

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, and sterilization of dental instruments. Regardless of the design of your infection control workflows, we have the appropriate solution.

## DAC Universal S

The combination autoclave cleans, lubricates (if necessary) and sterilizes 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. 21 minutes - including cooling.

## DAC Premium Plus E, 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

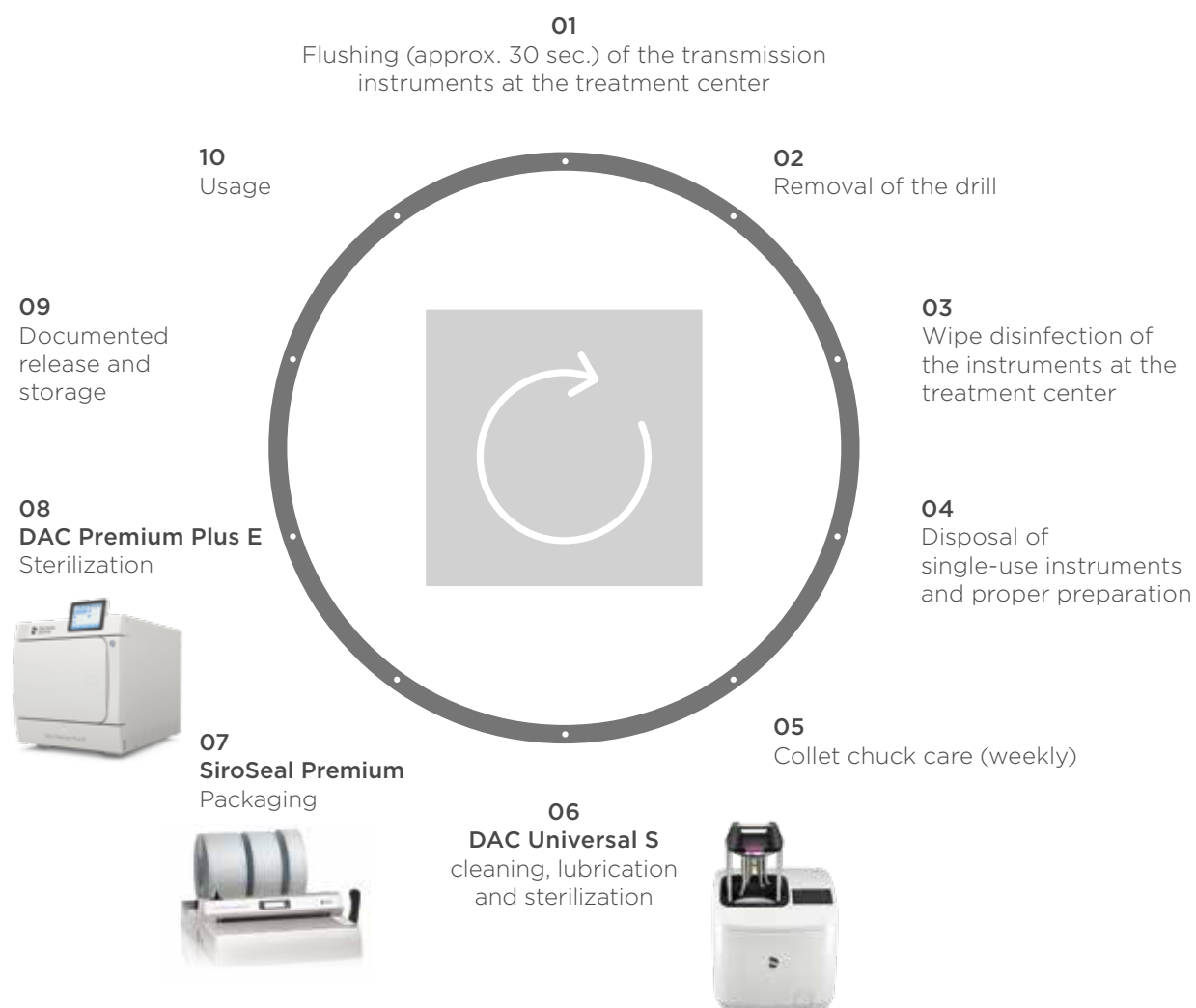
medical devices must be defined in the operating procedures. The reprocessing guidelines from the relevant manufacturers must be taken into account. All reprocessing steps as well as cleaning and sterilization measures should subsequently be compiled in the hygiene plan of the operating practice.

