Miele
PROFESSIONAL

Instrument reprocessing in doctor's surgeries, operating theatres and clinics

Washing/Disinfection, Sterilisation, Documentation, Guarantess

System4Med

Miele washers and disinfectors: Quality, inside and out

High quality design
Miele continuous to emphasise the use of robust and durable materials when designing their washers and disinfectors. This results in the production of units that are dependable and require very low maintenance during everyday use.
- Double-wall construction and door insulation reduce noise levels
- Wash cabinet and water circuit made of stainless steel
- Fabric-reinforced hoses

Cleaning technology
- Hygienic freshwater system with water changed after each rinsing phase
- 2 Spray arms (3rd spray arm on the top basket) for thorough surface washing of the instruments
- Optimum arrangement of the spray jets and adjustable spray arm speed
- Injection system for thorough hollow body washing
- Direct connection of the carriage and baskets on the water circuit

Standard technical features
- Professional-Monoblock-water softener, regeneration within the washing programmes with low salt consumption
- High-performance circulation pump with a circulation power of 400 l/min
- 4-fold-filter system with surface filter, coarse filter, course sieve and micro-filter for reliable filtering of dirt particles.
- Efficient steam condenser on heat exchanger basis (G 7831 and G 7882) or with spray mist technology (G 7892 and G 7882 CD) to prevent steam from escaping into the room air
- Flow meter for monitoring the water intake volume
- Integrated liquid media dispenser pump system
- Connectivity for liquid detergent media – dispensing system
- Integrated dispensing control
- Hot air drying for short process time (G 7892 and G 7882 CD)

Type
- For use as Freestanding unit or installed as a built-in unit in a worktop counter

Interfaces
- Serial interface for process documentation
- Optical interface for customer service and service functions, can be upgraded to USB interface when connecting a PC

Safety features
- Electrical door locking
- Programme failure protection
- Optical and acoustical signal at the end of the programme
- 2 Sensors for control and monitoring of the process temperature
- Sensor port for positioning sensors in the wash cabinet for validation purposes and annual service checks
- Safety equipment in compliance with EN ISO 15883

poz. 13 - plovimo kamera iš nerūdijančio plieno

poz. 16 - vykdomų plovimo programų kontrolė

Washers and disinfectors PG 8535 and PG 8536

PG 85 Perfection Guaranteed

Illustration shows unit with lid

Compact, high-tech washers and disinfectors with a freely programmable control system

High-performance, high-tech washers and disinfectors with a freely programmable control system

Washer and disinfector PG 8535

- Built-in/freestanding unit
- Exterior housing stainless steel
- Overall width 90 cm
- H 820* (850), W 900, D 700 mm
- Freely programmable Profitronic+control system with 17 programmes and 30 vacant programme slots
- Network interface for process documentation
- 2 Loading levels
- Circulation output of 400 l/min
- Spray arm sensor Perfect SpeedSensor
- Three-phase current connection for short programme cycles
- 2 Integrated dispenser pumps for liquid detergents and neutralisation agents
- Drawer with 2 x 5 l supply containers
- Integrated hot-air drying unit
- Option: OXIVARIO features
- Reprocessing per batch:
  2 AN-sets or 4 DIN-sieves or 1–2 MIC-sets or 48 GYN-specula

Washer and disinfector PG 8536

- Freestanding unit
- Exterior housing stainless steel
- Overall width 90 cm
- H 1175, W 900, D 700 mm
- Freely programmable Profitronic+control system with 18 programmes and 30 vacant programmes slots
- Network interface for process documentation
- 2 Loading levels
- High performance equipment with a circulation output of 600 l/min
- Spray arm sensor Perfect SpeedSensor
- Three-phase current connection for short programme cycles
- 2 integrated, low-maintenance bellows-type dispenser pumps for liquid detergent and neutralising agents
- Drawer with 4 x 5 l supply containers neutralisation agents, including ultrasonic-dispensing volume control Perfect FlowSensor
- Integrated hot-air drying unit
- Options:
  Conductivity measurement Perfect FlowSensor ORTHOVARIO features
- Reprocessing per batch:
  3 AN-sets or 7 DIN-sieves or 2 MIC-sets or 48 GYN-specula

