

POWER MEETS PURITY

The next generation of Purified Water and Water for Injection (WFI) production systems.

MECO MPAK

Built on nearly a century of water purification expertise, the MECO MPAK combines expert engineering with next-generation membrane capability. Designed for precision, reliability, and compliance with all global pharmacopeia, the MECO MPAK delivers PW and WFI-grade water in one, packaged configurable system.

ENGINEERED FOR PERFORMANCE



Turnkey system design minimizes footprint and installation time.



Intuitive Operator Interface Terminal for easy monitoring and navigatable system control.



Optimized water recovery and energy savings to meet the highest sustainability targets.



Accessible sample points with integrated catch basins for safety and ease of use.



Best-in-class components that ensure purity and durability.



Integrated break tank maintains system balance and enables convenient tuning.

BUILT FOR COMPLIANCE

Engineered and manufactured in accordance to current ASME BPE standards and ISPE guidelines

Meets all global pharmacopeia requirements for both Purified Water and Water for Injection

Fully compliant with FDA, cGMP, and GAMP requirements

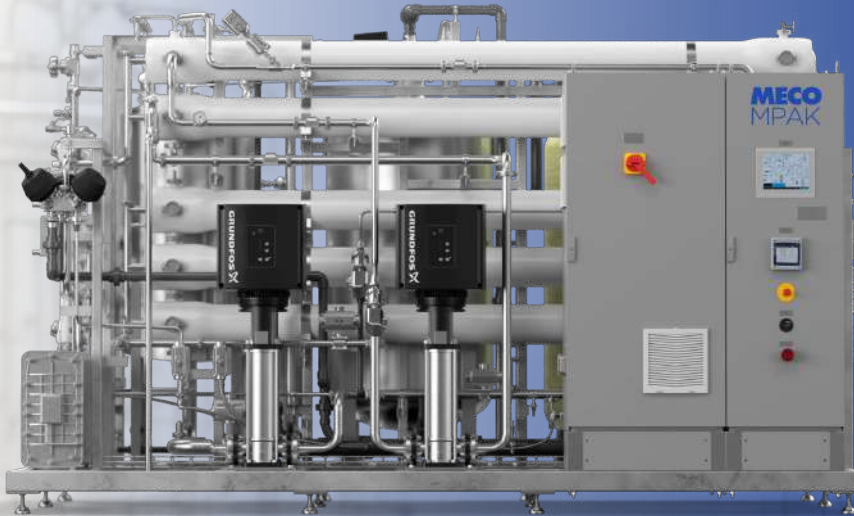
MECO Ireland LTD.

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MECO
MPAK





KEY DESIGN FEATURES

- Manufactured, assembled, and tested at the leading global facility for pharmaceutical water purification systems.
- A standardized core design and a large library of configurable options.
- An RO Break Tank enabling effortless balancing and tuning of the system, including an automated sanitization and CIP capabilities.
- Ergonomically designed for an unrivaled system maintenance experience.
- Intuitive operator interface with seamless navigation and automated functionality, minimizing operator involvement.

SYSTEM ENHANCEMENTS & INNOVATIONS

- Single skid layout for a compact footprint and simplified installation.
- Pressure control package available for optimized system stability when feeding downstream equipment.
- Accessibly located EDI module for enhanced servicability.
- 316 SST Orbital welded tubing throughout the system for unmatched integrity and performance.
- Automated RO flow adjustment ensuring precise, responsive operation.
- Centralized panel with enhanced OIT for streamlined control and monitoring.
- Designated sampling locations with integrated catch basins ensure convenience, cleanliness, and an optimal user experience.



