THE DENTAL
SOLUTIONS
COMPANY™

Dentsply Sirona

Info File Hygiene

Instrument reprocessing in the dental practice

dentsplysirona.com

Hygiene systems for a high level of safety

Practice hygiene is becoming ever 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. Hygiene solutions from Dentsply Sirona are suitable for the cleaning, care, disinfection and sterilization of dental instruments. Regardless of the design of your hygiene workflows, we have the appropriate solution.

DAC Universal

The combinination autoclave cleans, lubricates and disinfects / sterilizes up to six straight and contra-angle handpieces, turbines, ultrasonic handpieces and tips as well as the nozzles of multifunctional syringes and powder jet devices at the touch of a button.

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

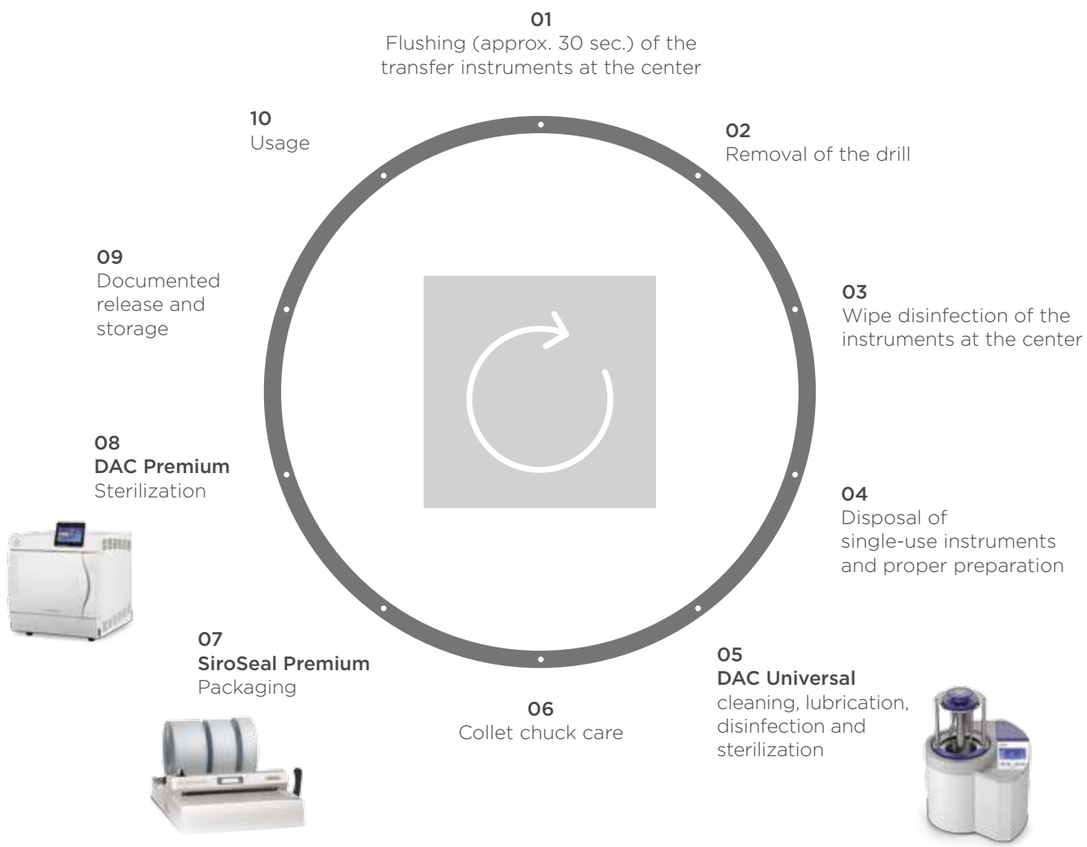
Straight and contra-angle handpieces, turbines, ultrasonic handpieces and tips, and the nozzles of multifunctional syringes and powder jet devices place increased requirements on diligent reprocessing as a result of the narrow media channels and the angled interior spaces. Difficulty is increased by 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 handpieces, contra-angle handpieces and turbines must be reprocessed after each patient treatment and require special care due to design cavities. For non-invasive use ("semi-critical" risk class), transfer instruments must be cleaned and disinfected. For invasive use ("critical" risk class), transmission instruments must be cleaned, disinfected and packaged in a sterilized manner. 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 measures should subsequently be compiled in the hygiene plan of the operating practice.

