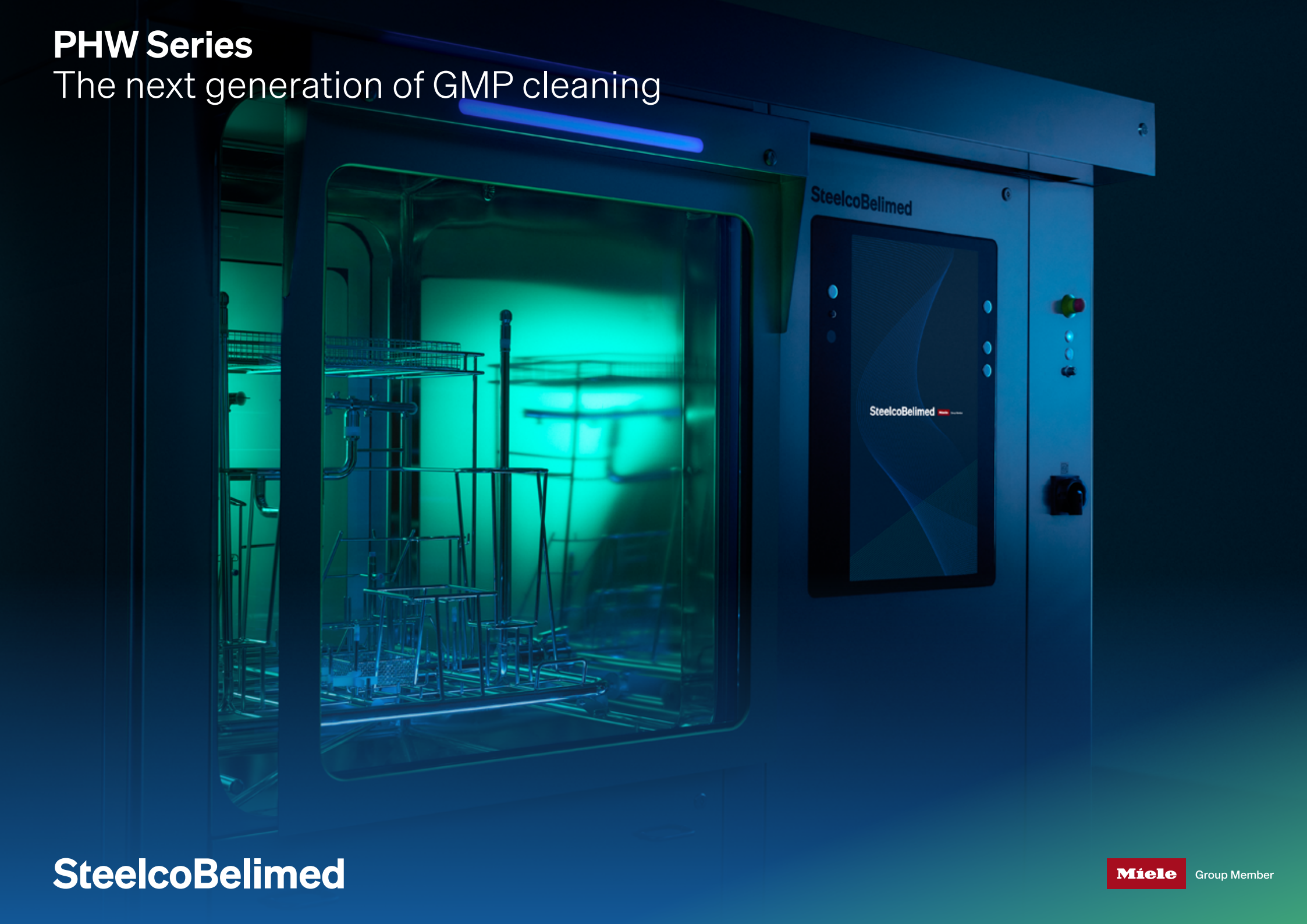
# PHW Series

The next generation of GMP cleaning




SteelcoBelimed

Miele Group Member

# Global supplier for cleaning and sterilization solutions for the pharma and biopharma industry

SteelcoBelimed is your trusted partner in contamination prevention for the Life Science industry. We deliver innovative solutions for cleaning, sterilization, and decontamination – from critical sterile to high-containment applications in pharmaceutical, biotech, laboratory, and cosmetics environments.
Driven by innovation and customer focus, we help you enhance performance, ensure compliance, and improve operational efficiency every day.