poz. 12 - vienu metu plaunama 7 DIN krepšiai su instrumentais

* Built-in unit

Technical data on pages 58–59

poz. 9 - vartotojo kuriamos programos

- **Optimum ease of use**
- **Problem-free hygiene**
- **Perfect control**

Exclusive to MIELE

poz. 34 - lietimui jautrus ekranas apsaugotas stiklu

- Freely programmable control system
- Chemical resistant glass surface
- Innovative washing programmes

PerfectTouchControl

Easy to operate, excellent for washing: The washers and disinfectors of the PG 85 product line have a touch sensitive display as standard equipment. The easy to use PerfectTouch-Display guarantees incomparable ease of use and perfect hygiene. The completely flat glass surface is embedded and flush with the front of the unit. It is chemical resistant and can be easily disinfected by wiping it clean.

All of the touch-buttons are integrated behind the glass and activate the desired function when contacted lightly even if the user is wearing gloves. Complete control is simple to carry out and only requires touching few buttons. All of the operating sequences are displayed in the local language. The display texts for e.g. A0-value, actual-temperature, conductivity, remaining programme length and for the desired protocol data can be freely configured. In addition, the user can enter standard required values or individual A0-values via the integrated A0-value control system.

poz. 35 - ekrane pateikiami parametrai

poz. 7.2 - A0 parametro kontrolė

Features and functions

- Freely programmable control system PROFITRONIC+
- 64 Programme slots
- 18 Standard and 15 service programmes
- 30 vacant programme slots
- User navigation with local-language display
- Configurable displays and protocol contents
- 4 operating levels starting with first time user to experienced operator
- Countdown display and start-up selection function
- Comprehensive programming options, e.g. creation of custom made programmes for customers via free programme slots
- Automatic mobile unit recognition for automatic programme selection

- **Permanent conductivity measurement**
- **Residue-free rinsing**
- **Absolute protection during reprocessing**

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- Maintenance-free conductivity measurement

PerfectPureSensor

Residue after final rinsing can have a negative effect on the reprocessing results and potentially devastating consequences. Alkaline residue in ophthalmology is one extreme example of a situation where serious complications could arise during the next use of the instruments. Also, a high percentage of organic waste substances can cause material changes to the instruments in the form of corrosion and deposits. Therefore, the user must be informed about undesirable materials in the wash liquor or be able to verify these. Upon request the PG 8536 can be equipped with the newly patented PerfectPureSensor conductivity measurement. The conductivity measurement can reliably detect undesirable ingredients in the rinsing water such as dissolved salts, alkaline or acidic process chemicals and held below a threshold value defined by the customer.

The residues are identified via the conductivity of the wash liquor. Measuring and monitoring are carried out with contact/ maintenance free system that measures the conductivity with minimal tolerances in a measurement range of 5 – 40 µS/cm and 40 µS/cm – 100 mS/cm. The programme sequence can be controlled via the conductivity measurement depending on the option is selected. The number of follow-up rinsing steps can be automatically adjusted via the sensor to ensure the desired threshold value is not exceeded: Additional rinsing automatically takes place until the level of conductivity defined by the user is measured by the sensor. The results can be shown in the display and thereafter documented.

The tolerable residue levels on surgical instruments stipulated by the chemical suppliers are reliably maintained with the PerfectPureSensor conductivity measurement. This ensures that the waste substances remaining on the instruments do not constitute a risk for the patient being operated on. Preserving the value of the instruments is also an important benefit for the user in addition to the high degree of toxological safety provided. Furthermore, documenting the conductivity of the entire process sequence provides additional security when duplicating validated processes.