The hygiene cycle in machine instrument reprocessing

Hygiene is present throughout the dental practice

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, packaging – if necessary – and sterilization. The effectiveness and repeatability of the reprocessing processes with the DAC Universal are checked during validation. The authorities recognize this validation process. Medical devices designated for sterile use are packaged 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 a hygiene 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 ISO 15883-5. They include a process evaluation system and can therefore be validated (e.g. DAC Universal, cleaning and disinfection devices).

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 hygiene 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 hygiene 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).

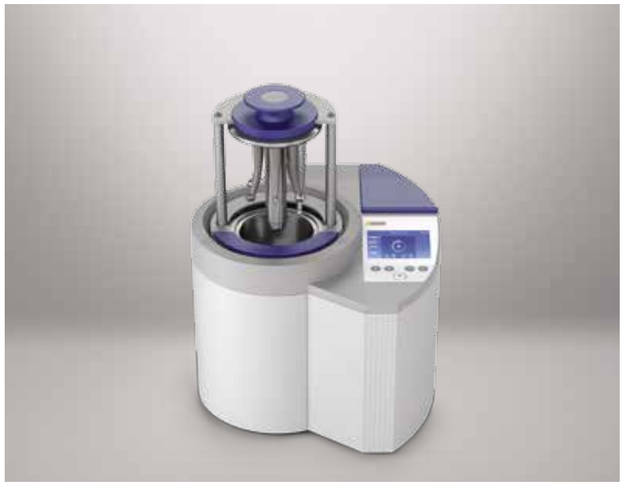
Class S – for sterilization of medical devices

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). The sterilization result satisfies the same quality requirements as for Class B sterilizers.

Class N – for thermal disinfection

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

DAC Universal Advantages



Professional care

- Cleaning, lubrication – if necessary –disinfection and sterilization in a single cycle
- Internal and external cleaning of straight and contra-angle handpieces, turbines, ultrasonic handpieces and tips as well as the nozzles of multi-functional syringes and powder jet devices
- Disinfection and sterilization of instruments

Cost-effective reprocessing

- Low operating and consumption costs – no use of cleaning and disinfection chemicals
- Low investment costs in instruments thanks to quick return to service

Fully automatic reprocessing

- Six instruments in next to no time
- Reliable processing and time-saving
- Simple operation
- An interface for electronic, documentation systems

Legal certainty

- Cleaning, disinfection and sterilization process which can be validated
- Cleaning, disinfection and sterilization process in accordance with ISO 15883-5 and EN 13060 class S

Switch off hygiene risks: Switch on DAC Universal

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

Conformity with standards

The sterilization process of the DAC Universal meets the requirements of the European standard EN 13060 for small steam sterilizers. The cleaning and disinfection process is carried out in compliance with the international standard ISO 15883-5 for cleaning and disinfection devices.

The fully automated reprocessing process

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

Reprocessing of rotating instruments in a single cycle (Standard lid)

Internal cleaning with cold water

1: Leak test

2: Internal cleaning: The internal channels are rinsed with water

Fully automated lubrication

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

External cleaning with cold and hot water

4: Instruments are cleaned in the pulse-wash procedure (multi-cyclical cleaning procedure)

5: Warm external cleaning

6: Heating to 134°C

7: Back-flush: Saturated steam is directed through the instruments

Sterilization and drying

8: Sterilization: three minutes at 134°C

9: Back-flush: Saturated steam is directed through the instruments

10: Drying

11: Lid opens slightly

12: Lid opens completely when the "C" button (DAC Universal Standard) or the "down arrow" button (DAC Universal Advanced) is pressed.

Reprocessing with the Flex lid (identical process to the Standard lid, but without lubrication)

Internal cleaning with cold water

External cleaning with cold and hot water

Disinfection and drying

Information on the validation of the DAC Universal

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 dental depots 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 two years or 3,000 cycles at the latest. 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.

For the batch-related test, an indicator holder (Standard lid Ref. 60 51 788 / Flex lid Ref. 65 42 489) and a chemical indicator of class 5 (Ref. 58 92 059) are available for the inspection. The Class 5 chemical indicator monitors the time, temperature and pressure parameters.