## 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, sterilization,

packaging – if necessary – and wrapped sterilization. The effectiveness and repeatability of the reprocessing processes with 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.



## 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 Plus E / 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.

\* Does not fully comply with all requirements. Details can be found in the instructions for use, chapter 3.7 “Supplementary information on compliance with EN ISO 15883-1/-2 and EN ISO 13060”. The instructions for use can be found here: <https://www.dentsplysirona.com/en/service-contact/download-center.html>



# 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 chemicals and only up to 900 ml 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. 21 minutes
- Internal and external cleaning, lubrication (if needed) and sterilization 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 sterilization process which can be validated
- Cleaning 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 S

Comply with infection control standards at the touch of a button and avoid cross contamination: Completely safe with 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

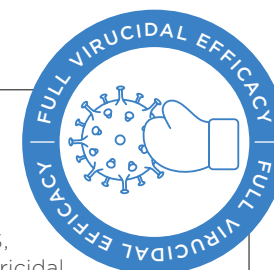
The cleaning process of DAC Universal S is carried out in compliance with the international standard EN ISO 15883-1/-2\*, the sterilization process in accordance with EN ISO 13060\* and ISO 17665-1.

### Full virucidal efficacy: Reprocessing with DAC Universal S

The sterilization of DAC Universal S, is not only bactericidal, mycobactericidal and fungicide but also fully virucidal. Proven full virucidal<sup>1</sup> efficacy.

#### Efficacy spectrum with relevant examples:

bactericidal	S. aureus
mycobactericidal	TP
fungicide	C. albicans
virucidal	HPV, HBV, HCV, HIV, SARS-CoV 2, influenza, adenoviruses, noroviruses



\* Does not fully comply with all requirements. Details can be found in the instructions for use, chapter 3.7 "Supplementary information on compliance with EN ISO 15883-1/-2 and EN ISO 13060". The instructions for use can be found here: <https://www.dentsplysirona.com/en/service-contact/download-center.html>

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

# 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

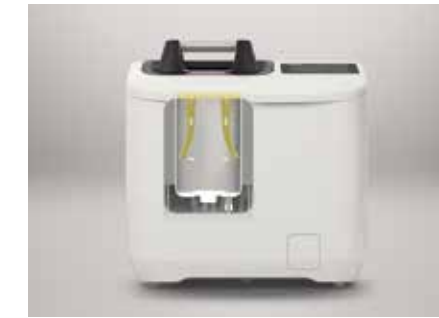
For the reprocessing of ultrasonic/sonic handpieces and tips, nozzles of multifunctional syringes and powder jet devices as well as powder jet handpieces.

## 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



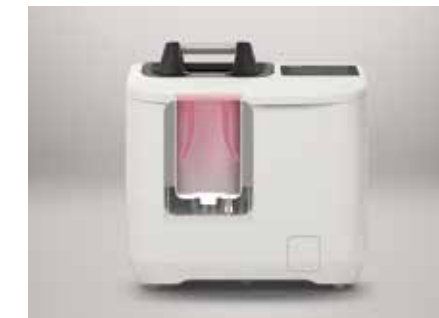
### Fully automated lubrication

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 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-

mum 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.

