

THE DENTAL  
SOLUTIONS  
COMPANY™



## Info File Infection Control

# Instrument reprocessing in the dental practice

[dentsplysirona.com](https://dentsplysirona.com)



# Infection control systems for a high level of safety

Infection control in dental practices is becoming even more important, and with such significance comes increased monitoring. Ensure all-round protection for yourself, your practice team and your patients by using instrument reprocessing with a high level of hygienic safety and comprehensive documentation options. Infection control solutions from Dentsply Sirona are suitable for the cleaning, care, disinfection and sterilization of dental instruments. Regardless of the design of your infection control workflows, we have the appropriate solution.

## DAC Universal, DAC Universal S

The combination machine cleans, lubricates (if necessary) and disinfects<sup>1</sup> / sterilizes<sup>2</sup> up to six straight and contra-angle handpieces, turbines, ultrasonic/sonic handpieces and tips, nozzles of multifunctional syringes and powder jet devices as well as powder jet handpieces in approx. 15 minutes<sup>1</sup> / 21 minutes<sup>2</sup> - including cooling.

<sup>1</sup> DAC Universal  
<sup>2</sup> DAC Universal S

## DAC Premium, DAC Professional

The class B autoclaves are universally suitable for all sterilization items.

## SiroSeal Premium, SiroSeal Professional

With the sealing devices, instruments can be packaged for storage and transportation.





## Instrument reprocessing

Straight and contra-angle handpieces, turbines, ultrasonic / sonic handpieces and tips, nozzles of multifunctional syringes and powder jet devices as well as powder jet handpieces place increased requirements on diligent reprocessing as a result of the narrow media channels and the angled interior spaces. Difficulty is increased by technological contaminations such as abrasion and oil residues in addition to typical contaminations from treatments such as blood, saliva, secretions and tissue.

In principle, straight and contra-angle handpieces and turbines must be reprocessed after each patient treatment and require special care due to design cavities. Rotating instruments can be classified as semi-critical (non invasive use) or critical instruments (invasive use). Depending on the country, the procedure of reprocessing contains:

cleaning, disinfection or sterilization (unwrapped) and wrapped sterilization. Machine reprocessing increases process reliability, whereby the occupational safety for the practice staff is also increased. Mechanical reprocessing is preferable to manual reprocessing for these reasons. All workflows relating to the reprocessing of

medical devices must be defined in the operating procedures. The reprocessing guidelines from the relevant manufacturers must be taken into account. All reprocessing steps as well as cleaning and disinfection<sup>1</sup> / sterilization<sup>2</sup> measures should subsequently be compiled in the hygiene plan of the operating practice.

<sup>1</sup> DAC Universal

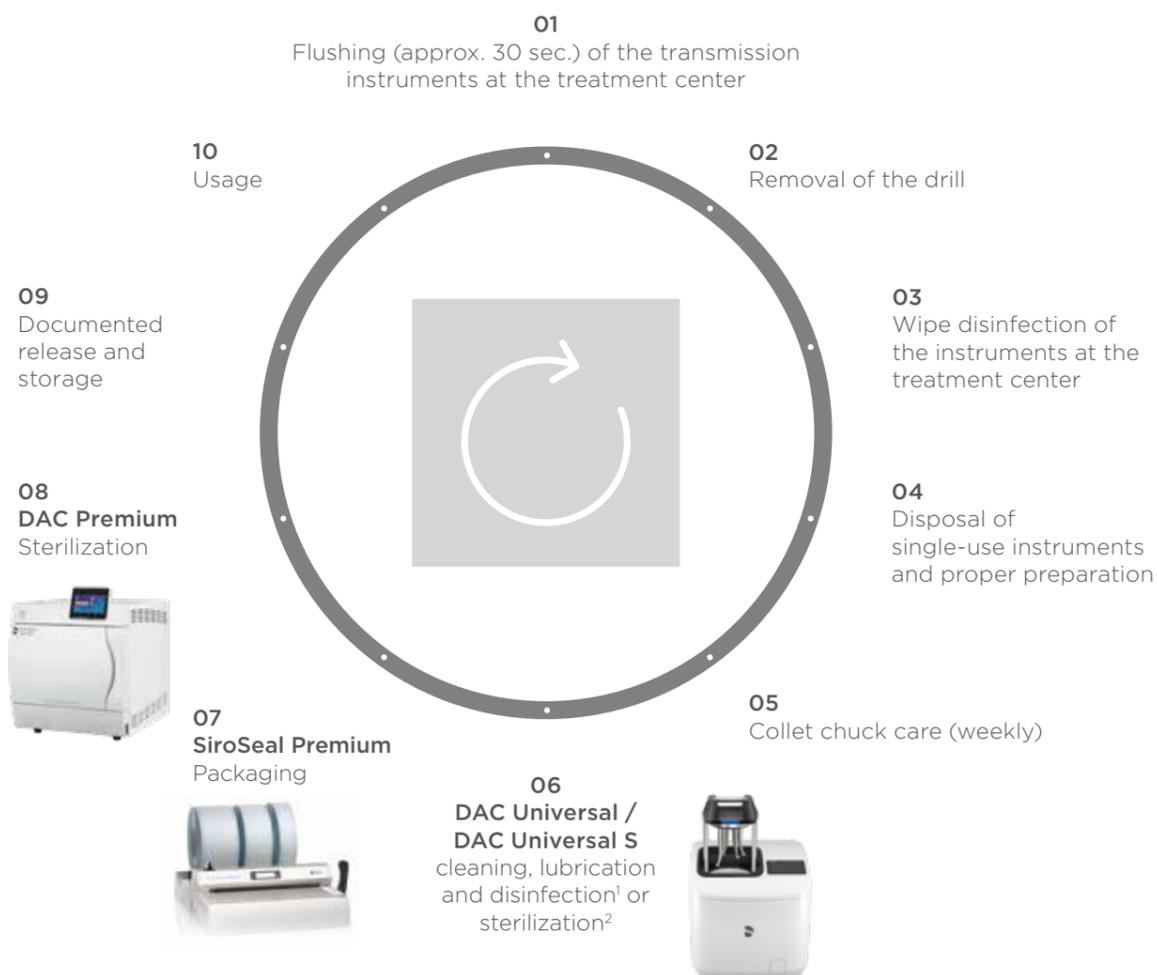
<sup>2</sup> DAC Universal S

## The infection control cycle in machine instrument reprocessing

It begins with correct hand hygiene and thorough disinfection of all patient-related surfaces. Emphasis is placed on the correct reprocessing of medical devices – an ever-present process. It affects all instruments that are brought into the reprocessing room after treatment. Such instruments are then put through comprehensive reprocessing consisting of cleaning, disinfection<sup>1</sup> or

sterilization<sup>2</sup>, packaging – if necessary – and wrapped sterilization. The effectiveness and repeatability of the reprocessing processes with DAC Universal / DAC Universal S are checked during validation. The authorities recognize this validation process. Medical devices designated for sterile use are wrapped and sealed with SiroSeal Premium. During subsequent sterilization in

DAC Premium, the instruments are rendered sterile. The packaging protects against recontamination during storage and transportation. All important parameters and the success of reprocessing are documented after the cycle has been completed and then archived on the practice computer.



<sup>1</sup> DAC Universal  
<sup>2</sup> DAC Universal S

## Instrument reprocessing methods

### Cleaning and disinfection

#### Machine cleaning and disinfection – the safe approach to reprocessing

With machine reprocessing, all process steps involved in cleaning and disinfection are performed by an infection control system. Cleaning is performed using water and, where necessary, cleaning agents are added. Disinfection is mostly thermal without the addition of chemicals. According to the RKI guidelines, machine reprocessing methods are preferable to manual methods, and thermal disinfection is favored over chemical disinfection. Machine cleaning and disinfection devices comply with the requirements of the international standard EN ISO 15883-1 / -2.

#### Manual cleaning and disinfection

In the case of manual reprocessing, cleaning and disinfection chemicals from spray bottles are used to clean the inside and outside of instruments. To ensure effectiveness, standardized work instructions must be followed very closely. The manual method is very time intensive. For medical devices of invasive use, the machine reprocessing is generally recommended.

#### Semi-manual cleaning and disinfection

Numerous care and infection control devices offer automation of a part of the reprocessing process. The missing process steps have to be carried out manually or by a different machine system (see page 17 “Market overview of care and infection control devices”).

