away from yourself. When the knob cannot be turned further backwards (completely closed), press the knob in again, to lock the closed position.</p>	
<p>Step 3. Dismount the Water Inlet Filter cap (REF 63 06 356 / 750183) with a 17 mm spanner. Please note that there is water in the system, which will come out when the cap is dismounted. When the cap is dismounted, the filter also comes out.</p> <p>NOTICE: If the Water Inlet Filter (REF 63 06 455 / 750174) is damaged, replace it with a new one.</p> <p>Step 4. Rinse the Water Inlet Filter with water and push the open side of the filter back into the cap.</p> <p>Mount the cap (incl. filter) back into the panel with the 17 mm spanner.</p> <p>NOTICE: Ensure that the cap is fully inserted.</p>	
<p>Step 5. Turn on the black water regulator on the NitraDem EA control panel and the power supply.</p>	

5.3 Exterior cleaning of the control panel

<p>Step 1. Clean the exterior surfaces of the control panel with isopropyl alcohol or warm water and dish soap.</p>	
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6. Safety, service and warranty conditions

This section deals with the conditions concerning safety, service and warranty.

6.1 Safety

For your safety and correct operation of the NitraDem EA system, it is extremely important that the NitraDem EA system is operated as described in this manual. Apart from the instructions in this manual, the following precautionary measures concerning water quality should be taken into consideration when using the NitraDem EA system:

6.1.1 Water quality

The NitraDem EA system must only be fed with water of drinking water quality. Feed water with unknown microbiologic quality must never be used without sufficient prior disinfection.

Should there from official side be given recommendations to boil the drinking water, this will also apply to the filtered water from the NitraDem EA system. For certain groups of people, e.g. persons with a weak immune system or babies, it is always recommended to boil the water before use. This includes filtered water as well.

CAUTION: The NitraDem EA is not intended to supply drinking water.

6.2 Service

Sirona Dental A/S assures you quick assistance, should this be needed for your NitraDem EA during the warranty period. For a list of technical service locations, please refer to our website: <http://www.sirona.com>.

NOTICE: Only technicians trained by the manufacturer with a training certificate issued by the manufacturer are qualified to perform the installation, service, repair and maintenance of the NitraDem EA.

6.3 Warranty

Sirona Dental A/S guarantees that the supplied product (NitraDem EA) has gone through a complete test, before being shipped from the factory.

The NitraDem EA control panel is covered by a 12 month warranty from the date of purchase. The warranty covers manufacturing faults or material defects and includes spare parts and wages.

The warranty does, however, not cover if one of the following has taken place:

1. The product has been serviced by other service technicians than the ones authorized by Sirona Dental A/S.
2. The product has been neglected or in any other way harmed.
3. The product is used in another way than described in these instructions.
4. The cleaning and maintenance of the system has not been performed.
5. Non-original spare parts have been used.

Sirona Dental A/S reserves the right, at any time, to make any improvements/alterations on products built or sold by the company without being obliged to make the same alterations on products previously built or sold by the company.

Manufacturer of NitraDem EA:

Sirona Dental A/S, Rho 10, DK-8382 Hinnerup, DENMARK - www.sironahygiene.com.

IMPORTANT: The manufacturer reserves the right to use pictures/graphic material in this user manual which in some cases have been made from prototypes and computer animations.

6.4 Certificates

Sirona Dental A/S is certified by Lloyds in the UK.

Sirona Dental A/S is certified according to ISO 9001 and ISO 13485.

The Sirona water treatment system is CE-marked according to European regulations.

For technical assistance please contact your authorized supplier.

Appendix - Technical information**A1 Technical description**

Manufacturer:	Sirona Dental A/S
Model:	NitraDem EA control panel
Dimensions:	27,5 cm/ 10.6 inches (W) 12,2 cm/4.7 inches (H) 8,3 cm/3.2 inches (D)
Material: Cover	Iron
Weight: (net without packaging)	2 kg / 4.41 pounds
Noise:	<65 dBA
Supply voltage:	100 – 240 VAC
Current fluctuations:	+/- 10 % Max
Frequency:	50/60 Hz
Nominal current:	50 mA
Nominal power:	10 W
Electric class:	II
Type:	NA
Type BF applied part:	NA
Safety class:	Never use the NitraDem EA control panel in the presence of inflammable anaesthetics or gases
Water pressure:	2 to 10 bars
Water temperature:	0 °C to 23 °C
Operating conditions: (when installed)	Temperature: 16 °C to 26 °C. The NitraDem EA control panel must NOT be installed at below zero degrees Celsius
Protection against harmful ingress of water:	Ordinary
Transport and storage conditions:	Temperature: –40 °C/41 °F to +65 °C/149 °F Relative humidity: 20 to 90 % Air pressure: 500 -1060 hPa
Marking:	This product bears the CE marking
EMC Test:	According to Directive: 2004/108/EF

A2 Principle of water treatment

A total desalination of the water is achieved by mixing several types of ion exchangers in a container – hence the name Mixed Bed. The container contains cations which are acidic, and anions which are basic/ alkaline. When water is led through the ion exchanger, the water's cation and anion content is replaced by H⁺ and OH⁻ respectively, which together yields H₂O.

The advantage of the Mixed Bed is that the ion exchange does not only take place once but repeatedly as the water passes through the mixed filter mass.

Water that has been totally desalinated contains virtually no cations and anions. The conductivity is thus very low – below 0.2 µS/cm. The content of silicic acid and free carbon dioxide has been reduced, which means less covering and corrosion occurs in the autoclaves.

A3 Why is it important to use demineralized water, as recommended, in autoclaves?

Autoclaves are sensitive to bad water. In case the content of calcium oxide, salts or minerals is too high, the functionality of the autoclave will be reduced, thereby causing problems.

The DAC UNIVERSAL autoclave transforms water into steam in a rustproof steel tube with a small diameter. When the water is turned into steam, any traces of lime, salts, or minerals will remain. In time, this will cause the heating element to clog, making it necessary to replace it. The required quality of the water therefore has to be as defined in the user manual of the autoclave.

A4 NitraDem filter capacity

The capacity of the NitraDem Filter will vary according to the quality of the inlet water. The softer the water (low microsiemens level), the more water the NitraDem Filter will produce. Furthermore, the capacity of the NitraDem Filter also depends on the flow and temperature of the inlet water.

We reserve the right to make any alterations which may be due to technical improvements.

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