

Hygiene · Safety · Efficiency  
Processing instruments  
in dental surgeries





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G 7831, G 7881 and G 7891

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# System solutions for safe and reliable instrument processing

**Validatable machine processing of instruments in a Miele washer disinfector: safe, optimum performance, low running costs.**

## Manual processing

Manual processing of medical instruments is time consuming and carries with it the risk of contamination in the workplace. It also excludes the processing of many specialised instruments, for instance those with hollow lumen which cannot be reached manually. Manual processing also makes standardised cleaning and disinfecting procedures impossible to regulate. From an economical point of view manual processing is also expensive in terms of unregulated water consumption and in the use of cleaning and disinfecting agents. The excessive use of which is detrimental to the environment.

## System solutions for instrument processing

Miele's washer disinfectors with their special processing procedures and target specific accessories offer a comprehensive solution for ensuring the thorough and safe processing of a wide variety of medical devices. They also enable reproducible results for all applications in the dental surgery, however simple or demanding they may be.

## Optimum safety with Miele

Miele washer disinfectors offer flexible solutions for **cleaning and thermally disinfecting** medical instruments and accessories.

Thorough internal and external cleaning whilst caring for the materials being processed takes place on two levels in a top and bottom basket. The fresh-water system guarantees a consistently high standard of hygiene; and water circulation at up to 400 l/min enables a high throughput to be achieved in short batch times. Highly developed electronic controls then take care of all stages of the cleaning and disinfecting programmes including the pre-wash, main wash, interim rinses, disinfection/final rinse, and drying stages.

Disinfection takes place at >90°C with a temperature holding time of 5 minutes, in accordance with EN ISO 15883. The temperature used for cleaning and disinfection can also be adapted to suit specific requirements – flexibility for all areas of application.

## The advantages of Miele's system

Flexible and economical

- Washer disinfectors in a variety of sizes for all applications
- Modular concept whereby optional accessories are added to customise the basic machine to your needs
- Efficient single chamber system for cleaning, rinsing, disinfecting and drying

## Simple and intelligent

- Tried and tested standard programmes, plus innovative special programmes
- Easy to use electronic controls

## Safer than safe

- Serial interface for process documentation and an optical interface for service access.
- The machines conform to EN ISO 15883

## Reliable and innovative

- Ongoing intensive research and development work with specialists in the world of hygiene, science and end users
- Processes and product features are designed to suit end-users requirements

## Tip

For more information about instrument disinfection and hygiene please ask for a copy of the Miele Film "Instrument processing in dental surgeries", available on video cassette and CD-ROM. [info@miele.de](mailto:info@miele.de)

Leading instrument manufacturers recommend Miele washer disinfectors for processing their transmission instruments.



KaVo. Dental Excellence.



## The full package from Miele

- Everything from preliminary advice to a comprehensive network of service engineers
- Validation
- Service contracts for everyday peace of mind
- Attractive finance packages

Features vary depending on model





The illustration shows: – Washer disinfector G 7881 – Upper basket O 177/1 – Insert E 146 – Insert E 473/1 – Insert E 521 – Insert E 337 – Bottom basket U 874/1 – Insert E 379 – Insert E 339 – Dispenser module DOS K 60

# Miele Washer Disinfectors

The slimline solution for small dental practices processing one load per day



## Washer disinfectors G 7831

- Freestanding / built-under
- 45 cm wide
- H 850 (820), W 450, D 600 mm
- Single phase supply
- Can process up to 6 transmission instruments, 4 suction devices and 16 sets of instruments\*

## Miele Washer disinfectors

All Miele washer disinfectors can be installed either as free-standing machines, or simply be built under a worktop in a row of units in a dental practice. They come fitted with an electrical cable, water inlet and drain hoses and a drain pump. Baskets and inserts to take the various instruments are individually selected to suit the requirements of the dental practice. Specially designed accessories, e.g. for dispensing liquid agents or washing/rinsing with demineralised water, are listed on pages 22–25.

The universal large-capacity solution with short batch times



## Washer disinfectors G 7881

- Freestanding / built-under
- 60 cm wide
- H 850 (820), W 600, D 600 mm
- Single phase connection for short programme durations
- Integrated dispenser for liquid agents (neutralising agent)
- Can process up to 11 transmission instruments, 15 suction devices and 25 sets of instruments\*

## Hygiene · Safety · Efficiency

- Machine instrument processing is recommended by the Robert Koch Institute
- Serial interface for process documentation
- Thorough cleaning and assured disinfection in a closed system
- Certificated medical devices, Conforming to Medical devices directive
- Reproducible results, validatable procedures
- Thermal disinfection
- Comprehensive safety devices in accordance with EN ISO 15883
- Can be connected to a liquid media dispensing system

The first 60 cm wide washer disinfectors with integrated hot air drying



## Washer disinfectors G 7891

- Freestanding / built-under
- 60 cm wide
- H 850 (820), W 600, D 600 mm
- Single phase connection for short programme durations
- Integrated dispenser for liquid agents (neutralising agent)
- Drying Plus: Integrated hot air drying
- Can process up to 11 transmission instruments, 15 suction devices and 25 sets of instruments\*

\* 1 Instrument set consisting of forceps, oral mirrors and probes

See pages 28/29 for technical data

# Miele Washer disinfectors: Quality, both inside and out



Illustration shows G 7881

## Miele Quality – Made in Germany

The machine processing of dental instruments every day is an essential part of quality assurance in the dental surgery. Miele washer disinfectors are uncompromising in their quality, and are extremely hygienic, safe and economical for the user.



## Design

- Can be freestanding or built-under a worktop
- Double-wall construction and door insulation reduce noise levels
- Wash cabinet and water connections in high quality stainless steel
- Reinforced water inlet and drain hoses
- They come fitted with an electrical cable, water inlet and drainage hoses and a drain pump

## Cleaning technology

- Hygienic freshwater system with water changed after each wash phase
- 2 spray arms (3rd one is in the upper basket) for thorough cleaning of instruments
- Injector jets optimally arranged and spray arm rotation variable for best possible cleaning results
- Injector system for thorough cleaning of hollow instruments
- Direct coupling of upper baskets to the water intake

## Standard features

- Profi-monobloc water softener; regeneration takes place during the wash programme with minimal salt consumption
- Powerful circulation pump
- 4-fold filtration in wash cabinet with flat, coarse, glass shard and micro-fine filters
- Efficient steam condenser using heat exchanger (G 7831 and G 7881), or with spray system (G 7891)
- Flowmeter counter to monitor water intake
- Integrated liquid media dispensing system

- Can be connected to an external liquid media dispensing system
- Hot-air drying unit for thorough drying of instruments (G 7891)

## Interface

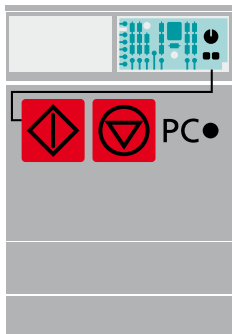
- Serial interface RS 232 for process documentation
- Optical interface for service work

## Safety features

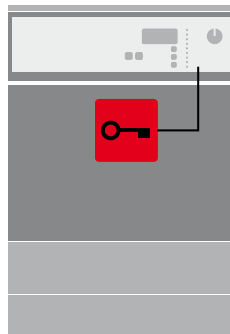
- Electrical door lock
- Programme failure check
- Audible and visual signals at end of programme
- 2 sensors for temperature control and monitoring
- Sensor port for positioning sensors in the wash cabinet for validation purposes and annual service checks