A PCD test phantom (Ref. 60 51 820) is also available **for routine testing**. This is placed on an ISO/INTRAmatic adapter, contains a class 5 chemical indicator and is used once weekly as part of the reprocessing cycle according to the manufacturer's recommendations. As part of this procedure a steam penetration test is conducted. Using access via a tiny hole, this method simulates the hollow cavity of a contra-angle handpiece or turbine.

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.

The declaration of conformity confirms that the device satisfies the necessary cleaning and sterilization standards. This must be verified by hygiene certification from an accredited hygiene laboratory and is arranged by the manufacturer. The proof of origin of the DAC Universal confirms the effectiveness of cleaning as per ISO 15883-5, and the effectiveness of sterilization as per EN 13060, class S. In contrast to Class B devices with which the steam penetrates into the hollow spaces via a vacuum, as a Class S device, the DAC Universal is based on a circulating steam penetration process.

Maintenance as recommended by the manufacturer must, in addition to the repeated performance qualification, also be performed at the latest after two years or 3,000 cycles. A replacement parts set is available (Ref. 60 80 480). The depot technician must be allowed approx. four working hours.

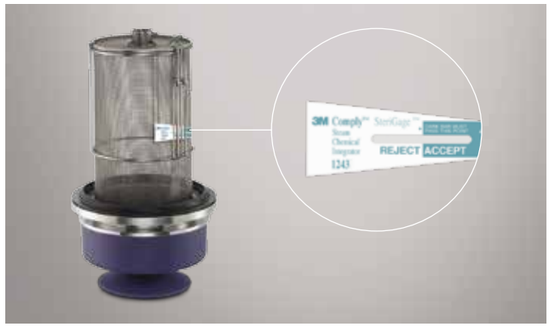
Batch control and release

Semi-critical – Standard lid

- For all semi-critical applications of turbines, straight and contra-angle handpieces and contra-angle handpiece heads
- Release: Batch control is performed using a class 5 chemical indicator
- Indicator holder (Ref. 60 51 788) with class 5 chemical indicator (Ref. 58 92 059)

Semi-critical – Flex lid

- For all semi-critical applications of ultrasonic tips, handpieces and the nozzles of powder jet devices
- Release: Batch control is performed using a class 5 chemical indicator
- Indicator holder (Ref. 65 42 489) with class 5 chemical indicator (Ref. 58 92 059)



Semi-critical – Basket lid

- Up to five solid instruments (without cavities) can be cleaned and sterilized in the sterilization basket
- Release: Batch control is performed using a class 5 chemical indicator
- Class 5 chemical indicator (Ref. 58 92 059)

Release of the batch documents the success of sterilization by:

- Assessing the process with a protocol printout, software output or display
- Inspecting the chemical indicator
- Visually examining for cleanliness
- Then, a written release from the specialist employee is issued
- Issuing a written release from the specialist employee (if release is not possible due to an objection, the entire preparation process must be again carried out)

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.

Class 5 chemical indicator
for batch-specific monitoring of the sterilization process.

PCD test phantom
for weekly monitoring of the sterilization process.

Electronic batch and process documentation, e.g.
Charly, Dampsoft, DIOS MP, DOCma, MELAtrace, SegoSoft
Ref. 65 43 172

Printer
Time, temperature, serial number and correct running of the sterilization process are documented.
Ref. 61 17 324

Process documentation via USB stick.
Data on the USB stick are transmitted e.g., via the SegoSoft or DIOS documentation software, to the practice computer.
The process is approved, digitally signed and archived.

Electronic documentation

For electronic batch and process documentation,
Dentsply Sirona recommends the DIOS MP and SegoSoft solutions below.

DIOS MP – much more than just process documentation

The simple way to work safely and lawfully.

DIOS provides a modular system of hardware and software that is perfectly tailored to the requirements of a practice and can "grow" with new and extended requirements at any time. From a ready-to-connect kit for an individual device (DIOS MP LOG Box, DIOS MP LOG Net) to the process documentation and release of all devices in the network, DIOS is guaranteed to offer the ideal product.

