

# ORION®

## Reverse Osmosis & CEDI for Pharmaceuticals

Orion® packaged systems are pre-validated, skid-mounted and hot water sanitisable. Developed specifically for the pharmaceutical market, they are compliant with all industry requirements. Orion® systems have over 80 standard configuration options in order to best meet the unique needs of each client.



Flow rates from  
500 to  
20 000 l/hr



**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.



### FEATURES & BENEFITS

- Regular hot water sanitization at 85°C; guaranteed microbial compliance
- Designed, manufactured and validated to GAMP
- Fully compliant with latest ISPE, USP and Ph Eur specifications
- Automated PLC control; minimizes operator involvement
- HMI has secure access keys and alarms; prevents accidental or unauthorized usage
- Unique CEDI design; efficiently and reliably ensures water quality
- Skid-mounted, pre-assembled, pre-tested; space saving, short lead times, quick start-up
- Comprehensive and standardised validation pack (FAT, IQ, OQ); reduces validation time

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

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



### APPLICATIONS

Purified Water

- Ophthalmics
- Antibiotics
- Tablet coating
- Granulation
- Diagnostics
- Veterinary products

Highly Purified Water

- Nasal/ Ear preparations
- Nebuliser solutions
- Haemo filtration solutions
- Irrigation solutions

### HYDREX® CHEMICALS

Hydrex™ 4000 water treatment chemicals from Veolia Water Technologies should be used for optimized plant operation.

### RELATED SERVICES

Local after-sales service and support teams offer preventative and corrective maintenance programs to ensure the long-term, efficient operation of installed plant.





## Specifications

	C Series	E Series	S Series
Pre-treatment Softener (plastic)	✓	o	-
Pre-treatment Softener (stainless)	-	✓	✓
Water saved blue display	✓	✓	✓
Energy saved blue display	-	✓	✓
Reduced water discharge	-	✓	✓
Reduced product flow during recycle	-	✓	✓
Integral recovery RO	-	-	✓
Reject recycle pump	-	-	✓
Single Pass RO	✓	✓	✓
Twin Pass RO	-	o	-
Continuous Electro-Deionisation	✓	✓	✓
Hot Water Sanitisation	✓	✓	✓
Low energy pumps	✓	✓	✓
RO/CDI Recovery Displayed	✓	✓	✓

- ✓ Standard
- Not Available
- o Optional

## Orion Performance (Single Pass RO)

Model		500	1000	2000	4000	6000	9000	12000	15000	20000
Product flow (nominal)	l/h	500	1000	2000	4000	6000	9000	12000	15000	20000
Feed flow - C Series (nominal)	l/h	625	1250	2500	5000	7500	13500	15000	18750	25000
Feed flow - S Series (nominal)	l/h	560	1120	2240	4480	6720	10000	13350	16700	22250
Recovery	%	75 - 90								

## Orion Dimensions (Single Pass RO)

Single Pass RO Model		500	1000	2000	4000	6000	9000	12000	
Height	mm	2100			2420		2010		
Width	mm	3600			4000		5000		
Depth	mm	1400			1600		1800		
Weight (operational)	kg	2100	2300	2600	4700	6000	5600	6400	

Dimensions are approximate and vary with options selected.

Dimensions exclude the salt/brine tanks and dosing tanks.

Dimensions for 9000 and above exclude the softeners which are not mounted on the Orion skid.

## Feed Water Requirements

General	Potable water free from organics, colloids and suspended matter, SDI<1
Free Chlorine	<0.25ppm
Temperature	5 – 30°C
Pressure	4 – 6 bar

## Typical Treated Water Quality

	Standard Orion	Orion with UF Option
	Meets current USP & Ph Eur requirements for Purified Water	Meets current Ph Eur requirements for Highly Purified Water
Conductivity	<0.2 µS/cm	<0.2 µS/cm
TOC	<250 ppb	<250 ppb
Bacteria	<10 cfu/ml	<10 cfu/100ml
Endotoxins	N/A	<0.125 EU/ml