## Customer Centricity

Our commitment to fully understand customers' needs and satisfaction is prioritized.

Our products and services are designed to meet those specific needs, ensuring every decision we make benefits our customers for the best results.

## Innovation

Our dedication to progress drives us to constantly seek out and embrace new ideas, technologies and methods.

This commitment ensures our products and services continually evolve and improve.

## Efficiency

We strive for peak productivity by optimizing our processes, resources, and operations.

Our goal is to deliver solutions and services swiftly and effectively, without compromise, minimizing waste and maximizing value.

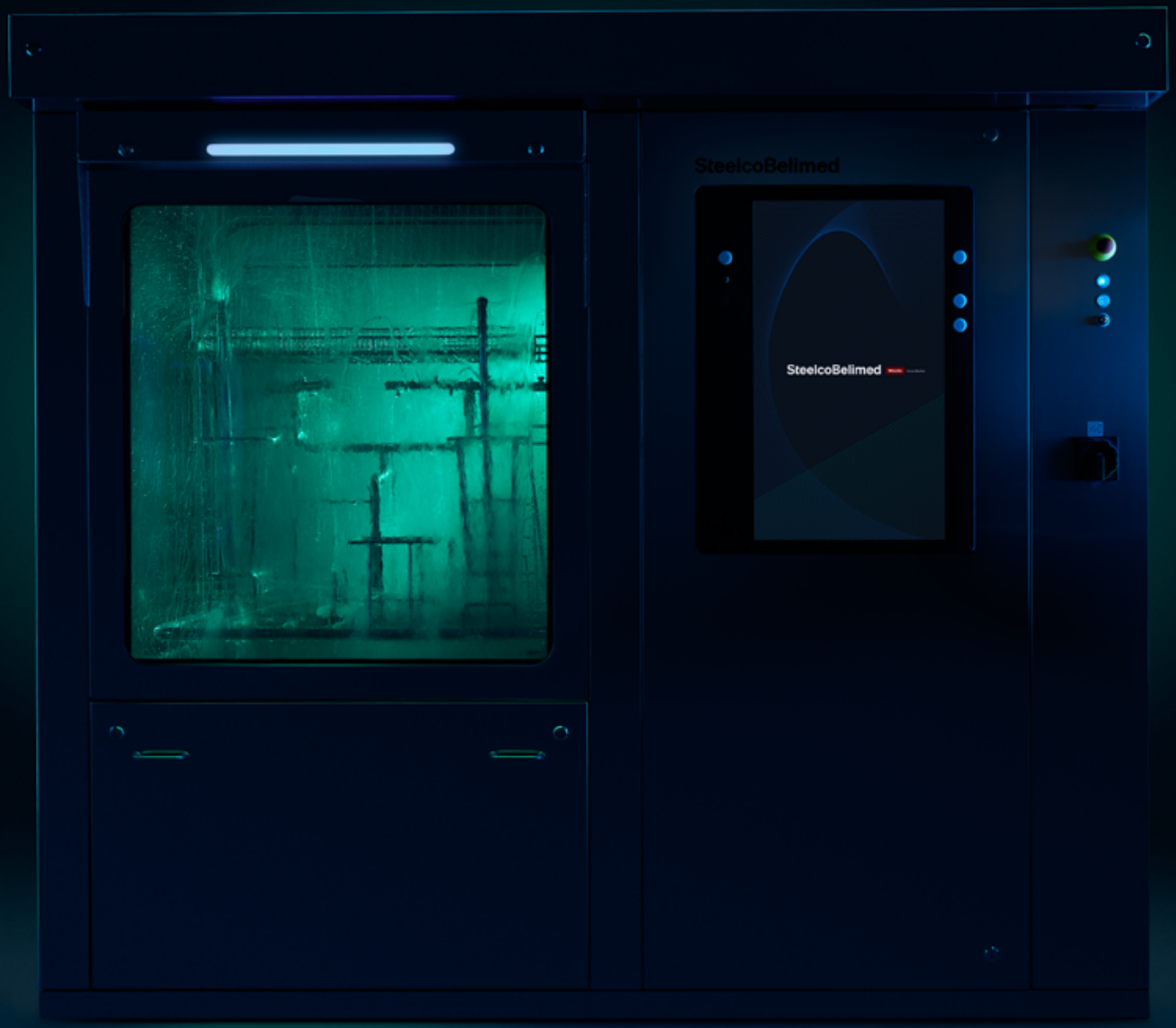
## Reliability

We stand by our word, delivering solid and trustworthy solutions every time.

Our aim is to forge long lasting relationships built on trust and mutual respect by consistently meeting our commitments.

**PHW Series**
Sustainable by performance.
Compact by design.

The PHW Series rethinks conventional pharmaceutical washing to deliver measurable improvements where they matter most. Through innovative engineering and purposeful design, it reduces resource consumption, accelerates washing cycles and makes better use of valuable cleanroom space. Three complementary benefits that translate into greater efficiency and lower total cost of ownership.




## Space Smart

More capacity.
Less footprint.

## Resource Smart

Lower resource consumption.
Lower operating costs.

## Time Smart

Shorter cycles.
More cycles per shift.

## GMP Plus

Hygienic design.
Taken further.

## Future Ready

Your preferred platform.
Ready for the future.

## Space Smart
More capacity.
Less footprint.