From the documented release…

With the full version of DIOS MP, protocol data can be read out on any number of different machines and can be centrally documented. In the event of the practice equipment being extended, there are no additional license costs and there are no limitations to certain manufacturers or device combinations. Authenticated release of processing, either via a password or via a personal contactless card can be combined by using the freely definable checklists. The amount of effort required for process evaluation and for fully documented release can be reduced to just a few simple steps. DIOS MP saves these data in both an encrypted database and in a portable PDF format that is secured against manipulation and that can, if desired, be provided with the status of an advanced electronic signature.

…to completely digital practice management

Numerous directives, laws, regulations and standards must be taken into account in everyday work and require a great deal more than just an optimally organized practice hygiene. DIOS MP is a medical devices management system which can be used not only to carry out the process of documentation, but also to satisfy all the documentation obligations that arise from these regulations. It covers, with its range of services, a majority of the operating quality management system. DIOS MP includes permanent monitoring of all product stocks, complete delivery and warehousing services and the administration of all manufacturers and suppliers. With DIOS MP, complete verification of the excellent condition of both the medical devices used and the sterile products used on patients can be created with just a few mouse clicks. The journey of each product from the manufacturer to its use on the patient can be traced. What is more: using the hierarchical employee management function that provides all relevant data immediately, DIOS MP becomes a universally applicable organization instrument for every practice by managing all ongoing tasks and responsibilities as well as the electronic device logbooks. No task goes uncompleted due to the integrated warning and notice system. DIOS MP is a complete solution in which all modules are coordinated perfectly with each other.

SegoSoft – Instrument reprocessing securely documented

The ideal tool for documentation

The user-friendly SegoSoft software is easy to install and operate.
It provides precisely retraceable and reliable documentation of the disinfection and sterilization process. Complete and comprehensive recording is indispensable for quality management and protects the user against legal liability risks.

The fast, efficient solution

When the thermal disinfector or sterilizer is started, SegoSoft automatically records all relevant data from the reprocessing process. After unloading and visual inspection, the only task that the technical personnel have to do is assess the machine reprocessing, release the products and then close the release dialogue box by inputting a password, all of which can be done with just a few mouse clicks.
There are no additional work steps required for secure documentation with SegoSoft.

Resources are spared due to:

- Easy handling
- Fully automatic data recording
- Personalized release decisions
- Clear archiving
- Individual documentation fields,
- e.g. Helix tests, preceding manual cleaning

Digital documentation

The digital form is the ideal solution to minimize the effort required for documentation of the instrument reprocessing. It does however have to be at least as secure as documentation carried out by hand. With the advanced electronic signature, the legislator has created the possibility of signing documents electronically. It is created and assessed by an officially accepted, verifiable and standardized cryptographic procedure. Long-term archiving is performed using the PDF/A-1 format, which is defined by ISO 19005-1:2005. This format is signed electronically and is therefore secure against manipulation and hence legally valid.

SegoSoft is certified security

– tested and certified by the German Federal Office for Information Security (BSI). With this globally recognized security certification that is unique in the documentation of medical device reprocessing, a German Federal Authority that is independent of the manufacturer confirms the high level of quality and security standards of SegoSoft. SegoSoft is an active class IIb medical device.

Information based on manufacturers' details (February 2016)

Requirements and information on installation

Requirements on location: Place the DAC Universal 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 the sterilizer to be opened upward. The total height of the open DAC Universal is 53 cm. The minimum height should be 70 cm in order to prevent possible injuries when opening the lid (risk of crushing).

Installation of the DAC Universal

A **Process documentation:**
RS232 interface for printer, PC, USB data logger.

B **AC connection:**
90–120VAC & 190–240VAC, 50–60 Hz, 1,100 W

C **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 NL / min. at 5 bar). Note: You must fit an air filter upstream (included in the scope of supply) to prevent dirt particles from the hose and compressor from entering the device!
Filter can be ordered using Ref. 60 78 575.

D **Discharge:** The drain hose must be manufactured from heat-resistant material (PTFE hose) and have a diameter of 6 mm. The maximum length is 3 m. Please use the original discharge container (Ref. 60 78 526) or an original siphon (Ref. 61 26 341) for direct connection to the waste water system.

E **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 (Ref. 62 59 852) as the direct connection. Water can also be filled manually into the water tank. Note: Water quality must not be worse than max. 3 µS/cm. Note: Maximum water pressure is 6 bar.