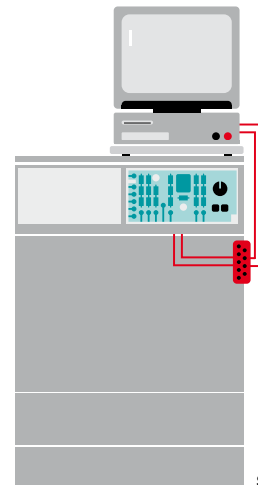
# Miele Washer disinfectors: certificated according to the Medical Devices Directive



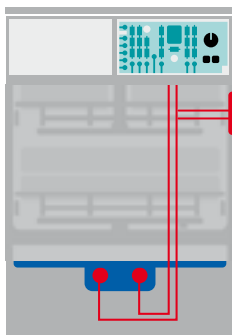
Electronic controls



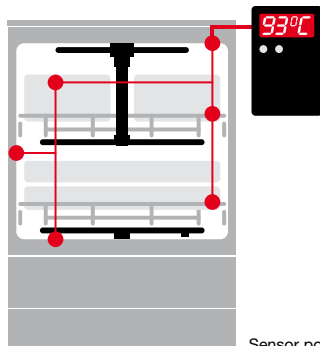
Door lock



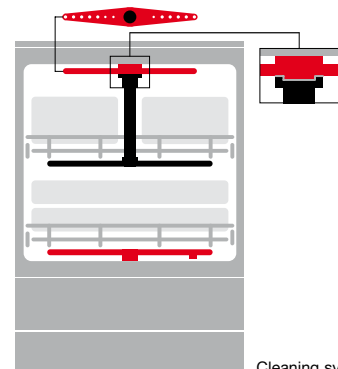
Serial interface (SST)



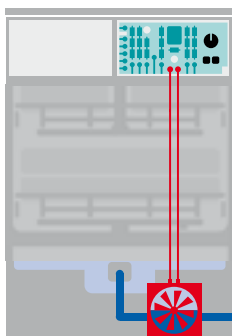
Sensors



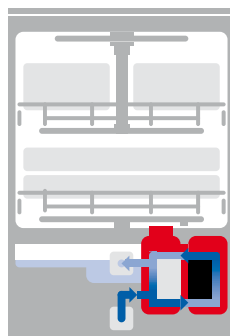
Sensor port



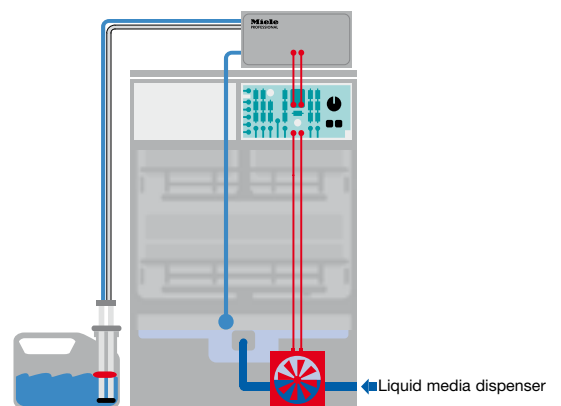
Cleaning system



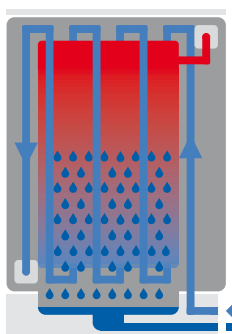
Flowmeter



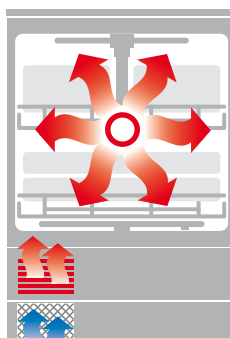
Water softener



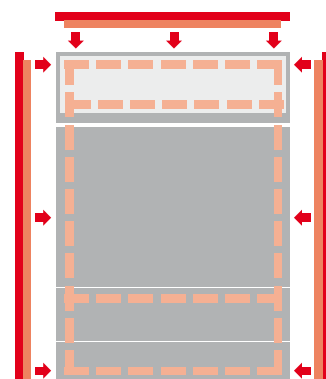
Liquid media dispenser



Steam condenser  
Heat exchanger



Hot air drying



Spaceframe  
construction

# NEW: Washer disinfectant G 7891 with **Drying Plus**



Washer disinfectant G 7891 – Upper basket O 177/1 – Insert E 146 – Insert E 473/1 – Insert E 521 – Insert E 337 – Bottom basket U 874/1 – Insert E 379 – Insert E 339



Washer disinfectant G 7891 – Upper basket O 177/1 – Insert E 473/1 – Insert E 521 – Insert E 522/1 – Insert 441/1 – Bottom basket U 874/1 – Insert E 131/1 – Insert E 146 – Support E 328 – Insert E 523

Miele, the innovative market leader in the processing of instruments in surgeries, clinics and central sterilising units, is the first manufacturer to offer a 60 cm wide washer disinfectant with integrated hot-air drying „**Drying Plus**“. This concept enables comprehensive processing of instruments with thorough cleaning, assured disinfection and effective drying results.

This hot-air drying system even enables complex instruments to be reliably processed. A HEPA S-class H 12 filter is integrated into the machine to ensure the cleanliness of the air used in this drying process. The filter is simple to access and replace through an access panel in the front of the machine.

**Miele's G 7891 built in legendary Miele Quality – Made in Germany.**

## **The advantages of the G 7891 washer disinfectant with Drying Plus**

- Only requires a footprint of 60 cm
- Large wash cabinet with integrated drying system
- Effective drying in a short time
- Drying times adjustable in 5 minute increments

## **Efficient instrument processing**

- Rapid drying with hot air
- Instruments do not need require time-consuming drying after processing
- High level of material protection with reduced risk of corrosion

## **Thorough instrument processing**

- Optimum drying of plastic articles and improved drying of items in mesh trays

## **Safe instrument processing**

- Hygienic drying with HEPA filtered air
- Instruments are dry for assured sterilisation





Changing the air clean filter



Wash cabinet with 2 levels



Wash cabinet with 2 spray arms



Water filtration system in the wash cabinet



Direct coupling to the water intake



Direct coupling to the water intake



Hot air drying

# Controls · Programmes · Durations

Illustration shows G 7881



## Fully electronic controls, reliable processing

The MULTITRONIC controls on Miele washer disinfectors precisely monitor and control programmes and functions. Miele washer disinfectors are equipped with an RS 232 serial interface which can be used to transfer data to a report printer or PC. Important disinfection programme data including programme duration, temperatures and any faults or user interventions are included in the report.

## Simple operation

All symbols used on the control panel are language neutral and self-explanatory. Programme sequence indicator lights keep the user informed on progress. A 3 digit, 7 segment display shows programme durations as well as wash and disinfection temperatures. Status and control check lights are used to alert the user to maintenance requirements and possible faults.

## Powerful, yet energy-efficient performance

Miele washer disinfectors have a large wash cabinet with two cleaning levels (upper and lower baskets) and can be used to process instruments, accessories, trays and containers. The upper basket connects directly to the water inlet and a flow wheel monitors the water intake. By using just the right amount of water for each programme and controlling the amount of detergent used operating costs are also kept to a minimum.

## Thorough cleaning, assured disinfection







Standardised procedures are used for machine processing instruments.

The **vario TD** programme consists of a pre-wash at low temperature so that blood deposits are not denatured. This is followed by an intensive main wash including thermal disinfection at >90°C with a 5 minute holding time.

