

Washing · Disinfection · Drying

A systematic approach to the reprocessing of laboratory glassware for analytical purposes

### Miele Professional -Never be satisfied with less!



#### Dear Reader,

Miele Professional has been setting milestones for more than four decades in the field of efficient and safe machine-based reprocessing in laboratories.

The automatic reprocessing of laboratory glassware represents a standardised and validatable process which can also be automatically documented, offering clear benefits compared with manual washing.

Various soils and different shapes and sizes of laboratory glassware represent the particular challenges to machine-based reprocessing - challenges which our products rise to meet with alacrity.

We wish to continue to take on these challenges in future, allowing you to expect top-class results and future-proof solutions which take on board the nature of your applications.

Quality 'Made by Miele' and service excellence.

Never expect anything less!

Dr. Markus Miele Managing Director and Co-Proprietor, Miele & Cie. KG

harlens Miele Runkerd Zin Ram

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# A systematic approach to the reprocessing of laboratory glassware

#### A systematic approach – typically Miele

With washer-disinfectors, special reprocessing methods and accessories tailored to the specific needs of applications, Miele offers a comprehensive and systematic approach to the safe and thorough reprocessing of a wide range of laboratory glassware. Moving beyond standard solutions, Miele specialists work closely with laboratory staff to arrive at customised solutions to meet varied and specific needs.





#### The wide-ranging benefits of Miele's systematic approach

#### Versatile and economical

- Washer-disinfectors with scalable capacities to meet all requirements
- Modular machine design with basic features and optional extras
- Efficient single-chamber system for washing, rinsing, disinfecting and drying
- Tried-and-tested standard programmes, innovative special programmes and individual programme packages
- Electronic controls offering excellent user convenience

#### Competent and innovative

- Intensive development and close cooperation with experts in the fields of hygiene, with scientists and with users
- Trend-setting process development and product specifications
- In-house advisory services and blanket service coverage
- Qualification (Installation Qualification and Operation Qualification) of laboratory glassware cleaning systems
- Service contracts for peace of mind
- Attractive financing offers



#### Better to be on the safe side

- Serial interface for process documentation and optical interface for service work
- Automatic mobile unit detection system automatically assigns
   glassware programmes to loads

A survey carried out in 2011 by the independent 'Mercuri International' institute underlines Miele's high levels of customer satisfaction: 97% of clients would buy from Miele Professional again at the next opportunity.





#### Explanation of symbols

AE	Stainless-steel casing
AP	Drain pump
AV	Dump valve
BO	Boiler
D	Steam heating
D/EL	Dual steam/electric heating
EL	Electric heating
GS	Glass door
KD	After-sales service
PT	Profitronic controls
TA	Drying unit

### Exclusive to

This logo highlights products with special properties only available from Miele.

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### Practice · Experience · Expertise Typically Miele



#### Manual v. automatic reprocessing

Many laboratories are already convinced by the benefits of the machine-based reprocessing of glassware. Particularly when workloads are heavy, automatic reprocessing cuts down on work, reduces staffing needs and cuts costs.

One reason is to avoid the risk of breakage and the potential hazards to laboratory staff that come with handling glassware. Broken glass from manual cleaning, for instance, can cause serious injuries. Infectious and toxic contaminants pose a serious health risk. Many detergents used in cleaning are also highly caustic.

Automatic, machine-based processes are also more easily standardised, validated and documented. And reprocessing in an automatic machine-based system offers maximum **protection to personnel**. The cleaning process must ensure that equipment, when used again, is not affected by its previous use. Requirements vary widely from one laboratory to the next. The following aspects must be clearly defined:

#### 1. Application

Applications subdivide into general areas (organic, inorganic or physical chemistry, biology, microbiology, hospital, pharmaceutical, food industry or cosmetic industry laboratories, etc.) or according to procedures (preparatory work, analysis, sampling). The type of application will also be an important factor in determining the type of machine and accessories as well as the cleaning process and cleaning agents required.

#### 2. Laboratory equipment

Laboratory equipment needs to be classified according to the type, size and quantity of items requiring reprocessing. This information enables Miele to provide a detailed quotation for the right system to meet individual requirements.

#### 3. Contamination

Knowledge of the physical and chemical attributes of the types of contamination the machine will need to deal with are of particular importance in choosing the cleaning process and type of cleaning agent to use.

#### 4. Disinfection

For certain applications, laboratory equipment has to be disinfected to contain the spread of bacteria.

#### 5. Analytical methods

The methods of analysis used can be affected by particular contaminants on laboratory glassware. A knowledge of these factors is helpful in selecting the right detergents.

#### 6. Purity for analytical experiments

Each laboratory has its own definition of what is 'analytically clean' depending on the specification, nature and repeatability of the analysis methods used. Built-in conductivity monitoring represents the ideal way to analyse glassware purity levels.

### Miele and Duran. Two strong brands in the laboratory.



#### **DURAN GROUP** <u>empfiehlt</u> recommends

#### DURAN Group recommends Miele Professional

To guarantee the thorough, gentle and safe reprocessing of laboratory glassware, the DURAN Group recommends Miele lab washers: Miele quality 'Made in Germany' excels in terms of reliability and efficiency in everyday laboratory operations. Short cycle times and dependable results ensure that high-quality laboratory glassware is ready for use again in next to no time. Gentle reprocessing also prolongs the useful life of DURAN<sup>®</sup> laboratory glassware. Míele PROFESSIONAL

Chemical properties are the key to

minimise the risk of glass corrosion.

Thanks to such excellent chemical

properties of DURAN® laboratory

glassware such as:

cycle.

laboratory glassware as durable materials

combined with gentle cleaning processes

• Hydrolytic resistance, Class 1 (ISO 719)

• Resistance to acids, Class 1 (DIN 12116)

• Resistance to alkalines Class 2 (ISO 695).

DURAN® is ideal for repeat wash cycles

and guarantees a long glassware life

retaining the value of high-quality

PROFESSIONAL empfiehlt recommends

At the same time, the superior physical properties of DURAN<sup>®</sup> glass makes it ideal

**DURAN GROUP** 

- for laboratory use. • Uniform wall thickness throughout
- Results in greater mechanical stability and improved resistance to thermal cycling ( $\Delta$ T=100K)
- Prevents tension in glass and the risk of cracking when heated and cooled
- Benefits: Greater safety for staff, enhanced durability, protection of valuable substances
- Retraceable back to raw materials
- Batch certifications can be downloaded on Internet

Miele and Duran. Two strong brands in the laboratory.



# PG 8527 washer-disinfector

Adding value to glassware reprocessing

Miele Professional has been setting milestones for more than four decades in the field of efficient and safe machinebased reprocessing of glassware in laboratories. And, once again, Miele is setting new standards with the PG 85 machine generation. When it comes to the question of centrally or decentrally reprocessing large quantities of glassware, Miele's PG 8527 offer huge benefits: Greater cleaning capacity, improved process security and better efficiency.



#### Miele quality – Made in Germany

Miele washer-disinfectors have been an integral feature in quality control in laboratories for decades. All components excel in terms of uncompromising quality and offer users maximum benefits when it comes to hygiene, safety and economy.



Specifications Washer-disinfectors	Unit width/depth	Door	Cabinet Cabinet dimensions H/W/D Cabinet volumes	Capacity per cycle
PG 8527	1150/870 mm	Vertical-rise door	675/650/800 mm 351 l	232 narrow-necked glasses or 232 pipettes
G 7825	900/750 mm	Bottom-hinged door	683/541/610 mm 225 l	108 narrow-necked glasses or 104 pipettes

### **PerfectTouchControl** – Simple, plain-text controls **PerfectPure sensor** – Residue-free rinsing



### PG85 Perfect TouchControl

- Optimum user convenience
- Reliable hygiene
- Perfect control

Simple to operate, easy to clean: Washerdisinfectors from the PG 85 series feature a touch-sensitive display. This easy-to-use PerfectTouch display guarantees unique user convenience combined with superb hygiene. A fully flush, chemical-proof display screen makes for simple and effective wipe disinfection. The controls are outlined on the glass surface and slight pressure is enough to activate functions and launch programmes, even when wearing protective gloves. The man-machine interface involves the use of only a very limited number of controls; all steps in the process appear in the display in the user's own language. Display texts, for example for actual temperatures, conductivity, countdown times and all other protocol data can be defined individually.