Market overview of care and hygiene devices

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

	DAC Universal	Assistina 3X3	QUATTROcare Plus	iCare+	Lubrina	X-Cid®2	STATMATIC PLUS
Manufacturer	**Dentsply Sirona**	**W&H**	**KaVo**	**NSK**	**MORITA**	**Micro-Mega**	**SciCan**
Cycle time	approx. 18 min.	approx. 6 min.	approx. 1 min.	approx. 15 min.	approx. 2 min.	approx. 30 min.	approx. 10 min.
Capacity (instr.)	6	3	4	4	4	3	3
Weight [kg]	23	7.5	10	14	10	8	7.3
Water connection	■	–	–	–	–	-	–
Waste water connection	■	–	–	–	–	■	–
Compressed air connection	■ 0.5 – 0.8 MPa	■ 0.5 – 1 MPa	■ 0.4 – 0.6 MPa	■ 0.5 – 0.6 MPa	■ > 0.5 MPa	■ 0.5 – 0.8 MPa	■ 0.45 – 0.6 MPa
External cleaning	■ (water)	■ (cleaner)	–	■ (cleaner)	–	■ (cleaner)	–
Internal cleaning	■ (water)	■ (cleaner)	–	■ (cleaner)	■	■ (cleaner)	■ (cleaner)
Oil maintenance	■	■	■	■	■	■	■
Disinfection	■ (Thermal)	–	–	■ (Chemical)	–	■* (Chemical)	–
Sterilization	■	–	–	–	–	–	–
Electronic documentation	□	–**	–**	■	–**	–	■
Instruments can be directly used for semi-critical B	■	– (additional sterilization)	– (additional manual internal and external cleaning and sterilization)	■	– (additional manual external cleaning and sterilization)	– (additional sterilization)	– (additional manual external cleaning and sterilization)
Ultrasonic tips	■	–	–	–	–	–	–
Ultrasonic handpieces	■	–	–	–	–	–	–
Nozzles of powder jet devices	■	–	–	–	–	–	–

■ available
□ optional
– not available

* Pre-disinfection
** Device is not a disinfector/sterilizer
information based on manufacturers' details (March 2017)

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

Safe

- Complies with all relevant norms for legal certainty
- A higher hygiene 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.

Safe

- Complies with all relevant norms for legal certainty
- A higher 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

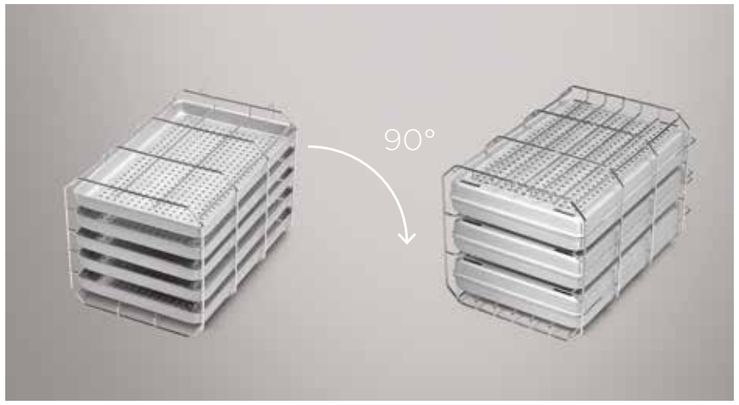
Simple

- 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

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

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.

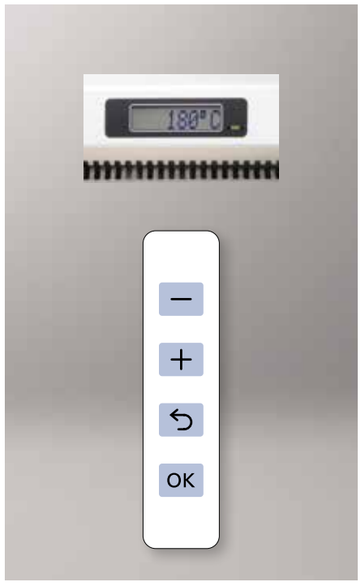
First-class usability

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 hygiene 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 MELAtrace. 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