### Sterilizer classification

The standard for small steam sterilizers EN 13060 differentiates between three classes of sterilization programs:

#### Class B – the universal sterilization type

This autoclave sterilizes wrapped and unwrapped solid products and hollow items in accordance with the manufacturer’s specifications. Devices with such programs are referred to as class B sterilizers (e.g. DAC Premium / DAC Professional).

#### Class S – for sterilization of medical devices

This autoclave sterilizes wrapped and unwrapped solid products and hollow items in accordance with the manufacturer’s specifications (see manufacturer’s declaration). Devices with such programs are referred to as class S sterilizers (e.g. DAC Universal S). The sterilization result satisfies the same quality requirements as for Class B sterilizers.

#### Class N – for thermal disinfection

This autoclave is used for unwrapped solid products. Class N cannot be used with hollow items.

# DAC Universal and DAC Universal S Advantages



### Ease of use

- New design
- Touch display with intuitive user interface
- Guided maintenance workflow Check & Clean

### Cost-effective and environmental friendly reprocessing

- Low operating and consumption costs – no use of cleaning and disinfection chemicals and only up to 800 ml<sup>1</sup> / 900 ml<sup>2</sup> water consumption per cycle
- Low investment costs in instruments thanks to cooling at the end of the process and therefore quick return to service

### Fully automatic reprocessing

- Six instruments in approx. 15 minutes<sup>1</sup> / 21 minutes<sup>2</sup>
- Internal and external cleaning, lubrication (if needed) and disinfection<sup>1</sup> / sterilization<sup>2</sup> of straight and contra-angle handpieces, turbines, ultrasonic / sonic handpieces and tips, nozzles of multifunctional syringes and powder jet devices as well as powder jet handpieces
- Process safety through automatic program selection
- LAN interface for electronic documentation

### Legal certainty

- Cleaning and disinfection<sup>1</sup>/sterilization<sup>2</sup> process which can be validated
- Cleaning and disinfection process in accordance with EN ISO 15883-1 / -2
- Sterilization process in accordance with EN ISO 13060 and ISO 17665-1
- Routine Control with chemical indicator class 5 and PCD (Process Challenge Device)

## Switch off infection control risks: Switch on DAC Universal / DAC Universal S

Comply with infection control standards at the touch of a button and avoid cross contamination: Completely safe with DAC Universal / DAC Universal S. Your patients and employees can rely on this all-round protection and put their complete trust in the treatment with the reprocessed instruments.

### Conformity with standards

The cleaning and disinfection process of DAC Universal is carried out in compliance with the international standard EN ISO 15883-1 / -2 for cleaning and disinfection devices.

The cleaning process of DAC Universal S is carried out in compliance with the international standard EN ISO 15883-1 / -2, the sterilization process in accordance with EN ISO 13060 and ISO 17665-1.

### Fully active against viruses: Reprocessing with DAC Universal and DAC Universal S



The thermal disinfection of DAC Universal as well as the sterilization of DAC Universal S, are not only bactericidal and fungicide but also fully virucidal. Proven full virucidal<sup>1</sup> activity. Efficacy spectrum with relevant examples:

bactericidal	TBC, S. aureus
fungicide	C. albicans
virucidal	HPV, HBV, HCV, HIV, COVID-19, influenza, adenoviruses, noroviruses

<sup>1</sup> Tested with temperature resistant parvoviruses.

<sup>1</sup> DAC Universal  
<sup>2</sup> DAC Universal S

# DAC Universal – with disinfection

## Fully automated reprocessing process

DAC Universal cleans, lubricates (if necessary) and disinfects\* up to six straight and contra-angle handpieces and turbines in a fully automated process. Furthermore, ultrasonic/sonic handpieces and tips, nozzles of multifunctional syringes and powder jet devices as well as powder jet handpieces can be reprocessed at a very high level of hygienic safety in DAC Universal.

## Lid variations



### Blue Lid

For the reprocessing of straight and contra-angle handpieces, turbines and contra-angle handpiece heads.



### Green Lid

For the reprocessing of ultrasonic/sonic handpieces and tips, nozzles of multifunctional syringes and powder jet devices as well as powder jet handpieces.

\* no sterilization

## Reprocessing of rotating instruments in a single cycle with the Program Blue Lid



### Internal cleaning with cold water

1. Preliminary cleaning
2. Leak test
3. Internal cleaning: The internal spray and drive channels are rinsed with water



### Fully automated lubrication

4. Lubrication: The drive channels are lubricated (sufficient for the next treatment)



### External cleaning with cold water

5. External cleaning: Pulse wash procedure (multi-cyclical cleaning method)



### Disinfection\* and cooling

6. Heating up to 134 °C
7. Back-flush: Saturated steam is directed through the instruments
8. Disinfection\*: 0.5 min. at 134 °C
9. Cooling
10. The lid opens slightly
11. The lid can now be opened fully

## Reprocessing with the Green Lid (identical process to the Program Blue Lid, but without lubrication)



### Internal cleaning with cold water



### External cleaning with cold water



### Disinfection and cooling



## DAC Universal S – with sterilization

### Fully automated reprocessing process

DAC Universal S cleans, lubricates (if necessary) and sterilizes up to six straight and contra-angle handpieces and turbines in a fully automated process. Furthermore, ultrasonic/sonic handpieces and tips, nozzles of multifunctional syringes and powder jet devices as well as powder jet handpieces can be reprocessed at a very high level of hygienic safety in DAC Universal S.

### Lid variations



#### Pink Lid

For the reprocessing of straight and contra-angle handpieces, turbines and contra-angle handpiece heads.



#### White Lid

For the reprocessing of ultrasonic/sonic handpieces and tips, nozzles of multifunctional syringes and powder jet devices as well as powder jet handpieces.

### Reprocessing of rotating instruments in a single cycle with the Program Pink Lid



#### Internal cleaning with cold water

1. Preliminary cleaning
2. Leak test
3. Internal cleaning: The internal spray and drive channels are rinsed with water



#### Fully automated lubrication

4. Lubrication: The drive channels are lubricated (sufficient for the next treatment)



#### External cleaning with cold water

5. External cleaning: Pulse wash procedure (multi-cyclical cleaning method)



#### Sterilization and cooling

6. Heating up to 134 °C
7. Back-flush: Saturated steam is directed through the instruments
8. Sterilization: 3 min. at 134 °C
9. Cooling
10. The lid opens slightly
11. The lid can now be opened fully

### Reprocessing with the White Lid (identical process to the Program Pink Lid, but without lubrication)



#### Internal cleaning with cold water



#### External cleaning with cold water



#### Sterilization and cooling



## Information on the validation of DAC Universal and DAC Universal S

The following information is provided in line with the statutory requirements

**Validation** is a process that tests the effectiveness and reproducibility of the reprocessing procedure. It is composed of installation qualification (IQ), operational qualification (OQ) and performance qualification (PQ).

If the relevant authorities demand complete and **comprehensive initial validation** on-site in the practice, there are various dealers and service providers that offer such on-site validation services. Complete initial validation locally in the practice includes a comprehensive performance qualification in addition to the installation qualification and operational qualification.

**The renewed performance qualification (revalidation)** must be carried out after 12 months. With lasting stability of the processes as well as existing risk assessment by the operator, the interval can be raised on up to 24 months / 4000 cycles over the longterm. Revalidation is also required after changes have been made to the device that influence the

process parameters or after a change in loading. The inspection qualification and operation qualification are omitted in the renewed performance qualification.

**Batches must be documented;** this can be carried out with a printer, using the practice software (also via a network) or via a USB data-logger system.

**Routine control tests** must be done due to the recommendations of the manufacturer. E.g. DAC Universal S requires chemical indicators with every cycle and a steam penetration test with a PCD regarding ISO 17665-1 once a week.

**Maintenance as recommended by the manufacturer** must be performed at the latest after two years or 3,000 cycles. A maintenance kit is available (REF. 67 15 689). The dealer technician must be allowed approx. three working hours.



## Process documentation

Process documentation enables complete verification of successful reprocessing. Here, it is not only the process parameters that are stored electronically; compliance with the batch-specific parameters with chemical indicators is also documented.