- Chemical-resistant glass surfaces
- Innovative programme cycles
- Freely programmable controls



### PG85 PerfectPureSensor

- Continuous conductivity monitoring
- Pure results for analytical experiments
- Safe reprocessing

Chemical residue and even the finest traces of deposits on laboratory glassware can impair the results of subsequent experiments, particularly in analytical chemistry and biology. On request, the PG 8527 can be fitted with Miele's new, patented PerfectPure conductivity monitor. Conductivity monitoring reliably detects the presence of minerals in the rinse water, such as the dissolved salts introduced with alkaline or acidic process chemicals, limiting them to a threshold level defined by the user. Residue is determined as a function of conductivity. Measuring and monitoring is achieved using a contact-free and hence maintenance-free system which is able to monitor conductivity conditions with exceptionally low tolerance levels in ranges from 5 - 40 S/cm and 40 S/cm -100 mS/cm. Depending on machine settings, conductivity readings can even be used to control the programme cycle. This allows the number of necessary rinse cycles to be determined automatically if

conductivity is outside the predetermined range: Recording conductivity over the entire process helps ensure the reproducibility of validated processes. Monitoring results can be shown in the display and documented accordingly.

Maintenance-free conductivity monitoring



# **PerfectFlow sensor** – Volumetric monitoring of dispensed quantities **PerfectSpeed sensor** – Spray arm monitoring

## PG85 PerfectFlowSensor

- Continuous monitoring of dispensed volumes
- Precise results, user-defined tolerances
- Perfect dispensing control

A decisive factor contributing to good reprocessing results is the precise volumetric control of dispensed chemicals. Miele's new PerfectFlow sensor using ultrasound technology offers considerably greater safety margins than conventional systems. The PerfectFlow sensor is a standard feature on the PG 8527 and guarantees a hitherto unparallelled degree of precision in controlling and monitoring volumetric flow, independent of viscosity and ambient temperatures. The monitoring system is fully independent of the dispensing system and can be adjusted and calibrated. Dispensing tolerances can be set individually by users; chemicals

are dispensed efficiently and reliably, irrespective of the type of product or ambient conditions (continuous operation, fluctuating climatic conditions). Any deviation from the target quantities are safely detected and the reproducibility of validated processes guaranteed. An error message is issued or the programme is aborted if values are out of range.





Extremely precise
Product- and temperature-independent dispensing control

### PG85 Perfect SpeedSensor

- Precisely monitored reprocessing
- Improved reproducibility of validated processes
- Perfect washing and disinfection results

To guarantee perfect and safe cleaning and disinfection results, the rotational speed of the spray arms must be within defined limits. With the new PerfectSpeed sensor, the precise speed of each individual spray arm is carefully monitored and documented - whether in the cabinet or on board baskets and mobile units. The spray arm monitoring feature uses a sensor strip located outside the cabinet to detect the passage of spray arms and to ensure that speeds are within range. Information shown in the display indicates whether the values are correct or whether the user must intervene on account, for example, of excessive foam slowing spray arm motion down.

In the event of a deviation from target values, either an error message is issued or the programme is interrupted immediately to allow the user to deal with the cause of the fault, depending on system parameters. Deviations can also be recorded in the automatic process documentation. Spray arm sensing offers effective protection against spray arm blockages by items in the load and also provides information on pressure conditions in the machine and in mobile units and baskets. And, most importantly, spin speeds provide a valuable indication as to the reproducibility of validated processes, increasing safety margins in machine-based instrument reprocessing systems by a considerable degree.



### Exclusive to

- Spray arm monitoring on all levels
- Monitoring of spray arms speeds

### PerfectHEPA drying – Pure drying air PerfectDoc – Gap-free documentation



### PG85 PerfectHepaDrying

- Optimum drying results
- High level of air purity in chamber
- High standards of hygiene

New hygiene standards and the use of innovative Miele technology also applies to the drying phase. The new Class H 13 high-temperature HEPA filter, located directly upstream from the cabinet, prevents the admission of unwanted airborne particles from room air. This ensures exceedingly high levels of air purity in the cabinet. Thanks to streamlined air ducting, Perfect HEPA Drying also ensures excellent drying performance.



### PG85 PerfectDoc

- Continuous process documentation
- Monitoring of wide range of parameters
- Perfect process traceability

The PG 8527 is fitted with a network interface for process documentation as a standard feature. The PerfectDoc module allows the machine to interface with process documentation software. This facilitates the recording of many process parameters, including temperatures, as well as the documentation of entire process protocols including dispensed quantities, spray arms speeds and conductivity readings. Alternatively, a printer can be used for documentation purposes.



• Wide range of parameters including temperature, dispenser volumes, conductivity and spray arm rotation

# The revolution in the wash chamber Micro-fine filter PG 8527



#### Safety

The automatic cleaning and disinfection of laboratory glassware takes work off the hands of users and ensures process security in reprocessing. A key function in the process is fulfilled by the filtration of the wash liquor during the entire cycle: This reliably protects irrigation systems and nozzles against particulate buildup and prevents the recontamination of instruments.

#### Innovation

With the micro-fine filter system for the PG 8527 washer-disinfector, Miele Professional is setting new standards. Thanks to the use of a unique filtration system presenting a large surface area and with a mesh size of only 0.2 mm, even the smallest of particles are reliably removed from circulation.

#### Benefits

Micro-particulate residues are scarcely visible to the human eye. For users, this means precise and time-consuming inspection of cleaning results. Thanks to its excellent filtration capacity, removing particles as small as 0.2 mm, the Miele micro-fine filtration system takes a huge workload off the hands of users - offering great benefits in terms of process security.

The new filter system is fitted ex works on the current PG 8527 washer-disinfector. A retrofit kit is available from Spares to add this feature to existing machines.

### PG85 Perfect FineFilter





- Micro-fine filtration with 0.2 mm mesh size
- Effective filtration of wash liquor
- · Safe, routine use
- Enhanced process security through automatic process
- Improved durability and preservation of values in washer-disinfectors

## PerfectFineFilter - Micro-filtration of wash liquor



#### Model type

PG 8527: Single-door model with vertical sliding door

#### Capacity per cycle

 232 narrow-necked glasses or 232 pipettes

#### Design

- Stand-alone or side-by-side installation
- Width 1150 mm
- Modular approach with customised features to meet individual requirements
- Single-chamber system for washing, disinfection and drying
- Service-friendly design
- Heater elements outside wash chamber
  Low heat and sound emissions thanks to double insulation

#### **Cleaning technology**

- Hygienic freshwater system with fresh water intake in each programme stage
- Cleaning, disinfection and drying in a closed, single-cabinet system
- Hygienic stainless-steel inner cabinet with coved corners and sloping selfdraining ceiling
- 2 spray arms in cabinet for thorough cleaning of laboratory glassware
- Spray arms with high water impact force
- Full water jet access, ensuring optimum results
- Thorough cleaning of lumens thanks to injector system
- Direct docking of mobile units to water circuit

- 2 powerful circulation pumps
- Double filtration system with pump filter and 0.2 mm micro-fine filter
- Filters in inlet hoses
- Flowmeter to monitor water intake quantities
- 1 dump valve

#### **Dispenser systems**

• 2 bellows-type dispenser pumps for liquid detergent and neutralising agent



# PROGRAMMÜBERSICHT LAB-INTENSIV ORGANICA

#### Controls

- Freely programmable controls
   PROFITRONIC
- 64 programme slots
   16 standard washing and disinfection programmes

0-

- 17 service programmes
- 31 vacant programme slots
- User interface with local-language display
- Display of programme selection and programming dialogues, countdown time, faults and operating hours.
- Compilation of new programmes using machine controls or using PC/laptop via optical interface

#### Interfaces

- 4 serial RS 232 interfaces for process documentation
- Optical interface for service and maintenance
- 1 Ethernet interface

#### Safety features

- Electric door lock
- Programme recontinuation in event of power outage
- Peak-load negotiation
- Optical and acoustic signal at end of programme
- 2 separate sensors for temperature monitoring and control
- Port for simple positioning of sensors in the wash cabinet for process validation
- Sensors in cabinet and magnetic strip on mobile units for automatic assignment of programmes to mobile units
- Volume flow control
- Spray arm sensing

#### Multiport

• For connection of printer and/or scanner

# PG 8527 washer-disinfector



# Machine versions, additional modules

Basic unit			
PG 8527	Features	Mat. no.	Art. no.
Electric	AE PT EL AV	6881680	62.8527.21
Steam/Electric	AE PT D/EL AV	6881690	62.8527.31
Explanation of symbols cf. Page 5			
Additional modules PG 8527		Mat. no.	Art. no.
Drain pump		6758120	69.2400.01
Cabinet AISI 316 L (DIN 1.4404) grade stainless steel		6758160	69.2410.01
Boiler EL		6758220	69.2430.01
Boiler D/EL		6758270	69.2430.02
Glass door for PG 8527		6758320	69.2450.01
ntegrated printer		6758340	69,2470.01
Scanner connection with scanner		7686510	69,2470.12
Conductivity module (information on Page 10)		6758400	69,2440.01
Dispenser pump – Integrated (additional) <sup>1</sup> – Please state purpose (cf. footnotes)		6758410	69.2460.01
Please note:			
D/FL machine version can only be operated in combination with D/FL boiler			
1 Diago operify whether dispancer nump is for detergent, noutralising agent or abarried	disinfectant		