PG85 PerfectFlowSensor

PG85 PerfectSpeedSensor

- **Permanent recording of the dispensing volume**
- **Exact measurement results, definable dispensing tolerances**
- **Perfect control of the media dispensed**

Exclusive to MIELE

- High measuring accuracy
- Dispensing control, independent of the temperature and viscosity of the media

PerfectFlowSensor
An important factor in producing a good reprocessing result is measuring the volume of process chemicals exactly when they are being dispensed. The current standard DIN EN ISO 15883 also stipulates that the dispensing of liquid media should be independently monitored. The new ultrasonic dispensing volume control PerfectFlowSensor from Miele Professional provides substantially more protection than the conventional measurement systems. The PerfectFlowSensor is integrated as standard equipment in the PG 8536 and ensures a level of precision previously unmatched when measuring and monitoring the volume of dispensed chemicals, independent of the respective viscosity and ambient temperature. The measuring system functions independent of the dispensing system and can be calibrated. The dispensing tolerance can be adjusted according to standardised guidelines or individually defined by the user. The use of chemicals is efficiently regulated independent of the type of product and even under extreme operating conditions (continuous use, fluctuating climactic ambient conditions). Therefore, every deviation from the recommended dose is always detected and the reproduction of the validated process is completely ensured. If deviations are detected outside of the tolerance a warning message is generated or the programme is immediately terminated.

poz. 14 - elektroninė dozavimo kontrolė

- **Precisely monitored reprocessing procedures**
- **Reproducibility of verifiable processes**
- **Perfect washing and disinfection results**

Exclusive to MIELE

- Spray arm monitoring in all levels
- Speed monitoring of the spray arms

PerfectSpeedSensor
For optimum and safe washing and disinfection results the rotation speed of the spray arms must be set within the defined tolerances.
The exact speed of the machine spray arms and the basket and carriage spray arms are controlled and documented with the new spray arm controller unit PerfectSpeedSensor. From a sensor strip outside of the wash cabinet, the spray arm sensor continuously monitors whether the defined speeds are being reached. The display indicates whether the values are correct or whether the spray technology or processes must be checked, e.g. if the formation of foam obstructs the rotation of the spray arm.
Depending on the type of setting chosen, either a warning message appears or the programme is immediately terminated to give the user the opportunity to correct the error if there are deviations from the recommended values.
Any deviations can be automatically recorded in a process documentation. The standard equipment spray arm sensor in the PG 8535 and PG 8536 effectively prevents items from blocking the spray arms during the washing process and gathers relevant information about the washing pressure conditions in the unit, carriage and baskets. Especially important: The maintenance of the spray arm speed is an important indicator for the exact reproducibility of validated processes and provides a high degree of protection when reprocessing instruments in a Miele machine.

poz. 15 - plovimo alkūnių sukimosi kontrolė

Innovative washing programmes

1994

2004

2005

2011

poz. 10 - Oxivario ir Oxivario Plus programos

poz. 11 - Orthovario programa

Miele innovation for particularly difficult cases. Mile stones in the optimisation of cleaning results:

Innovation 1994
The varioTD method is considered today as the standard programme for routine instrument cleaning and disinfection, achieving excellent removal of low difficulty level protein-based contamination (blood, secretion). The thermal disinfection is carried out at >90°C and a 5 minutes holding time. A final rinsing programme preferably with deionised water and no rinsing agents for optimum protection of the instruments.

- Intensive cleaning using temperatures that will not cause protein to denature
- Disinfection in accordance with EN ISO 15883
- High materials compatibility

Innovation 2004
OXIVARIO
Special programme of the PG 8535/36 for critical instruments according to RKI requiring higher standards of cleaning, e.g. instruments used in trauma surgery as well as high-frequency cauterising instruments.

- Excellent washing and removal of organic soiling
- Time-saving by dispensing with the need for pre- and post-treatment

OXIVARIO PLUS
Special programme of the PG 8535/36 to prevent the iatrogenic transmission of vCJD according to guidelines published by the task force set up by Germany's Robert Koch Institute.