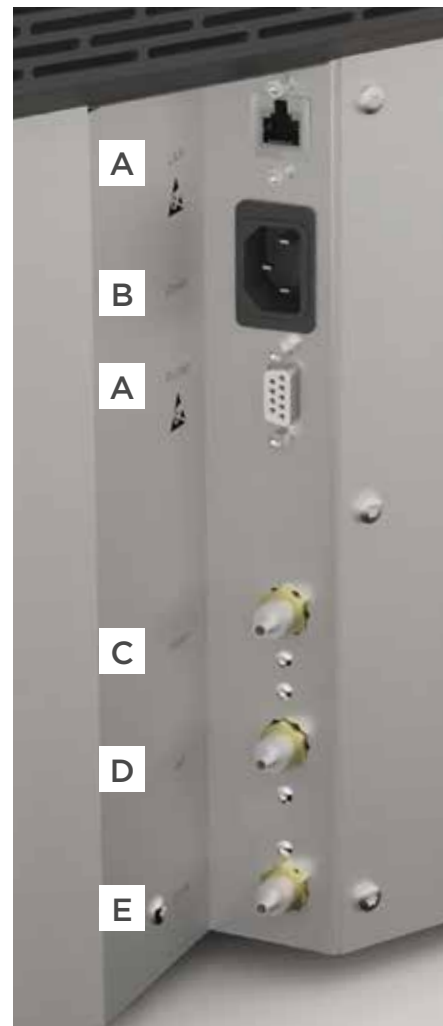
### Sego® represents certified security

Information based on manufacturers' details (March 2020)



## Requirements and information on installation

Requirements on location: Place DAC Universal 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 S to be opened upward. The total height of the open DAC Universal S 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 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 D	Assistina TWIN	QUATTRO care Plus	iCare+	Melatherm 10 Evolution	PG 8581	STATMATIC smart
Manufacturer	Dentsply Sirona	Dentsply Sirona	W&H	KaVo	NSK	MELAG	MIELE	SciCan
Cycle time	approx. 21 min.	approx. 15 min.	approx. 10 sec.	approx. 1 min.	approx. 15 min.	approx. 57 min. <sup>2</sup>	approx. 53 min. <sup>3</sup>	approx. 10 min.
Capacity (instr.)	6	6	1	4	4	23	44	3
Weight [kg]	26	26	7.5	10	14	80	65	7.3
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
External cleaning	■ (water)	■ (water)	-	-	■ (cleaner)	■ (cleaner)	■ (cleaner)	-
Internal cleaning (spray channel)	■ (water)	■ (water)	-	-	■ (cleaner)	■ (cleaner)	■ (cleaner)	■ (cleaner)
Internal cleaning (drive channel)	■ (water)	■ (water)	-	-	-	■ (cleaner)	■ (cleaner)	-
Oil maintenance	■	■	■	■	■	-	-	■
Disinfection	-	■ (thermal)	-	-	■ (chemical)	■ (thermal)	■ (thermal)	-
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)
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

<sup>2</sup> Plus active drying

<sup>3</sup> Including drying

Information based on manufacturers' details (February 2021)

# DAC Premium Plus E: Highest standards easily achieved

## Patented DRYtelligence®

The intelligent system makes for the perfect drying results whilst shortening the drying time by up to 80%.

## Patented double-jacket technology

Record-breaking operating times of 10 - 20 minutes (Quick-Programs incl. pre-vacuum and drying) guarantee even faster instrument availability.

## High loading capacity

The mount for eight trays allows efficient use of the maximum load of up to 9 kg.

## XXL color-touch display

Documentation and approval is performed quickly, safely and paper-free directly on the display of the autoclave.

## All-round simplicity

With the extra-large color touch display, the appearance of the DAC Premium Plus E autoclave also makes it 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.



DAC Premium Plus E has a 23.8 l chamber.

### 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 XXL color-touch display
- Compact solution with integrated fresh water and waste water tank
- Simple installation as a standalone device

### High-tech

- Particularly rapid air evacuation from instrument chambers and cavities
- High sterilization quality
- Short sterilization cycles (e.g., Quick program B in 22 minutes including drying)

### Ecological

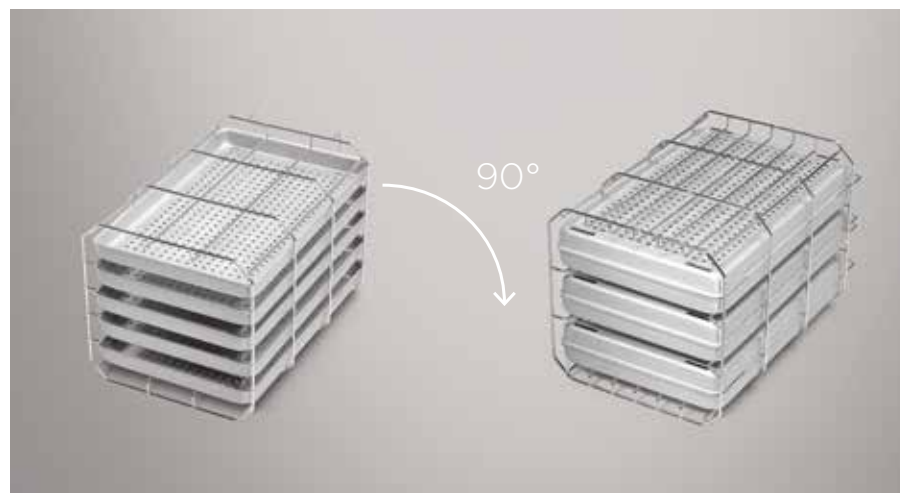
- Energy saving mode: Automatic reduction of standby temperature
- Pre-selection of the required time to start the autoclave