For optimum care of surgical instruments the final rinse should be carried out with demineralised water and without using rinsing agent. This programme is suitable for the routine processing of all thermally stable instruments in accordance with

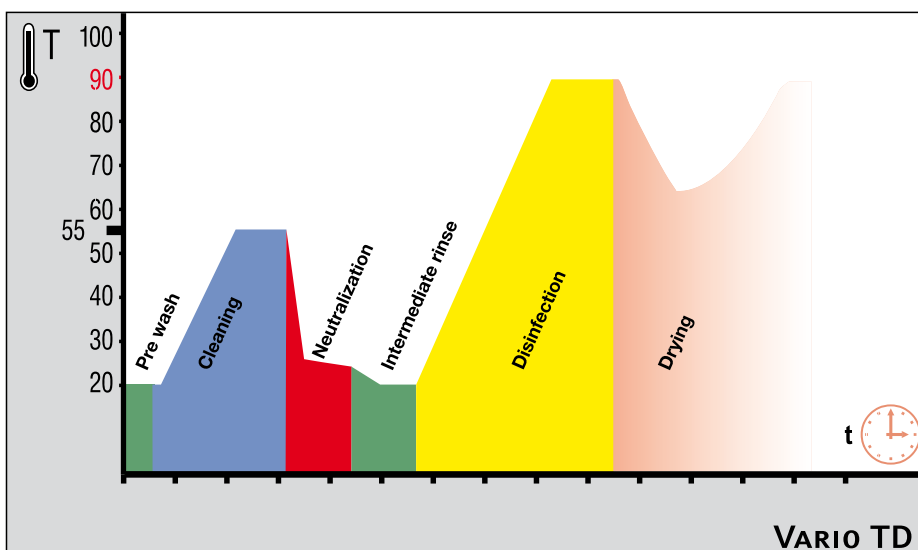
EN ISO 15883. It is also ideal for processing transmission instruments as it treats materials with care. The G 7891 has an integrated hot air drying unit for the thorough drying of all types of instruments.

The **SPECIAL 93°C-10'** programme complies with the standards required for the containing of epidemics in disinfectors and decontamination units, according to § 18 of IfSG (German infection protection regulations). The Robert Koch Institute in Berlin (German institute for infectious diseases and non-communicable illnesses) has declared this programme to be suitable in effective areas A and B for the destruction of vegetative bacteria including micro-bacteria, fungi and fungal spores and also for inactivating viruses, including HBV and HIV.

Model	Duration	Consumption: Main wash/Disinfection			
Programmes	Main wash	CW	HW	AD	Electricity
	[min]	[l]	[l]	[l]	[kWh]
<b>G 7831</b>					
SPECIAL 93°C-10'	57	21.8	–	–	2
vario TD	55	30.3	–	–	1.8
Universal 	36	23.3	–	–	1.2
A (freely programmable)					
Pre-rinse 	4	6.5	–	–	0.01
<b>G 7881*</b>					
SPECIAL 93°C-10'	43	26.5	–	9.5	2.9
vario TD	42	38.5	–	9.5	2.6
Universal 	28	29.5	–	9.5	1.8
A (freely programmable)					
Pre-rinse 	3	10.0	–	–	0.02
<b>G 7891</b>					
SPECIAL 93°C-10'	43	25.5	–	9.5	2.9
vario TD	42	35.5	–	9.5	2.6
Universal 	32	29.5	–	9.5	1.8
A (freely programmable)					
Pre-rinse 	3	10.0	–	–	0.02

\*Connection: CW 15°C; 3 N AC 400V, 9.7 Hz (if connected to a single phase supply durations will be longer)

CW=cold water, HW=Hot water, AD=Aqua destillata



### Vario TD programme

Standard programme for the routine cleaning and disinfection of instruments soiled with protein (blood, secretions).

- Intensive cleaning using temperatures that will not cause protein to denature
- Disinfection in accordance with EN ISO 15883
- High level of material protection

Standard in all Miele washer disinfectors.



# Reliable instrument processing: Typically Miele



The systematic cleaning, disinfection and sterilisation of instruments are pre-requisites for avoiding risk to both patients and staff.

## **Safety born of experience**

In the field of dentistry, medical expertise and professional instruments ensure optimum treatment and patient care. The systematic cleaning, disinfection and sterilisation (where appropriate) of instruments are pre-requisites for avoiding risk to both patients and staff.

The machine processing of instruments has become an essential part of ensuring that standards are met, because **cleaning and disinfection must be carried out using validated procedures if it is to be in compliance with the Medical Devices Directive.**

## **Extract from the Medical Devices Directive, § 4 section 2, with respect to legal changes effective from 1 January 2002**

In accordance with regulations, reusable "low contamination" or "sterile" medical instruments must be processed following the manufacturer's instructions using specific, validated procedures, whereby the successful completion of these procedures is clearly documented, so that the health of patients, users or third parties is not compromised.

**Extract from the Robert-Koch-Institute:** According to the RKI guidelines machine processing of instruments is recommended in preference to manual processing (extract taken from the publication "Hygiene requirements in dentistry"). With Miele's system medical devices are processed in accordance with the Medical Devices directive and with RKI guidelines.



# Validation, Performance qualification and routine monitoring

## **Protecting patients, users and third parties**

Processing instruments in a Miele machine cleans and disinfects in a closed-circuit system. This process is easy to validate and revalidate. With its fungicidal, bactericidal and virus-deactivating properties, thermal disinfection achieves the highest possible level of protection against the risk of infection.

It is only by using this process that the most essential criteria for professional instrument processing in dental practices are fulfilled.

**Protection, economy, validation.**

## **MDD conformity**

Miele washer disinfectors ensure optimum cleaning results and thermal disinfection in compliance with the provisions of international standard EN ISO 15883. The development and production of these machines are incorporated into Miele's Quality Assurance Scheme, which in turn is in full compliance with DIN ISO 13485. The appliances are certified as Class 2a medical products in accordance with 93/42/EEG and carry the CE 0366 mark.

## **Only from Miele**

Extremely reliable systems simplify the validation process required after commissioning, as well as regular revalidation. The cleaning and disinfection phases can be simply documented on a PC or printer using the RS 232 serial interface.

## **The full package**

Miele offers a comprehensive package for safe instrument processing in the dental surgery. After installation, every machine is commissioned by a specialist service technician who has received intensive training as a medical product adviser and who is able to fully explain the machine's operation and functions.

The Miele service technician is also fully conversant with process validation in accordance with EN ISO 15883.

## **Trouble-free support**

With a Miele maintenance contract, regular revalidation of process sequences by a Miele service technician and routine checks by the machine operator, you will never need to worry about your instrument processing.

## **Validation**

When processing instruments, cleaning and disinfection must be carried out using validated processes as recommended in The guidelines for medical practices drawn up by a working group of representatives from the German Association for Hospital Hygiene (DGKH), the German Association for Sterilisation Processes (DGSV) and the Working Group for Instrument Processing (AKI). The guidelines specify recognised quality-assured methods for validation, which must only be carried out by trained personnel, e.g. a specially trained Miele service technician.

## **Purpose of validation**

The validation process for washer disinfectors should demonstrate that the cleaning processes are always in line with prescribed specifications. It covers the Installation, operation and performance of the machine. A Miele service technician can undertake this task on request, and carry out the validation process in close co-operation with the operations supervisor.

## **Performance qualification**

Performance qualification is used to ensure that the machine produces reproducible results under specific conditions and to make sure it complies with EN ISO 15883. Performance qualification tests the machine's cleaning and disinfecting performance. Cleaning performance is tested in accordance with the validation guidelines set out by DGKH, DGSV and AKI. Special test instruments with defined soiling as well as instruments from the actual practice are tested for residual contamination. Disinfection performance is tested by measuring the disinfection temperature reached. The results are then documented.

