

Hygiene · Safety · Efficiency
Processing instruments in Dental surgeries



Reliable results using professional procedures Typically Miele



Safety born of experience

In the field of dentistry, medical expertise and professional instruments ensure optimum treatment and patient care. For this, 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, **in line with the Medical Devices Directive, cleaning and disinfection must be carried out using validated procedures.**

Machine processing is also recommended in preference to manual processing in the Robert Koch Institute publication, "Hygiene requirements in dentistry".

Extract from the Robert Koch Institute publication

"Hygiene requirements in dentistry"
(German Department of Health Sheet 8/98).

5.1 Cleaning and disinfection

"In the area of instrument disinfection, there is a difference to be made between soaking instruments and the preferred method of machine processing. Providing the item is suitable, thermal processing in a washer-disinfector is preferable to chemical disinfecting processes. When purchasing dental instruments, ensure that they are suitable for thermal processing."

Extract from the German "Medicines and Healthcare Products Regulatory Agency" 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...

Protecting patients, users and third parties

Processing instruments in a Miele washer-disinfector cleans and disinfects instruments in a closed system. The 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

Conforming to the Medical Devices Directive

Miele's 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 EN ISO 13485. The appliances are **certified** as Class 2a medical products in accordance with 93/42/EWG, 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 washer-disinfector is commissioned by a specialist service technician who has received intensive training as a medical product adviser, and who is able to explain the machine's operation and functions comprehensively. The Miele service technician is also fully conversant with process validation in accordance with standard EN ISO 15883.

The trouble-free package for the typical dental practice

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



Validated processes, safe results

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. Validation covers the installation, operation and performance of the machine. A Miele service technician can undertake this task fully on request, and carry out validation in close co-operation with the machine operator.

Installation and operation qualification

The installation qualification section (IQ) ensures that the machine and any add-on appliances are supplied, installed and connected correctly. This includes checking power and water connections, the dispensing of chemical agents, testing the heating and drying functions, the washing system and the water quality, and all safety and alarm functions.

Performance qualification

With performance qualification, the cleaning and disinfection programmes are checked using reference loads. The process specification must include the cleaning conditions, e.g. different levels of soiling or the maximum time lapse between sorting the load and starting the cleaning programme. The loading of test instruments with a defined level of initial soiling is also defined in terms of minimum performance. After the various processing steps have been carried out with the exception of thermal disinfection at the end of the programme, each instrument is visually checked. The test instruments and other selected instruments are checked for residual proteins using Biuret/BCA methods.

Checking the effectiveness of the disinfection process

Miele washer-disinfectors monitor the disinfection process by use of temperature sensors placed inside the wash cabinet and near the items being processed to check that the disinfection temperature is maintained within the disinfection temperature range for the whole of the requisite time.

Documentation

All relevant data and values for the installation, operation and performance qualification of the cleaning and disinfection processes are documented by the Miele service technician using forms, checklists and photographs. Furthermore, all checks put in place for later routine checking are already ready and activated. Operators must be fully trained to carry out routine checks themselves. Skills specific to this can be acquired during validation.





Miele washer-disinfectors



Washer-disinfector G 7831

- The slimline solution for small dental practices
- 45 cm wide
- H 850 (820), W 450, D 600 mm
- Single-phase
- Can take up to 6 transmission instruments per load



Washer-disinfector G 7881

- The universal large-capacity solution
- 60 cm wide
- H 850 (820), W 600, D 600 mm
- Three-phase connection for short programme durations
- Can take up to 11 transmission instruments per load

NEW

Available from August 2007



Washer-disinfector G 7891

- The first 60 cm wide washer-disinfector with hot air fan drying.
- 60 cm wide
- H 850 (820), W 600, D 600 mm
- Three-phase connection for short programme durations
- Can take up to 11 transmission instruments per load
- Integrated hot air drying unit

All Miele washer-disinfectors can be installed either as free-standing machines, or simply built under a worktop in a row of units in a dental practice. The machines come fitted with an electric cable, water inlet and outlet hoses and 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 to be found on pp. 18 and 19.