### Electronic batch and process documentation, e.g.

Charly, Dampsoft, diosMP, DOCma, Sego®, my:MPG  
REF. 65 43 172



### Printer

Time, temperature, serial number and correct running of the sterilization / disinfection are documented.  
Printer DAC Premium / DAC Premium Plus and DAC Professional / DAC Professional Plus  
REF. 66 68 441  
DAC Universal thermal printer REF. 60 51 770



### Process documentation via USB stick

The data are stored digitally on the device on a data logger, e.g. diosMP or Sego® and transmitted via USB stick to the documentation software. The process is approved, digitally signed and archived.

## Electronic documentation

For electronic batch and process documentation, Dentsply Sirona recommends the solutions described below, diosMP and Sego®.

Work safely, simply and in compliance with the law. diosMP is a modular system made up of hardware and software, with perfectly coordinated modules that are tailored to the specific needs of a practice, and which can be expanded at any time as the requirements change. From a plug in and go kit for a single device (dios LOG Box, dios LOG Net) to fully digital process documentation and approval, as well as managing your medical devices – diosMP is the ideal solution for your medical device and hygiene management.

### From documented approval...

With diosMP, you can read out the protocol data from as many reprocessing devices as you wish, and document it in compliance with the law. diosMP is a manufacturer-independent software, which means that it is not limited to specific brands or combinations of devices. If you purchase a license, you obtain the full user rights for all of the currently available and future devices for a

single practice. Approval of the reprocessing, which can be authenticated via a password, or personal contactless card, can be combined with freely definable checklists. The effort required to assess the process and for the fully digitally documented approval is reduced enormously. All of the data is archived by the software for an extended period, both in an encoded database and in a portable, manipulation-proof PDF format. If desired, approval can also be given the additional status of an advanced electronic signature.

### ...to fully digital practice management

In daily practice life, there are many guidelines, laws, regulations and standards to consider, which demand much more than merely well-organized hygiene management. diosMP is the ideal software for your medical device and hygiene management, with which you can fulfil all of your documentation obligations quickly and safely with mini-

imum effort, way beyond mere process documentation. With diosMP, you keep control of your entire order and supply system and the management of your products, and you have an overview of your stock levels and product shelf lives. Thanks to patient-related consumption monitoring, you can retrace the use of sterile products and instruments, from the manufacturer all the way to the patient. With just a few clicks, you can obtain a continuous, complete treatment record. Furthermore, all tasks and areas of responsibility are digitally documented, thereby increasing the transparency of all of the processes within the practice. With its integrated warning and notification system, diosMP reliably reminds you of all tasks and duties to be completed, so that no task remains unfinished! Discover the diosMP system solution for yourself, and simplify your medical device and hygiene management.

The Sego® product family – unlimited possibilities and certified security

### Easy to use

The use of Sego® enables easy, intuitive, fully automated and time-saving documentation of reprocessing steps and all device tests and routine checks. Sego® provides reliable documentation of the disinfection or sterilization process that can be accurately retraced at any time. The recording of data together with electronically signed documents is essential for quality assurance and protects you against liability risks. The user interface is well structured and clear.

### Fast & efficient in daily practice life

Once the reprocessing devices have been started, Sego® records all of the relevant process data automatically, without the need for user intervention. After unloading and the visual inspection, the only task that the technical personnel have is to assess the machine reprocessing, approve the products and then close the approval dialog box by inputting a password, all of which

can be done in a few dialogs on the monitor. With Sego®, no additional work processes are required for reliable documentation.

### Individual application

Whether you use Windows, macOS, iOS, Android or Linux – the Sego® products can work web-based and across platforms. Whether they are linked to Sego® or not, whether they are active or not, and whether they can only be used to a limited extent or not, all medical devices can be fully documented and traced in Sego4Star. Stock lists, maintenance intervals, validation dates or safety checks, and the monitoring and inspection of instruments and sets that can only be reprocessed to a limited extent can be shown in a user-defined manner due to the close link between task and instrument management, which also provides reminders to complete certain tasks or take note of specific information. It is even possible to set up a check system for sterile goods

that are approaching their expiration dates. A task manager that safeguards all of the routine checks rounds off the range of functions. Thereafter, you will find all of the relevant documents, both in a fully comprehensive archive and in the special medical device directory.

### Reliable results

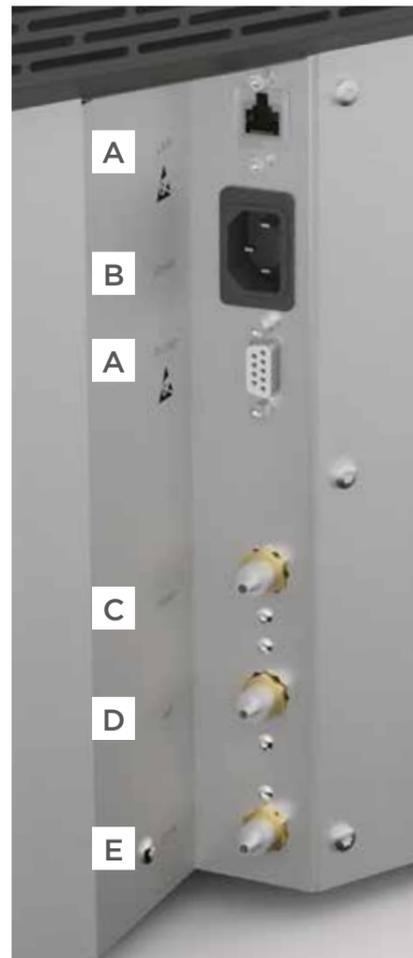
The intelligent SegoAgent is an integral component of the web-based Sego® products. It supports your employees when it comes to making decisions, protects against incorrect operation and manages your checklists and tasks. Long-term archiving is performed using the PDF/A-1 format, which is defined by ISO 19005-1:2005. This format has an electronic signature, making it tamper-proof, and therefore legally valid.

### Sego® represents certified security

Information based on manufacturers' details (March 2020)

## Requirements and information on installation

Requirements on location: Place DAC Universal / DAC Universal S in a well-ventilated location on a flat, heat-resistant table top near to a power source. A compressed air connection of 5 to 8 bar flow pressure is required. The recommended minimum distance to the wall is 10 cm. Further, there must be enough space to enable DAC Universal / DAC Universal S to be opened upward. The total height of the open DAC Universal is 59 cm. The minimum height should be 70 cm in order to prevent possible injuries when opening the lid (risk of crushing).



### Installation of DAC Universal / DAC Universal S

- A Process documentation:**  
RS232 interface: recommended for printer  
LAN interface: recommended for the connection with PC, laptop
- B AC connection:**  
220 - 240 VAC, 50-60 Hz, 1,300 W
- C Water supply:** Water from a water treatment system can be connected to the water connection via a 6 mm hose. We recommend NitraDem Direct Connect 2 (REF. 66 93 233) as the direct connection. Water can also be filled manually into the water tank. Note: Water quality must be < 3 µS/cm. Note: Maximum water pressure is 6 bar.
- D Compressed air connection:**  
Connect clean and dry air (6 mm hose).  
The air pressure must be between 5 and 8 bar flow pressure (short-term air consumption: approx. 60 NI/min. at 5 bar).
- E Waste water:** The waste water hose must be manufactured from heat-resistant material and has a diameter of 6 mm. The maximum length is 3 m. Please use the original waste water container (REF. 60 78 526) or an original siphon (REF. 61 26 341) for direct connection to the waste water system.