The PHW Series combines generous usable chamber capacity with one of the smallest footprints on the market. Its space-efficient design reduces the Grade B or C cleanroom area required for washing operations, lowering facility investment and operating costs while providing greater flexibility for equipment layout and installation in space-constrained environments.

### Up to 50% more capacity for the same footprint







| | Door Opening* | | | Chamber Capacity | Chamber Nominal Dimensions (mm / in) | | | Overall Dimensions (mm / in) | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Model | HG | SHG | SVG | (l / cu.ft) | W | H | D | W | H | D |
| **PHW 070708** | • | | • | 359 / 12.7 | 700 / 27.6 | 670 / 26.4 | 766 / 30.2 | 1500 / 59.1 | 2080 / 81.9 | 1020 / 40.2 |
| **PHW 071108** | • | | • | 590 / 20.9 | 700 / 27.6 | 1100 / 43.3 | 766 / 30.2 | 1500 / 59.1 | 2510 / 98.8 | 1020 / 40.2 |
| **PHW 101010** | • | • | | 965 / 34.1 | 950 / 37.4 | 990 / 39 | 1026 / 40.4 | 2300 / 90.6 | 2080 / 81.9 | 1320 / 52 |
| **PHW 101210** | • | • | | 1121 / 39.6 | 950 / 37.4 | 1150 / 45.3 | 1026 / 40.4 | 2300 / 90.6 | 2240 / 88.2 | 1320 / 52 |
| **PHW 101215** | • | • | | 1648 / 58.1 | 950 / 37.4 | 1200 / 47.2 | 1446 / 56.9 | 2300 / 90.6 | 2340 / 92.1 | 1740 / 68.5 |
| **PHW 101217** | • | • | | 1933 / 68.2 | 950 / 37.4 | 1200 / 47.2 | 1696 / 66.8 | 2300 / 90.6 | 2340 / 92.1 | 1990 / 78.3 |
| **PHW 121215** | • | • | | 2025 / 71.6 | 1150 / 45.3 | 1150 / 45.3 | 1531 / 60.3 | 2500 / 98.4 | 2290 / 90.2 | 1825 / 71.9 |
| **PHW 101517** | • | • | | 2336 / 82.6 | 950 / 37.4 | 1450 / 57.1 | 1696 / 66.8 | 2300 / 90.6 | 2590 / 102 | 1990 / 78.3 |

**Notes:** *HG = Hinged glass door; SHG = Sliding horizontal glass door; SVG = Sliding-up glass door
Options may increase overall machine dimensions. Dimensions are subject to change without notice.