Miele washer-disinfectors

- Machine processing of instruments, as recommended by the Robert Koch Institute
- Efficient cleaning and disinfection in a single closed system
- Medical devices certificated according to Medical Devices Directive
- Validated procedures
- Interface for process documentation
- Thermal disinfection system
- Comprehensive safety features in compliance with EN ISO 15883
- Can be connected to liquid dispensing systems

For technical data, see pages 22/23

Miele washer-disinfectors: Quality, both inside and out



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 in a row of units
- Double-wall construction and door insulation reduce noise levels
- High quality stainless steel wash cabinet and water connections
- Reinforced inlet and outlet hoses
- Fitted with an electric cable, water inlet and outlet hoses and drain pump

Cleaning technology

- Hygienic, fresh water system, with change of water after each cleaning phase
- 2 spray arms (with 3rd in upper basket) for thorough cleaning of instruments
- Injector jets optimally arranged and spray arm rotation is variable for best possible cleaning results
- Injector system for thorough cleaning of hollow instruments
- Maximum use of wash liquor through direct coupling of upper baskets and injector units to water intake

Standard features

- Profi-monobloc water softener; regeneration takes place during the wash programme, with minimal salt consumption; separate regeneration programme not required
- Powerful circulation pump
- 4-fold filter system with flat filter, coarse filter, glass shard filter and micro-fine filter
- Efficient steam condenser using heat exchanger (G 7831 and G 7881), or with spray system (G 7891)

- Flowmeter counter to monitor water intake
- Connection option for dispensing liquid agents
- Hot-air drying unit for thorough drying of instruments (G 7891)

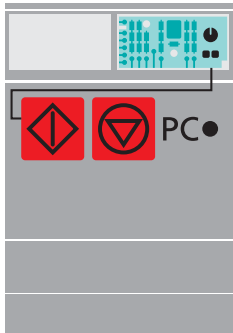
Interface

- Serial interface RS 232 for process documentation
- Optical interface for servicing (G 7881 and G 7891)

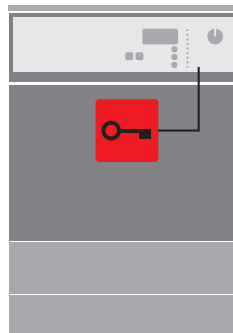
Safety features

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

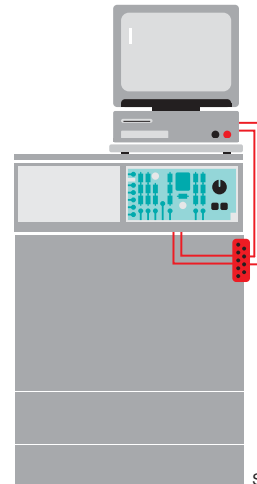
Miele washer-disinfectors certificated according to – Medical Devices Directive