Performance testing and evaluation must be carried out in accordance with guidelines by qualified persons. Please contact the Miele Service Department for advice if required. Qualified dental personnel with the correct training can also perform these tests.

## **Support**

To assist with testing Miele offer a variety of media including films, pdf documents, word lists and internet links.

A CD ROM about qualification testing and routine monitoring of machine based cleaning and disinfection processes in the dental practice is available from:

[info@miele.de](mailto:info@miele.de)

Cost € 25.00

# Process documentation in the dental practice

Machine processing in a washer disinfectors is not just more economical than manual handling, it is also much safer. It offers the advantage of being able to document the whole process in detail. And thus is able to fulfil the requirements of the Medical Devices Directive and RKI-BfArm. Data including programme name, date, time, temperature, dosage and information regarding successful cleaning and disinfection are all documented. This documentation is also an essential component in a dental practices' own quality control procedure. Process documentation can be recorded on checklists, and be printed and saved.



## **Washer disinfectors / manual process documentation**

- Processing procedures can be checked and then documented on forms or in lists
- Controls can be carried out according to standard procedures
- Sign off by hand-written signature
- Documents archived in folders



## **Washer disinfectors / printer**

- A standard printer can be connected to the serial interface (SST) for printing cleaning and disinfecting processes
- Printed copy is then used for checking the data
- Hand-written signature on the print-out
- Documents archived in folders

Contact Miele if you require advice on suitable printers.

### Electronic documentation

Miele washer disinfectors are equipped with a serial interface (SST) RS 232 as standard. This interface and the relevant software enables process documentation to be easily and reliably made available.



#### Washer disinfector / USB stick

- A data logger module can be connected to the serial interface (SST)
- Process data can be saved to a memory stick



- Data can be transferred from the memory stick to documentation software on a PC
- Data can then be checked and signed off on the computer
- Digital signature
- Paper-free, digital long-term archive



#### Washer disinfector / PC software

- Documentation software connects the machine to a computer (Laptop or PC)
- Network integration also possible using additional hardware
- Direct transfer of data onto a computer
- Automatic documentation is very secure against manipulation
- Data can then be checked and signed off on the computer
- Digital signature
- Paper-free, digital long-term archive

The following companies use the serial interface on Miele washer disinfectors and offer special process documentation software:

- comcotec Messtechnik GmbH, Garching n. München [www.comcotec.org](http://www.comcotec.org)  
[www.sego soft.de](http://www.sego soft.de)

**com | G | tec®**  
**SEGO® | SOFT**  
Process Documentation

- DIOS Daten-Informations- und Organisationssystem GmbH, Reken

**dios MP steridat**

[www.dios.de](http://www.dios.de)

Contact the above for sales and service advice.

# Systematic protection against infection



In the interest of maintaining the highest possible efficiency and hygiene standards in surgeries, the following steps have been widely accepted by the dental profession for processing instruments.

## 1. Transportation of Instruments

Immediately after treatment, used instruments and accessories are placed on trays and taken to a central processing room. Immersion of instruments in a disinfectant solution is not necessary if instruments are to be processed by machine.

## 2. Removal of coarse soiling

## 3. Cleaning and disinfection

When processing instruments in a Miele washer disinfector they should be placed in mesh trays or inserts. Trays can also be used. Hollow instruments should be placed on injector jets. Contaminated instruments can be left for interim dry storage for 5-6 hours in the machine. Residual amalgam must be removed immediately from instruments.

## 4. Checking and testing

After cleaning, disinfecting and drying instruments must be inspected. Hinged instruments may require subsequent treatment with medical white oil. Instruments which do not require subsequent sterilisation are then placed in a central storage unit or returned to the treatment room.

### Important

Oral mirrors are usually very fragile, and an acceptable level of wear and tear should be expected over time. Rhodium coated mirrors are generally suitable for machine processing, depending on their quality and how they have been handled. Rotating instruments such as drills, cutters and grinders can be machine processed providing this has been authorised by the manufacturer. Drills made from instrument steel cannot be machine processed.

## 5. Preparation for sterilisation

Individual instruments such as surgical forceps and small instruments sets are usually shrink wrapped. Complete sets of instruments such as those used for tooth extraction and periodontal treatment are placed in set

trays. Root canal instruments are placed in the appropriate cassettes, to which indicator strips are then attached.

## 6. Sterilisation

Sterilising should be carried out in an autoclave or steam steriliser.

## 7. Hygienic storage

Sterilised instruments that have been shrink wrapped or placed in cassettes are then stored in the central storage area.. Frequently used instruments may be stored in the treatment room. Individual instruments and accessories, such as those required for preventative treatment, are stored in special wide slatted instrument holders. The storage facilities should be dust-proof.



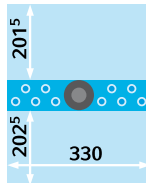
# Upper and lower baskets



## O 801/2 Upper basket/Injector unit

For G 7831

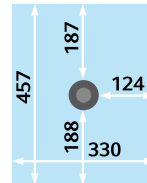
- Front and rear sections free for various inserts, clearance 200 mm
- Central axis with support frame for hollow instruments, e.g. suction devices and 6 holders (AUF 2) for transmission instruments, 10 silicone holders and 10 jets Ø 4.0 mm, L 30 mm, clearance 175 mm
- Built-in spray arm
- H 267, W 381, D 475 mm



## O 800/1 Upper basket/carrier

For G 7831

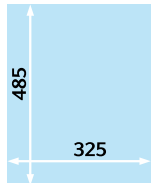
- For accommodating inserts
- Clearance 200 mm
- Built-in spray arm
- H 270, W 381, D 475 mm



## U 800 Lower basket/carrier

For G 7831

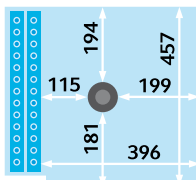
- For accommodating inserts
- Loading area W 325, D 485 mm
- Clearance when combined with upper basket O 800/1 approx. 295 mm O 801/2 approx. 270 mm
- H 62, W 385, D 505 mm



## O 177/1 Upper basket/Injector unit

For G 7881/G 7891

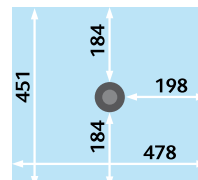
- Right side for inserts
- Left side with height adjustable support frame for hollow instruments, e.g. suction devices and 11 holders (AUF 1) for transmission instruments, 26 silicone holders and 26 jets Ø 4.0 mm, L 30 mm, 7 funnels supplied loose
- Built-in spray arm
- Clearance 230/205 mm
- Height adjustable +20+40 mm
- H 263, W 498, D 455 mm



## O 190/1 Top basket / carrier

For G 7881/G 7891

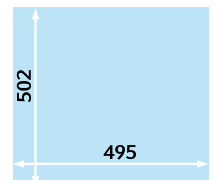
- For accommodating inserts
- Clearance 215 mm
- Height adjustable +/- 20 mm
- Built-in spray arm
- H 265, W 531, D 475 mm



## U 874/1 Bottom basket/carrier

For G 7881/G 7891

- For accommodating inserts
- Clearance when combined with upper basket: O177/1 approx. 220 mm - 20/- 40 mm
- O190/1 approx. 220 mm +/- 20 mm
- Loading area: 495 x 502 mm.
- H 50, W 534, D 515 mm