- Excellent washing and removal of organic soiling
- Time-saving by dispensing with the need for pre- and post-treatment

Innovation 2005
ORTHOVARIO
Special programme of the PG 8536 for orthopaedic instruments including drive systems and other medical products containing aluminium components.

- Excellent washing performance
- Good material compatibility even on instruments sensitive to alkalines

Innovation 2011
ROBOTVARIO
The complexity of robotic instruments of minimum invasive surgery places high demands on the safe and reliable reprocessing of instruments. The new reprocessing system ROBOTVARIO from Miele Professional consists of a specially developed loading carriage, a new reprocessing programme and newly adapted process chemicals. This is how Miele Professional provides a system solution for the safe and efficient cleaning of robotic instruments.

- Excellent washing performance
- Cost-effective and material-friendly reprocessing of valuable instruments

Programmes, programme durations, consumption data

poz. 8 - įdiegtos standartinės programos

poz. 6.1 - TD-terminė dezinfekcija

PG 8536	Cleaning					Drying	
	Programme	duration	Cold water	Hot water	AD	Energy	Durations
	[min]	[l]	[l]	[l]	[kWh]	[min]	[kWh]
DES-VAR-TD	54	36.3	24.2	16	3.7	34.3	0.6
DES-VAR-TD AN	57	43	39.5	22	3.7	49.5	0.8
VAR-TD-NR	44	24.3	23.3	16	3.3	34.3	0.5
OPHTHALMOLOGIE	48	26.3	36.7	32	2.9	34.3	0.5
ORTHOVARIO	74	34.7	31.3	35	5	34.3	0.4
OXIVARIO	64	38.3	40.7	32	4.4	34.3	0.5
OXIVARIO PLUS	73	27	35	49	4.5	43.3	0.5
SCHUH-TD-75/2	27	27.7	35.8	–	1.5	39.3	0.4
SPECIAL 93/10	48	22	25.5	15.5	3.9	39.3	0.7
CHEM-DESIN	38	26.3	51.7	–	1.8	40.5	0.4
LAB-STANDARD	33	8.5	38.5	18	2.6	34.3	0.6
LAB-UNIVERSAL	35	8.5	55	21	2.3	34.3	0.6
LAB-INTENSIV	43	8.5	40	48	2.7	34.3	0.6
LAB-PIPETTEN	46	11.5	74.5	44	2.5	34.3	0.3
KUNSTSTOFF	38	62.5	–	20	2.5	44.6	0.4
ORGANICA	41	1	64	21	2.8	34.3	0.6
ANORGANICA	43	4	49	48	2.4	34.3	0.6
LAB-OEL	47	1	80.5	21	2.5	34.3	0.3

poz. 6.2 - cheminė dezinfekcija

Heater: 9 kW (3N AC 400 V, 10.2 kW)

Connection to cold water (15°C), hot water (65 °C) and AD water (15 °C)

Note: HGR

The PG 8535 has the same programmes like the PG 8536 except for the Orthovario programme.

Programme durations and consumption values may slightly vary.

OPHTHALMOLOGY programme

The PG 8535/36 have for the first time an ophthalmology programme that has been specifically geared to the needs of ophthalmological application. Chemical residues are being reduced to a minimum thanks to the secondary rinsing using fully demineralised water. This is particularly essential since residues of process chemicals may cause serious complications such as cauterisation of the cornea. The PG 8536 with its integrated conductivity measurement (see p. 15 for further details on conductivity measurement) recommends itself specifically for the exact monitoring of chemical residues in every programme sequence.

Leading manufacturers of instruments recommend the Miele reprocessing method:

B BRAUN SHARING EXPERTISE

Release of Miele ORTHOVARIO for the reprocessing of the current series of Aesculap drive systems.

Geuder® Precision made in Germany

Recommended reprocessing of ophthalmic surgical instruments with the Miele system.