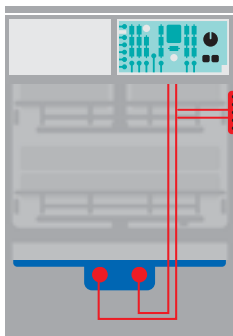
Electronic controls



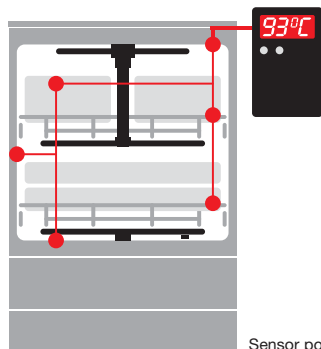
Door lock



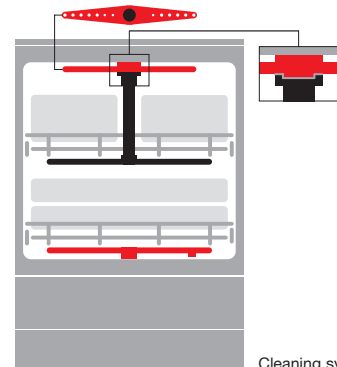
Serial interface



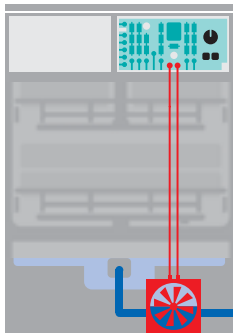
Sensors



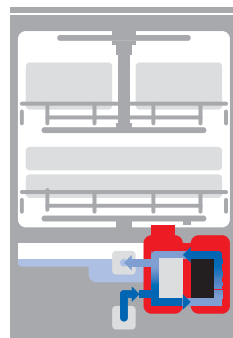
Sensor port



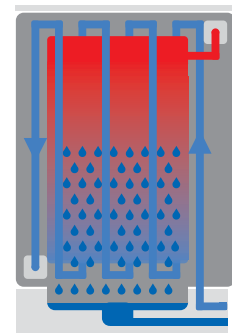
Cleaning system



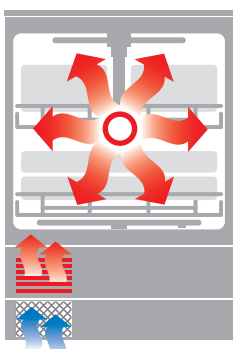
Flowmeter



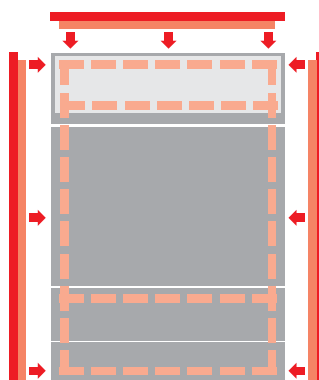
Water softener



Heat exchanger



Hot-air drying unit



Spaceframe construction

Controls · Programmes · Durations



Fully electronic controls, reliable processing

The MULTITRONIC controls on Miele washer-disinfectors precisely monitor and control programmes and functions. All Miele washer-disinfectors are equipped with a RS 232 Serial interface which can be used to transfer data to a report printer or PC. Important disinfection programme data required to comply with relevant legal and safety regulations and standards, such as duration, temperatures, any faults and user interventions are included in the report.

Simple operation

Symbols are used on the control panel that are language neutral and easy to understand, and programme sequence indicator lights let the user know what stage of a programme has been reached. Should a problem arise there are additional indicator lights to alert the user that attention is required. A 3 digit, 7 segment display shows programme durations as well as wash and disinfection temperatures.

Thorough cleaning, safe disinfection

The machine processing of instruments is carried out in accordance with standardised procedures.







The **vario TD** programme consists of a pre-wash at low temperatures so that blood deposits are not denatured, followed by an intensive main wash phase including thermal disinfection at 93°C with a holding time of 5 minutes. This programme is suitable for the routine processing of all thermally stable instruments in accordance with EN ISO 15883. The programme is ideal for processing transmission instruments as it treats materials with care. Washer-disinfector 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 standards required for the containing of epidemics in disinfectors and decontamination units, according to §18 of IfSG (Infektionsschutzgesetz, German infection protection law).

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 mycobacteria, fungi and fungal spores and also for inactivating viruses, including HBV and HIV.



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 accurately controlling detergent usage operating costs are also kept to a minimum.

Model and programme names	Duration		Consumption: Main wash/Disinfection				Consumption: Drying
	Main wash [min]	Drying [min]	CW [l]	HW [l]	AD [l]	Electricity [kWh]	Electricity [kWh]
G 7831							
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	–
G 7881*							
SPECIAL 93°C-10´	43	–	26.5	–	9.5	2.9	–
vario TD	47	–	38.5	–	9.5	2.6	–
Universal 	28	–	29.5	–	9.5	1.8	–
A (freely programmable)							
Pre-rinse 	3	–	10.0	–	–	0.02	–
G 7891*							
SPECIAL 93°C-10´	43	45	25.5	–	9.5	2.9	1
vario TD	42	45	35.5	–	9.5	2.6	1
Universal 	32	40	29.5	–	9.5	1.8	0.5
A (freely programmable)							
Pre-rinse 	3	–	10.0	–	–	0.02	–

*Connection: CW 15°C; 3 N AC 400 V, 9.7 Hz (When connected to single phase durations are longer)

CW = Cold Water, HW = Hot Water, AD = Aqua destillata

Programmes	Programme sequence				
SPECIAL 93°C-10´		Main wash/disinfection	Neutralise	Interim rinse	Final rinse
vario TD	Pre-wash	Main wash	Neutralise	Interim rinse	Final rinse/disinfect 93°C–5 min
Universal 	Pre-wash	Main wash		Interim rinse	Final rinse
A (freely programmable)					
Pre-rinse 					Pre-rinse



Upper and lower baskets



O 801/2 Upper basket/injector unit
For G 7831

- Front and rear halves free for inserts, clearance 200 mm
- Central axis with support frame, for hollow instruments, 10 silicone holders and 10 jets Ø 4 mm, L 30 mm, clearance 175 mm
- Integrated spray arm
- H 267, W 381, D 475 mm



Detail: Injector assembly on the O 801/2



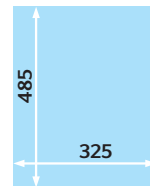
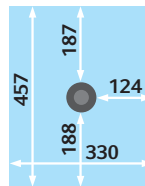
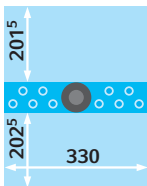
O 800/1 Upper basket/carrier
For G 7831

- For various inserts
- Clearance 200 mm
- Integrated spray arm
- H 270, W 381, D 475 mm



U 800 Lower basket/carrier
For G 7831

- For various inserts
- Clearance W 325, D 485 mm
- Clearance height when combined with upper basket:
O 800/1 approx. 295 mm
O 802/1 approx. 270 mm
- H 62, W 385, D 505 mm