## Recess-free sliding door

The front-sliding door eliminates the conventional door recess, allowing a deeper washing chamber without increasing the washer footprint.
This spacesaving design also improves cleanability, supporting the latest EU GMP Annex 1 requirements.



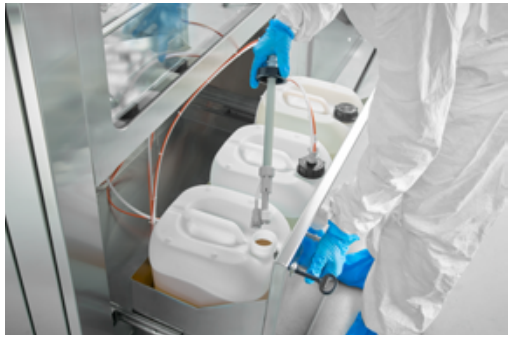
## Compact spray arm

The compact spray arm assembly frees up valuable chamber height, increasing usable washing capacity. Its optimized design also provides precise control of the spray pattern for effective cleaning.



## Space-saving technical area

Electrical cabinet built in service access door and vertical air-handling unit (AHU) enable a smaller technical area. To free more space, the AHU can be remotely installed upon request.



## Detergent drawer

Detergent containers are housed in a drawer integrated beneath the washing chamber. Direct access from the loading side simplifies container replacement while keeping all supplies within the washer's compact footprint.

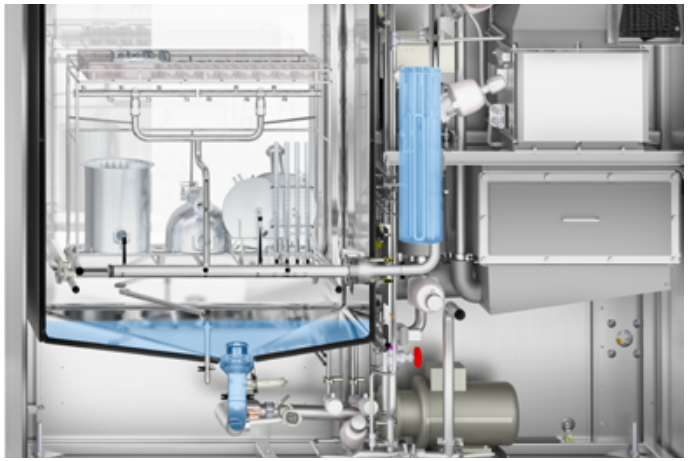
## Resource Smart

Lower resource consumption.
Lower operating costs.

The PHW's redesigned hydraulic circuit reduces water consumption by up to 30%, with corresponding savings in detergent, energy and wastewater treatment, without compromising washing performance. Its compact footprint further reduces cleanroom resource requirements, while B-Measured enables utility monitoring and cycle optimization. Built with $CO_2$-reduced stainless steel, the PHW takes resource efficiency beyond washing operations.

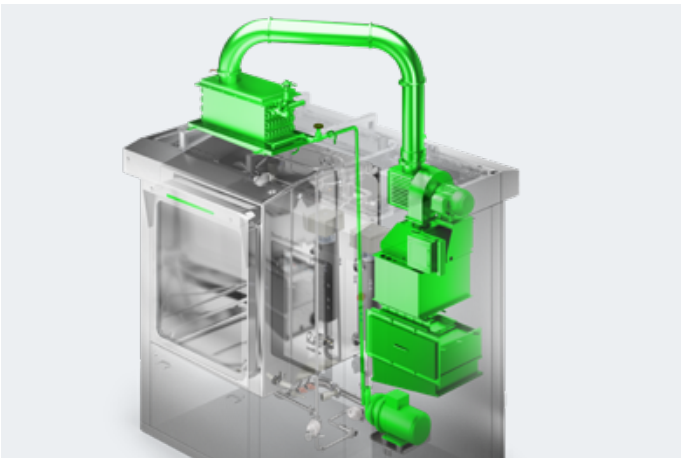
30% water savings:

- Less detergent
- Less energy
- Less waste



### In-line water heater

Unlike conventional sump-based heating systems, the PHW's compact in-line water heater requires significantly less water, reducing consumption at every washing and rinsing step. Available with electric or steam heating, it also frees up space beneath the chamber for a detergent drawer, accessible from the loading side without occupying additional cleanroom space.