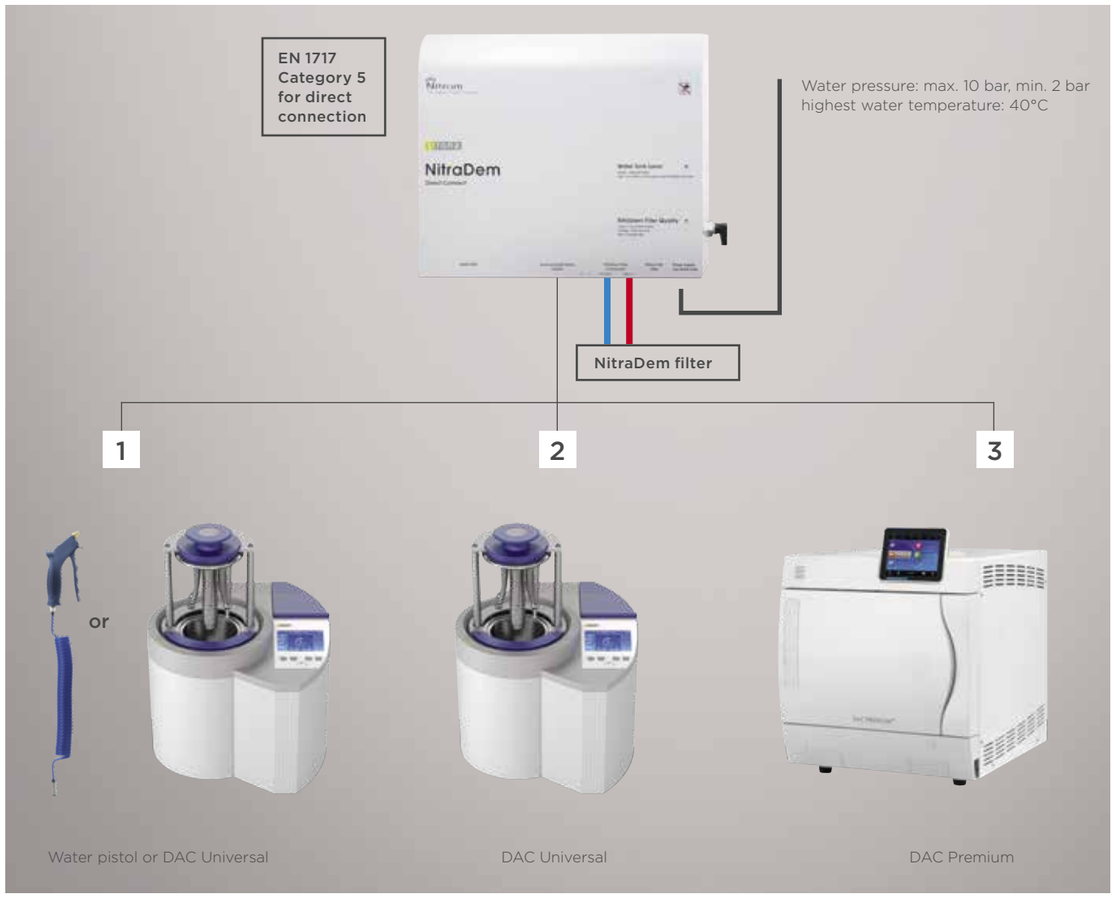
High-quality treated water (≤3µs) is required for the DAC Universal and other autoclaves. The majority of standard reprocessing systems do not guarantee a constant flow or required return flow protection that would meet this requirement. In order to avoid cycle interruptions due to poor water quality, we recommend the NitraDem Direct Connect water treatment system.

i Direct connection: A water filter (20 µm) must be installed upstream of the DAC Universal to ensure that the water is clean. This serves to protect your autoclave. Ref. 64 33 267

NitraDem Direct Connect – connections

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

Water treatment



Ref. 62 59 852 NitraDem Direct Connect

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

1 2 Water outlets 1 and 2 are used to connect hygiene systems without a water suction pump, e.g. water pistol or DAC Universal.

3 At outlet 3 a hygiene system can be optionally connected with or without a water suction pump. The system is not recommended for connection to cleaning and disinfection devices.