Flow rates
from 0.2 to
23 m³/hr

EQUIPMENT DETAILS

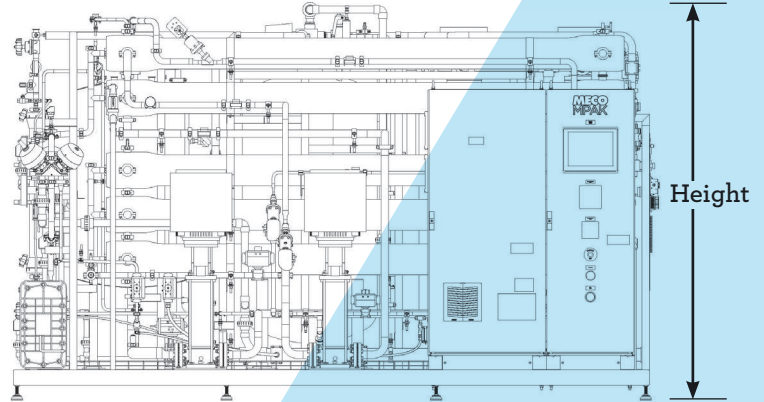
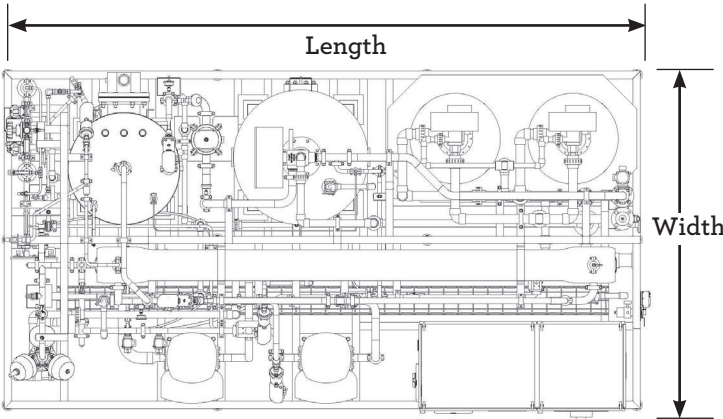
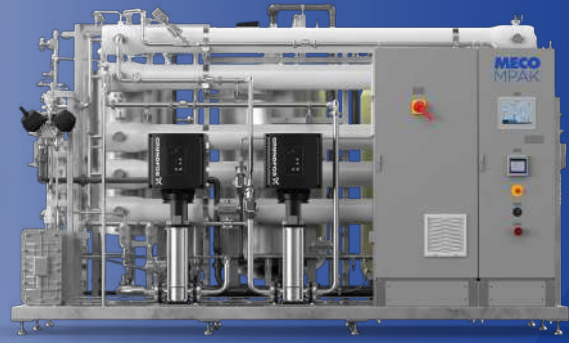
- Fiberglass water softener vessels with brine tank (SST optional)
- ASME stamped 316SST carbon filter
- 316SST cartridge filter
- 316SST RO break tank
- Grundfos Chemical Injection System
- Grundfos Multistage pumps
- Fiberglass RO vessels (SST optional)
- EDI
- 6KDa Ultrafiltration modules

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System Dimensions

| Model | | MPAK1D | MPAK2D | MPAK3D | MPAK4D | MPAK5D | MPAK6D | MPAK7D | MPAK8D |
|--------------------------|-------------|--------|-------------|--------|-------------|-------------|--------|--------------|--------------|
| Dimensions/Weight | Unit | | | | | | | PT/RO | PT/RO |
| Total installed Length | inches (mm) | | 150 (3810) | | 170 (4318) | 212 (5385) | | N/A | N/A |
| Total installed Width | inches (mm) | | 84 (2116) | | 94 (2372) | 114 (2879) | | N/A | N/A |
| Total installed Height | inches (mm) | | 94 (2372) | | 107 (2697) | 128 (3256) | | N/A | N/A |
| Dry Weight | lbs (kg) | | 4200 (1905) | | 6540 (2966) | 8700 (3946) | | N/A | N/A |

Terminal Point Connections

| Model | | MPAK1D | MPAK2D | MPAK3D | MPAK4D | MPAK5D | MPAK6D | MPAK7D | MPAK8D |
|-------------------------------------|-------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Hydraulic connections | Unit | | | | | | | | |
| Feed Inlet (ASME Class 150 Flange) | inches | | 1" | | 2" | 3" | 3" | 4" | |
| Product Outlet (ASME BPE Tri-Clamp) | inches | | 3/4" | | 1 1/2" | 2" | 2" | 3" | |
| Drain (ASME Class 150 Flange) | inches | | 2" | | 3" | 3" | 3" | 3" | |
| Cooling Water (Optional) | inches | | | | 1 1/2" | | | | |