**Powder detergent not possible**

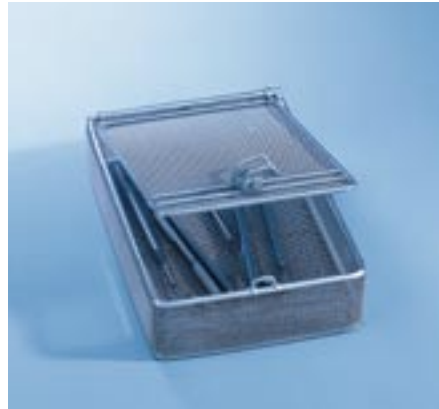
# Inserts



## **E 146 Insert 1/6 mesh tray**

For G 7831/G 7881 and G 7891, in upper and lower baskets

- For instruments
- Mesh spacing: 3 mm on the base, 1.7 mm on the sides, 8 mm on the lid
- 2 hinged handles
- H 55, W 150, D 225 mm



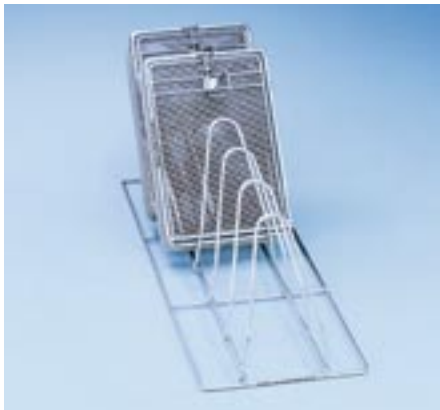
## **E 363 Insert 1/6 mesh tray**

- As E 146, but with 1 mm mesh spacing and no handles



## **E 328 support**

- For use in mesh trays E 146 and E 363
- For instruments when mesh trays are arranged in the upright position



## **E 131/1 Insert 1/2**

For G 7881/G 7891, in the lower basket

- For 5 mesh trays/kidney dishes
- 6 holders (5 sections)  
H 160, 80 mm between holders
- H 168, W 180, D 495 mm



## **E 800 insert**

For G 7831, in upper and lower baskets

- For 3 mesh trays/kidney dishes
- 4 holders (3 sections)  
H 165, 68 mm between holders
- H 165, W 140, D 290 mm



## **E 523 1/2 Insert**

For G 7831, G 7881/G 7891, in the lower basket

- For mesh trays, e.g. IMS-cassettes
- 7 holders (6 sections)  
H 145, 50 mm between holders
- H 150, W 220, D 450 mm

# Inserts



## **E 379 Insert 1/2 mesh basket**

For G 7881/G 7891, in upper and lower baskets

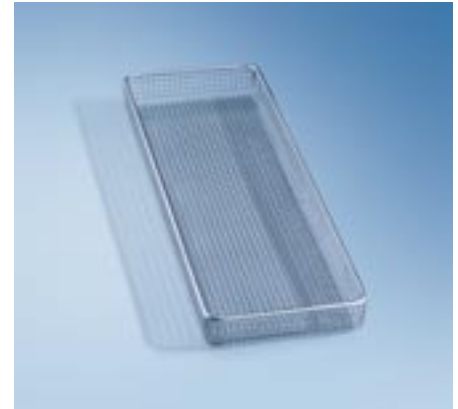
- Mesh spacing 1.7 mm
- 2 handles
- H 80 + 30, W 180, D 445 mm



## **E 378 Insert 1/1 mesh basket**

For G 7881/G 7891, in the lower basket

- Mesh spacing 1.7 mm
- 2 handles
- H 80 + 30, W 460, D 460 mm



## **E 430/1 Insert 1/3 mesh tray**

For G 7831/G 7881 and G 7891, in upper and lower baskets

- For instruments
- Mesh spacing 5 mm
- H 40, W 150, D 445 mm



## **E 337 Insert 2/5**

For G 7881/G 7891, in upper and lower baskets

- For instruments, arranged in an upright position
- 18 sections approx. 47 x 51 mm
- 75 sections 14 x 14 mm 1 central tray
- H 145, W 175, D 445 mm



## **E 802 insert**

For G 7831/G 7881 and G 7891, in upper and lower baskets

- For instruments, arranged in an upright position
- 4 sections 47 x 51 mm
- 4 sections 47 x 40 mm
- 2 sections 42 x 51 mm
- 2 sections 42 x 40 mm
- 48 sections 14 x 14 mm
- 1 central tray
- H 133, W 163, D 295 mm



## **E 441 Insert 1/4**

For G 7831/G 7881 and G 7891, in upper and lower baskets

- Mesh tray for micro instruments
- Mesh spacing 1.7 mm solid sides, stackable
- Internal divisions with 6 adjustable supports provide the ideal storage for instruments
- Can be steam sterilised at 121°C/134°C
- H 60, W 183, D 284 mm

# Inserts



## **E 473/1 insert**

For G 7831/G 7881 and G 7891, in upper and lower baskets

- Mesh basket with lid for small instruments
- For suspending in mesh trays
- H 85, W 60, D 60 mm



## **E 521/2 insert**

For G 7831/G 7881 and G 7891, in upper and lower baskets

- For 7 extraction or orthopaedic molar forceps
- Each section 21 x 90 mm
- H 114, W 100, D 189 mm



## **E 522/1 insert**

For G 7831/G 7881 and G 7891, in upper and lower baskets

- 9 Holders for impression plates
- H 140, W 100, D 190 mm



## **E 520 insert**

For G 7831/G 7881 and G 7891, in upper and lower baskets

- For 18 root canal instruments
- Collapsible, holds instruments securely for optimum cleaning results
- H 45, W 75, D 30 mm



## **E 491 Insert (available July 2009)**

- Insert for rotating instruments
- For 18 turbine shafts
- For 30 contra angle shafts
- H 53, W 70, D 120 mm



## **E 147/1 Insert 1/2 (illustrated)**

For G 7881/G 7891, in upper and lower baskets

- For 10–12 mouth rinse beakers, max. Ø 80 mm
- Plastic coated
- H 155, W 220, D 455 mm

## **E 801/1 insert**

For G 7831, in upper and lower baskets

- For 8 mouth rinse beakers, max. 75 mm
- Plastic coated
- H 155, W 200, D 320 mm



# Inserts



## **E 130 1/2 Insert**

For G 7881/G 7891, in the lower basket

- For 10 trays
- 11 holders (10 sections) H 170, 35 mm between holders
- H 180, W 180, D 445 mm



## **E 338 3/5 Insert**

For G 7881/G 7891, in the lower basket

- For 8 half trays
- 10 holders (8 sections) H 295, 33 mm between holders
- Max. tray size 290 x 200 mm
- H 115, W 305, D 453 mm



## **E 805 insert**

For G 7831, in lower basket

- For 8 half trays
- 10 holders (8 sections) H 295, 33 mm between holders
- Max. tray size 290 x 200 mm
- H 114, W 305, D 353 mm



## **E 339 Insert 3/5 (illustrated)**

- For 16 tray bases/trays
- Max. tray size 290 x 200 mm
- 16 sections, W 295 mm, 21.5 mm between holders
- H 115, W 305, D 468 mm