### Integrated recirculation drying

As an alternative to recirculating drying air through the building HVAC system or discharging it directly outdoors, an optional integrated dehumidifier removes moisture before returning the air to the washer's air handling unit (AHU). This solution provides greater installation flexibility and can reduce energy consumption.




### B-Measured

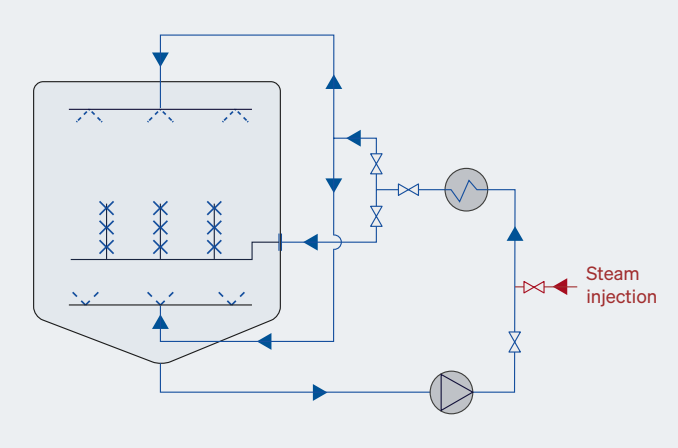
B-Measured tracks water, energy and other utility consumption throughout the washing cycle, providing actionable data to optimize process parameters before qualification and monitor performance during production. Detailed consumption records support operating cost analysis, continuous improvement and environmental reporting, including the assessment of carbon emissions.

# Time Smart

## Shorter cycles.
## More cycles per shift.

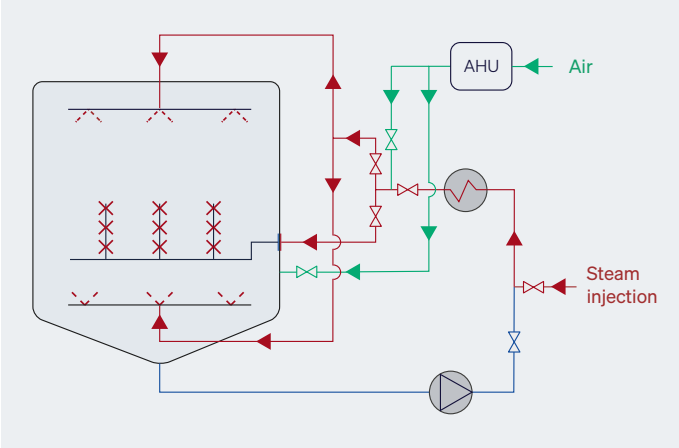
With significantly less water to heat and rinse, the PHW Series delivers shorter cycles by design. Advanced heating, drying and rinsing options further reduce cycle times by up to 40%, potentially enabling an additional wash cycle per shift without compromising cleaning performance. These benefits are particularly valuable in facilities using cold WFI, where water heating can significantly extend cycle times.

## Up to 40% shorter cycles



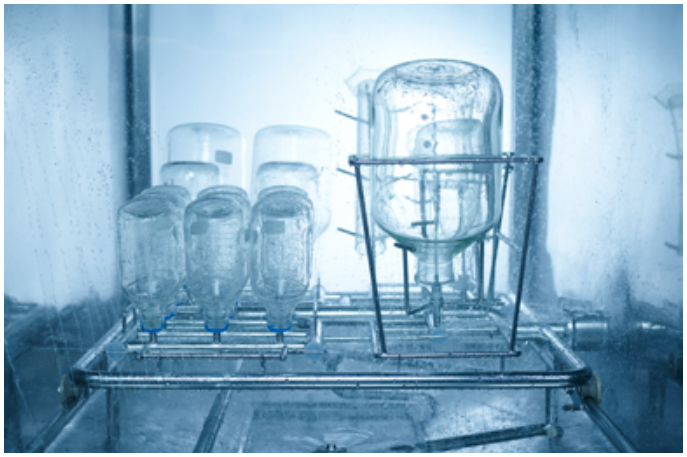

### SteamBoost heating

Clean or Pure Steam is injected directly into the hydraulic circuit during washing and rinsing phases. By transferring heat directly to the process water through steam condensation, SteamBoost significantly reduces heating time at each relevant step, shortening the overall cycle.