## Components/Accessories



#### SBW

- Plinth/floor tray • Frame with integrated stainless-
- steel floor tray · 2 cross-brackets for moving machine
- Cut-outs for steam and plumbing connections, dump valve, dual drain valve and floor tray drain
- H 100, W 1150, D 856 mm



#### SBW/1

- Plinth/drip tray without cutouts • For version with drain pump
- Utilities, e.g. water, electricity and
- steam, through ceiling
- H 100, W 1150, D 856 mm



#### SBWR

#### Plinth/floor tray • Roller plinth/floor tray

- Castors allow machine to be pulled forward for servicing
- PG 8527 with drain pump
- Utility supply access through ceiling • H 100, W 1150, D 856 mm



#### Integrated printer for process documentation

- 8-needle printer and RS 232 serial interface
- Paper width: 58 mm Recording of following parameters during programme: Date and Mach. no., Prog. no., Date and Mach. no., Prog. no., prog. name, starting and finishing time, dispensing concentration, dispensing temperature and pump 1–4, target temperature reached (wash/dry) with times, all faults (e.g. 'water inlet'), all incidents of manual intervention (start dap, power outage)
- (start, stop, power outage)
  Meets process parameters with respect to temperature and holding time

Paper rolls available from Miele Spares: Mat. no.: 4781470

Paper roll size: Width 58 mm, Ø 50 mm, Length 20 m

Accessories	Features	Mat. no.	Art. no.
SBW	Plinth/drip tray for PG 8527	6757850	69.2530.01
SBW/1	Plinth/drip tray for PG 8527		
	Without cut-outs	6757860	69.2530.02
SBWR	Plinth/drip tray, on castors for PG 8527	5653140	69.3710.05
Printer	For process documentation	6758340	69.2470.01

### Accessories



#### TA/E

#### Drying unit/electric

- Side-channel compressor · Drying of interior and exterior
- load surfaces • 2 pre-filters Class EU 4, filter
- rating > 95% (ASHRAE Standard 52-68) • Life cycle 200 h
- 2 particulate/HEPA filters H 13, filter rating > 99.95% (DIN 1822:2011)
- Life cycle 1000 h
- Voltage 3N AC 400 V 50 Hz
- Heating 2 x 4 kW = 8 kW
  Heavy-duty fan/side-channel compressor, life cycle above 10,000 h, 2 air circuits 1.8 kW
- Total rated load [kW] 10
- Air throughput approx. 250 m³/h
- Temperature infinitely adjustable between 60°C and 115°C
- Time programmable between 1 and 240 mins.
- Incl. fitting frame for installation on top of PG 8527/PG 8528
- Panelling through to ceiling to be provided on site, cf. MAV 27/28



#### TA/D

#### Drying unit/steam Side-channel compressor

- · Drying of interior and exterior
- load surfaces • 2 pre-filters Class EU 4, filter rating > 95% (ASHRAE Standard
- 52-68)
- Life cycle 200 h
- 2 particulate/HEPA filters H 13, filter rating > 99.95% (DIN 1822:2011)
- Life cycle 1000 h
- Heating steam-to-air heat exchanger (steam circuit stainless steel, air

circuit aluminium) • Steam pressure 3.5-6 bar

- (350-600 kPa)
- Steam quality: filtered saturated steam
- Steam capacity (max.) 15 kg/h (machine and drying unit 50 kg/h)
- Heavy-duty fan/side-channel compressor, life cycle above 10,000 h, 2 air circuits 1.8 kW
- Total rated load [kW] 1.8
- Air throughput approx. 250 m³/h
- Temperature infinitely adjustable between 60°C and 115°C
- Time programmable between 1 and 240 mins.
- Incl. fitting frame for installation on top of PG 8527
- · Panelling through to ceiling to be provided on site, cf. MAV 27/28



#### DK 27/28 Heat-exchanger steam

- condenser • Water-cooled (only dehumidified
- air should be introduced into air conditioning system) Connection to on-site cooling
- circuit (no water consumption) or cold water connection (water consumption)
- Max. water pressure: 8 bar
- On-site installation
- Reduction of air discharge
- temperature to approx. 30-35°C Reduction in relative humidity to approx. 60-70%



#### MAV 27/28

Fitting kit/top-box panelling kit for drying unit/steam condenser frame

- Service hatches, with lock, for both sides of diaphragm wall, stainless steel
- Ventilation grille on the infeed side
- H 760, W 1150, D 765 mm Diaphragm wall panelling
- between the top of the top-box panelling and the ceiling must be provided on site
- Incl. MAV top panel to cover topbox panelling

Accessories	Features	Mat. no.	Art. no.
TA/E	Drying unit/electric	6757710	69.2500.01
TA/D	Drying unit/steam	6757770	69.2500.02
DK 27/28	Heat-exchanger steam condenser	6757790	69.2510.01
MAV 27/28	Top-box panelling kit	6757820	69.2520.01

# Technical data

Markan disinfa dan	DO 0507
	PG 8527
Single-door model with vertical sliding door	•
All-glass doors/cabinet lighting	0
Single/multiple installations	•
Freshwater system, max. temperature 93	•
Direct mobile unit docking for cleaning and drying of lumened instruments	•
2 circulation pumps [Qmax. I/min]	400/600*
Boiler for heating demineralised water	0
Controls/Programmes	
Profitronic +, 16 standard programmes	•
64 programme slots	•
Electric door lock	•
Peak-load negotiation	•
Network interface for process documentation	•
Magnetic strip for automatic mobile unit recognition	•
Spray arm sensing	•
Conductivity metering	0
Remote service enabled	•
Water connections	
1 x cold water. 2–10 bar flow pressure (200–1000 kPa) (max. 4°dH)	•
1 x Hot water, 2–10 bar flow pressure (200–1000 kPa) (max. 4°dH)	•
1 x Demineralised water, 2–10 bar flow pressure (200–1000 kPa)	•
3 inlet hoses 1/3" with 3/4" threaded union	•
Drain valve DN 50, odour trap to be fitted on site	•
2 drain numps DN 22, odour trap to be provided on site	0
Electrical connection: Electric heating	0
3 N AC 400 V 50 Hz	•
Cobinet bacting [J/M]	10
	15
	10
Circulation pump [kw]	0.771.2
Total rated load w/o drying unit [kw]	20
	20
Fuse rating [A]	3 x 32
Electrical connection: Steam heating	
3 N AC 400 V 50 Hz	•
Circulation pump [kW]	0.7/1.2*
Total rated load w/o TA [kW]	2
Total rated load with steam-heated drying unit [kW]	2
Total rated load with electric drying unit [kW]	10
Fuse rating [A]	3 x 16
Steam connection G 1/2" (DN 15)	•
Operating pressure 350-600 kPa (steam-heated drying unit)	•
Compressed air connection 600–1200 kPa	•
Electrical connection: Steam/Electric (convertible)	
3 N AC 400 V 50 Hz	•
Cabinet heating [kW]	18
Boiler heating [kW]	15
ulation pump [kW]	0.7/1.2*
Total rated load with electric drying unit [kW]	20
Fuse rating [A]	3 x 32
Steam connection G 1/2" (DN 15)	•
Operating pressure 350–1000 kPa (electric drying unit)	•
Compressed air connection 600–1200 kPa	•