Outlet Quality

| Model | | MPAK1D | MPAK2D | MPAK3D | MPAK4D | MPAK5D | MPAK6D | MPAK7D | MPAK8D |
|----------------------------|-------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Water for Injection | Unit | | | | | | | | |
| Conductivity | µS/cm | | | | <0.5 | | | | |
| TOC | ppb | | | | <500 | | | | |
| Bacteria | CFU/100ml | | | | <10 | | | | |
| Endotoxin | EU/ml | | | | <0.25 | | | | |

Feedwater Requirements₁

| Model | | MPAK1D | MPAK2D | MPAK3D | MPAK4D | MPAK5D | MPAK6D | MPAK7D | MPAK8D |
|------------------------------------|-------------|--------|--------|--------|------------|--------|--------|--------|--------|
| Drinking water requirements | Unit | | | | | | | | |
| Minimum Water Temp | °F (°C) | | | | 45 (7) | | | | |
| Maximum Water Temp | °F (°C) | | | | 86 (30) | | | | |
| Minimum Supply Pressure | PSIG (Barg) | | | | 35 (2.4) | | | | |
| Maximum Supply Pressure | PSIG (Barg) | | | | 70 (4.8) | | | | |
| Hardness (as CaCO ₃) | mg/L / PPM | | | | 210 | | | | |
| Silica as SiO ₂ | mg/L / PPM | | | | 25 | | | | |
| Free Chlorine | mg/L / PPM | | | | 2 | | | | |
| Total Dissolved Solids (TDS) | mg/L / PPM | | | | Up to 1000 | | | | |
| Turbidity | NTU | | | | < 1 | | | | |
| SDI | - | | | | < 3 | | | | |
| pH | - | | | | 6.5 - 8.5 | | | | |
| TOC | mg/L / PPM | | | | < 1 | | | | |
| Microbial Loading | CFU/ml | | | | < 500 | | | | |

₁MPAK System Evaluation must be performed based on site specific water analysis and project scope

System Operating Parameters

| Model | | MPAK1D | MPAK2D | MPAK3D | MPAK4D | MPAK5D | MPAK6D | MPAK7D | MPAK8D |
|----------------------------|-------------------------|------------|-----------|------------|------------|------------|-------------|------------|------------|
| Feed Flow rates | Unit | | | | | | | | |
| Normal Operation (Nominal) | GPM (m ³ /h) | 3.15 (0.7) | 7 (1.6) | 11.5 (2.6) | 15.5 (3.5) | 33.5 (7.6) | 66 (15) | 96 (21.8) | 148 (33.5) |
| Softener Backwash | GPM (m ³ /h) | 13.15 (3) | 17 (3.9) | 21.5 (4.9) | 30.5 (6.9) | 48.5 (11) | 106 (24.1) | 146 (33.2) | 223 (50.5) |
| Carbon Filter Backwash | GPM (m ³ /h) | 14 (3.2) | 14 (3.2) | 14 (3.2) | 65 (14.8) | 65 (14.8) | 80 (18.2) | 80 (18.2) | 125 (28.4) |
| Outlet Flow Rates | Unit | | | | | | | | |
| Min | GPM (m ³ /h) | 0.9 (0.2) | 2.3 (0.5) | 4.1 (0.9) | 5.7 (1.3) | 11 (2.5) | 25 (5.7) | 35 (7.9) | 50 (11.4) |
| Nominal | GPM (m ³ /h) | 2 (0.5) | 5 (1.1) | 8 (1.8) | 11 (1.5) | 23 (5.2) | 45 (10.2) | 66 (15) | 100 (22.7) |
| Max | GPM (m ³ /h) | 2.6 (0.6) | 5.7 (1.3) | 9 (2) | 13.5 (3.1) | 27 (6.1) | 52.5 (11.9) | 81 (18.4) | 110 (25) |