## Market overview of care and infection control devices

For the reprocessing of turbines and straight and contra-angle handpieces

	DAC Universal S	DAC Universal	Assistina TWIN	QUATTRO care Plus	iCare+	Melatherm 10 Evolution	PWD 8531	PG 8581	STAT-MATIC smart	X-Cid 2	Lubrina 2
Manufacturer	Dentsply Sirona	Dentsply Sirona	W&H	KaVo	NSK	MELAG	MIELE	MIELE	SciCan	Micro-Mega	Morita
Cycle time	approx. 21 min.	approx. 15 min.	approx. 10 sec.	approx. 1 min.	approx. 15 min.	approx. 60 min.	approx. 60 min.	approx. 42 min w/o drying	approx. 10 min.	approx. 30 min.	approx. 20 s/ turbine approx. 40 s/c/a
Capacity (instr.)	6	6	1	4	4	23	6	44	3	3	4
Weight [kg]	26	26	7.5	10	14	80	55	65	7.3	8	8
Water connection	■	■	-	-	-	■	■	■	-	-	-
Waste water connection	■	■	-	-	-	■	■	■	-	-	-
Compressed air connection	0.5 - 0.8 MPa	0.5 - 0.8 MPa	0.5 - 1 MPa	0.4 - 0.6 MPa	0.5 - 0.6 MPa	-	-	-	0.45 - 0.6 MPa	0.5 - 0.8 MPa	0.3 - 0.5 MPa
External cleaning	■ (water)	■ (water)	-	-	■ (cleaner)	■ (cleaner)	■ (cleaner)	■ (cleaner)	-	■ (cleaner)	-
Internal cleaning (spray channel)	■ (water)	■ (water)	-	-	■ (cleaner)	■ (cleaner)	■ (cleaner)	■ (cleaner)	■ (cleaner)	■ (cleaner)	-
Internal cleaning (drive channel)	■ (water)	■ (water)	-	-	-	■ (cleaner)	■ (cleaner)	■ (cleaner)	-	-	-
Oil maintenance	■	■	■	■	■	-	-	-	■	■	■
Disinfection	-	■ (thermal)	-	-	■ (chemical)	■ (thermal)	■ (thermal)	■ (thermal)	-	■ (chemical)	-
Sterilization	■	-	-	-	-	-	-	-	-	-	-
Electronic documentation	□	□	- <sup>1</sup>	- <sup>1</sup>	■	□	□	□	■	-	-
Instruments can be directly used for semi-critical B	■	■	- (additional manual or automated internal, external cleaning and thermal disinfection/ unwrapped sterilization)	- (additional manual or automated internal, external cleaning and thermal disinfection/ unwrapped sterilization)	■	■	■	■	- (additional manual external cleaning, thermal disinfection/ unwrapped sterilization)	■	- (additional manual or automated internal, external cleaning and thermal disinfection/ unwrapped sterilization)
Ultrasonic/sonic tips	■	■	-	-	-	■	■	■	-	-	-
Ultrasonic/sonic handpieces	■	■	-	-	-	■	■	■	-	-	-
Attachments for multifunctional syringes	■	■	-	-	-	■	■	■	-	-	-
Nozzles of powder jet devices	■	■	-	-	-	■	■	■	-	-	-

■ available  
□ optional  
- not available

<sup>1</sup> Device is not a washer-disinfector/sterilizer  
Information based on manufacturers' details (February 2020)

# DAC Premium: Highest standards easily achieved

## Efficient heating

DAC Premium and DAC Premium Plus use the same double-walled sterilization chambers (twin-chamber technology) as hospital autoclaves. Chambers are pre-heated with the steam that is subsequently used for sterilization. As a result, electric heated jackets are no longer required. You save time, energy costs and both you and your patients are protected by the best possible sterilization result in a reliable and legally compliant manner.

## Quick air evacuation

Sterilization quality not only depends on the quality of the steam; the performance of the vacuum technology is also substantially responsible for the best possible sterilization results. The twin-chamber technology also offers a decisive advantage here because the air is very quickly evacuated from the cavities of the instruments, sterilization packages and the chamber. At the same time, the air is withdrawn from the steam very effectively. This shortens the sterilization process considerably while simultaneously prolonging the service life of the vacuum pump.

## Simple tracing

With autoclaves in the DAC Premium class, you can quickly and easily trace and track the instruments used on patients, and thereby solidify your quality management. You determine which parameters have to and should be queried after sterilization to ensure release of the batch. With DAC Premium and DAC Premium Plus, this can be carried out with no additional computer or special software.



## All-round simplicity

With the extra-large color touch display, the appearance of the DAC Premium autoclaves also makes them stand out from conventional class B sterilizers. The menu navigation is so intuitive that operator errors are a thing of the past. You can also input any desired settings quickly and easily, or, for example, customize the display background to your tastes.



Left: The DAC Premium Plus has a 23.8 l chamber. Right: The DAC Premium with a chamber volume of 18.4 l.

## Safe

- Complies with all relevant norms for legal certainty
- A higher infection control standard is achieved in the practice
- Reduced risk of contamination for patients
- Documentation with printer, CF card or directly in the PC without additional documentation software is possible

## Simple

- Intuitive operation via the color touch display
- Compact solution with integrated fresh water and waste water tank
- Simple installation as a standalone device

## High-tech

- Twin-chamber technology
- Particularly rapid air evacuation from instrument chambers and cavities
- High sterilization quality
- Short sterilization cycles (e.g. Quick program B in 20 minutes including drying)

## Ecological

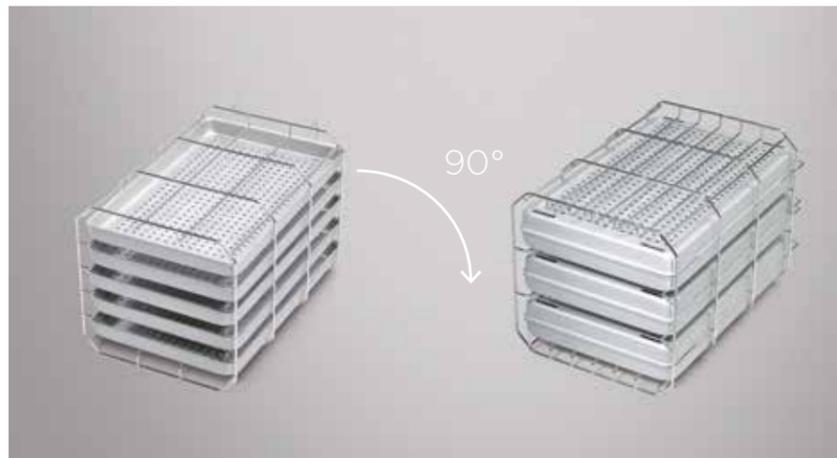
- Energy saving mode: Automatic reduction of standby temperature
- Pre-selection of the required time to start the autoclave

# DAC Professional: An Investment in Quality

No matter which chamber size you decide upon, with the DAC Professional class autoclaves, you will be making a safe investment. Production in Germany, certified manufacturing standards and a chamber made from stainless steel mean that the devices are high quality and have a long service life. Both versions are suitable for all thermostable products and sterilization types; no additional sterilization device is therefore required. Operator errors are a thing of the past due to the integrated display and the market-tested operator guidance.



Left: The DAC Professional with a chamber volume of 17 l. Right: The DAC Professional Plus has a 22.6 l chamber



Variable loading options. By turning the tray holder 90°, 3 standard cassettes with lids or 5 trays without lids can be loaded

## Safe

- Complies with all relevant norms for legal certainty
- A infection control hygiene standard is achieved in the practice
- Reduced risk of contamination for patients
- Documentation with printer or CF card (using a CF card reader) without additional documentation software is possible

## Simple

- Compact solution with integrated fresh water and waste water tank
- Simple installation as a standalone device
- Easy to operate using the display

## Cost-effective

- A quick solution instead of slow tabletop sterilizers
- Easy handling minimizes operator errors
- Sterilization (Quick program S) is possible in just 15 minutes (without drying)
- Activated preheating for short operating times
- Integrated control of fresh water guarantees error-free operation and prevents damage to the instruments

# SiroSeal: Seals with the best possible level of safety

## SiroSeal Premium

The sealing process is reproducible and can be validated with SiroSeal Premium. Outstanding ease of use, performance and convenient options for process documentation make SiroSeal Premium the new benchmark for sealing devices of this class. And all with an unbeatable heat-up time of 90 seconds and a sealing time of just three seconds.

### Packaging process can be validated

SiroSeal Premium meets standardization requirements in accordance with ISO 11607-2. According to the standard, the process parameters of temperature, contact pressure and sealing time are continuously monitored and documented, and can be confirmed as part of the process validation.

### First-class usability

The easily readable LCD display with LED status display, the intuitive 4-button operation, the option of user administration, two integrated USB interfaces and a maintenance counter make the sealing device an intelligent aid that will provide optimal support for compliance with your infection control workflow. The device switches automatically into energy saving mode and then into standby mode.

### Seamless documentation

SiroSeal Premium can be connected directly to a PC to document and archive logs simply and safely using documentation software such as MELAt race. As an alternative, the supplied 8 GB USB stick can be used to save process parameters.