# Technical data

Washer-disinfector	PG 8527
Dispenser systems	
2 bellows-type pumps for detergent and neutralising agent	•
2 x 10 I supply canisters	•
Space for 4 x 10 l supply canisters	•
Volume flow control	•
Max. 3 additional dispenser pumps	0
Dimensions/Weight	
External dimensions H incl. plinth tray [mm]	1660
External dimensions H incl. frame with TA [mm]	2420
External dimensions W/D [mm]	1150/870
Useable cabinet dimensions H/W/D [mm]	675/650/800
Overall cabinet dimensions H/W/D [mm]	860/685/800
Loading height above floor	850
Weight [kg]	408
Outer casing	
Stainless steel (AE)	•
Test certificates	
VDE, VDE-EMC, IP 20, MDD CE 0366	•
TA/E drying unit, electrically heated	
Supply voltage	3 N AC 400 V 50 Hz
Fan [kW]	1.8
Heater bank, depending on model [kW]	8
Total rated load, depending on model [kW]	10
Air throughput [m³/h]	approx. 250
Temperature selection in 1° increments [°C]	60 - 115
Time selection in 1-minute increments	1 - 240
2 x pre-filters EU 4, filter rating > 95%, filter life 200 h	•
2 particulate/HEPA filters H 13, filter rating > 99.95% (DIN 1822:2011), filter life 1000 h	•
TA/D drying units steam-heated	
Steam pressure [bar]	3.5 - 6
Steam quality: filtered saturated steam	•
Steam output: (max.) [kg/h]	15
(machine and drying unit 50 kg/h)	
Total rated load, depending on model [kW]	1.8
Air throughput [m³/h]	approx. 250
Temperature selection in 1° increments [°C]	60 - 115
Time selection in 1-minute increments	1 - 240
2 x pre-filters EU 4, filter rating > 95%, filter life 200 h	•
2 particulate/HEPA filters H 13, filter rating > 99.95% (DIN 1822:2011), filter life 1000 h	•

### PG 8527 E 941 mobile unit with sample loads



#### E 941 Mobile unit TA (empty)

- For modules on 2 levels
- Depending on the size of the glassware, up to 2 modules can be accommodated on each level
- Water and drying air enters via a direct docking system and adapters.
- Clearances (from bottom upwards): Level 1 (without top module)
  H 609, W 558, D 352 mm
  Level 1 (with top module)
  H 317, W 558, D 352 mm
  Level 2 H 245, W 558, D 352 mm
- Connection for hot-air drying unitMagnetic strip for automatic mobile unit
- Magnetic strip for automatic mobile unit recognition
- H 421, W 619, D 790 mm

Mat. no. 4812530 Art. no. 69.5941.01



Sample load arrangement for E 941 TA mobile unit

- Lower level: 2x E 944/2 injector module for narrow-necked glasses 500 - 1000 ml
- Upper level: 2x E 943/2 injector module for narrow-necked glasses 100 - 500 ml



Sample load arrangement for E 941 TA mobile unit

- Lower level: 2x E 945/2 module frame with E 106 insert for narrow-necked glasses or E 109 for beakers
- Upper level: 2x E 943/2 injector module for narrow-necked glasses 100 - 500 ml



Sample load arrangement for E 941 TA mobile unit

- Lower level: 1x E 943/2 injector module for narrow-necked glasses 100 - 500 ml and 1x E 942/3 injector module for pipettes, max. 580 mm
- Upper level: 1x E 947/2 injector module for e.g. centrifuge tubes

### PG 8527 Modules for E 941



E 942/3 injector module • For 116 pipettes, max. 580 mm • Holder frame • Compartment size 16 x 16 mm • H 279, W 558, D 352 mm

Mat. no. 7459390 Art. no. 69.5942.04



E 943/2 injector module
For narrow-necked glassware, 100 - 500 ml

• 32 nozzles (E 351) 4 x 160 mm with clips (E 353)

• H 190, W 558, D 352 mm

Mat. no. 7459400 Art. no. 69.5943.03



E 944/2 injector module

- For narrow-necked glassware 500 1000 ml
- 15 nozzles (E 352) 6 x 220 mm with clips (E 354)
- H 250, W 558, D 352 mm

Mat. no. 7459410 Art. no. 69.5944.03



E 945/2 module • Carriage frame for inserts • H 55, W 558, D 352 mm

Mat. no. 7459420 Art. no. 69.5945.03



E 947/2 injector module
88 injector nozzles for centrifuge tubes, phials and fraction sampler tubes
88 nozzles 2.5 x 110 mm

• H 170, W 558, D 352 mm

Mat. no. 7459430 Art. no. 69.5947.03



A 5 cover • For insert E 947/2 • H 8, W 280, D 280 mm

Mat. no. 5637190 Art. no. 69.5005.01

### PG 8527 Mobile unit with 2 - 5 levels



### E 940 mobile unit with drying connection (empty)

- For narrow-necked glassware on 2 levels (115 nozzles with clips)
- Clearance on lower level: 35 nozzles
  (E 352) 6.0 x 220 mm with support (E 354)
- Clearances upper level: 80 nozzles (E 351)
  4 x 160 mm with supports (E 353)
- Connection for hot-air drying unit
- Magnetic strip for automatic mobile unit recognition
- H 565, W 640, D 790 mm

Mat. no. 4607630 Art. no. 69.5940.01



### E 950/1 mobile unit with drying connection

- For narrow-necked glassware on 3 levels (232 nozzles).
- Levels 1 + 3: 80 nozzles each, ID 90 (2.5 x 90 mm)
- Level 2: 72 nozzles ID 90 (2.5 x 90 mm) Max. load height on each level 148 mm
- Connection for hot-air drying unitMagnetic strip for automatic mobile unit
- Magnetic strip for automatic mobile unit recognition
- H 572, W 640, D 790 mm

Mat. no. 6696990 Art. no. 69.5950.02



#### E 957 mobile unit with drying connection

- For 1-12 large-volume laboratory glassware items (12 nozzles)
- Height-adjustable frame with 8 short and 6 long supports.
- Max. height above star support: 615 mm
- Connection for hot-air drying unit
- Magnetic strip for automatic mobile unit recognition
- H 353, W 640, D 790 mm

Mat. no. 5746300 Art. no. 69.5957.01



## E 975/2 mobile unit with drying connection (empty)

- For inserts on 2 levels
- Built-in spray arm
- Clearances (from bottom): Level 1: H 297, W 592, D 780 mm Level 2: H 290, W 592, D 780 mm
- Connection for hot-air drying unit
- Magnetic strip for automatic mobile unit recognition
- H 427, W 640, D 790 mm

Mat. no. 7765790 Art. no. 69.5975.03



### E 935/2 mobile unit with drying connection (empty)

- For inserts on 3 levels
- 2 built-in spray arms
- Clearances (from bottom): Level 1: H 202, W 585, D 780 mm Level 2: H 202, W 595, D 780 mm Level 3: H 132, W 595, D 780 mm
- Connection for hot-air drying unit
- Magnetic strip for automatic mobile unit recognition
- H 524, W 640, D 790 mm

Mat. no. 7765780 Art. no. 69.5935.03



E 900-4/2 mobile unit with drying unit (empty)

- For inserts on 4 levels
- 3 built-in spray arms
- Clearances from bottom: Level 1: H 112.5, W 585, D 780 mm Level 2 and 3: H 112.5, W 595, D 780 mm Level 4: H 114, W 595, D 780 mm
- Connection for hot-air drying unit
- Magnetic strip for automatic mobile unit recognition
- H 557, W 640, D 790 mm

Mat. no. 7765740 Art. no. 69.5900.05



E 900-5/2 mobile unit with drying unit (empty)

- For inserts on 5 levels
- 4 built-in spray arms
- Clearances from bottom: Level 1: H 80, W 585, D 780 mm Level 2 - 4: H 80, W 595, D 780 mm Level 5: H 73, W 595, D 780 mm
- Connection for hot-air drying unit
- Magnetic strip for automatic mobile unit recognition
- H 605, W 640, D 790 mm

Mat. no. 7765760 Art. no. 69.5900.06



#### E 969 insert

- For various utensils
- Perforated sheet-metal plate,
- 7 x 7 x 3 mm
- For E 900-4/2, E 935/2, E 975/2 and E 941 with E 945 module
- H 67/122, W 363, D 533 mm Mat. no. 5746240 Art. no. 69.5969.01

#### A 19 1/2 lid

For insert E 969
H 18, W 351, D 251 mm
Mat. no. 5746210
Art. no. 69.7969.01



#### E 960/1 insert 1/2

- With 20 large and 26 small spring hooksFor wide-necked Erlenmeyer flasks and
- measuring cylindersH 185, W 357, D 522 mm

Mat. no. 5892360 Art. no. 69.5960.02



E 963 insert 1/2
With 33 x 3 holders for beakers, max. 250 ml
H 155, W 357, D 522 mm

Mat. no. 5848300 Art. no. 69.5963.01



E 965 insert 1/2 • With 15 x 3 holders for beakers, 250 -600 ml • H 173, W 357, D 522 mm