## **E 339/19 Insert 3/5 (available June 2009)**

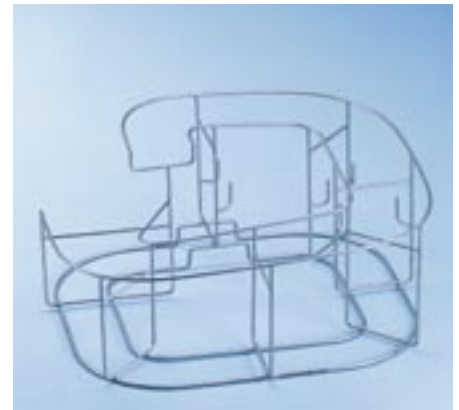
- For 13 tray bases/trays
- Max. tray size 290 x 200 mm
- 13 sections, W 295 mm, 30 mm between holders
- H 115, W 305, D 498 mm



## **E 806 insert**

For G 7831, in lower basket

- For 11 tray bases/trays
- 12 holders (11 sections) H 295, 21.5 mm between holders
- Max. tray size 290 x 200 mm
- H 114, W 305, D 315 mm



## **E 413 1/1 Insert**

For G 7881/G 7891, O 177/1

(Adapters to be sourced from Sirona)

- For 6 Sirona suction tubes
- H 205, W 390, D 450 mm

# Inserts



## AUF 1

For G 7881/G 7891

- Holders for transmission instruments in upper basket O 177/1
- Consisting of: Seal, screw socket, clip, lower section, upper section, 5 ceramic filters



## AUF 2

For G 7831

- Holders for transmission instruments in upper basket O 801/2
- Consisting of: Seal, screw socket, clip, lower section, upper section, 5 ceramic filters



## Filter discs for AUF 1 and AUF 2

- 20 discs
- Porosity 2
- Diameter 30 mm



## ADS 1 Silicone adapter

- For Handpieces and contra angles
- Connection approx. 20 mm
- White

## ADS 2 Silicone adapter

- For turbines
- Connection approx. 16 mm
- Green

## ADS 3 Silicone adapter

- Für Sirona handpieces and contra angles
- Connection approx. 22 mm Ø
- Red

# Processing turbines, handpieces and contra angles

Filter plate



Holder for turbines, handpieces and contra angles



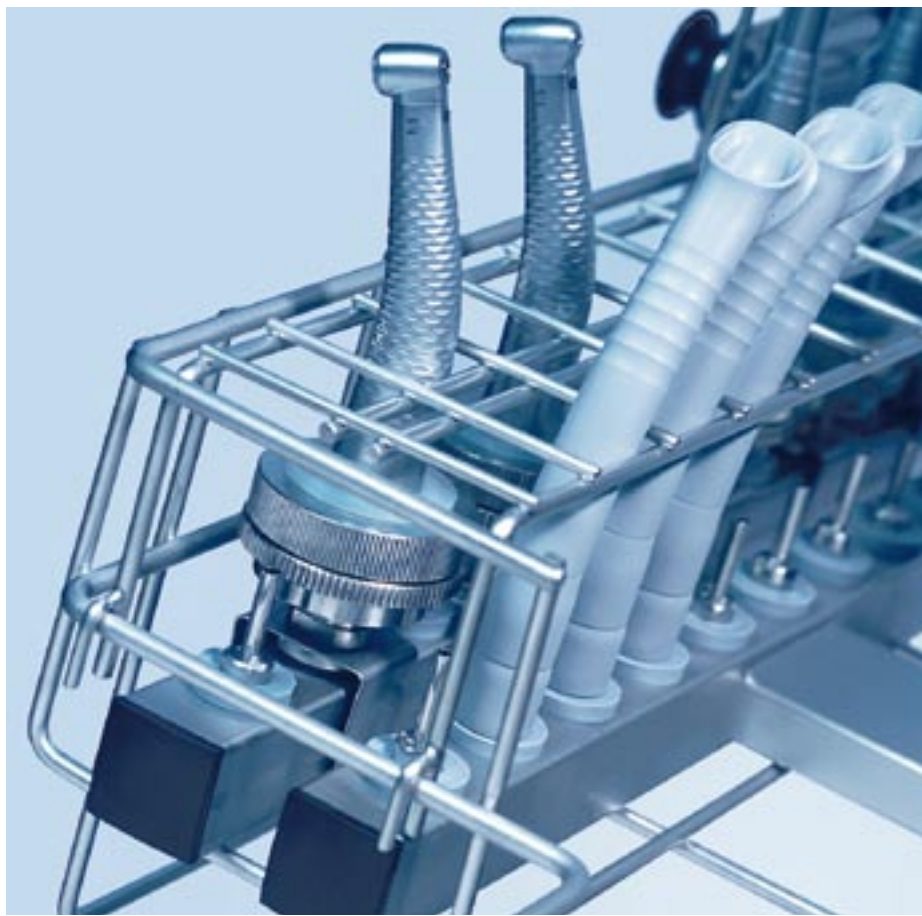
## Processing turbines, handpieces and contra angles

The need for complicated processes for cleaning and disinfecting transmission instruments has been eliminated, as these can be safely processed in a Miele washer-disinfector.

Apart from cleaning and disinfecting outside surfaces, the most important criteria for processing turbines, handpieces and contra-angles are the **thorough disinfection of internal surfaces** and, if required, the sterilisation of transmission instruments which have been used for invasive processes.

Upper basket O 177/1 can be fitted with a filter plate and a silicone adapter to take a handpiece, a contra-angle or a turbine. These are fitted on the injector strip instead of the injector nozzle. The filter plates must be changed after approx. 20 wash cycles or every 2 weeks.

Upper basket O 177/1 for hollow instruments



## Gentle cleaning, thorough disinfection

The cleaning and disinfection of transmission instruments must only be carried out using the DESIN varioTD (90°C-5') programme, which is designed for these exceptionally fragile and temperature sensitive instruments. This programme ensures that transmission instruments are not exposed to substantial fluctuations in temperature, and can be used for processing other instruments at the same time.

A dispensing module for liquid cleaning agents is an essential accessory for this programme, as transmission instruments have to be processed using special demineralised liquid detergent which is gentle on the instruments. The use of demineralised water using the Reverse osmosis system is also recommended. To avoid the risk of corrosion, transmission instruments should be removed from the machine as soon as the programme finishes, the insides dried with pressurised air to remove residual moisture, and finally treated with a conditioning spray.

A CD about the hygienic processing and disinfection of dental instruments is available on request from Miele.

Leading manufacturers recommend the reprocessing of transmission instruments in a Miele washer disinfector.



KaVo. Dental Excellence.



# Accessories for liquid cleaning agents and testing procedures



## G 7896 DOS cabinet

- Supply unit for 1-4 DOS modules and containers
- H 850 (820), W 300, D 600 mm
- Compatible with G 7831, G 7881, G 7891
- Freestanding or built under
- Removable door
- Internal dimensions: H 530, W 249, D 480 mm
- 3 levels:
  - Level 1:  
Pull-out drawer on telescopic runners for storage of up to 4 DOS modules
  - Levels 2 and 3:  
Pull-out drawers on telescopic runners with drip tray and retainer for storage of 2 five-litre containers (total = 4)
- The following container sizes can be accommodated L x H x W
  - 4 x 5 l: 245 x 145 x 225\*
  - 2 x 10 l: 140 x 193 x 307
  - 2 x 10 l: 223 x 203 x 321
  - 2 x 10 l: 229 x 193 x 323
  - 2 x 10 l: 194 x 204 x 353
  - 1 x 20 l: 289 x 233 x 396
  - 1 x 25 l: 288 x 234 x 456

\* Only possible with DOS K 60/1



## DOS K 60

- For liquid cleaning agents
- Dispensing pump with hose, controlled via the electronic controls of the machine
- Integrated dispensing monitor
- Siphon (333 mm) with magnetic float for 5 and 10 litre containers

## DOS K 60/1

- As DOS K 60
- But with 200 mm siphon with magnetic float for 5 litre container (short siphon)

## Note

Liquid cleaning agent should be used in the DESIN varioTD programme.