SiroSeal Premium



LCD display and LED status display and 4-button operating concept

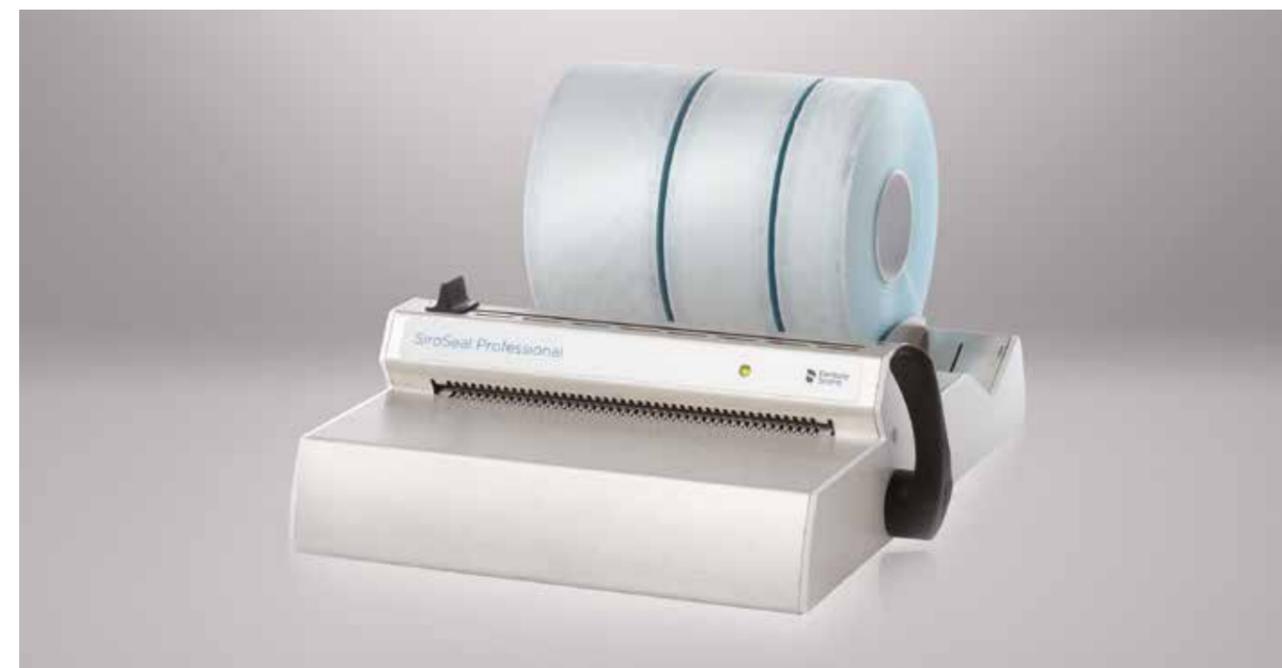
## SiroSeal Professional

Safe, proven and high performing: SiroSeal Professional is a stable, high-performance bar sealing device. The visual and acoustic indicator that displays, for example, operational readiness after a short warm-up time of about two minutes, is especially noteworthy.

The reproducible sealing time is also indicated visually and acoustically. With the continuously adjustable thermostat, you can adjust the sealing temperature to the packaging material used and then seal several

instruments without any pauses. The sealing seam width is 10 mm. That is significantly more than the minimum width of 6 mm required in the European standard EN 868-5.

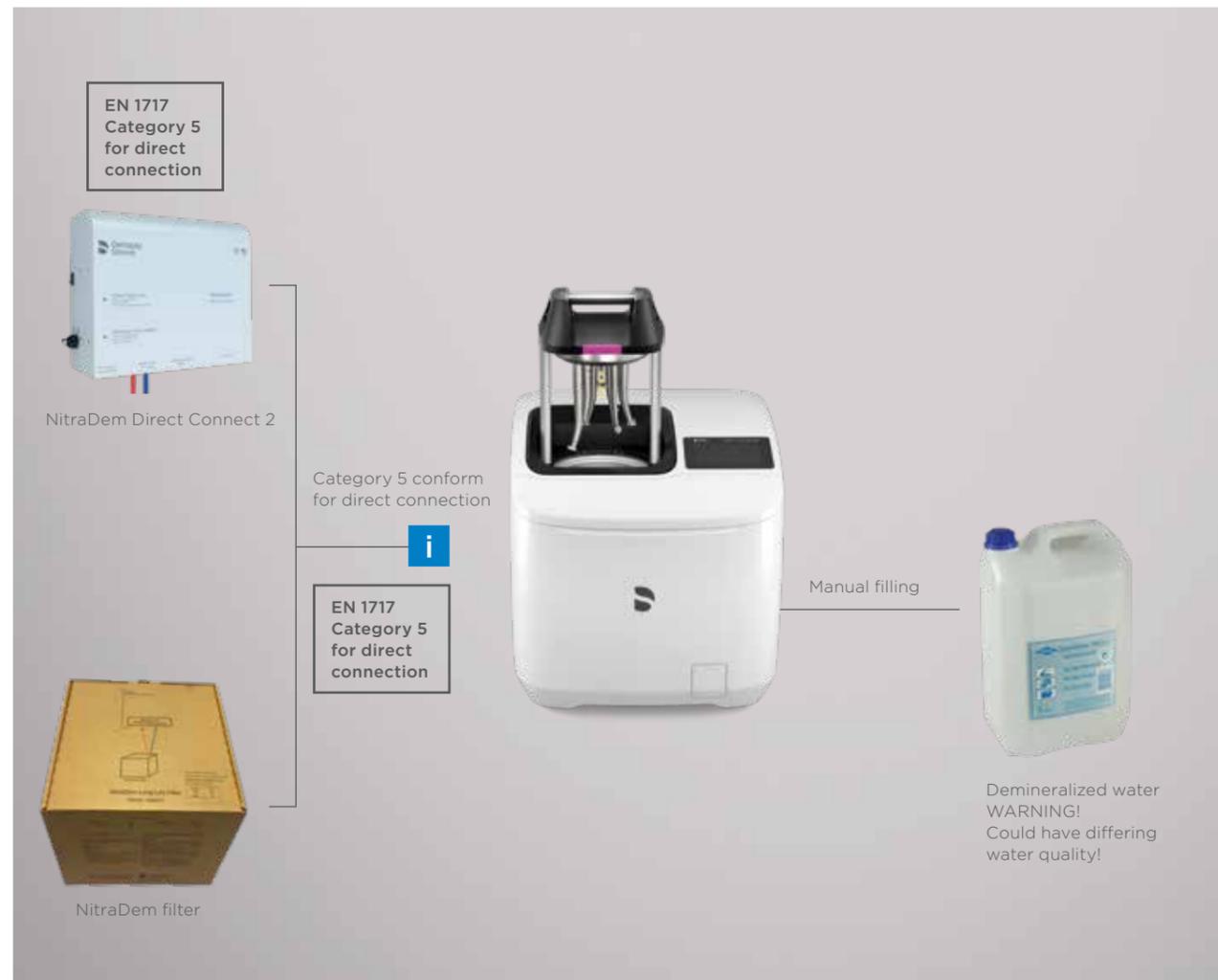
With SiroSeal Professional, you can remain flexible in your choice of materials and can rely on having the highest level of safety.



SiroSeal Professional

# Water supply

High-quality treated water ( $< 3\mu\text{S}/\text{cm}$ ) is required for DAC Universal / DAC Universal S. The majority of standard water reprocessing systems do not guarantee a constant flow or required return flow protection that would meet this requirement. In order to avoid cycle interruptions due to poor water quality, we recommend the NitraDem Direct Connect 2 water treatment system.