Mat. no. 5848290 Art. no. 69.5965.01

### PG 8527/PG 7825 Inserts



#### E 103/1 insert 1/4

For approx. 200 test tubes, max. 12 x 75 mm
Subdivided into 6 compartments
Incl. A 13 lid
Mesh size 8 x 8 mm
H 102 (122), W 200, D 320 mm
Mat. no. 6907630
Art. no. 69.5103.02
E 104/1 insert 1/4
As E 103, but for test tubes max. 12 x 105 mm
Mesh size 8 x 8 mm
H 132 (152), W 200, D 320 mm
Mat. no. 6907640
Art. no. 69.5104.02

#### E 105/1 insert 1/4

- As E 103, but for test tubes, max. 12 x 165 mm
  Mesh size 9 x 9 mm
  H 192 (212), W 200, D 320 mm
- Mat. no. 6907650
- Art. no. 69.5105.02
- E 139/1 insert 1/4 • As E 103, but for test tubes max. 12 x 200 mm
- Mesh size 9 x 9 mm • H 223 (243), W 200, D 320 mm
- Mat. no. 6907660 Art. no. 69.5139.02



#### A 13 lid

- As replacement for E103/1, E104/1, E105/1 and E139/1 inserts
- Stainless steel
- 1 mm wire mesh
  8 mm mesh gauge
  4 mm all-round frame

Mat. no. 3810200 Art. no. 69.7450.01



E 149 insert 1/4

- For 80 test tubes, max. 16 x 105 mm
- Including lid
- 80 compartments, 18 x 18 mm
- Mesh size on base 8 x 8 mm

Mat. no. 3808800 Art. no. 69.5149.01



AK 12 insert 1/2
For funnels, beakers, wide-necked glassware, etc.
H 67 (127), W 225, D 442 mm

Mat. no. 3830510 Art. no. 69.5012.01



A 14 1/4 lid • For AK 12 insert • Stainless steel

- 7 x 7 mm perforations, 3 mm ridge
- H 20, W 210, D 210 mm

Mat. no. 3981970 Art. no. 69.7450.02

### Inserts



#### E 403 insert 1/2

For 105 Petri dishes, 50-60 mm
36 supports, spacing 9 mm
H 35, W 200, D 445 mm

Mat. no. 3830430 Art. no. 69.5403.01



#### E 402 insert 1/2

For 44 Petri dishes, 80 - 125 mm
23 supports, spacing 15 mm

• H 53, W 200, D 445 mm

Mat. no. 3830420 Art. no. 69.5402.01



#### E 136 insert 1/1

- For 56 Petri half-dishes, 100 mm
- 56 holders, Height 70 mm
- Spacing approx. 26 mm
- H 145, W 485, D 445 mm

Mat. no. 3830280 Art. no. 69.5136.01

#### E 106 insert 1/2

- For wide-necked glassware, measuring beakers, etc.
- 10 spring hooks, H 175 mm
- 16 spring hooks, H 105 mm,

Spacing approx. 60 mm • H 186, W 195, D 430 mm Mat. no. 3808310 Art. no. 69.5106.01

#### E 106/1 insert 1/2

26 small spring hooks, H 105 mm, Spacing approx. 60 mm
H 116, W 195, D 410 mm
Mat. no. 3808320
Art. no. 69.5106.02

#### E 106/2 insert 1/2

13 large spring hooks, H 175 mm, spacing approx. 85 mm
H 186, W 180, D 420 mm
Mat. no. 3808330
Art. no. 69.5106.03



E 106 insert



E 111 insert

#### E 109 insert 1/2 (not illustrated)

- For 21 beakers, max. 250 ml
- 21 x 3 spikes
- H 155, W 230, D 460 mm Mat. no. 3808360 Art. no. 69.5109.01

#### E 110 insert 1/2 (not illustrated)

For 10 beakers, 250 - 600 ml
10 x 3 spikes
H 175, W 230, D 460 mm
Mat. no. 3808390
Art. no. 69.5110.01

#### E 111 insert 1/2

For 8 beakers, 600 - 1000 ml
8 x 3 spikes
H 205, W 230, D 460 mm
Mat. no. 3808420
Art. no. 69.5111.01

#### E 144 insert 1/2 (not illustrated)

For 18 beakers, max. 250 ml
18 x 3 spikes
H 131, W 200, D 445 mm
Mat. no. 3808710
Art. no. 69.5144.01

# PG 8527/G 7825 and Accessories



#### A 2 cover net 1/2 (illustration on left)

- 216 x 456 mm
- Plastic-coated metal frame with plastic netting

• For 1/2 inserts

Mat. no. 3830460

Art. no. 69.5002.01

#### A 3 1/4 cover net (illustration on right)

• 206 x 206 mm

Plastic-coated metal frame with plastic netting

• For 1/4 inserts Mat. no. 3830470 Art. no. 69.5003.01



A 6 cover net 1/2 • 215 x 445 mm • Stainless-steel with polypropylene mesh

Mat. no. 7217650 Art. no. 69.5006.01



#### A 9/1 insert • Perforated plate

- 7 x 7 mm perforations
- 3 mm ridge
- For E 935/2, E 975/2 and 901/2
- H 1, W 773, D 573 mm

Mat. no. 6097010 Art. no. 69.5009.02



Further inserts for laboratory glassware in following brochure:

Perfection in the reprocessing of laboratory glassware (G 7883 – PG 8536)



#### TK/1 test kit

- Detects the presence of proteins to monitor cleaning results
- For 48 tests With code strips for reflectometer (reflectometer not provided)
- via Service

Mat. no. 6157330



#### E 336 injector sleeve MIBO

- For pipettes (max. length 445 mm) in injector mobile units
- Plastic, with screw thread
- •Ø 11 mm
- Length 121 mm

Mat. no. 3809390 Art. no. 69.7336.01



- E 352 injector nozzle①
- For injector mobile unit
- For combination with E 354
- 6 x 220 mm, screw thread

Mat. no. 3809510 Art. no. 69.7352.01

#### E 351 injector nozzle(2)

- For injector mobile unit
- For combination with E 353
- 4 x 160 mm, screw thread

Mat. no. 3809500 Art. no. 69.7351.01

#### E 354 clip for nozzle (3)

- For E 352 injector nozzle
- Height-adjustable
- 6 x 220 mm

Mat. no. 3809540 Art. no. 69.7354.01

#### E 353 clip for nozzle ④

- For E 351 injector nozzle
- Height-adjustable
- 4 x 160 mm

Mat. no. 3809530 Art. no. 69.7353.01

#### E 470 injector nozzle with clip (5)

- For injector mobile unit
- 2.5 x 90 mm, screw thread

Mat. no. 5701580 Art. no. 69.5470.01



**Injector nozzle with plastic support** Front row, from left **ID 160 4 x 160 mm** Mat. no. 3810350 Art. no. 69.7160.01

**ID 140 4 x 140 mm** Mat. no. 3810340 Art. no. 69.7140.01

**ID 110 2.5 x 110 mm** Mat. no. 3810330 Art. no. 69.7110.01

**ID 90 2.5 x 90 mm** Mat. no. 3810320 Art. no. 69.7090.01 Rear row, from left **ID 240 6 x 240 mm** Mat. no. 3810400 Art. no. 69.7240.01

**ID 220 6 x 220 mm** Mat. no. 3810390 Art. no. 69.7220.01

**ID 200 6 x 200 mm** Mat. no. 3810380 Art. no. 69.7200.01

**ID 180 4 x 180 mm** Mat. no. 3810360 Art. no. 69.7180.01



E 362 blanking screw
M 8 x 1 thread, to close connectors on mobile units

Mat. no. 3809630 Art. no. 69.7362.01

**SD-B injector nozzle for butyrometers** (not illustrated)

Mat. no. 3583540 Art. no. 69.7080.01



### G 7825 washer-disinfector

The G 7825 washer-disinfectors were specifically designed to meet the needs of smaller and medium-sized laboratories. With a width of only 900 mm, these machines are the ideal proposition in cases where space is at a premium.

# Flexible solutions for the central and decentral reprocessing of laboratory glassware

Miele's G 7825 washer-disinfectors offer a wide range of installation options, tailored individually to the needs of laboratories. This allows units to be installed both decentrally in specialist departments or centrally for coping with larger volumes of instruments.

## Wide range of standard features and optional extras

The modular approach adopted by Miele's G 7825 washer-disinfectors combined with a broad range of features and optional extras guarantees greatest flexibility to meet the on-site conditions and hygiene concepts. This machine is equipped with electric or steam heating and is even available with convertible dual steam and electric heating. Processes and process parameters are controlled and monitored by sophisticated, state-of-the-art electronic controls. These controls were developed at Miele's own electronics production plant and are tailored to meet the needs of laboratory glassware.