### SteamBoost drying

Following the final rinse, Pure Steam is injected into the hydraulic circuit to transfer additional thermal energy to the load, rack and chamber. The resulting higher temperatures accelerate the evaporation of residual water droplets during the subsequent hot-air drying phase, reducing overall drying time.

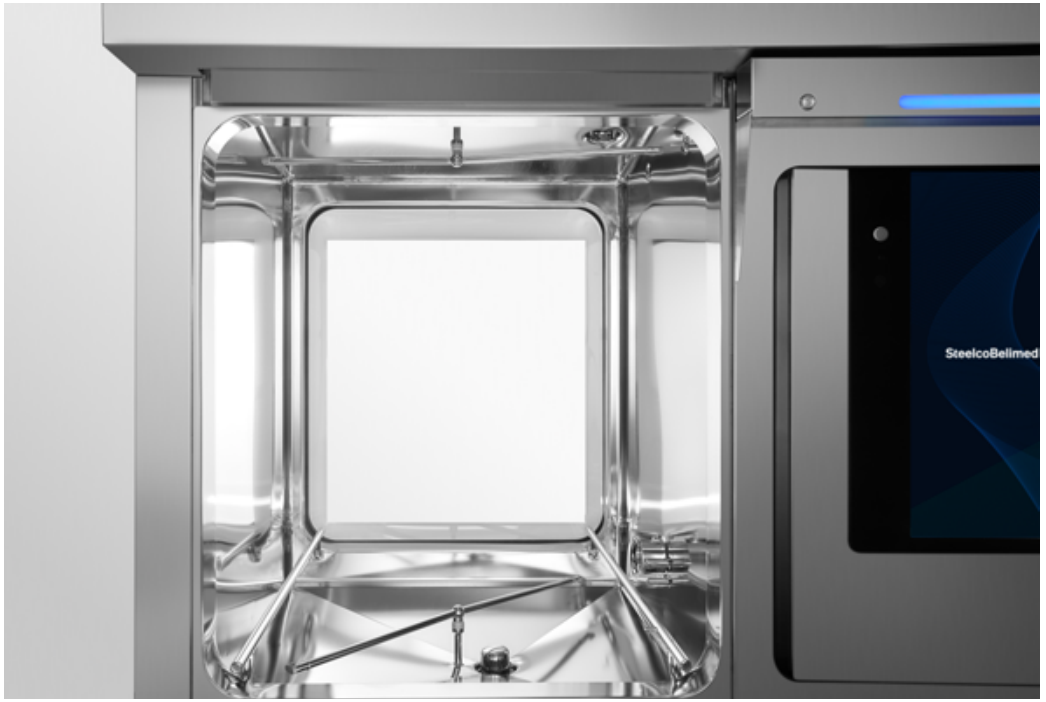


### Air purge

After each washing step, high-velocity air flows through the hydraulic circuit to displace water droplets containing detergent towards the drain. By reducing the amount of residual detergent, air purge lowers the volume of PW or WFI required for subsequent rinsing and shortens rinse duration.

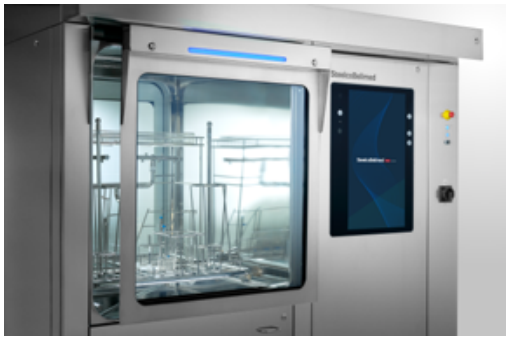
# GMP Plus
## Hygienic design. Taken further.