STORZ KARL STORZ — ENDOSKOPE

Release of the Miele OXIVARIO PLUS-process for the prevention of iatrogenic transfer of vCJK.

RICHARD WOLF spirit of excellence

Value enhancing reprocessing of instruments with the Miele VARIO TD and OXIVARIO-process.

OLYMPUS

Safe reprocessing of flexible endoscopes in the Miele developed and produced devices ETD3 and mini ETD2.

OP instruments

E 327 Mobile unit
For use in G 7892, G 7882 CD,
PG 8535, PG 8536
- For 4 DIN mesh trays on 2 levels
- Integrated spray arm
- Clearance from below:
  Level 1: H 112, W 520, D 510 mm
  Level 2: H 105, W 512, D 480 mm
- Holder for ML/2 magnetic strip for automatic mobile unit recognition

Exclusive to MIELE

- Loading capacity
  instruments of 40 kg

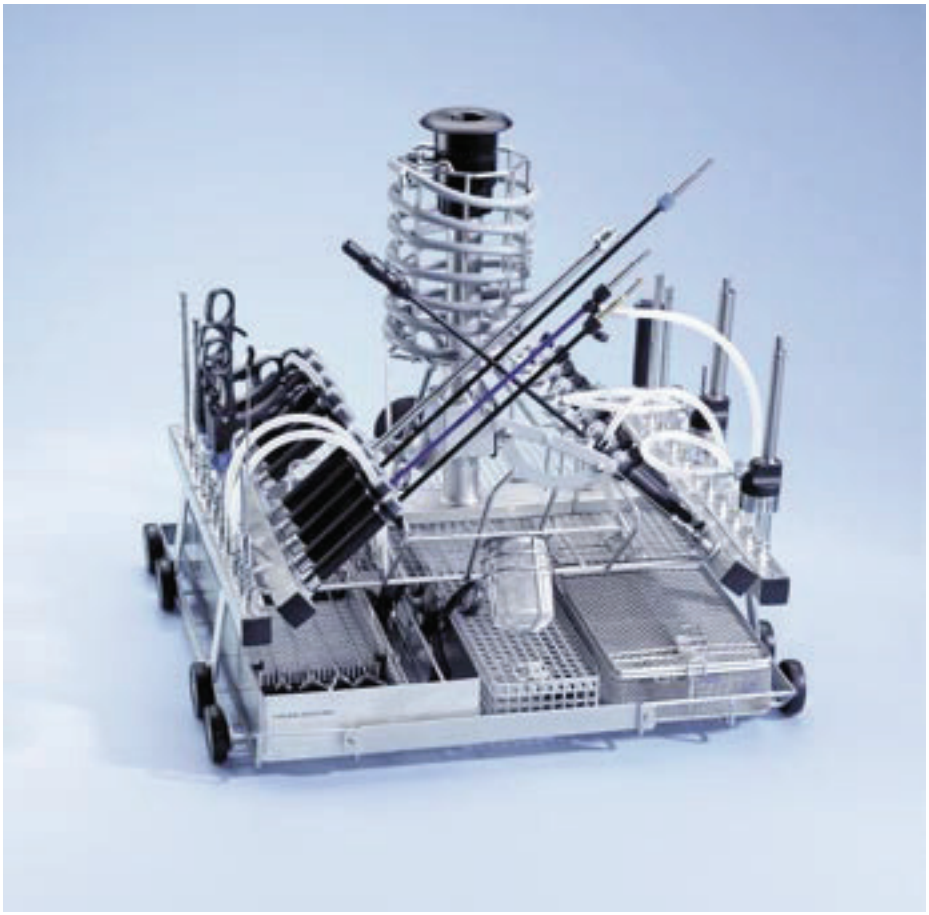
poz. 39.6 - Plovimo rėmas DIN krepšeliams