A particularly service-friendly feature is, for example, the combined plinth and drip tray on castors. To ensure the safe and practical handling of mobile units, Miele recommends its Miele MF/3 transfer trolley.



#### Miele quality - Made in Germany

Miele washer-disinfectors have been an integral part of quality assurance in laboratories. All components are uncompromising in terms of quality, offering users both safety as well as economical and practical benefits.

Specifications Washer-disinfectors	Unit width/depth	Door	Cabinet Cabinet dimensions H/W/D Cabinet volumes	Capacity per cycle
PG 8527	1150/870 mm	Vertical-rise door	675/650/800 mm 351 l	232 narrow-necked glasses or 232 pipettes
G 7825	900/750 mm	Bottom-hinged door	683/541/610 mm 225 l	108 narrow-necked glasses or 104 pipettes

### Standard machine features and specifications



#### Model type

• G 7825: Front-loading unit with single bottom-hinged door

#### Capacity per cycle

• 108 narrow-necked glasses or 104 pipettes

#### Design

- Stand-alone or side-by-side installation
- Width 900 mm
- Modular approach with customised features to meet individual requirements
- Single-chamber system for washing, disinfection and drying
- Service-friendly design
- Low heat and sound emissions thanks to double insulation

#### **Cleaning technology**

- Hygienic freshwater system with fresh water intake in each programme stage
- Cleaning, disinfection and drying in a closed, single-cabinet system
- 2 spray arms in cabinet for thorough cleaning of laboratory glassware
- Spray arms with high water impact force
- Full water jet access, ensuring optimum results
- Thorough cleaning of lumens thanks to injector system
- Direct docking of mobile units to water circuit

- 2 powerful circulation pumps
- Triple filtration with large surface filter, coarse filter and micro-fine filter
- Filters in inlet hoses
- Flowmeter to monitor water intake quantities
- 1 dump valve

#### **Dispenser systems**

• 2 dispenser pumps for liquid detergent and neutralising agent



#### Controls

- Freely programmable controls PROFITRONIC
- 64 programme slots
   17 standard washing and disinfection programmes
- 8 service programmes
- 39 vacant programme slots
- User interface with local-language display
- Display of programme selection and programming dialogues, countdown time, faults and operating hours.
- Compilation of new programmes using machine controls or using PC/laptop via optical interface

#### Interfaces

- Serial RS 232 interface for process documentation
- Optical interface for service and maintenance

#### Safety features

- Electric door lock
- Programme recontinuation in event of power outage
- Peak-load negotiation
- Optical and acoustic signal at end of programme
- 2 separate sensors for temperature monitoring and control
- Port for simple positioning of sensors in the wash cabinet for process qualification/validation
- Sensors in cabinet and a magnetic strip on mobile units for automatic assignment of programmes to mobile units

### Modular machine concept Optional extras





#### SBW/2 Plinth/floor tray

- Frame with integrated stainless-steel floor tray
- Cut-outs for steam and plumbing connections, dump valve, dual drain valve and floor tray drain
- A single floor tray can be provided on site for machines installed in a row.
- Plinth fascia (front and rear) with 8 mm recess, flush at sides
- H 100, W 900, D 734 mm



#### SBWR/2

#### Plinth/drip tray for G 7825

- Roller plinth/floor tray
- Castors allow machine to be pulled forward for servicing
- For G 7825 with drain pump
- Utility supply access through ceiling
- H 100, W 900, D 734 mm

### PRT/1

#### Printer for process documentation

- 6-needle printer and RS 232 serial interface
- Paper width: 58 mm
- For installation on infeed side of G 7825
- Recording of following parameters during programme:

Date and Mach. no., programme no., programme name, starting and finishing time, dispensing concentration, dispensing temperature and pumps 1–4, target temperature reached (wash/dry) with times, all faults (e.g. 'water inlet'), all incidents of manual intervention (start, stop, power outage)

• Meets process parameters with respect to temperature and holding time

# Machine versions, components, accessories

#### DK 25/26

#### Steam condenser/heat exchanger

- For G 7825 with water cooling (only dehumidified air should be vented to air conditioning system)
- No water consumption when connected to on-site cooling water circuit, max. water pressure 8 bar
- Or cold water supply (water consumption)
- On-site installation
- Reduction of air discharge temperature to approx. 30-35°C
- Reduction in relative humidity to approx. 60 70%

#### MAV 25/26

### Installation kit/Top-box panelling for steam condenser

- Service hatches, with lock, for both sides of diaphragm wall, stainless steel
- Ventilation grille on the infeed side
- Diaphragm wall panelling between the top of the top-box panelling and the ceiling must be provided on site
   H 420, W 000, D 750, mm
- H 430, W 900, D 750 mm

#### **MVA Installation kit/Floor anchors**

- 4 feet, fittings, plugs
- Required when machine is installed without SBW/2

#### DOS 10/30 integrated dispenser pump

- For surfactant or neutralising agent, 10 ml/30 secs.
- Complete with hoses and siphon (330 mm) for 10 l canisters

#### DOS 60/30 integrated dispenser pump

- For liquid disinfectant or detergent, 60 ml/30 secs.
- Complete with hoses and siphon (330 mm) for 10 l canisters

Features	Mat. no.	Art. no.
AE PT EL AV	5267200	62.7825.20
AE TA PT EL AV	5277520	62.7825.21
AE TA BO PT EL AV	5277530	62.7825.22
AE TA PT EL AP	5544310	62.7825.24
AE TA GS PT EL AP	5769820	62.7825.27
AE TA BO PT EL AP	5430590	62.7825.25
AE BO PT D AV	5267170	62.7825.10
AE TA BO PT D AP	5430620	62.7825.15
Features	Mat. no.	Art. no.
Plinth/drip tray for G 7825	5238130	69.3710.02
Plinth/drip tray, on castors for G 7825	5653130	69.3710.04
Anchoring kit for G 7825	5318010	69.2100.04
Heat-exchanger steam condenser	6600620	69.2300.05
Top-box panelling kit for G 7825	6600590	69.2100.08
Printer for process documentation	5400800	69.2211.02
Retrofittable dispenser pump	5267410	69.2250.02
Retrofittable dispenser pump	5267420	69.2250.03
	FeaturesAE PT EL AVAE TA PT EL AVAE TA BO PT EL AVAE TA BO PT EL APAE TA GS PT EL APAE TA BO PT D APAE BO PT D AVAE TA BO PT D APFeaturesPlinth/drip tray for G 7825Plinth/drip tray, on castors for G 7825Anchoring kit for G 7825Heat-exchanger steam condenserTop-box panelling kit for G 7825Printer for process documentationRetrofittable dispenser pumpRetrofittable dispenser pump	FeaturesMat. no.AE PT EL AV5267200AE TA PT EL AV5277520AE TA BO PT EL AV5277530AE TA BO PT EL AP5544310AE TA GS PT EL AP5769820AE TA BO PT EL AP5430590AE TA BO PT D AV5267170AE TA BO PT D AP5430620FeaturesPlinth/drip tray for G 7825Plinth/drip tray, on castors for G 78255653130Anchoring kit for G 78255318010Heat-exchanger steam condenser6600620Top-box panelling kit for G 78256600590Printer for process documentation5400800Retrofittable dispenser pump5267410Retrofittable dispenser pump5267420

Cabinet – ASI 316L (1.4404) grade stainless steel (optional) Explanation of symbols cf. Page 4

# Technical data

Washer-disinfector	C 7895
Front-loading unit with bottom-binged door	•
Barrier model with bottom-hinged doors	-
Single/multiple installations	-
Freshwater system may temperature 93	•
Direct mobile unit docking for cleaning and drving of lumened instruments	
	300/400*
Controls/Brogrammes	300/400
	•
64 programma glota	•
Electric dest lesk	•
	•
Peak-load hegoliation	•
Serial interface for process documentation	•
	•
	•
Water connections	
1 x cold water, 2–10 bar flow pressure (200–1000 kPa) (max. 4°dH)	•
I x not water, 2-10 bar flow pressure (200-1000 KPa) (max. 4°dH)	•
1 x demineralised water, 2–10 bar flow pressure (200–1000 kPa)	•
3 inlet hoses ½" with ¾" threaded union	•
Drain valve DN 50, odour trap to be fitted on site	•
2 drain pumps, DN 22, odour trap to be provided on site	0
Electrical connection: Electric heating	
3 N AC 400 V 50 Hz	•
Heating [kW]	9.0
Circulation pump [kW]	0.3/0.7*
Total rated load w/o TA [kW]	10.0
Total rated load with electric TA [kW]	10.0
Fuse rating [A]	3 x 16
Electrical connection: Steam heating	
3 N AC 400 V 50 Hz	•
Circulation pump [kW]	0.3/0.7*
Total rated load w/o TA [kW]	1.65
Total rated load with electric TA [kW]	9.0
Fuse rating [A]	3 x 16
Steam connection G 1/2" (DN 15)	•
Operating pressure 250–1000 kPa on models with drying unit (electric)	•
Operating pressure 600-800 kPa on models with drying unit (steam)	•
Compressed air connection 600–1200 kPa	•
Electrical connection: Steam/Electric (convertible)	
3 N AC 400 V 50 Hz	•
Heating [kW]	9.0
Circulation pump [kW]	0.3/0.7
Total rated load with electric TA [kW]	10.0
Fuse rating [A]	3 x 16
Steam connection G 1/2" (DN 15)	•
Operating pressure 250–1000 kPa on models with drying unit (electric)	•
Operating pressure 600-800 kPa on models with drying unit (steam)	•
Compressed air connection 600–1200 kPa	•