# DAC Professional: An Investment in Quality

With DAC Professional, you will be making a safe investment. Production in Germany, certified manufacturing standards and a chamber made from stainless steel mean that the device has high quality and a long service life. DAC Professional is 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.



DAC Professional has a chamber volume of 17 l.



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

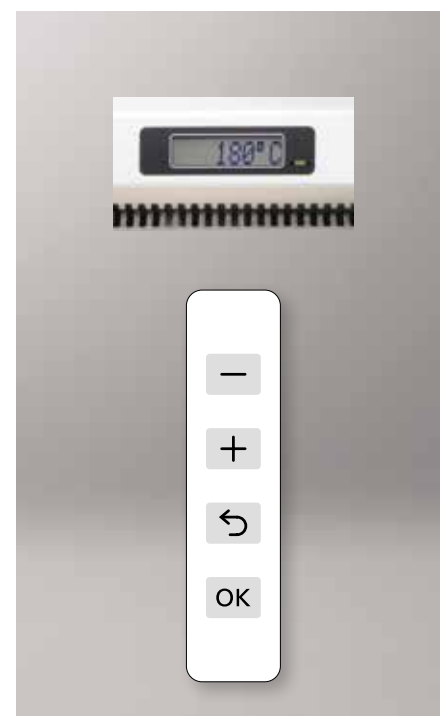
The easily readable LCD display with LED status display, the intuitive 4-button operation, the option of user administration, two integrated USB interfaces and a maintenance counter make the sealing device an intelligent aid that will provide optimal support for compliance with your infection control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

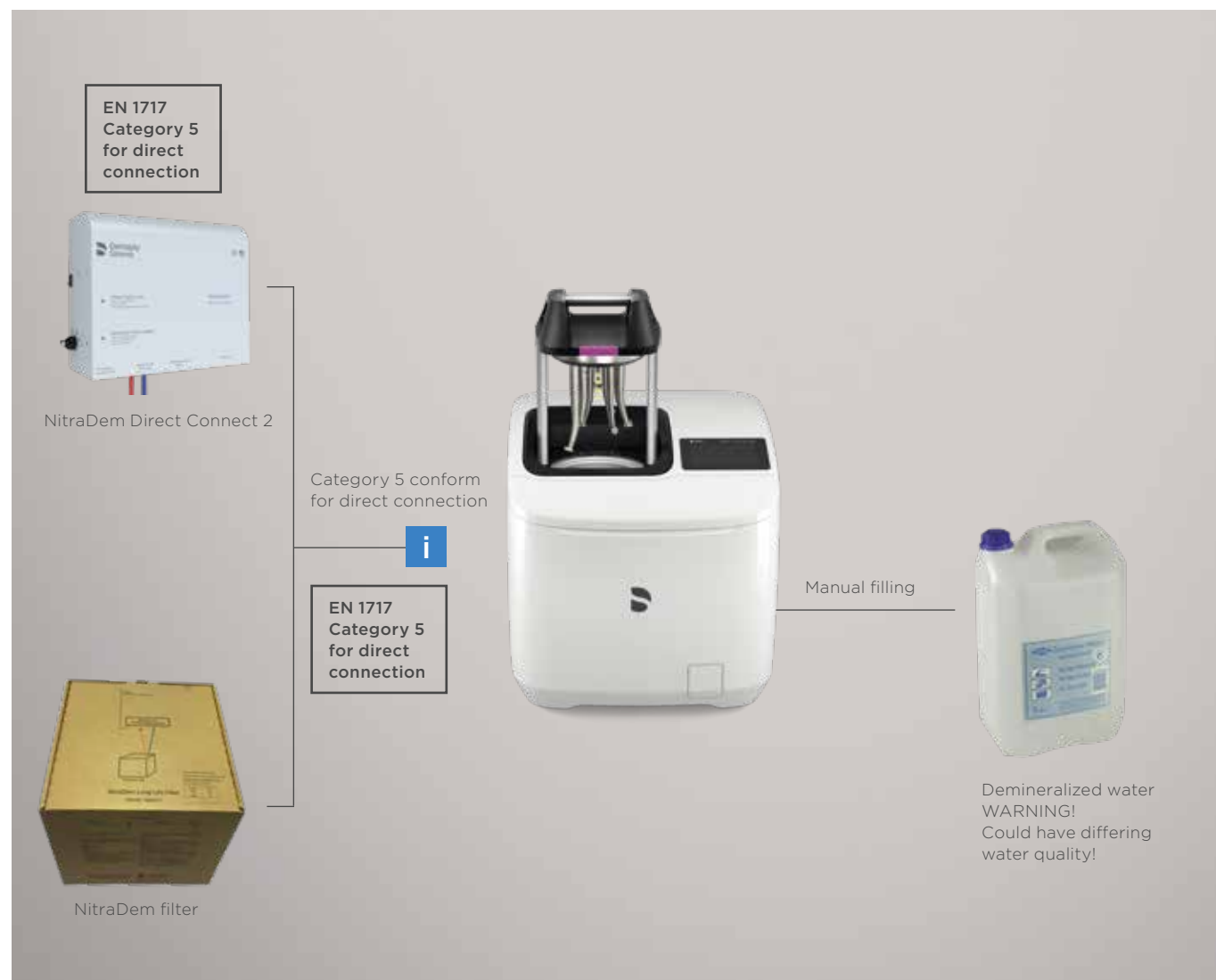
With SiroSeal Professional, you can remain flexible in your choice of materials and can rely on having the highest level of safety.