E 439/3 Mobile unit
For use in PG 8536
- For 7 mesh trays on 3 or 4 levels
- 2 built-in spray arms
- Second level up removable
- Clearance from below:
  Level 1: H 70, W 488, D 499 mm
  (w/out level 2: H 155 mm)
  Level 2: H 70, W 509, D 510 mm
  Level 3: H 90, W 520, D 470 mm
  Level 4: H 90, W 490, D 460 mm
- Holder for ML/2 magnetic strip for automatic mobile unit recognition

Exclusive to MIELE

- Loading capacity
  instruments of 70 kg

MIC instruments



Injector strip on E 450/1

poz. 39.1 - specializuotas plovimo rėmas minimaliai invazivios chirurgijos instrumentams

E 450/1 injector drawer TA
Applicable for G 7892, G 7882 CD, PG 8535, PG 8536

- For MIC instruments, max. length 550 mm
- E 451 mesh tray for small parts
- Placement on two levels
- Placement dimensions from below:
  Level 1 = H 110, W 480,
  D 500 mm (for holding inserts
  e.g. 2 x E 457)
- Level 2 = H 360, W 350, D 200 mm
- Accommodates
  E 451 mesh tray for small parts
  E 457 insert for detachable MIC instruments
  E 460 insert for rigid lenses
  E 473 mesh tray for smallest parts
  E 444 drum for cold light cables and suction hoses
- Connection for hot-air drying
- Holder for magnetic strip ML/2 for mobile unit recognition
- H 502, W 535, D 515 mm

Scope of delivery:
3 x E 336 irrigation sheath, 121 mm
2 x E 362 blind screw
15 x E 442 irrigation sheath, 121 mm,
for MIC instruments Ø 4–8 mm
5 x E 443 irrigation sheath, 121 mm,
for MIC instruments Ø 8–12 mm
1 x E 445 12 caps
Opening: 6 mm for irrigation sheath
1 x E 446 12 caps
Opening: 10 mm for irrigation sheath
3 x E 447 adapter female,
for Luer lock male
6 x E 448 silicon hose
300 mm long, 5 x 1.5 mm with Luer lock adapter, male
5 x E 449 adapter male,
for Luer lock female
1 x E 451 insert 1/6 mesh tray with lid
3 x E 452 injector nozzle, Ø 2.5 x 60 mm
8 x E 453 injector nozzle,
Ø 4.0 x 110 mm with fastening bracket
6 x E 454 injector nozzle for trocar sleeve
10–15 mm
4 x E 456 opening spring for
MIC instruments such as scissors, clamps etc.
3 x E 464 holder for injector nozzle E 454
2 x E 472 clamp spring for injector nozzle
diameter 4.0 mm

MIC accessories

poz. 39.2 - Tinklinis konteineris su dangčiu

E 451 insert 1/6
- Mesh tray with lid for small parts
- Wire mesh:
  1 mm bottom
  0.8 mm sides
  1 mm lid
  Mesh widths:
  3 mm bottom
  1.7 mm sides
  3 mm lid
- Interior partition is can be extracted
- H 55, W 150, D 225 mm

E 907/1 insert/mesh tray
- Mesh tray with lid for small parts
- Mesh width 3 x 1 mm
- Hook to hang into E 905
- H 46, W 129, D 170 mm

E 908/1 insert
- For detachable MIC instruments/working inserts
- Mesh width 8 x 1 mm, sides closed
- Interior partition individually adjustable with 4 division bars for storage and arresting of 8–12 disassembled working inserts of detachable MIC instruments
- Hook to hang into E 906
- H 36, W 130, D 460 mm

poz. 39.4 - DIN standarto tinklinis krepšelis

E 142 insert 1/2
- DIN mesh tray
- 1 mm wire mesh
- 5 mm mesh width
- 5 mm circumferential frame
- 2 swivelling able handles
- Max. load capacity 10 kg
- H 45/55, W 255, D 480 mm

poz. 39.5 - Tinklinis cilindro formos konteineris

E 473/1 insert/mesh tray
- Mesh tray with lid for smallest parts
- To hang into mesh trays
- H 85, W 60, D 60 mm

poz. 39.3 - Specialus laikiklis šviesolaidžiams

E 444 insert/drum
- For cold light cables and suction hoses
- Cold light cables and suction hoses are spirally wound around the drum
- H 168 mm, with retainer bracket, 214 mm
- Ø 140 mm