# Technical data

Washer-disinfector	G 7825
Dispenser systems	
1 x DOS 10/30 dispenser pump for liquid acidic agents	•
1 x DOS 60/30 dispenser pump for liquid detergent	•
2 x 10 I supply canisters	•
Space for 3 x 5 I supply canisters	•
Connection options (retrofittable by Service)	
DOS 10/30 dispenser pump for neutralising agent	0
DOS 60/30 dispenser pump for detergent/chemical disinfectant	0
Drying unit/side-channel compressor	
Fan [kW]	2 x 0.9
Heater bank, depending on model [kW]	2 x 3.6
Total rated load, depending on model [kW]	9
Air throughput [m <sup>3</sup> /h]	250
Temperature selection in 1° increments	60 - 115
Time selection in 1-minute increments	1 - 240
2 x pre-filters EU 4, filter rating > 95%, filter life 200 h	•
4 particulate/HEPA filters H 13, filter rating > 99.95% (DIN EN 1822-1998), filter life 500 h	•
Dimensions/Weight	
External dimensions H incl. plinth tray [mm]	1974
External dimensions H incl. plinth tray and top-box panelling [mm]	2404
External dimensions W/D [mm]	900/750
Useable cabinet dimensions H/W/D [mm]	683/541/610
Overall cabinet dimensions H/W/D [mm]	900/567/610
Docking height above floor (with plinth) [mm]	850
Weight [kg]	360
Casing	
Stainless steel (AE)	•
Test certificates	
VDE, VDE-EMC, IP X1, MDD CE 0366	•

### G 7825 Mobile unit E 741/1 and modules for laboratory glassware



## E 741/1 mobile unit with drying connection (empty)

- For modules on 1-4 levels.
- Depending on the size of the glassware, up to 3 modules can be accommodated
- Water and drying air enters via a direct docking system and adapters.
- Clearances: Level 1 to upper edge: 605 mm Level 2 to upper edge: 405 mm Level 3 to upper edge: 267 mm Level 4 to upper edge: 197 mm
- Connection for hot-air drying unit
- Magnetic strip for automatic mobile unit recognition (excl. ML magnets)
- H 680, W 530, D 600 mm

Mat. no. 6070360 Art. no. 69.5741.02



F 742 module
Module frame with spray arm
H 112, W 492, D 496 mm

Mat. no. 5848320 Art. no. 69.5742.01



#### E 743 injector module

- For narrow-necked glassware, 100 500 ml
- 36 nozzles (E 351) 4 x 160 mm with clips (E 353)
- H 190, W 492, D 496 mm

Mat. no. 5555250 Art. no. 69.5743.01



#### E 744 injector module

- For narrow-necked glassware, 500 - 1000 ml
- 16 nozzles (E 352) 6 x 220 mm with clips (E 354)
- H 250, W 492, D 496 mm

Mat. no. 5555260 Art. no. 69.5744.01



#### E 752 injector module

- For narrow-necked glassware, 100 - 1000 ml
- 12 nozzles (E 351) 4 x 160 mm with clips (E 353)
- 13 nozzles (E 352) 6 x 220 mm with clips (E 354)
- H 260, W 492, D 496 mm

Mat. no. 5647640 Art. no. 69.5752.01



#### E 755 injector module

- For narrow-necked glassware, 25 - 100 ml
- 36 nozzles (E 470), 2.5 x 90 mm with holders
- H 130, W 492, D 496 mm

Mat. no. 5701590 Art. no. 69.5755.01



E 745/1 injector module • For 104 pipettes, max. 540 mm Holder frame Compartment size 16 x 16 mm • H 288, W 492, D 496 mm

Mat. no. 6233580

Art. no. 69.5745.02



E 746 injector module • For 23 pipettes held diagonally

- For 10 pipettes, max. 560 mm and
- 13 pipettes, max. 490 mm
- Holders spaced 20 mm or 26 mm apart • H 330, W 492, D 496 mm

Mat. no. 5555280 Art. no. 69.5746.01



E 747 injector module

- 104 injector nozzles for centrifuge tubes, phials and test tubes, fraction sampler tubes
- 104 nozzles 2.5 x 110 mm
- H 168, W 492, D 496 mm

Mat. no. 5464630 Art. no. 69.5747.01

### Loading examples E 741/1 with modules



Sample load arrangement E 741/1 mobile unit with drying connector • With E 744 injector module for narrownecked glasses, 500 - 1000 ml on Level 1 and Level 3



Sample load arrangement E 741/1 mobile unit with drying connector

- With E 742 module frame and E 106 and E 109 inserts for beakers, wide-necked glassware, measuring cylinders on Level 1
- With E 744 injector module for narrownecked glasses, 500 - 1000 ml on Level 2



Sample load arrangement E 741/1
mobile unit with drying connector
With E 743 injector module for narrownecked glasses, 100 - 500 ml on Levels 1, 2 and 4



Sample load arrangement E 741/1 mobile unit with drying connector • With E 747 injector module for centrifuge

- tubes, etc. on Level 1 and 4 • With E 743 injector module for narrownecked glassware, 100 - 500 ml on
- necked glassware, 100 Level 2

### G 7825 Mobile unit with 2 - 5 levels



#### E 757 mobile unit with drying connection

- For 1 6 large-volume laboratory glassware items (6 nozzles)
- Height-adjustable frame with 6 short and 4 long supports, can be adjusted to diameter of glassware.
- Max. height above star support: 610 mm
- Connection for hot-air drying unit
- Magnetic strip for automatic mobile unit recognition (excl. ML magnets)
- H 346, W 530, D 600 mm

Mat. no. 5746290 Art. no. 69.5757.01



## E 775/1 mobile unit with drying connection (empty)

- For inserts on 2 levels
- Built-in spray arm
- Clearances from bottom: Level 1: H 304, W 482, D 590 mm Level 2: H 290, W 488, D 546 mm
- Connection for hot-air drying unit
- Magnetic strip for automatic mobile unit recognition (excl. ML magnets)
- H 400, W 530, D 600 mm

Mat. no. 7765730 Art. no. 69.5775.03



### E 735/2 mobile unit with drying connection (empty)

- For inserts on 3 levels
- 2 built-in spray arms
- Clearances from bottom: Level 1: H 203, W 482, D 590 mm Level 2: H 203, W 488, D 546 mm Level 3: H 133, W 488, D 546 mm
- Connection for hot-air drying unit
- Magnetic strip for automatic mobile unit recognition (excl. ML magnets)
- H 552, W 530, D 600 mm

Mat. no. 7765710 Art. no. 69.5735.03



E 701/2 mobile unit with drying connection (empty)

- For inserts on 4 levels
- 3 built-in spray arms
- Clearances from bottom: Level 1: H 87, W 482, D 590 mm Level 2 and 3: H 87, W 488, D 546 mm Level 4: H 223, W 488, D 546 mm
- Clearances with E 702: Level 4: H 87, W 488, D 546 mm Level 5: H 81, W 488, D 546 mm
- Connection for hot-air drying unit
- Magnetic strip for automatic mobile unit recognition (excl. ML magnets)

• H 461, W 530, D 600 mm Mat. no. 7765700 Art. no. 69.5701.03



**E 702 top module for E 701/1** • Level 5 for 2 further inserts • H 160, W 530, D 560 mm

Mat. no. 5221490 Art. no. 69.5702.01



#### A 7/1 insert

- Perforated plate
- 7 x 7 mm perforations
- 3 mm ridge
- For E 775/1, E 735/2 and E 701/2
- H 1, W 543, D 473 mm