O 1771/1 Upper basket/injector unit

- For G 7881/G 7891
- Right side free for inserts
 - Left side with height-adjustable support frame for hollow instruments, 26 silicone holders and 26 jets Ø 4 mm, L 30 mm, 7 funnels supplied loose
 - Integrated spray arm
 - Clearance 230/205 mm
 - Height adjustable +/- 20 mm
 - H 263, W 498, D 455 mm



Detail: Injector assembly on the O 1771/1



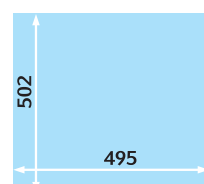
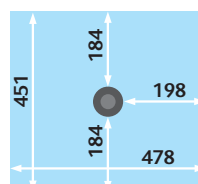
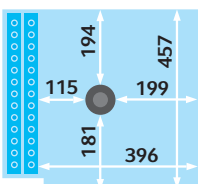
O 190/1 Upper basket/carrier
For G 7881/G 7891

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



U 874/1 Lower basket/carrier
For G 7881/G 7891

- For various inserts
- Clearance when combined with upper basket:
O 177/1 approx. 220 mm + 20/+ 40 mm
O 190/1 approx. 220 mm + 20/+ 40 mm
- Clearance: 495 x 502 mm
- H 50, W 534, D 515 mm



Inserts



E 146 Insert 1/6 mesh tray

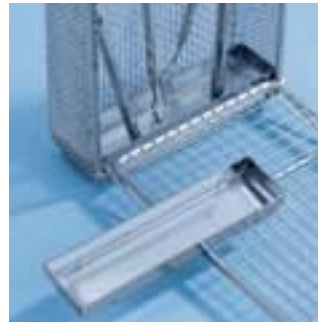
For use in upper and lower baskets in G 7831/G 7881/G 7891

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



E 363 Insert 1/6 mesh tray

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



E 328 Support

- For mesh trays E 146 and E 363
- To support instruments in upright position



E 131/1 Insert 1/2 (illustrated)

For use in lower basket in G 7881/G 7891

- For 5 mesh trays/kidney dishes
- 6 holders (5 levels), H 160 mm, distance between holders 80 mm
- H 168, W 180, D 480 mm

E 800 Insert

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

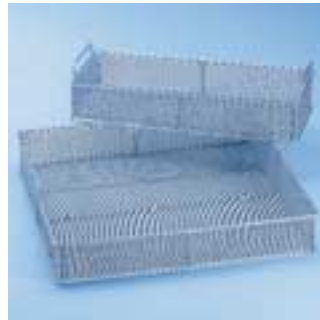
- For 3 mesh trays/kidney dishes
- 4 holders (3 levels), H 165 mm, distance between holders 68 mm
- H 165, W 140, D 290 mm



E 473/1 Insert

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

- Mesh tray with lid for very small items
- For suspending in basket
- H 85, W 60, D 60 mm



E 379 Insert 1/2 mesh basket

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

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

E 378 Insert 1/1 mesh basket

For use in lower basket in G 7881/G 7891

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



E 337 Insert 2/5 (illustrated)

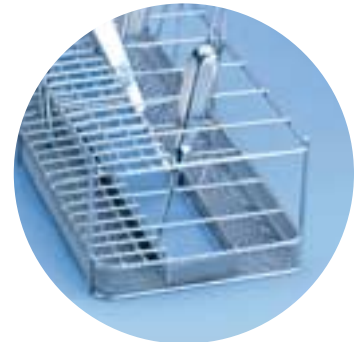
For use in lower baskets and in O 190/1 and O 177/1 in G 7881/G 7891

- For upright instruments
- 18 sections approx. 47 x 51 mm
- 75 sections 14 x 14 mm
- 1 full length tray in centre of insert
- H 145, W 175, D 445 mm

E 802 insert

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

- For upright instruments
- 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



Detail: E 337

Inserts



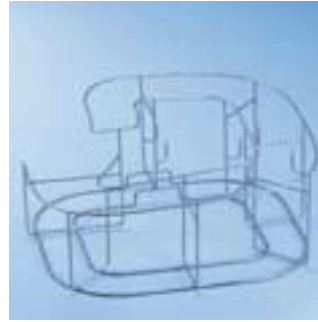
E 430/1 Insert 1/3 mesh tray
For use in upper and lower baskets in G 7831/G 7881/G 7891

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



E 441/1 Insert 1/4
For use with upper and lower baskets in G 7831/G 7881/G 7891

- Mesh tray for micro instruments
- 1.7 mm mesh spacing, solid sides, stackable
- Internal sectioning with 6 adjustable partitions for easy arrangement of instruments
- Can be autoclaved up to 121°C/134°C
- H 60, W 183, D 284 mm