Technical data
PG 8535 and PG 8536

poz. 2.1 ir 2.2 - atskirai pastatoma, vienerių durų, pakraunama iš priekio

poz. 7.1 - temperatūra iki 93 C

Cleaner/disinfectors	PG 8535	PG 8536
Front loader with drop-down door without baskets	•	•
Built under/freestanding machine without lid	•	–
Freestanding with lid	–	•
Fresh water rinsing system, max. temperature 93°C	•	•
Circulation pump [Qmax. l/min]	400	600
Control/programmes		
PROFITRONIC+, freely programmable	•	•
64 programme slots	•	•
Spray arm sensing	•	•
Sensor system for mobile unit recognition	•	•
Conductivity monitoring	–	Option
Network interface for process documentation software	•	•
Serial printer interface for process documentation	•	•
Remote serviceability	•	•
Electric door lock	•	•
Peak-load cut-out	•	•
Plumbing		
1 x cold water connection, flow pressure	50–1000 kPa	200–1000 kPa
1 x cold water for steam condenser, flow pressure	50–1000 kPa	200–1000 kPa
1 x hot water, flow pressure	50–1000 kPa	200–1000 kPa
1 x demineralised water, flow pressure	50–1000 kPa	50–1000 kPa
Feed pump for pressureless demineralised water	Option	Option
4 inlet hoses ½" with ¾" threaded union, l = approx. 1.7 m)	•	•
Drain pump DN 22, delivery head 100 cm	•	•
Water outlet DK (DN 22)	•	•
Waterproof system (WPS)	•	•
Electrical connection		
3 N AC 400 V, 50 Hz, connection cable approx. 1.7 m, 5 x 2.5 mm²	•	•
Heating [kW]	9.0	9.0
Circulation pump [kW]	0.7	1.2
Total connected load [kW]	9.7	10.2
Fuse rating [A]	3 x 16	3 x 16