Mat. no. 6097000 Art. no. 69.5007.02

## Transport trolleys





#### MF/3 for G 7825

- Trolley to simplify handling of mobile injector units
- Footswitch-operated height-adjustment mechanism
- 4 lockable wheels
- H 1182, W 660, D 807 mm, +/- 100 mm
- Docking height 751 mm, +/- 100 mm

Mat. no. 6392900 Art. no. 69.2001.07

#### MF 27/28-1 for PG 8527

- 4 lockable wheels, Ø 100 mmBoth ends can dock onto machine,
- tables, sluices or conveyors.
- Docking height 850, -100, + 150 mm
- H 1050, W 740, D 930 mm
- With removable drip tray H 70, W 603, D 866 mm

Mat. no. 7397640 Art. no. 69.2001.11

## AquaSoft System



#### PG 8597 AquaSoft system, Twin-tank water softener

- For continuous delivery of softened water, max. 40°dH
- H 570, W 360, D 360 mm
- Weight (excl. salt) approx. 30 kg
- Freestanding unit on castors. Filled from top.
- Plastic casing
- Capacity: 19 l/min (constant), max. delivery 30 l/min
- Demand-controlled twin-tank system
  Does not require connection to power supply
- Equipped with 2 x 4.5 I resin-filled
- canisters and 1 container for 20 kg of salt • Water connection
- 2 pressure hoses, approx. 1.5 m, 3/4" threaded union
- 1 x cold or hot water, max. 70°C
- Min. 1 bar intake flow pressure to system, max. static pressure 8 bar
- 2.5 bar minimum flow pressure on
- machines without water softener
- 3.5 bar min. flow pressure on machines with softener
- 1 x connection from system to machine 2 drain hoses, approx. 1.5 m
- (DN 8 for reactivation water and overflow, odour trap and non-return valve to be provided on site
- Water consumption 19 l/reactivation cycle

### Laboratory process documentation options



#### Process documentation principles

Proof that a validated process can be replicated with each cycle is best achieved by recording and documenting the most important programme parameters on a continuous basis.

### Effective process documentation system requirements

- Complete system with high level of process security, including pre-installed and configurable software
- Tamper-proof
- Simple operation without knowledge of PCs
- Extremely simple installation
- Process visualisation
- Batch-related documentation
- Load detection
- Documented load approval
- Long-term archiving

#### System components

 NetBox with keypad and mouse plus cables for connection to washerdisinfector

#### **Optional:**

- Flat screen for process visualisation and load data capture
- Barcode scanner (with connection lead or wireless using Bluetooth technology) to simplify machine operation and load data capture
- RFID transponder as alternative to barcode system
- Network cable if access via network

# Load assignment, data backup and archiving

#### Protocols generated using NetBox: Safe and convenient

The NetBox is a complete documentation system including pre-configured software. The system is connected via an interface to the washer-disinfector. The NetBox collects all relevant process data during washing and disinfection programmes. In standard mode, the unit harvests data fully automatically without any involvement on the part of the user. This means maximum operating safety as the NetBox provides considerable protection against operating errors. Once collated, process data remains in memory; the NetBox has the capacity to save up to 1000 batch protocols. Later, data can be saved to a network or a storage device.

In network mode, the unit can be monitored and operated via a PC interface. A flat-screen monitor is also available as an optional extra to plot time/temperature curves. This also helps visualise the data contained in the wash protocol. A further optional extra is a barcode scanner or RFID transponder to facilitate the fast and simple identification of loads. The user can also approve or lock batches, depending on process cycles. When data transfer is activated, process data is collected from all washerdisinfectors and assigned to cycle nos. These protocols may contain, for instance, the following parameters, depending on the machine:

- Cycle no., date and Mach. no.
- Programme name
- Time of programme start and finish as well as times of individual programme blocks
- Dispenser pump (no.), concentration, temperature and time
- Target temperature reached
- Assessment of disinfection temperature and contact time
- All faults (e.g. water inlet fault)
- Interventions

(e.g. programme abort, mains failure) On washer-disinfectors with Profitronic controls, the intervals at which temperature and times are plotted and added to the protocol are user-definable, e.g. every 5 secs.

Barcode tag clipped to inserts



Protocol management

At the end of each cycle, a protocol is automatically saved to the protocol bank. From here, all protocols can be called up using search tags, e.g. cycle no., machine no., user, etc. Data records are protected and cannot be changed. Each person with access to the process documentation programme is registered in the master data as an authorised user. It is also possible to assign user IDs to individuals. Access codes also define the level of access granted to individual persons on the system.

#### Scanning barcode



The NetBox offers an integrated method

of generating machine-related statistics from all programmes cycles. Furthermore, saved data can be made available to other software in order to perform further evaluations.

A key benefit of the NetBox compared to a PC system is operational safety. Further benefits of NetBox process documentation include space-saving installation, ventilator-free operation and low operating costs.

Scan of personnel barcode after cycle approval



The process documentation software is optionally available as a software-only solution for installation on a Windows PC.

### Service in highest Miele quality - guaranteed!



### Comprehensive service package from one single source

Miele Sales and Service offers all services from one single source - in proverbial Miele quality.

Miele experts will assist from the outset in selecting the most suitable system. After installation and commissioning by well-trained Miele technicians, clients have access to a comprehensive range of services:

- Qualification of cleaning systems: Miele offers a tailored 'Installation Qualification and Operation Qualification' (IQ/OQ) package. Further details on Miele's IQ/ OQ offer can be found on Page 47.
- High-quality service with short response times and blanket service coverage is provided by specialised service engineers (e.g. over 150 technicians in Germany alone)
- 90% of service calls result in first-time fixes
- Reliable spares service: Key genuine spares available for 15 years after discontinuation of series production
- Individual service contracts: Miele's inspection and maintenance contracts

ensure that Miele machines are inspected at regular intervals by specially trained Miele after-sales service engineers. This avoids costly downtimes and outages. Taking individual requirements into consideration, various service options such as inspection and maintenance contracts are available, through to fullservice maintenance contracts including all repair costs, allowing excellent forward visibility.

### Exclusive to

It is not without reason that Miele's aftersales service operation has been acclaimed for many years in succession for its excellence (in an annual survey performed by ServiceBarometer AG, Munich).

#### **Miele Remote Service**

- an investment in a safe future. The Remote Service Assistant, or RSA module, developed by Miele, allows service engineers to establish remote contact with Miele washer-disinfectors in the field to diagnose faults and decide on the necessary remedial action needed. This technology can be relied on both to install updates and to perform trouble-shooting.





### Miele Service Package: Qualification of cleaning systems

In the pharmaceutical, food-processing and cosmetics industries, all cleaning systems used in production, quality assurance and R&D must be 'qualified'.

Design Qualification (DQ), Installation Qualification (IQ), Operation Qualification (OQ), Performance Qualification (PQ) and, in some cases, process validation. In all cases, responsibility for implementing the necessary measures lies with the equipment operator. Miele's in-house after-sales service operation, though, can provide support by assuming some of the duties incumbent on the operator. Miele's tailored service package covers Installation and Operation Qualification (IQ/OQ).

#### Implementation of 'Installation and Operation Qualification'

Before IQ/OQ can be performed by Miele's in-house service engineers the necessary documentation must be compiled, checked and approved by the operator for use during the inspection. Miele service technicians will then perform qualification on the basis of this documentation. All the necessary calibrated and certified test apparatus is provided by Miele.

#### Training of Miele service engineers

Miele's own service engineers are given training covering all aspects of machine technology (installation, programming, repair and maintenance) in regular refresher courses. This is complemented by specialised training on the qualification of Miele cleaning systems used in industrial and laboratory operations. Theory and practice are not confined to washerdisinfectors either: they also cover all peripheral units likely to be encountered in industrial applications (for example Miele's Aqua Purificator to produce demineralised water, dispensing systems and accessories such as mobile injector units and inserts).

#### Installation Qualification (IQ)

The objective of Installation Qualification is to verify that the cleaning system and its installation comply with the operator's and manufacturer's requirements. Compliance of shipment with original order, unit configuration and condition, installation and connection to on-site utilities and the calibration of certain measuring systems.

#### **Operation Qualification (OQ)**

The objective of Operation Qualification is to furnish proof that the cleaning system meets the requirements of the operator and equipment manufacturer when installed and connected. Operation Qualification documentation, inspections and evaluations cover functions with a relevance to safety and operation, processrelated messages and warnings, and programme design. Training of operatives and the documentation of such measures is also carried out during Operation Qualification. This constitutes a comprehensive package comprising IQ/OQ paperwork, the services of highly skilled and qualified service engineers and the use of calibrated, certified test apparatus.



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