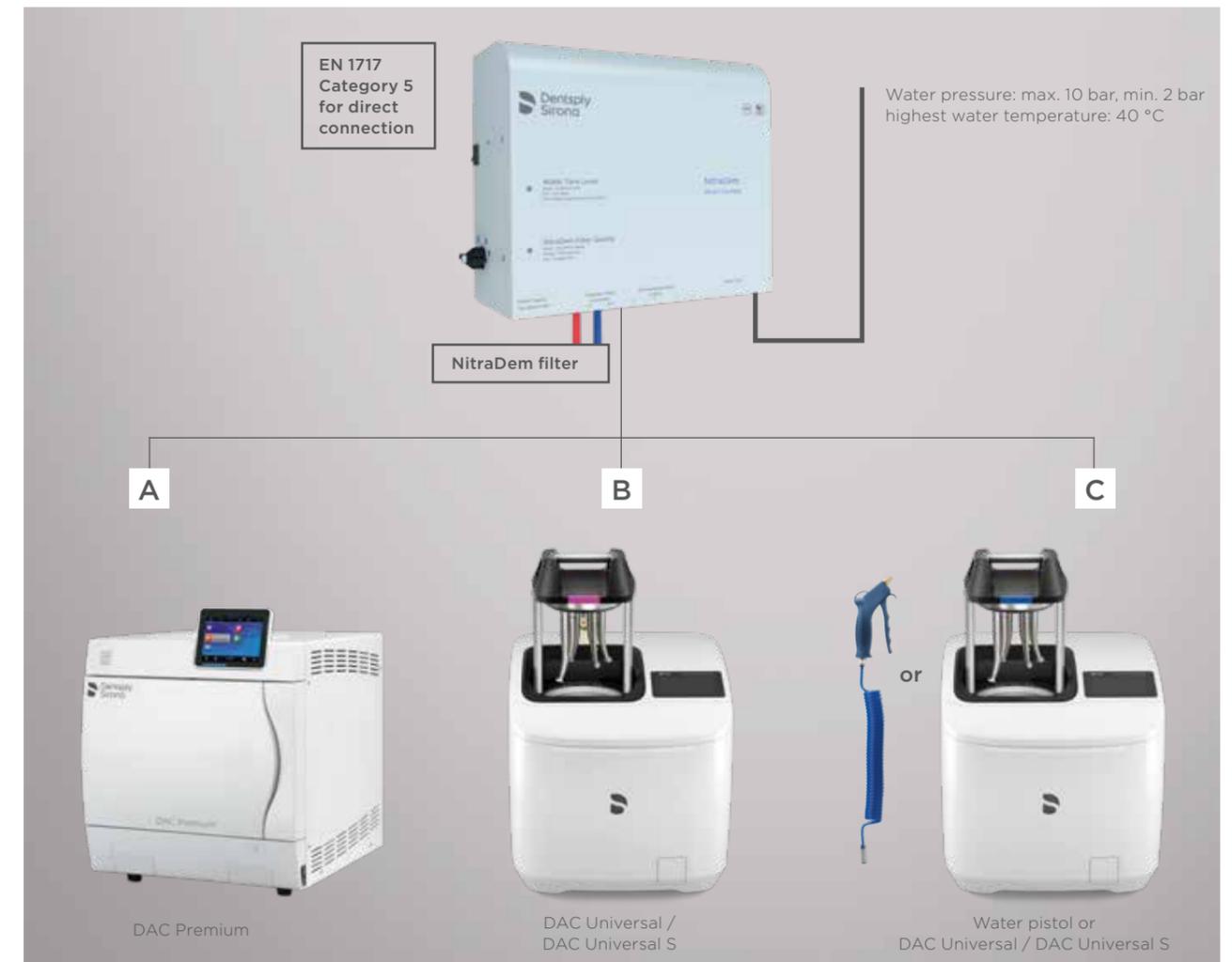


**i** Direct connection: A water filter (20  $\mu\text{m}$ ) must be installed upstream of DAC Universal / DAC Universal S to ensure that the water is clean. This serves to protect your DAC Universal / DAC Universal S. REF. 63 12 214

## NitraDem Direct Connect 2 – connections

NitraDem Direct Connect 2 features 3 water outlets. Depending on the type, up to three devices can be connected.

### Water treatment



REF. 66 93 233 NitraDem Direct Connect 2

NitraDem Direct Connect 2 has three water outlets, from which demineralized water is available at a pressure of 5-6 bar.

**A** At outlet A a infection control system can be optionally connected with or without a water suction pump. The system is not recommended for connection to cleaning and disinfection devices.

**B C** Water outlets B and C are used to connect infection control systems without a water suction pump, e.g. water pistol, DAC Universal or DAC Universal S.

## NitraDem Direct Connect 2



### Direct water connection

- EN 1717 Category 5-compliant for direct connection
- Water available on demand to all connected infection control systems
- Connection of up to three infection control systems simultaneously

### Easy handling

- Simple filter replacement
- Compatible with DAC Universal/ DAC Universal S and all standard sterilizers

### Continuous control

- Always the right water quality
- No quality loss due to storage
- Water conductivity is continuously monitored

## Market overview of water treatment systems

	NitraDem Direct Connect 2	BWT bestdemin XL/2XL	MELAdem 40	Multidem C27
Manufacturer	Dentsply Sirona	BWT	MELAG	W&H
Throughput [l/h]	42	100	120	60
Water quality [ $\mu\text{S}/\text{cm}$ ]	0 - 3	0 - 5	1 - 5	0 - 15
Electrical connection	100 V - 240 V 50 - 60 Hz	n.a. n.a.	n.a. n.a.	n.a. n.a.
Dimensions (H x W x D) [cm]	26.5 x 30 x 12	52.7 x $\varnothing$ 14.7 (XL) / 60 x $\varnothing$ 18.5 (2XL)	35 x 32 x 15	47.6 x 12.4 x 12.3
Weight [kg]	7.3	3.9 (XL) / 7.5 (2XL)	3.7	2.7
Capacity / 500 $\mu\text{S}/\text{cm}$ / [liter]	180 (Mini) / 360 (Long-Life)	290 (XL) / 420 (2XL)		225
Capacity / 10° dH / [liter]	255 (Mini) / 510 (Long-Life)		210	
Conductivity test	Yes	No	No	No
Fixed connection	Yes	Yes	Yes	Yes
DIN EN 1717-compliant for direct connection	Yes	No	No	No

Information based on manufacturers' details (February 2020)

Water treatment system	REF.
NitraDem Direct Connect 2 incl. installation kit and NitraDem Mini filter	66 93 233

Accessories and filters	REF.
Water pistol	62 59 084
NitraDem Mini filter	66 93 209
NitraDem Long-Life filter	66 93 217

## Instrument reprocessing in the hygiene area

The infection control area should consist of separate areas which must be designated for the reprocessing of instruments for semi-critical and critical applications. These reprocessing areas must be differentiated into the areas “Dirty”, “Clean” and “Storage.” It is recommended that these three areas are marked accordingly. DAC Universal / DAC Universal S must be positioned in the unclean area, directly on the border to the clean area.



# Technical data

## DAC Universal / DAC Universal S

Installation prerequisites	
Electrical power supply	~ 100-127 VAC / 200-240 VAC 50/60 Hz
Power consumption	1.3 kW
Compressed air connection	Input pressure: 5.0 - 8.0 bar; max. Short-term air consumption: approx. 60 NI/min. at 5 bar
Oil Can capacity	0.2 l
Water tank capacity	2.3 l
Water consumption	DAC Universal: approx. 800 ml per cycle (Program Blue Lid) DAC Universal S: approx. 900 ml. per cycle (Program Pink Lid)
Water quality	< 3 µS/cm
Height open/closed (with Blue/Pink Lid) x width x depth	59 cm/40 cm x 40 cm x 42 cm
Capacity	up to 6 instruments
Weight	26 kg
Minimum distance from wall/ceiling	10 cm / 70 cm

Installation kit		
Designation	Description / models	REF.
"Siphon" installation kit (Touch)	Including: • Siphon with direct connection • Manometer • Hose • Waste water filter (6 pcs.) • NitraClean cleaning tablets (50 pcs.)	67 09 880
"Waste water tank" installation kit (Touch)	Including: • Waste water tank • Manometer • Hose • Waste water filter (6 pcs.) • NitraClean cleaning tablets (50 pcs.)	66 98 299

Documentation	
RS 232 connections	e. g. printer, documentation software, data logger
LAN	e. g. documentation software

Programs	
<b>Program Blue Lid</b>	Cleaning, disinfection and lubrication of straight and contra-angle handpieces, turbines and contra-angle heads 134 °C, 0.5 min disinfection, entire cycle time: approx. 15 min <sup>1</sup> including cooling
<b>Program Green Lid</b>	Cleaning and disinfection of ultrasonic/sonic handpieces and tips, nozzles of multifunctional syringes and powder jet devices as well as powder jet handpieces 134 °C, 0.5 min. disinfection, entire cycle time: approx. 15 min <sup>1</sup> including cooling
<b>Program Pink Lid</b>	Cleaning, sterilization and lubrication of straight and contra-angle handpieces, turbines and contra-angle heads 134 °C, 3 min. sterilization, entire cycle time: approx. 21 min <sup>1</sup> including cooling
<b>Program White Lid</b>	Cleaning and sterilization of ultrasonic/sonic handpieces and tips, nozzles of multifunctional syringes and powder jet devices as well as powder jet handpieces 134 °C, 3 min. sterilization, entire cycle time: approx. 21 min <sup>1</sup> including cooling

<sup>1</sup> The cycle times can vary.