## Note

It is best to use liquid cleaning agent with the vario TD programme



## Test kit

- For testing for the presence of proteins and monitoring cleaning results
- Contents sufficient for 48 tests
- With coding strips for reflectometer

## Post-processing safety

Together with the Merck Company, Miele has developed a quick protein testing kit for the simple checking of instruments. This allows specific cleaning processes and quality control to be carried out in dental practices on a regular basis.



# Accessories for demineralised water



Illustration shows Miele washer disinfector with Reverse-Osmosis system RO-190 M2



## The complete package from one source





Water quality plays a vital role in instrument processing. Mains water contains salts and minerals, which form limescale in the machine and on instruments. Demineralised water helps protect instruments from corrosion. A reverse osmosis system is an economical alternative to demineralised water cartridges where water consumption levels are high (see the chart on page 27). A continuous supply of demineralised water helps to prevent corrosion and makes the washer disinfector more economical, as the filtration system protects against damaging deposits and helps prevent down times and the consequent repair expenses, and lowers the cost of cleaning agents.

To complete the system Miele offers VEOLIA RO-190 M1 and RO-190 M2 reverse osmosis systems.

## Reverse osmosis system RO-190 M2

- For the continual supply of demineralised water
- Throughput: max. 190 l/h
- Reverse osmosis system in stainless steel unit with door and sump
- Installation of 2 x 5 litre canisters for cleaning agents in the plinth
- 2 LEDs show status and conductivity/flow rates
- Max. yield approx. 50%  
Salt retention 96–98%  
Water quality approx. 5–100 µS/cm (depending on mains water, typically 5–20 µS/cm)
- RO water connection ¾"
- Soft water outlet ¾"
- JG concentrate outlet hose (8 mm)
- Water inlet pressure 2–6 bar
- Electrical connection 230 V/50 Hz
- Connected load 1 kW
- Fuse rating 10 A
- In operation control light
- Electricity consumption: 0.6 kW/h
- Cold water to max. 28°C max. hardness for mains water 30° dGH, 15° dKH
- Reversible door hinging
- External dimensions: H 520, W 600, D 560 mm

## Operating and check lights

		<b>Status:</b> Ready or Stand by
		<b>Conductivity and throughflow indicators:</b> Fault



## Reverse osmosis system RO-190 M1

- For the continual supply of demineralised water to a washer disinfector and to a steriliser\*
- Throughput: max. 190 l/h
- Stand-alone solution for installation in an adjacent unit
- Stainless steel casing
- External dimensions: H 380, W 545, D 302 mm
- Other features and technical data as RO-190 M2

## Optional extras for RO-190 M2 and RO-190 M1

### (VEOLIA accessories list)

- Installation of a pre-filter
- Additional connection point, e.g. for connecting to a steriliser or for demineralised water
- Pressure tank for storing demineralised water
- Connection to a water softener
- Ion exchanger

### \* Important

If a reverse osmosis system is connected to a steriliser an ion exchanger is required in order to achieve a conductivity levels of less 5 µS/cm.

# Accessories for demineralised water



## G 7895/1 Aqua Purificator

For G 7881/G 7891

- Housing unit for 2 demineralised water cartridges E 310/E 318
- Integrated conductivity meter
- General recommended quality for the final rinse < 15 µS/cm
- H 850 (820), W 300, D 600 mm
- Freestanding, can be built-under a counter
- Casing in stainless steel or white
- Electrical connection AC 230 V 50 Hz
- Plumbing connections:
  - 1 x cold water ¾" threaded union
  - 1 x connection for cartridge to machine
- 2.5–10 bar flow pressure to cartridge (Pressure loss approx. 1 bar per cartridge)



## E 310 Demineralised water cartridge/full

- Pressurised stainless steel cartridge
- H 570, Ø 240 mm
- Includes vent and pressure release valve
- Contains 20 litres reusable mixed resin

Capacity in litres depends on total mineral content of the mains water supply and on the max. accepted conductivity levels.

Conductivity level		
	5 µS/cm	10 µS/cm
5° dH	4.250	4.500
10° dH	2.125	2.250
15° dH	1.420	1.500
20° dH	1.070	1.125
25° dH	850	950
30° dH	710	750

The information given in this chart is intended only as a guide.

## E 318 Demineralised water cartridge/empty

- Takes 20 litres of single-use resin

## E 315 Single-use resin

- 20 litres of homogenous mixed resin for E 318
- Carton containing 2 x 10 litre bags, vacuum packed in plastic bags
- Filter bag for resin exchange

## E 316 Refill set

- Plastic barrel with lid and funnel
- For 30 litres of single-use resin



## LWM Module C conductivity monitor

- For 2 demineralised water cartridges E 310/E 318
- H 118, W 235, D 110 mm
- Electrical connection AC 230 V 50 Hz
- 2 hoses approx. 1.9 m, ¾" threaded union
  - 0–20 µS/cm
  - 1.5 µS/cm = Tridistilate
  - 2.5 µS/cm = Bidistilate
  - 20.0 µS/cm = Monodistilate

# Demineralised water cartridge versus Reverse osmosis system

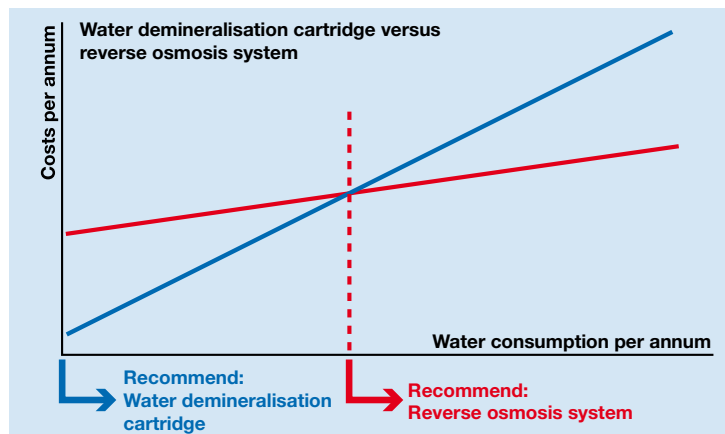


## E 313 wall bracket (top)

- For manual take-off of demineralised water
- Pressure hose approx. 1.5 m, pressurised to 10 bar

## E 314 freestanding tap (bottom)

- For manual take-off of demineralised water
- Pressure hose approx. 1.5 m, pressurised to 10 bar



## Demineralised water cartridge versus reverse osmosis system

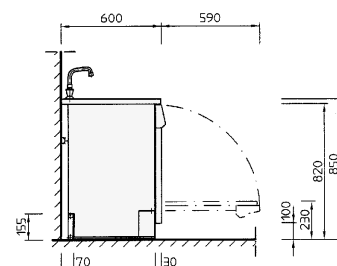
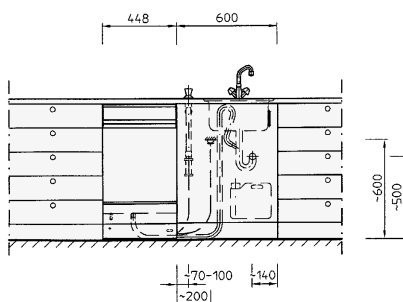
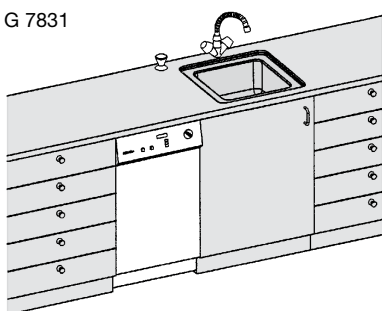
Miele recommend that the final rinse is carried out with demineralised water to protect instruments. Two systems are offered for this: one uses water cartridges and the other is a reverse osmosis system. Which one is the most economical choice for your practice will depend on the number of loads carried out per day. In general the reverse osmosis system is preferable where water consumption levels are high.

