Orion®

Reliable and proven purified water technology with intelligent innovation in the age of sustainability
The next generation of innovative purified water treatment systems for the pharmaceuticals, generics, healthcare and biotechnology markets.

The Orion is a premier, fully validated standard system:

- Meeting the quality standards of current USP and Ph Eur purified water and Ph Eur highly purified water.
- Fully compliant with FDA, cGMP and GAMP requirements.
- Manufactured and designed in accordance with the ISPE guidelines for water and steam.

Delivering critical high performance in a sustainable manner is key for this high technology product. Energy and water-saving technology, combined with operator-friendly HMI information is displayed to allow cumulative key operational parameters to be measured. Our new and improved skid, with easy to identify operational modes, brings health and safety for users to the next level.

The Orion comes as a skid-mounted system:
- Comprising softening, reverse osmosis and continuous electrodeionisation as its core technologies, which may be fully or partially hot water sanitised
- A diverse range of options is available including pre and post UV, UF, filtration and degassing
- All systems follow our stringent sustainability manufacturing guidelines and are FAT tested prior to delivery.

This new range truly is a differentiated modular system. It offers the broadest flexibility by providing enhanced features and options to complement each model. The Orion can meet a diverse range of manufacturing requirements, along with evolving sustainability requirements.
Environmental excellence and product efficiency

Embracing sustainable innovation

The Orion development helps to address today’s environmental challenges by helping our customers to reduce their water and energy usage. All products and materials have been selected for optimum recyclability.

Sustainability features

- Health and safety operational status lights
- Blueflux electrical motors
- Low energy full fit membranes
- 99% recyclable materials
- End-of-life components recycle guide
- Increased water efficiency process enhancements
- Reduced energy process enhancements
- Manufactured within environmental ISO 14001
- Chemical-free sanitisation
- Reduced water discharge during recycle
- Reduced product flow during recycle
- Integral recovery RO and concentrate recycle

Sustainable performance

Carbon footprint up to 30% reduction of CO2 released during operation

Water footprint up to 40% recovered

Environmental footprint 99% of materials used with recyclable potential

Chemical footprint minimal chemicals used during operation

Greenhouse gases

- RAW MATERIALS
- ENERGY
- WATER

- RECYCLABLE MATERIALS
- WASTEWATER DISCHARGE

- RECOVERED WATER
Our commitment to sustainability is at the heart of everything we do. This is reflected in our efforts to embed environmental and socially responsible business practices. We take opportunities to adapt and improve our products and services to meet the needs of our customers who want to achieve a sustainable future. Being the benchmark for sustainable development, we strive to help and support our customers to achieve their own sustainability goals, the driving force behind the new Orion.

Reliable and proven purified water. Intelligent innovation in the age of.

Controls and instruments features

- 15" widescreen TFT HMI
- Allen Bradley or Siemens PLC
- Storage and distribution software
- Sustainability display for: CO₂, Energy, Water
- Operational coloured status lights for improved health and safety
- Energy saving ‘standby mode’
- Panel rating IP55
- Thornton M800 (conductivity, pH, TOC) meter
- Integrated SMART module sensors
- Multi-level service access button
- Chart recorder for 21CFR Part II
- Output on HMI for remote PC mirroring
- High and low voltage segregation
- Ethernet communication card
- Multi-language
- ‘Vision’ digital intelligent portal and remote monitoring
**Process and mechanical features**

- **High voltage, low level electrical distribution**
- **Low voltage and controls high level distribution**
- **Safety service light**
- **Stainless steel or painted mild steel panel**
- **Enhanced hygienic design for multi-purpose storage vessel**
- **Increased range up to 20m³/hr**
- **Pre UV**
- **Post UV**
- **Post UF**
- **5 micron or carbon prefilter**
- **Hot water sanitisation (>80°C)**
- **Electrical hot water sanitisation heating with option for steam heating**
- **Twin pass RO option (E Series)**
- **Fill and recycle lines fill the purified water tank simultaneously**
- **Sanitary sample valves**
- **TOC monitor connection point**
- **20% standard endoscopy on all welds, 100% upon request**
- **ASME BPE pipework**
## Specifications

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### Feed Water Requirements

<table>
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<tr>
<th>General</th>
<th>Petable water free from organics, colloids and suspended matter, SDI &lt;1</th>
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<tbody>
<tr>
<td>Free Chlorine</td>
<td>&lt;0.25 ppm</td>
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<tr>
<td>Temperature</td>
<td>5 - 30˚C</td>
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<td>Pressure</td>
<td>4 - 6 bar</td>
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### Typical Treated Water Quality