E 413 Insert 1/1
For use in upper basket O 177/1 (adapters available from Sirona Dental Depots) in G 7881/G 7891

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



E 520 Insert
For use in upper and lower baskets in G 7831/G 7881/G 7891

- For 17 root canal drills
- Collapsible
- H 45, W 75, D 30 mm



E 147/1 Insert 1/2
For use in upper and lower baskets in G 7881/G 7891

- For 10–12 mouthwash glasses, max. Ø 80 mm
- Plastic coated
- H 155, W 220, D 455 mm



E 801/1 Insert
For use in upper and lower baskets in G 7831

- For 8 mouthwash glasses, max. Ø 75 mm
- Plastic coated
- H 155, W 200, D 320 mm



E 521 Insert
For use in upper and lower baskets in G 7831/G 7881/G 7891

- For 7 orthopaedic forceps
- Section dimensions 21 x 80 mm
- H 105, W 100, D 189 mm



E 522/1 Insert
For use in upper and lower baskets in G 7831/G 7881/G 7891

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

Inserts



E 130 Insert 1/2

For use in lower basket in G 7881/
G 7891

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



E 338 Insert 3/5 (illustrated)

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

- For 8 shallow tray dishes
- 10 holders (8 sections)
W 295, distance between sections
33 mm
- Max. tray dimensions 290 x 30 mm
- H 115, W 305, D 453 mm



E 339 Insert 3/5 (illustrated)

For use in lower basket in G 7881/
G 7891

- For 16 tray bases/trays
- 17 holders (16 sections)
W 295, distance between sections
21.5 mm
- Max. tray dimensions 290 x 20 mm
- H 115, W 305, D 468 mm



E 523 Insert 1/2

For use in lower basket in G 7881/
G 7891

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

E 805 Insert

For use in lower basket in G 7831

- For 8 shallow tray dishes
- 10 holders (8 sections)
W 295, distance between sections
33 mm
- Max. tray dimensions 290 x 30 mm
- H 114, W 305, D 353 mm

E 806 Insert

For use in lower basket in G 7831

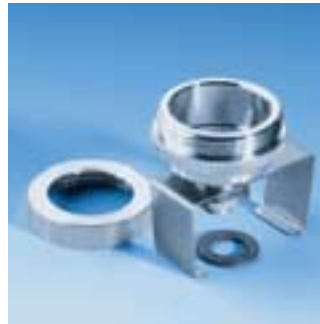
- For 11 tray bases/trays
- 12 holders (11 sections)
W 295, distance between sections
21.5 mm
- Max. tray dimensions 290 x 20 mm
- H 114, W 305, D 315 mm



AUF 1

For G 7881/G 7891

- For transmission instruments in
upper basket O 177/1
- Consisting of: seal, screw socket,
clip, lower section, upper section,
5 filter plates



AUF 2

For G 7831

- For transmission instruments in
upper basket O 801/2
- Consisting of: seal, screw socket,
clip, lower section, upper section,
5 filter plates