poz. 18 - serijinė jungtis

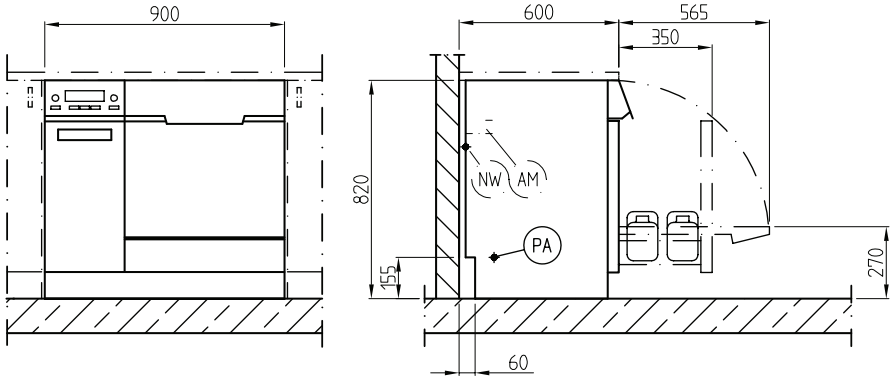
poz. 19 - elektrinis durų užraktas

poz. 23 - integruota vandens pašalinimo pompa

poz. 36 - elektros maitinimas

poz. 37 - Maksimalus elektrinis galingumas

PG 8535



Cleaner/disinfectors	PG 8535	PG 8536
Dispenser system		
1 dispenser pump for liquid acidic agents	• (hose pump)	• (bellows pump)
1 dispenser pump for liquid cleaning agents	• (hose pump)	• (bellows pump)
1 connection for external dispenser module DOS G10 or DOS G60	•	–
Dispenser pump DOS S20 for surfactant, neutraliser	–	Option
Dispenser pump DOS NA120 for disinfectant, liquid cleaner	–	Option
Ultrasonic dispenser volume control	–	•
Drawer for 2 x 5 litre containers	•	–
Drawer for 4 x 5 litre containers	–	•
Water softener		
for cold and hot water up to 70°C, Monobloc softener	•	
for cold and hot water up to 70°C, large-capacity water softener	–	
Steam condenser		
Aerosol injection		
	•	•
Drying unit		
Fan [kW]	0.3	0.3
Heater [kW]	2.3	2.3
Total connected load [kW]	2.6	2.6
Air throughput [m^3/h]	60	60
Temperature settings in 1°C stages [°C]	60–115°C	60–115°C
Time setting in 1 min. stages [min]	1–240 min	1–240 min
Coarse filter EU4, filtration rate > 95%, filter life 100 h	•	•
Particle filter/Hepa filter S class H 13,		
Filtration rate > 99,992% (DIN EN 1822), filter life 500 h	•	•
Dimensions, weight		
External dimensions H/B/T [mm]	820/900/700	1175/900/700
Wash cabinet dimensions H/W/D [mm]	500/535	500/535
	O*=473, U*=516	O*=473, U*=516
Weight [kg]	114	177
External finish		
Stainless steel (AE)	Stainless steel	Stainless steel
Conformance		
DIN EN ISO 15883-1/2, EN 61010-2-40, EN 61326	•	•
Certificates		
VDE, VDE-EMV, MPG CE0366, IP20	•	•

*O = Upper basket, U = Lower basket • = standard feature

poz. 2.5 - stalčius plovikliams

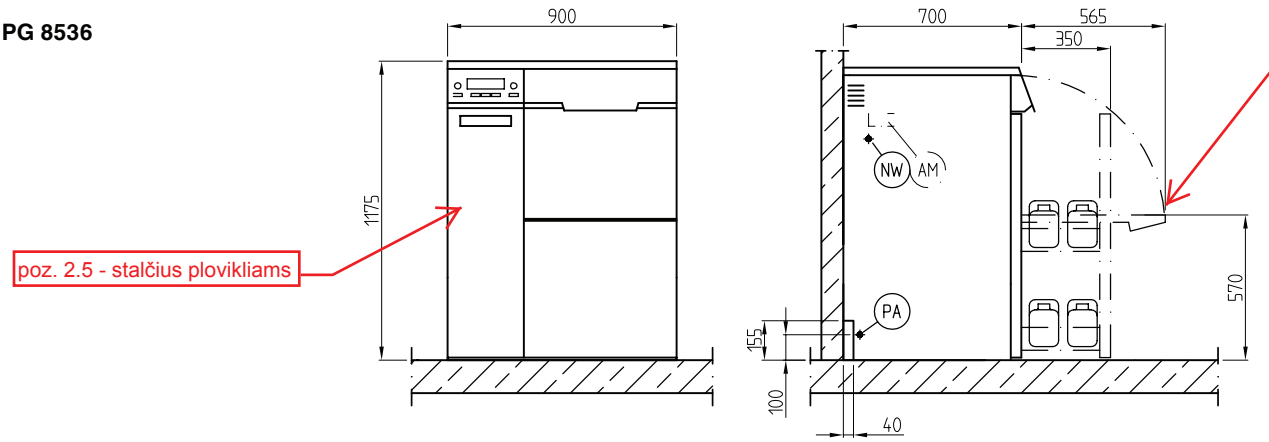
poz. 20 - integruotas vandens minkštintojas

poz. 3 - gabaritiniai matmenys

poz. 4 - korpusas iš nerūdijančio plieno

poz. 2.3 ir 2.4 - atidarytos durys naudojamos kaip pakrovimo plokštuma, aukštis - 570 mm

PG 8536



poz. 2.5 - stalčius plovikliams