SiroSeal Professional

# Water supply

High-quality treated water ( $< 3\mu\text{S}/\text{cm}$ ) is required for DAC Universal 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.

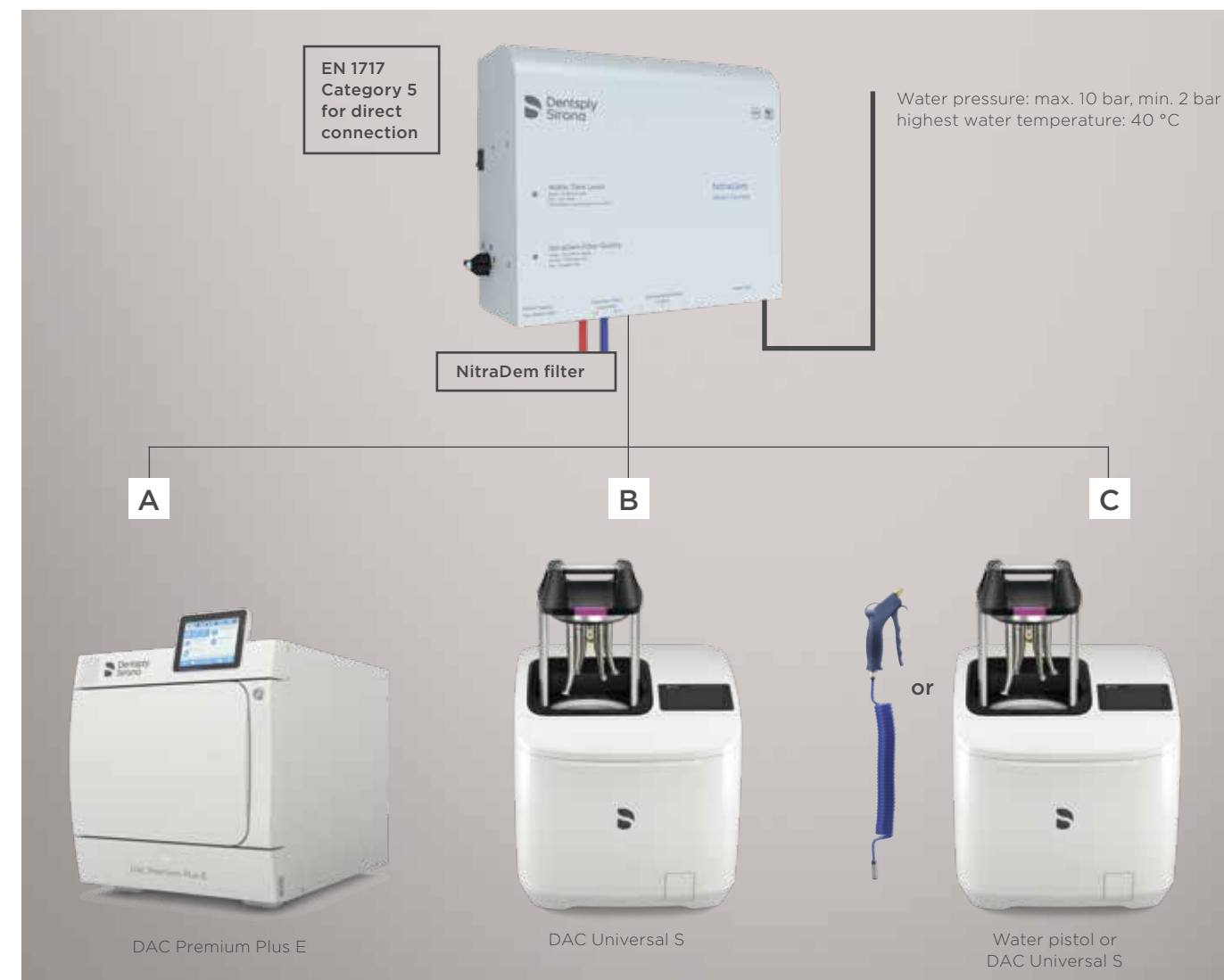


**i** Direct connection: A water filter (20  $\mu\text{m}$ ) must be installed upstream of DAC Universal S to ensure that the water is clean. This serves to protect your DAC Universal S. REF. 63 12 214

## 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 an 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 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 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 reprocessing area

The reprocessing 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 S must be positioned in the unclean area, directly on the border to the clean area.



# Technical data

## 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 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 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 Plus E

DAC Premium Plus E	
Reference numbers	67 54 316 67 54 332 (AUS)
Electrical connection	3,400 W/220 - 240 V/50/60 Hz
External dimensions (W x H x D)	46 x 56 x 69 cm
Sterilization chamber (diameter x depth)	25 x 45 cm
Weight (without load)	69 kg
Chamber volume	23.8 l