The PHW Series takes hygienic design further with practical improvements that support evolving GMP requirements, including EU GMP Annex 1. Key innovations include a recess-free sliding door that improves cleanability, a drain strainer that prevents spray nozzle clogging and detergent couplings that prevent leaks and chemical mix-ups.




Key Features

- Single pass final rinse
- Sampling on fascia or in service area
- Conductivity and TOC measure
- Sanitary GMP construction
- SF1 or SF4 surface finish
- USP Class VI, ADI-free seals



### Recess-free sliding door

Conventional sliding doors require a recess that is difficult to clean and often poorly ventilated, raising concerns under EU GMP Annex 1. The PHW recess-free sliding door moves in front of the washer fascia, eliminating this recess while retaining the space-saving benefits of a sliding door. Its design also increases usable chamber capacity.



### Full flow hydraulic couplings

The leak-free hydraulic couplings supplying water to the rack and spray arms direct the full flow to the spray nozzles, ensuring a controlled spray pattern and effective mechanical cleaning. Their design also minimizes contact between moving parts, reducing wear and the risk of particle generation.



### ClearFlow strainer

Easily accessible for inspection and cleaning, the ClearFlow strainer features a fine mesh with openings smaller than those of the spray nozzles. It captures plastic fragments that could clog nozzles or contaminate the load, while also protecting the circulation pump from damage caused by broken glass and other debris.



### SafeConnect detergent coupling

SafeConnect no-drip quick couplings prevent detergent leaks and residue build-up at connection points. Chemical-specific keying prevents incompatible connections, reducing the risk of using the wrong detergent when replacing containers

# Future Ready

## Your preferred automation platform. Ready for the future.

With SteelcoBelimed, you get automation that integrates seamlessly into your existing system – Siemens or Rockwell. Our platform combines the latest technologies, including WinCC Unified, FT Optix and MTP, with fully tested and validated solutions developed in accordance with GAMP 5. Ready to meet your requirements from day one.




Key Features

- HMI in 15", 19" or B-Touch max 32"
- HMI on fascia or swivel arm
- Revolutionary two-click philosophy
- B-Measured utility monitoring
- Smart LED status indicator

Level 1
**Local**

Level 2
**Network**

Level 3
**Enterprise**

Level 4
**Virtualize**

**WinCC Unified**

**FT Optix™**

**MTP**

### Ready for your architecture

Choose from four architectures, from stand-alone to fully virtualized. Integrate easily into your automation ecosystem, with robust and tested solutions.

### Ready for your standard

Whatever your platform – Siemens or Rockwell - we've got it with the next-gen platforms WinCC Unified and Factory Talk Optix.

### Ready for cyber security

A dedicated hardware firewall, segmented VLANs, isolated and switchable remote connections safeguard both site and equipment and ensure traceable data exchange and full compliance with GMP and cybersecurity standards.

### Ready for Modular Type Package

The future is modular. MTP makes every unit plug-and-produce. Faster setup, easier scaling, real-time visibility, from floor to cloud. Built for tomorrow. Ready today.

# Loading equipment

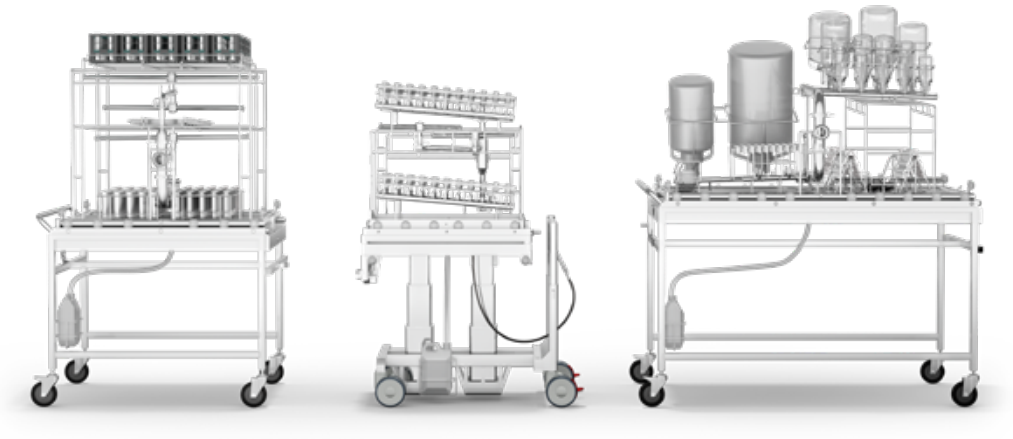
## Integrated solutions for efficient, ergonomic handling