# Technical data

## G 7831, G 7881, G 7891

Washer disinfectors	G 7831	G 7881	G 7891
Front loading machine with drop down door, no baskets	•	•	•
Freestanding appliance with lid, can be built under a counter	•	•	•
Freshwater system, max. temperature 93°C	•	•	•
Circulation pump, Qmax [l/min]	200	400	400
<b>Controls/programmes</b>			
MULTITRONIC NOVO MED 45, 5 programmes	•	–	–
MULTITRONIC NOVO PLUS, 5 programmes	–	•	•
Electric door lock	•	•	•
Buzzer at end of programme	•	•	•
Programme failure check	•	•	•
Serial interface for process documentation	•	•	•
<b>Plumbing</b>			
1 x Cold water, 0.5–10 bar pressure (50–1000 kPa)	•	•	•
1 x Cold water for steam condenser, 0.5–10 bar** pressure (50–1000 kPa)	–	–	•
Depending on model 1 x AD water, 0.5–10 flow pressure (50–1000 kPa)	–	•	•
Inlet hose ½" with ¾" threaded union, L = approx. 1.7 m	1x	2x	3x
Drain pump DN 22, delivery head 100 cm	•	•	•
Waterproofsystem (WPS)	•	•	•
<b>Electrical connection</b>			
AC 230 V 50 Hz, connection cable approx. 1.8 m, 3 x 1.5 mm² incl. plug	•	–	–
3 N AC 400 V 50 Hz, connection cable approx. 1.8 m, 5 x 2.5 mm² incl. CEE connector	–	•	•
Heater rating [kW]	3.1	9.0	9.0
Circulation pump [kW]	0.2	0.7	0.7
Total connected load, kW	3.3	9.7	9.7
Fuse rating [A]	1 x 16	3 x 16	3 x 16
<b>Dispenser system</b>			
1 combi dispenser in the door for powder and liquid agents (rinsing agent)	•	–	–
1 powder dispenser in the door	–	•	•
1 liquid dispenser in the door, adjustable between 1–6 ml	•	•	•
1 dispenser pump DOS 10/30 for liquid acidic agents	–	•	•
<b>Connection options</b>			
Dispenser module for liquid cleaning agent	DOS K 60	DOS K 60	DOS K 60
	DOS K 60/1	DOS K 60/1	DOS K 60/1

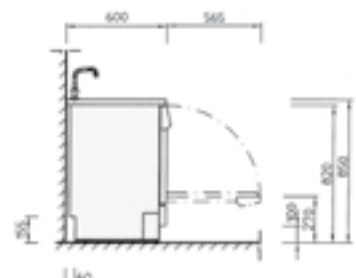
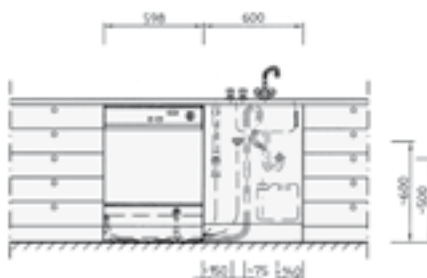
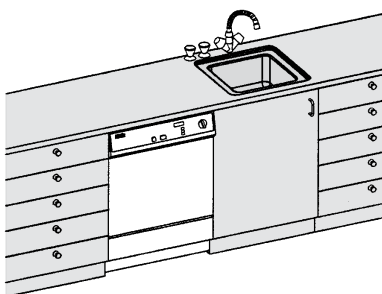
G 7831





Washer disinfectors	G 7831	G 7881	G 7891
<b>Water softener</b>			
For cold and hot water to max 70°C, Monobloc	•	•	•
<b>Steam condenser</b>			
Heat exchanger	•	•	–
Spray	–	–	•
<b>Drying</b>			
Fan [kW]	–	–	0.3
Heater bank [kW]	–	–	1.4
Total connected load [kW]	–	–	1.7
Air throughput [m³/h]	–	–	50
Temperatures adjustable in 1°C steps [°C]	–	–	50–99
Time adjustable in 1 minute increments [min]	–	–	1–99
Particle filter/Hepa filter class H 12, Filtration rate > 99.5% (DIN 1822), filter life 100 h	–	–	•
<b>Dimensions, weight</b>			
External dimensions H/W/D [mm] (Height without lid = 820 mm)	850/450/600	850/600/600	850/600/600
Wash cabinet H [mm]	560	500	500
Wash cabinet W [mm]	O=362, U=380	535	535
Wash cabinet D [mm]	O=474, U=505	O=474, U=516	O=474, U=516
Weight, unloaded [kg]	58	70	78
<b>External finish options</b>			
White housing, front with frame for décor panel (DER)	–	•	–
Door: H 441–442/W 585–586/thickness 1 mm, Service panel: H 116.6–117.5/W 585–586/thickness 1 mm			
White housing, plastic lid (AW)	•	•	–
Stainless steel (AE)	•	•	•
<b>Conforms to</b>			
DIN EN ISO 15883-1/2, EN 61010-2-40, EN 61326	•	•	•
<b>Test certificates</b>			
VDE, VDE-EMV, DVGW, MDD CE 0366, (IP X1)	• (–)	• (•)	• (•)
O = Upper basket, U = bottom basket, • = standard feature, – = not available			

G 7881/G 7891





# Washing and disinfecting workwear

Miele offer a range of professional Little Giant machines for the hygienic cleaning of workwear, hand towels and cloths in the practice.

The Little Giant washing machines and tumble dryers offer a wide range of programmes to remove all types of soiling including stubborn ones like blood and medications. The large drum volume, short programme durations and compact size (the same as a domestic washing machine) makes these machines perfect for laundry care in the dental practice.

## **LITTLE GIANTS – only from MIELE PROFESSIONAL**

Miele Little Giants employ innovative technology together with Miele's legendary quality and programmes to suit the user.

### **Washer extractor**

- PW 6065 Plus: 6.5 kg load capacity

### **Tumble dryer**

- PT 7135 C Plus: 6.5 kg load capacity, Condenser drying system
- PT 7136 Plus: 6.5 kg load capacity, Vented drying system

## **Special programmes**

Thermal and Chemo thermal disinfection Disinfection procedures conform to RKI and VAH requirements.

Note: The Little Giants are not approved as Medical devices in accordance with the Medical Devices Directive for processing surgical linen.

## **Construction**

- Miele professional standard to cope with very high usage
- Large capacity up to 6.5 kg
- Washer dryer stack only requires a footprint of ½ m<sup>2</sup>
- White enamelled or stainless steel housing

## **Controls/programmes**

- Intelligent easy to use controls
- Clear text user navigation display
- Very short programme durations for a high throughput
- Wide range of programmes with additional target group specific wash programmes
- Individually programmable
- Optical interface for updates

## **Features**

- Patented MIELE HONEYCOMB DRUM for optimum fabric care during washing and drying
- Drain pump or dump valve on washing machines
- PT 7136 Plus tumble dryer with large area fluff filter

For detailed description see the brochure: LITTLE GIANTS

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