Max. loading	Instruments: 7 kg or textiles: 2.5 kg
Water tank (aqua dem/aqua dest)	Fresh water side: 5 l (approx. 7 cycles)

DAC Premium Plus E	Operating time (without drying)		Drying time
	Load up to 7 kg of unwrapped instruments	Load up to 2.5 kg of textiles	
Universal program	17-25 min.	28 min.	12 min.
Quick program B*	15-16 min.	-	6 min.
Quick program S**	9-13 min.	-	2 min.
Gentle program	32-42 min.	46 min.	12 min.
Prion program	32-39 min.	41 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	
Reference numbers	67 54 340 (EN) 67 54 357 (F) 67 54 365 (AUS)
Electrical connection	2,100 W/230 V/50/60 Hz
External dimensions (W x H x D)	42.5 x 49 x 62 cm
Sterilization chamber (diameter x depth)	25 x 35 cm
Weight (without load)	45 kg
Chamber volume	17 l
Max. loading	Instruments: 5 kg or textiles: 1.8 kg
Water tank (aqua dem/aqua dest)	Fresh water side: 5 l (approx. 7 cycles);

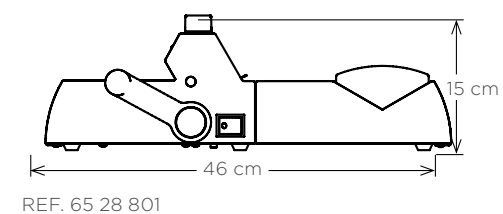
DAC Professional	Operating time (without drying)		Drying time
	Load up to 5 kg of unwrapped instruments	Load up to 1.8 kg of textiles	
Universal program	31 min.	-	20 min.
Quick program B*	29 min.	-	10 min.
Quick program S**	15 min.	-	5 min.
Gentle program	45 min.	45 min.	20 min.
Prion program	45 min.	-	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