## DAC Premium / DAC Premium Plus

	DAC Premium	DAC Premium Plus
Reference numbers	65 26 920 65 36 929 (AUS)	65 26 938 65 36 937 (AUS)
Electrical connection	3,400 W / 220 - 240 V / 50/60 Hz	3,400 W / 220 - 240 V / 50/60 Hz
External dimensions (W x H x D)	47 x 56.5 x 57.5 cm	47 x 56.5 x 69 cm
Sterilization chamber (diameter x depth)	25 x 35 cm	25 x 45 cm
Weight (without load)	59 kg	66 kg
Chamber volume	18.4 l	23.8 l
Max. loading	Instruments: 6 kg or textiles: 2 kg	Instruments: 7 kg or textiles: 2.5 kg
Water tank (aqua dem/aqua dest)	Fresh water side: 5 l (approx. 7 cycles); Waste water side: 3 l	Fresh water side: 5 l (approx. 7 cycles); Waste water side: 3 l

DAC Premium	Operating time (without drying)		Drying time
	Load up to 6 kg of unwrapped instruments	Load up to 2 kg of textiles	
Universal program	21 min.	-	12 min.
Quick program B*	14 min.	-	6 min.
Quick program S**	10 min.	-	2 min.
Gentle program	36 min.	39 min.	12 min.
Prion program	38 min.	-	12 min.

DAC Premium Plus	Operating time (without drying)		Drying time
	Load up to 7 kg of unwrapped instruments	Load up to 2.5 kg of textiles	
Universal program	21 min.	-	12 min.
Quick program B*	14 min.	-	6 min.
Quick program S**	10 min.	-	2 min.
Gentle program	36 min.	43 min.	12 min.
Prion program	38 min.	-	12 min.

All times depending on load, power and water supply. \* max 1.5 kg wrapped or 6 or 7 kg unwrapped \*\* unwrapped

## Technical data

### DAC Professional / DAC Professional Plus

	DAC Professional	DAC Professional Plus
Reference numbers	61 45 309 (GER) 60 93 475 (EN) 61 26 705 (F) 61 26 713 (AUS)	65 26 912 (GER) 65 36 879 (EN) 65 36 887 (F) 65 36 895 (AUS)
Electrical connection	2,100 W / 220 - 240 V / 50/60 Hz	2,100 W / 220 - 240 V / 50/60 Hz
External dimensions (W x H x D)	42.5x48.5x63 cm	42.5x48.5x75.5 cm
Sterilization chamber (diameter x depth)	25 x 35 cm	25 x 45 cm
Weight (without load)	45 kg	50 kg
Chamber volume	17 l	22.6 l
Max. loading	Instruments: 5 kg or textiles: 1.8 kg	Instruments: 5 kg or textiles: 1.8 kg
Water tank (aqua dem/aqua dest)	Fresh water side: 5 l (approx. 7 cycles); Waste water side: 3 l	Fresh water side: 5 l (approx. 7 cycles); Waste water side: 3 l

DAC Professional	Operating time (without drying)		Drying time
	Load up to 5 kg of unwrapped instruments	Load up to 1.8 kg of textiles	
Universal program	30 min.	-	20 min.
Quick program B*	30 min.	-	10 min.
Quick program S**	15 min.	-	5 min.
Gentle program	45 min.	45 min.	20 min.
Prion program	45 min.	-	20 min.
Vacuum test	18 min. (empty)	-	-

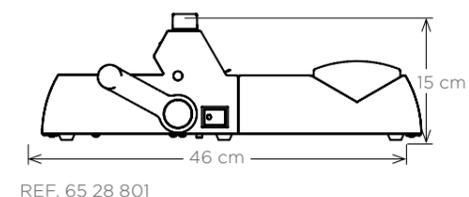
DAC Professional Plus	Operating time (without drying)		Drying time
	Load up to 5 kg of unwrapped instruments	Load up to 1.8 kg of textiles	
Universal program	30 min.	-	20 min.
Quick program B*	30 min.	-	10 min.
Quick program S**	15 min.	-	5 min.
Gentle program	45 min.	45 min.	20 min.
Prion program	45 min.	-	20 min.
Vacuum test	18 min. (empty)	-	-

All times depending on load, power and water supply.  
\* Max 1.5 kg wrapped or 5 kg unwrapped \*\* unwrapped

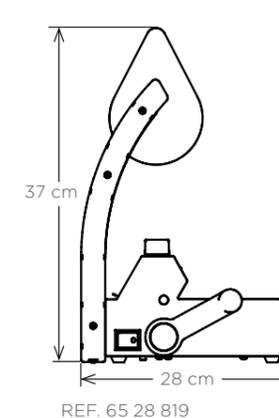
### SiroSeal Premium / SiroSeal Professional

	SiroSeal Premium	SiroSeal Professional
Reference number	65 26 961	65 26 953
Electrical connection	300 W / 220 - 240 V / 50/60 Hz	300 W / 220 - 240 V / 50/60 Hz
External dimensions (W x H x D)	41.5 x 15 x 24 cm	41.5 x 15 x 24 cm
Weight (without load)	5.4 kg	5.4 kg
Temperature range	100 - 210 °C	160 - 200 °C
Sealing time	Approx. 3 sec.	Approx. 3 sec.
Heat-up time	Approx. 90 sec.	Approx. 2 min.
Seal length	max. 275 mm	max. 275 mm
Seal width	10 mm	10 mm
Interfaces	1 x USB memory stick, 1 x USB PC interface	-

“Standard” roll holder



“Comfort” roll holder



# Ordering information and accessories

## DAC Universal

Product	REF.
 <p><b>Blue Lid:</b></p> <ul style="list-style-type: none"> <li>• Blue Lid</li> <li>• 1 bottle of NitramOil lubrication concentrate</li> <li>• Water filter</li> <li>• Hose</li> <li>• Combination filter</li> <li>• Power cable</li> <li>• Screwdriver for adapter</li> </ul> <p><b>Check &amp; Clean kit:</b></p> <ul style="list-style-type: none"> <li>• Check &amp; Clean Cap</li> <li>• Check &amp; Clean Lid</li> <li>• NitraClean cleaning tablets</li> <li>• Syringe</li> <li>• Cotton rolls</li> <li>• Screwdriver for waste water filter</li> <li>• Waste water filter</li> </ul>	67 13 460 (EU) 67 47 567 (CH)
 <p><b>“Siphon” installation kit (Touch):</b></p> <ul style="list-style-type: none"> <li>• Siphon with direct connection</li> <li>• Manometer</li> <li>• Hose</li> <li>• Waste water filter (6 pcs.)</li> <li>• NitraClean cleaning tablets (50 pcs.)</li> </ul>	67 09 880
 <p><b>“Waste water tank” installation kit (Touch):</b></p> <ul style="list-style-type: none"> <li>• Waste water tank</li> <li>• Manometer</li> <li>• Hose</li> <li>• Waste water filter (6 pcs.)</li> <li>• NitraClean cleaning tablets (50 pcs.)</li> </ul>	66 98 299

Accessories	REF.
 <p>NitramOil #2 lubrication concentrate (blue, 6 bottles) for DAC Universal</p>	62 59 118
 <p>NitraClean tablets (pack of 50)</p>	66 35 499
Waste water filter (6 pcs.)	66 98 166
Check & Clean Lid	67 09 997
Check & Clean Cap	67 10 003

Accessories	REF.
 <p>Blue Lid without adapters</p>	67 09 815
 <p>Green Lid without adapters</p>	67 09 823
 <p>Lid holder</p>	67 09 856
 <p>Waste water tank with hose</p>	60 78 526
 <p>Siphon with direct connection</p>	61 26 341
DAC Universal thermal printer printer paper	60 51 770 65 99 018