NitraDem Direct Connect

Direct water connection

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

Easy handling

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

Continuous control

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

SiroDem

Simple and cost-effective

- Practical wall unit for demineralized water where required
- Simple installation without solenoid valves
- Unpressurized system for tank filling

Reliable water quality

- No quality loss due to storage
- Monitored via conductivity meter

Clean instruments

- High-quality water protects the instruments and devices against corrosion and spotting

Market overview of water treatment systems

	NitraDem Direct Connect	SiroDem	Destillo 2	MELAdem 40	Multidem C27
Manufacturer	Dentsply Sirona	Dentsply Sirona	Aquadent	MELAG	W&H
Throughput [l/h]	45	50	50	120	60
Water quality [µS/cm]	0.1 – 12	0.1 – 20	0.1 – 20	1 – 5	0.1 – 20
Electrical connection	100 V – 240 V 50 – 60 Hz	100 V – 230 V 50 – 60 Hz	220 V 50 Hz	n.a. n.a.	n.a. n.a.
Dimensions (H x W x D) [cm]	26.5 x 30 x 12	diameter 10 x 60	diameter 11.5 x 54	35 x 32 x 15	47.6 x 12.4 x 12.3
Weight [kg]	6.3	Approx. 3	2.5	2.4	3.9
Capacity / 10° dH / [liter]	430	400	320	210	375
Conductivity test	Yes	Yes	Yes	No	No
Fixed connection	Yes	No	No	Yes	Yes
DIN EN 1717-compliant for direct connection	Yes	No	No	Yes	No

Information based on manufacturers' details (March 2017)

Water treatment system	Ref.
NitraDem Direct Connect, incl. installation kit, NitraDem filter, control panel	62 59 852

Water treatment system	Ref.
SiroDem 220 V	58 86 168

Accessories and filters	Ref.
Water pistol	62 59 084
NitraDem filter	61 98 431

Accessories and filters	Ref.
Cartridges for SiroDem	58 92 026

Instrument reprocessing in the hygiene area

The hygiene area should consists 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 “Unclean”, “Clean” and “Storage.” It is recommended that these three areas are marked accordingly. The DAC Universal must be positioned in the unclean area, directly on the border to the clean area.

Technical data

DAC Universal

Installation prerequisites	
Electrical power supply	90-120V AC/190-240V AC, 50/60 Hz
Power consumption	1.1 kW
Compressed air connection	Input pressure: 5.0 - 8.0 bar; max. Short-term air consumption: approx. 60 Nl/min. at 5 bar
Oil tank capacity	0.2 l
Water tank capacity	1.8 l
Water consumption	Approx. 600 ml per cycle (Standard program)
Water quality	< 3 µS
Height open/closed (with Standard lid) x width x depth	53 cm/35 cm x 38 cm x 37 cm
Equipment: unwrapped/solid	6/5 instruments
Weight	23 kg
Minimum distance from wall/ceiling	10 cm/70 cm

Documentation	
RS 232 connections	Printer, documentation software, USB adapter, memory sticks, memory cards, etc.
Printout	Selected sterilization program, date, time, batch number, vacuum, pressure, temperature, serial number, deviation, etc.

Programs	
Sterilization program	
Selection options Cycle times may vary depending on the working environment in which the autoclave is operated.	Standard program 134°C, 3 min. sterilization overall cycle time: approx. 18 min.
	Standard prion program 134°C, 18 min. sterilization overall cycle time: approx. 32 min.
	Program for solid instruments** Individual selection of standard, sensitive or prion program, but does not include lubrication. The cycle times remain the same.
Disinfection program	Program for ultrasonic scalers, ultrasonic tips and syringe nozzles* 134°C, 3 min. disinfection overall cycle time: approx. 22 min.

* Flex lid required
** Basket lid required

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

	Operating time (without drying)		Drying time
DAC Premium	**Load up to 6 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.	39 min.	12 min.
Prion program	38 min.	–	12 min.