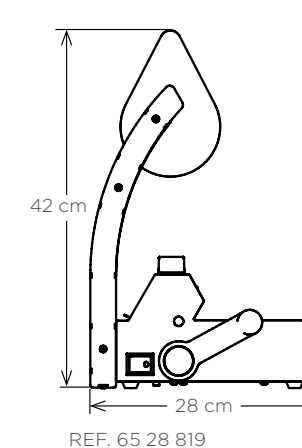
### SiroSeal Premium/SiroSeal Professional

	SiroSeal Premium	SiroSeal Professional
Reference number	65 26 961	65 26 953
Electrical connection	300 W/230 V/50/60 Hz	300 W/230 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	100 - 210 °C
Sealing time	Approx. 3 sec.	Approx. 4 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 S

Product	REF.
 <p><b>Includes:</b></p> <ul style="list-style-type: none"> <li>• Pink Lid</li> <li>• 1 bottle of DAC Oil lubrication concentrate</li> <li>• Water filter</li> <li>• Hose</li> <li>• Combination filter</li> <li>• Power cable</li> <li>• Screwdriver for adapter</li> <li>• Indicator holder</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 62 160
 <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>DAC Oil lubrication concentrate (blue, 6 bottles) for DAC Universal</p>	62 59 118
 <p>NitraClean tablets (pack of 50)</p>	66 35 499
 <p>PCD DAC Universal S</p>	67 42 956
<p>Waste water filter (6 pcs.)</p>	66 98 166
<p>Indicator holder</p>	67 43 624
<p>Chemical indicators (510 pcs., for DAC Universal S)</p>	67 42 857
<p>Check &amp; Clean Lid</p>	67 09 997
<p>Check &amp; Clean Cap</p>	67 10 003

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

## Pink 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>Dentsply 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 Phateleus adapter</p>	60 51 804
 <p>NSK QDJ adapter</p>	60 51 812
 <p>Borden 2/3 hole adapter</p>	60 51 861
 <p>Castellini CERAMIC FREEDOM adapter</p>	60 51 762
 <p>Midwest/ISO 4/5-hole adapter</p>	60 51 853
 <p>Morita PAR-DI adapter</p>	60 51 911
 <p>Morita PAR-O adapter</p>	60 51 929
 <p>Osada OFJ-MZL adapter</p>	60 85 745
 <p>Yoshida QUICK JOINT adapter</p>	63 23 831

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

Adapter for ultrasonic/sonic handpieces, tips and multi-functional syringe attachments	REF.
<b>Adapter for ultrasonic/sonic handpieces:</b>	
 <p>Dentsply Sirona SiroSonic TL/PerioSonic adapter</p>	65 36 135
 <p>Dentsply Sirona SiroSonic/L adapter</p>	65 36 143
 <p>EMS Piezon handpiece adapter</p>	66 13 538
 <p>Satelec Slim handpiece adapter</p>	66 23 438
 <p>Satelec Newtron LED handpiece adapter</p>	66 23 446
 <p>Satelec Newtron handpiece adapter</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>Dentsply Sirona Sprayvit nozzle adapter</p>	65 36 150
 <p>Dentsply Sirona Sprayvit 4000 nozzle adapter</p>	65 36 168
<b>Adapter for ultrasonic/sonic tips:</b>	
 <p>Dentsply Sirona ultrasonic tip adapter: For the instrument tips SiroSon S/C8/L; SiroSonic/L; SiroSonic TL; PerioSonic<sup>12</sup></p>	65 36 127
 <p>EMS ultrasonic tip adapter<sup>2</sup></p>	66 10 708
 <p>Satelec ultrasonic tip adapter<sup>2</sup></p>	66 10 716
 <p>KaVo SONICflex 2003 tip adapter<sup>2</sup></p>	67 35 646
<b>Adapter for nozzles of powder jet devices:</b>	
 <p>EMS AIRFLOW® handpiece adapter</p>	66 23 461
 <p>EMS AIRFLOW® Handy nozzle-adapter</p>	66 23 453

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

<sup>2</sup> Please check the compatibility list for authorized tips.

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