## Blue Lid

Adapter for straight and contra-angle handpieces	REF.
 <p>Dentsply Sirona TE / Classic Adapter Touch</p>	66 86 682
 <p>ISO/INTRAmatic® adapter</p>	60 51 648
 <p>KaVo and Bien-Air contra-angle handpiece adapter</p>	60 51 663
Adapter for turbines	REF.
 <p>Sirona quick coupling R/F/B adapter</p>	60 51 697
 <p>KaVo MULTIflex adapter</p>	60 51 655
 <p>W&amp;H Roto quick adapter</p>	60 51 671
 <p>BienAir UNIFIX adapter</p>	60 51 713
 <p>NSK PTL adapter</p>	60 51 804
 <p>NSK QDJ adapter</p>	60 51 812
 <p>Borden adapter, 2 - 3 holes</p>	60 51 861
 <p>Castellini CERAMIC FREEDOM adapter</p>	60 51 762
 <p>Midwest/ISO 4/5-hole turbine with fixed connection adapter</p>	60 51 853
 <p>Morita Alpha adapter</p>	60 51 911
 <p>Morita CP4 adapter</p>	60 51 929
 <p>Osada OFJ adapter</p>	60 85 745
 <p>Yoshida QUICK JOINT adapter</p>	63 23 831

## Green Lid<sup>1</sup>

Adapter for ultrasonic/sonic handpieces, tips and multi-functional syringe attachments	REF.
<b>Adapter for ultrasonic/sonic handpieces:</b>	
 <p>Sirona SiroSonic TL / PerioSonic adapter</p>	65 36 135
 <p>Sirona SiroSonic / L adapter</p>	65 36 143
 <p>EMS Piezon straight handpiece adapter</p>	66 13 538
 <p>Satelec Slim</p>	66 23 438
 <p>Satelec Newtron LED</p>	66 23 446
 <p>Satelec Newtron</p>	66 23 420
 <p>KaVo SONICflex handpiece adapter for KaVo SONICflex 2003 and KaVo SONICflex 2008</p>	67 32 056
<b>Adapter for multi-functional syringe nozzles:</b>	
 <p>Sirona Sprayvit nozzle adapter</p>	65 36 150
<b>Adapter for ultrasonic/sonic tips:</b>	
 <p>Sirona ultrasonic tip adapter: For the instrument tips SiroSon S/C8/L; SiroSonic/L; SiroSonic TL; PerioSonic<sup>1</sup></p>	65 36 127
 <p>EMS ultrasonic tip adapter</p>	66 10 708
 <p>Satelec ultrasonic tip adapter</p>	66 10 716
 <p>KaVo SONICflex 2003 tip adapter</p>	67 35 646
<b>Adapter for nozzles of powder jet devices:</b>	
 <p>EMS AIR-FLOW<sup>®2</sup></p>	66 23 461
 <p>EMS AIR-FLOW<sup>®</sup> Handy</p>	66 23 453

<sup>1</sup> The Green Lid is not intended for the reprocessing of implant, endo and CEM tips.

<sup>2</sup> Currently not available

# Ordering information and accessories

## DAC Universal S

Product	REF.
 <p><b>Pink Lid:</b></p> <ul style="list-style-type: none"> <li>• Pink Lid</li> <li>• 1 bottle of NitramOil lubrication concentrate</li> <li>• Water filter</li> <li>• Hose</li> <li>• Combination filter</li> <li>• Power cable</li> <li>• Screwdriver for adapter</li> <li>• USB stick DAC Universal S</li> <li>• Indicator holder</li> <li>• 1 paper of chemical indicators (30 pcs.)</li> </ul> <p><b>Check &amp; Clean kit:</b></p> <ul style="list-style-type: none"> <li>• Check &amp; Clean Cap</li> <li>• Check &amp; Clean Lid</li> <li>• NitraClean cleaning tablets</li> <li>• Syringe</li> <li>• Cotton rolls</li> <li>• Screwdriver for waste water filter</li> <li>• Waste water filter</li> </ul>	67 42 899 (EU) 67 47 534 (GB)
 <p><b>“Siphon” installation kit (Touch):</b></p> <ul style="list-style-type: none"> <li>• Siphon with direct connection</li> <li>• Manometer</li> <li>• Hose</li> <li>• Waste water filter (6 pcs.)</li> <li>• NitraClean cleaning tablets (50 pcs.)</li> </ul>	67 09 880
 <p><b>“Waste water tank” installation kit (Touch):</b></p> <ul style="list-style-type: none"> <li>• Waste water tank</li> <li>• Manometer</li> <li>• Hose</li> <li>• Waste water filter (6 pcs.)</li> <li>• NitraClean cleaning tablets (50 pcs.)</li> </ul>	66 98 299

Accessories	REF.
 NitramOil #2 lubrication concentrate (blue, 6 bottles) for DAC Universal	62 59 118
 NitraClean tablets (pack of 50)	66 35 499
 PCD DAC Universal S	67 42 956
Waste water filter (6 pcs.)	66 98 166
Indicator holder	67 43 624
Chemical indicators (510 pcs., for DAC Universal S)	67 42 857
Check & Clean Lid	67 09 997
Check & Clean Cap	67 10 003

Accessories	REF.
 Pink Lid, incl. indicator holder, without adapters	67 42 907
 White Lid, incl. indicator holder, without adapters	67 42 931
 Lid holder	67 09 856
 Waste water tank with hose  Siphon with direct connection	60 78 526 61 26 341
DAC Universal thermal printer printer paper	60 51 770 65 99 018

## Pink Lid

Adapter for straight and contra-angle handpieces	REF.
 Dentsply Sirona TE/Classic Adapter Touch	66 86 682
 ISO/INTRAMatic® adapter	60 51 648
 KaVo and Bien-Air contra-angle handpiece adapter	60 51 663
Adapter for turbines	REF.
 Sirona quick coupling R/F/B adapter	60 51 697
 KaVo MULTIflex adapter	60 51 655
 W&H Roto quick adapter	60 51 671
 BienAir UNIFIX adapter	60 51 713
 NSK PTL adapter	60 51 804
 NSK QDJ adapter	60 51 812
 Borden adapter, 2 - 3 holes	60 51 861
 Castellini CERAMIC FREEDOM adapter	60 51 762
 Midwest/ISO 4/5-hole turbine with fixed connection adapter	60 51 853
 Morita Alpha adapter	60 51 911
 Morita CP4 adapter	60 51 929
 Osada OFJ adapter	60 85 745
 Yoshida QUICK JOINT adapter	63 23 831

## White Lid<sup>1</sup>

Adapter for ultrasonic/sonic handpieces, tips and multi-functional syringe attachments	REF.
Adapter for ultrasonic/sonic handpieces:	
 Sirona SiroSonic TL / PerioSonic adapter	65 36 135
 Sirona SiroSonic / L adapter	65 36 143
 EMS Piezon straight handpiece adapter	66 13 538
 Satelec Slim	66 23 438
 Satelec Newtron LED	66 23 446
 Satelec Newtron	66 23 420
 KaVo SONICflex handpiece adapter for KaVo SONICflex 2003 and KaVo SONICflex 2008	67 32 056
Adapter for multi-functional syringe nozzles:	
 Sirona Sprayvit nozzle adapter	65 36 150
Adapter for ultrasonic/sonic tips:	
 Sirona ultrasonic tip adapter: For the instrument tips SiroSon S/C8/L; SiroSonic/L; SiroSonic TL; PerioSonic <sup>1</sup>	65 36 127
 EMS ultrasonic tip adapter	66 10 708
 Satelec ultrasonic tip adapter	66 10 716
 KaVo SONICflex 2003 tip adapter	67 35 646
Adapter for nozzles of powder jet devices:	
 EMS AIR-FLOW <sup>®2</sup>	66 23 461
 EMS AIR-FLOW <sup>®</sup> Handy	66 23 453

<sup>1</sup> The White Lid is not intended for the reprocessing of implant, endo and CEM tips.

<sup>2</sup> Currently not available

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## Procedural Solutions

Preventive  
Restorative  
Orthodontics  
Endodontics  
Implants  
Prosthetics

## Enabling Technologies

CAD/CAM  
Imaging  
Treatment Centers  
Instruments