	Operating time (without drying)		Drying time
DAC Premium Plus	**Load up to 7 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.	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)	42.5 x 48.5 x 63 cm	42.5 x 48.5 x 75.5 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

	Operating time (without drying)		Drying time
DAC Professional	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)	–	–

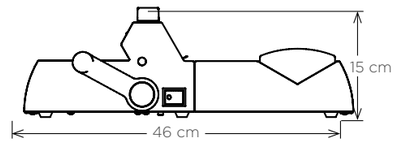
	Operating time (without drying)		Drying time
DAC Professional Plus	Load up to 5 kg of unwrapped instruments	Load up to 1.8 kg of textiles	
Universal program	30 min.	–	20 min.
Quick program B*	30 min.	–	10 min.
Quick program S**	15 min.	–	5 min.
Gentle program	45 min.	45 min.	20 min.
Prion program	45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

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

SiroSeal Premium

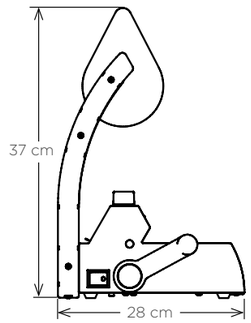
	SiroSeal Premium	SiroSeal Professional
Reference number	65 26 961	65 26 953
Electrical connection	300 W / 220 – 240 V / 50/60 Hz	300 W / 220 – 240 V / 50/60 Hz
External dimensions (W x H x D)	41.5 x 15 x 24 cm	41.5 x 15 x 24 cm
Weight (without load)	5.4 kg	5.4 kg
Temperature range	100 – 210°C	160 – 200°C
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



REF. 65 28 801

“Comfort” roll holder



REF. 65 28 819

Ordering information and accessories

DAC Universal

Product		Ref.
	Fitted with: • Standard lid without adapters • 1 can of NitramOil maintenance concentrate • "Standard" indicator holder • Air filter	65 43 321 (GER) 65 40 087 (Europe) 65 40 079 (World)
	Installation kit, siphon consisting of: • Siphon with direct connection • Manometer • Water filter • Holder for air filter • Filter for filter housing (pack of 6) • NitraClean tablets (pack of 100) • Chemical indicators, class 5 (pack of 100)	64 33 267
	Installation kit, waste water tank consisting of: • Waste water tank • Manometer • Water filter • Holder for air filter • Filter for filter housing (pack of 6) • NitraClean tablets (pack of 100) • Chemical indicators, class 5 (pack of 100)	64 33 275

Accessories		Ref.
	NitramOil maintenance concentrate (white, 6 bottles) for serial nos. 100 000 – 103 999 and 200 000 – 201 999	60 86 628
	NitramOil maintenance concentrate (blue, 6 bottles) for DAC Universal with "Wrapped Ready" for serial nos. 104 000 – 199 999 and 220 000 – 201 999 and 500 000 onwards	62 59 118
	NitraClean tablets (pack of 100)	60 53 842
	Filter for filter housing (pack of 6)	60 78 583
	Chemical indicators, class 5 (pack of 100)	58 92 059
	Indicator holder for Standard lid	60 51 788
	Indicator holder for Flex lid	65 42 489

Accessories		Ref.
	Standard lid without adapters	60 51 739
	Flex lid without adapters	65 35 855
	Basket lid	61 26 200
	PCD test body	60 51 820
	Lid extension piece for Check & Clean	65 42 737
	Lid holder	62 59 109
	Drain tank with hose siphon with direct connection	60 78 526 61 26 341
	DAC Universal thermal printer paper	60 51 770 61 23 462

Standard lid

Adapter for straight and contra-angle handpieces		Ref.
	Sirona T1 Classic/TE adapter	60 51 705
	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

Flex lid*

Ultrasonic scaler for ultrasonic handpieces, tips and multi-functional syringe attachments		Ref.
Adapter for ultrasonic handpieces:		
	Sirona SiroSonic TL / PerioSonic adapter	65 36 135
	Sirona SiroSonic / L adapter	65 36 143
	EMS Piezon straight handpiece adapter	66 13 538
Adapter for multi-functional syringe nozzles:		
	Sirona Sprayvit nozzle adapter	65 36 150
	Sirona Sprayvit nozzle 4000 adapter	65 36 168
Adapter for ultrasonic tips:		
	Sirona ultrasonic tip adapter: For the instrument tips SiroSon S/C8/L; SiroSonic /L; SiroSonic TL; PerioSonic: L, PE, PS, SiroRetro, SiroPrep	65 36 127
	EMS ultrasonic tip adapter	66 10 708
	Satelec ultrasonic tip adapter	66 10 716

* The Flex lid is only intended for the reprocessing of scaling and periodontology tips.
The Flex lid is not intended for the reprocessing of implant, endo, micropreparation and CEM tips.

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