Filter plates for AUF 1 and AUF 2

- 20 pieces
- Porosity 2
- Diameter 30 mm



ADS 1 Silicone adapter

- For approx. Ø 20 mm connection
- White

ADS 2 Silicone adapter

- For approx. Ø 16 mm connection
- Green

ADS 3 Silicone adapter

- For approx. Ø 22 mm connection
- Red

Processing turbines, handpieces and contra angles

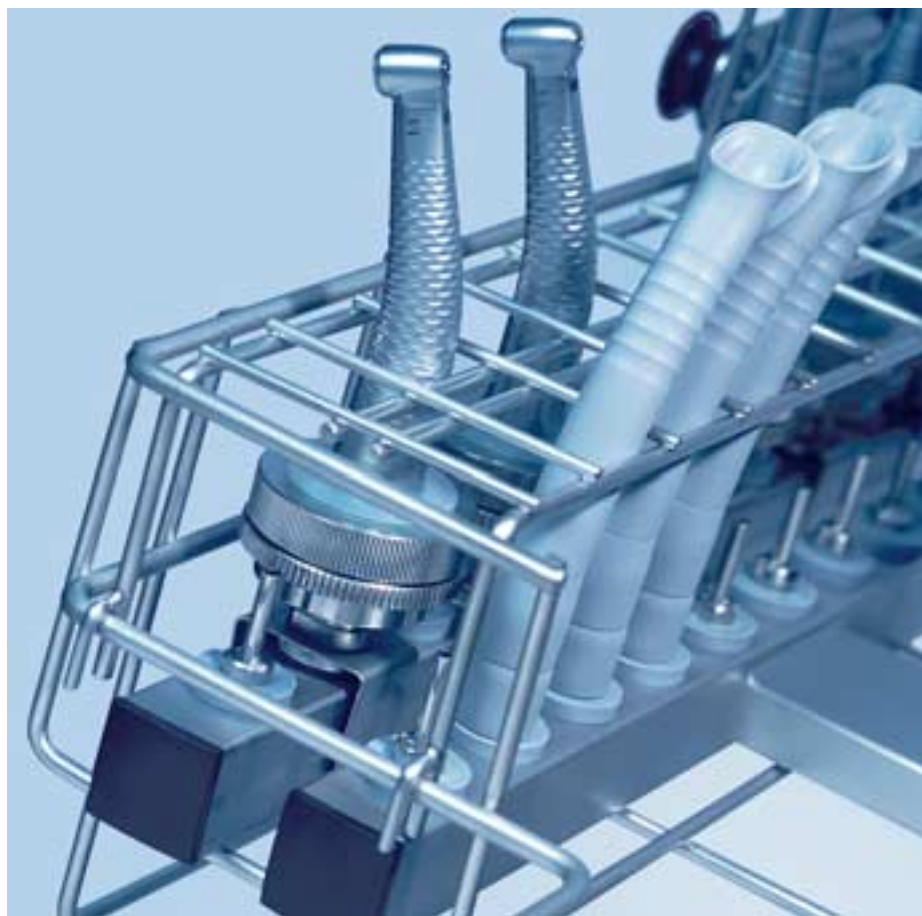
Filter plate



Holder for turbines, handpieces and contra angles



Upper basket O 177/1 for hollow instruments



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.

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.

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.



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



System solutions from one manufacturer

Water quality plays a vital role in instrument processing. Mains water contains salts and minerals, which form limescale in the machine and can be deposited on instruments. 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, helps to prevent down times and the consequent repair expenses, and lowers the cost of cleaning agents.

To complete the package, Miele offers the Elga-Berkefeld reverse osmosis RO-160 M1 and RO-160 M2 water purification systems.



Reverse osmosis system RO-160 M2

- For the continual supply of demineralised water
- Maximum throughput 160 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
- External dimensions: H 520, W 600, D 560 mm
- Other features and technical data as for RO-160 M1
- Installation of a preliminary filter (optional)
Separate connection for the extraction of demineralised water
Pressure tank to store demineralised water
Connection to water softener



Reverse osmosis system RO-160 M1

- For the continual supply of demineralised water
- Maximum throughput 160 l/h
- Stand-alone solution for installation in a nearby unit
- Stainless steel housing
- 2 LEDs to display status and conductivity/flow rates
- Maximum yield approx. 50%
Salt retention 96–98%
Water quality approx. 5–100 µS/cm
RO water connection 3/4"
Soft water outlet 3/4"
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
Electricity consumption: 0.6 kW/h
- Cold water up to 28°C
Max. hardness for mains water 30° dGH, 15° dKH
- External dimensions: H 380, W 543, D 302 mm
- Installation of a preliminary filter (optional)
Separate connection for extraction of demineralised water
Pressure tank to store demineralised water
Connection to water softener



Solutions & Technologies

Up-to-the-minute instrument processing: The Miele system



Validatable machine processing of instruments in all Miele washer-disinfectors offers high levels of reliability, performance and economy

The drawbacks of manual processing

Processing medical instruments by hand takes time, and carries the risk of contamination within the workplace. What's more, specialist equipment such as narrow, hollow instruments are almost impossible to clean manually, making the standardisation of cleaning and disinfection procedures unachievable. And from an economical point of view, the high consumption of water as well as cleaning and disinfecting agents pushes up costs and is harmful to the environment.

Optimum protection with the Miele system

Miele's washer-disinfectors offer flexible system solutions for the machine cleaning and thermal disinfection of medical instruments and accessories.

Instruments are washed thoroughly and gently, both inside and out, on two levels using the upper and lower baskets in the machine. The fresh water system guarantees excellent standards of hygiene. Water circulation of up to 400 l/min ensures a high cleaning throughput and short running times. The sequence of the cleaning and disinfection programme (pre-wash, main wash, interim rinse, disinfection, final rinse, drying) is controlled by highly sophisticated electronics.

Disinfection is carried out in accordance with EN ISO 15883 at a temperature of > 90°C held for 5 minutes. Cleaning and disinfection temperatures can be adapted to suit specific requirements – flexible performance for every application.