Serving the most demanding clients worldwide, SteelcoBelimed delivers fully integrated cleaning solutions where racks and washers work in perfect harmony. Designed and manufactured in-house with advanced modeling tools and expert craftsmanship, our racks ensure flawless fit, ergonomic loading, and effortless handling – with automation options that simplify every operation.

## 500+ racks per year! All made in house

Key Features

- 3D scanning and modeling of parts
- Computational fluid dynamics (CFD) simulations
- Ergonomic and safe design
- Full traceability
- Coverage test with riboflavin
- Different surface finishings available
- Fixed- or adjustable- height transfer trolleys
- Automated transport system





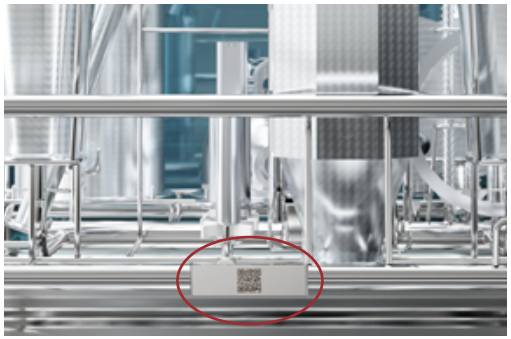
### Compatible with existing racks

The PHW Series is designed to accommodate existing Steelco and Belimed racks, allowing customers to leverage their current assets across different machines while minimizing investment costs and maximizing return on investment.



### Modular rack exchange system

One rack base, many setups – swap part holders to handle different loads with maximum flexibility and minimal storage space. Need to expand? Just add modules as you grow – it's a smart solution that evolves with you.



### Automatic rack identification

Each rack is auto-recognized to launch the right cycle for the parts loaded – seamless operation, no risk of mismatch. Identification available from three reliable technologies: RFID tag, QR code and magnet key.



### Compact efficient rack storage

Save space and simplify rack handling with a 2-level storage system featuring an electric lift. Racks move effortlessly to trolley height for safe, two-hand operation – no manual shuffling required. Custom designed to fit your room layout perfectly.

# **Maximized performance**
with SteelcoBelimed's experts

## Engineering and project management

From design to qualification, our project teams ensure smooth, on-time execution with full GMP compliance. We combine technical expertise with pragmatic, customer-focused management - keeping close contact throughout design, manufacturing, installation, and commissioning. Flexible layouts, integrated automation, and complete documentation guarantee a fast, validated start-up and a seamless handover to production.

## Validation and cycle development

Our experts support you from Design Qualification through PQ, providing robust, data-driven validation tailored to your process. In close collaboration with your teams, we develop and optimize cleaning and sterilization cycles that ensure reproducibility, compliance, and efficiency. Every step follows GAMP 5 principles, quaranteeing clear documentation, data integrity, and confidence at every audit.

## Service and Preventive maintenance

Through our global service network, we keep your equipment performing at its best.
Preventive maintenance programs, spare-parts availability, and 24/7 technical support minimize downtime and extend equipment life.
Our trained specialists schedule interventions around your production needs - ensuring reliability, safety, and full regulatory compliance throughout your system's lifecycle.

## Retrofits and upgrades

Extend your system's lifespan and performance with retrofit and upgrade solutions that bring equipment to the latest technical and regulatory standards. From control-svstem modernization to new automation or energy-saving features, we help you evolve without replacement. Each modification is engineered, tested, and documented to ensure compliance, efficiency, and sustained value.

SteelcoBelimed Miele Group Member

Innovate with confidence

DC-PD-02-SB PHW Series EN Rev.00.indd
Products offered for sale may differ from those described or illustrated in this brochure due to later production changes or/and optional configurations.
Product and technical specifications are subject to change without prior notice. Please consult your SteelcoBelimed representative for the latest information.

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