<table>
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<tr>
<th>Standard Orion</th>
<th>Meets current USP and Ph Eur requirements for Purified Water</th>
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<tr>
<td>Orion with UF Option</td>
<td>Meets current Ph Eur requirements for Highly Purified Water</td>
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| Conductivity | <0.2 μS/cm |
| TOC          | <250 ppb   |
| Bacteria     | <10 cfu/ml |
| Endotoxins   | <0.125 EU/ml |

### Orion Performance (Single Pass RO)

<table>
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<tr>
<th>Model</th>
<th>Product (nominal) (l/h)</th>
<th>Feed C Series (nominal) (l/h)</th>
<th>Feed S Series (nominal) (l/h)</th>
<th>Recovery (range)</th>
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### Orion Dimensions (Single Pass RO)

<table>
<thead>
<tr>
<th>Model</th>
<th>Height (mm)</th>
<th>Width (mm)</th>
<th>Depth (mm)</th>
<th>Weight (operational) (kg)</th>
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<td>2600</td>
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- **Standard** - Not Available
- **Optional**

### Main Treatment

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<thead>
<tr>
<th>Multi-Purpose Tank</th>
<th>Electrical Heater</th>
<th>Steam Heating</th>
<th>Single Pass RO</th>
<th>Conc Recycle Pump</th>
<th>Integral Recovery RO</th>
<th>Twin Pass RO</th>
<th>Degasser</th>
<th>Cedi Unit</th>
<th>Post UV &amp; Monitor</th>
<th>Post UF</th>
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### Controls

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<tr>
<th>Siemens PLC and HMI</th>
<th>Allen Bradley PLC and HMI</th>
<th>Painted Steel Control Panel</th>
<th>Stainless Steel Control Panel</th>
<th>21 CFR PT 11</th>
<th>Paperless Chart Recorder</th>
<th>Remote Monitoring by Vision</th>
<th>Control of Distribution System</th>
<th>ASME BPE Product Pipework RO Onwards</th>
<th>TDC Sample Point</th>
<th>Purified Water Tank Valve(s)</th>
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Sustainability is at the core of the Orion. Energy and water efficiencies are displayed on all models and all materials of construction have been selected for optimum reuse and recycle at the end-of-life.

**S Series**
Our premier Orion meets the ultimate requirements for sustainability. Optimised technologies reduce overall energy and water consumption and offers long-term operational savings.

**E Series**
Our mid-range Orion reduces waste water during recycle mode. It also conserves energy to meet good environmental practices.

**C Series**
Our classic Orion, offers you the core Orion technology within the most economical investment package.

**Orion Series**
Orion combines its pedigree of providing compendial purified water through tried and tested process excellence with sustainability features at its core. The result is an unrivalled water technology package.

Available in three models with an expanded range of flow rates from 0.5 to 20 m³/hr the Orion is an evolution in modular water treatment.
You can enhance your level of service and support by adding in our exclusive secure cloud-based application that enables you to access your system remotely from anywhere.

Providing a world-class service and support to your organisation, ‘Vision’ is available to enable you to have a seamless experience with Veolia via the connection of our secure web-based portal. You have the capability to store and access your complete individual or multi-site product and service information. There is also the option to connect your equipment to enable remote monitoring or critical performance parameters combined with alert and alarm management.

‘Vision’ improves the reliability of your purified water system. It gives you control over costs, minimises response times and improves service levels in the most sustainable way.

You have the capability to store and access your complete individual or multi-site product and service information. There is also the option to connect your equipment to enable remote monitoring or critical performance parameters combined with alert and alarm management.

‘Vision’ is our high-value service utilising the latest Machine 2 Machine technology. ‘Vision’ improves the reliability of your purified water system. It gives you control over costs, minimises response times and improves service levels in the most sustainable way.

A private, secure web platform and a single point of reference for all information regarding the Orion products and services. Simplified multi-stage management of all documents, service contracts, manuals, invoices and general reports in one place, sent digitally from a proprietary connected device.

A remote monitoring platform to access real-time encrypted performance data including alarms and equipment status. A secure and proven cloud-based application that simplifies Machine 2 Machine operations, it allows users to monitor single or multiple systems remotely utilising the latest cloud API technology. This gives you the capability to access up to five years’ worth of data storage.

‘Vision air’ improves efficiencies through remote monitoring. Easy and automatic creation of trend and alarm reports and instant notifications enhance business efficiencies and reduce administration costs.
Service and maintenance

We offer a variety of service and maintenance contracts to ensure continual compliance and the assurance that your Orion delivers the optimum performance.

- Safeguard critical processes which rely on continuous supply of purified water
- Minimise equipment failures and downtime
- Ensure regulatory compliance
- Maximise availability
- Meet water quality and quantity
- Optimise operating costs ensuring environmental efficiency
- Extend equipment life
- Health and safety is our number one priority

We specialise in delivering unrivalled service and maintenance for your process water requirements through operational excellence.