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

Systematic protection against infection

Systematic, step-by-step instrument processing for efficient, hygienic, trouble-free practice management

1. Transportation of instruments

Instruments and appliances are placed on trays directly after use, and transported to a central processing room. **It is not necessary to soak instruments first when disinfecting by machine.**

2. Removal of coarse soiling

3. Cleaning and disinfection

Instruments are placed in mesh trays or special inserts for machine processing in a Miele washer-disinfector. Trays can also be placed in the machine. Hollow instruments are placed in injector units. Used instruments can be stored for up to 5-6 hours in the machine before being processed, although amalgam residues must be removed from instruments immediately.

4. Checking and testing

After cleaning, disinfecting and drying, instruments are checked. Hinged instruments are treated with medical white oil if appropriate. Instruments that require no final sterilisation are put away in a central storage area or in the treatment rooms.

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 the quality of their workmanship as well as the use to which they have been put in the practice. Rotating instruments such as drills, cutters and grinders can be processed by machine providing this is authorised by the manufacturer. Drills made of instrument steel cannot be machine processed.

Modern disinfection and hygienic instrument processing can be seen in the Miele film, "Instrument processing in the dental surgery", available as a CD-ROM. For more information, contact your Miele Dealer.

5. Preparation for sterilisation

Individual instruments – for example, surgical forceps – and small instrument components are shrink-wrapped.

Complete sets of instruments – for example, those used for extractions and in the treatment of periodontosis – are placed in instrument trays. Root canal instruments are placed in appropriate cassettes, which are then marked with an indicator strip.

6. Sterilisation

Sterilisation is preferably carried out in a steam steriliser (autoclave).

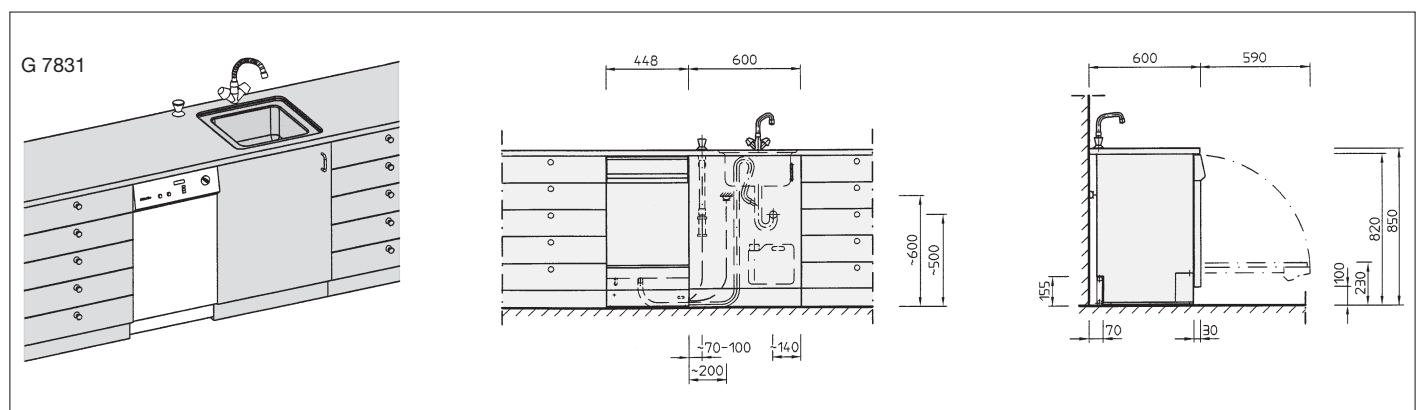
7. Hygienic storage

Sterilised instruments that have been shrink-wrapped or placed in cassettes are then stored in the processing room. Frequently used instruments may be stored in the treatment room. Individual instruments – for example, those used in preventative dentistry – should be placed on wide-slatted instrument shelves. Cupboards and drawers should be kept firmly shut to prevent dust contamination.



Technical data

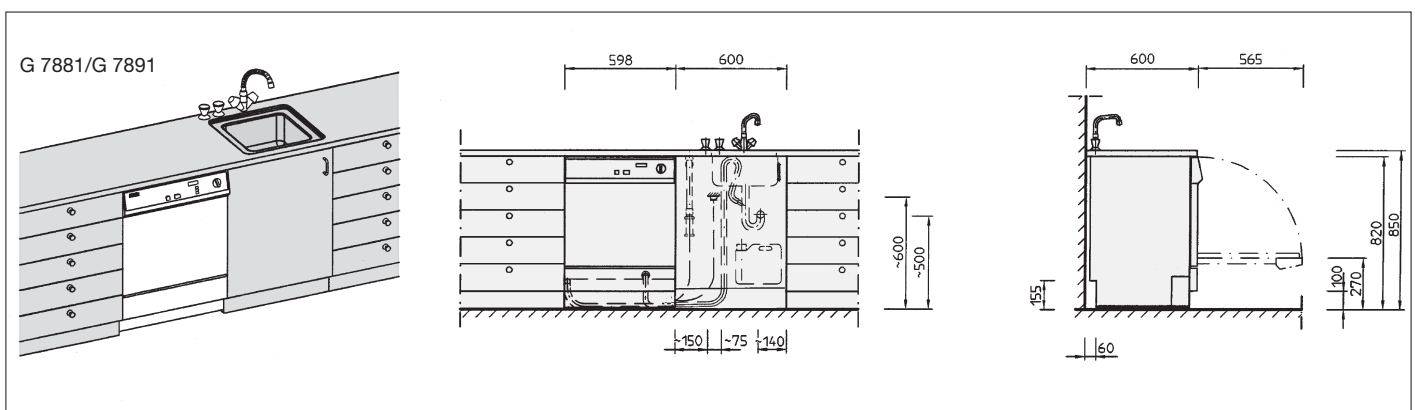
Washer disinfector model	G 7831	G 7881	G 7891*
Front loader with drop-down door, without baskets	•	•	•
Freestanding appliance with lid, can be built under in a run of units	•	•	•
Fresh-water system, max. temperature 93°C	•	•	•
Circulation pump [Qmax. l/min]	200	400	400
Controls/programmes			
MULTITRONIC NOVO MED 45, 5 programmes	•	–	–
MULTITRONIC NOVO PLUS, 5 programmes	–	•	•
Electrical door lock	•	•	•
Buzzer to signal end of programme	•	•	•
Programme failure check	•	•	•
Serial interface for process documentation	•	•	•
Plumbing			
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 bar pressure (50–1000 kPa)	–	•	•
Inlet hose 1/2" with 3/4" threaded union, approx. 1.4 m long	1x	2x	–
Inlet hose 1/2" with 3/4" threaded union, approx. 1.7 m long	–	–	3x
Drain pump DN22, delivery head 100 cm	•	•	•
Electrical connection			
AC 230 V 50 Hz, connection cable approx. 1.8 m, 3 x 1.5 mm ² , incl. plug	•	–	–
3 N AC 400 V 50 Hz, connection cable approx. 1.8 m, 5 x 2.5 mm ² , 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
Convertible to 2 N AC 400 V 50 Hz	–	•	–
Heater rating [kW]	–	6.0	–
Total connected load [kW]	–	6.7	–
Fuse rating [A]	–	2 x 16	–
Convertible to AC 230 V 50 Hz	–	•	–
Heater rating [kW]	–	3.0	–
Total connected load [kW]	–	3.7	–
Fuse rating [A]	–	1 x 16	–
** With increased water intake time			



Washer disinfectant model	G 7831	G 7881	G 7891*
Dispenser systems			
1 combi dispenser in the door for powder and liquid agents (rinsing agent)	•	–	–
1 dispenser in the door for powder cleaning agents	–	•	•
1 dispenser in the door for liquid cleaning agents, adjustable from 1–6 ml	•	•	•
1 dispenser pump DOS 10/30 for liquid acidic agents	–	•	•
Connection options			
Dispenser for liquid cleaning agents	DOS K 60/ DOS K 60/1	DOS K 60/ DOS K 60/1	DOS K 60 DOS K 60/1
Water softener			
Monobloc for cold and hot water up to 70°C	•	•	•
Steam condenser			
Heat exchanger	•	•	–
Spray	–	–	•
Drying unit/radial fan			
Fan [kW]	–	–	0.3
Heat register	–	–	1.8
Total connected load [kW]	–	–	2.1
Air throughput [m³/h]	–	–	63
Temperature settings in 1°C steps [°C]	–	–	50–99
Time settings in 1-minute steps [min.]	–	–	1–99
Particle filter/HEPA filter class EU12, filtration rate >99.5% (DIN 24184), filter life 100 h	–	–	•
Dimensions/weight			
External dimensions H/W/D [mm] (H 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
External finish options			
White housing, front with frame for décor panel (DER)	–	•	–
Door: H 441–442/W 585–586/thickness 1 mm, Service panel: H 116.5–117.5/D 585–586/thickness 1 mm			
White housing, plastic lid (AW)	•	•	–
Stainless steel (AE)	•	•	•
Certificates			
VDE, VDE-EMV, DVGW, MPG CE 0366, (IP x 1)	• (–)	• (•)	• (•)

O = Upper basket, U = Lower basket, • = Fitted as standard, – = Feature not available on this machine

*available from approx. 08/07



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