



ENDOTHERM MODULAR COMPACT DUPLEX RO SYSTEM DATA SHEET



Reliable, cost-effective duplex reverse osmosis (RO) water purification systems for large Centralized Endoscopy and Sterile Processing Departments.

Envirogen's EndoTherm range stands out in the market for its unique advantages, leveraging over 15 years of R&D experience in UK healthcare:

- **Unrivalled compliance with a guarantee:** EndoTherm is the only proven product known to exceed the AAMI ST108 standard and includes a performance guarantee.
- **Smallest footprint in the industry:** Advantageous for facilities with limited space.
- **Robust case studies and comprehensive list of reference sites:** Demonstrating proven effectiveness and reliability.

The EndoTherm Modular is a range of duplex RO systems designed to exceed the water quality standards of AAMI ST108. This modular and upgradeable range can be set to operate at ambient or elevated temperatures (user adjustable) with automatic thermal sanitization taking place during off hours.

All models can be electric and/or steam heated. A combination of reverse osmosis, ultra-violet disinfection, sub-micron filtration and constant recirculation all work together to maintain maximum water quality at a range of dispense rates matched to single or multiple decontamination equipment needs.

The HMI (human machine interface) full color touch-screen display allows for PIN secure access levels, simple maintenance procedures and displays real-time graphical data. Compact, pre-assembled and skid mounted, EndoTherm Modular units are fast and easy to install, commission and validate. Various service contract options are available as well as remote digital monitoring access.

An EndoTherm Modular compact duplex RO System



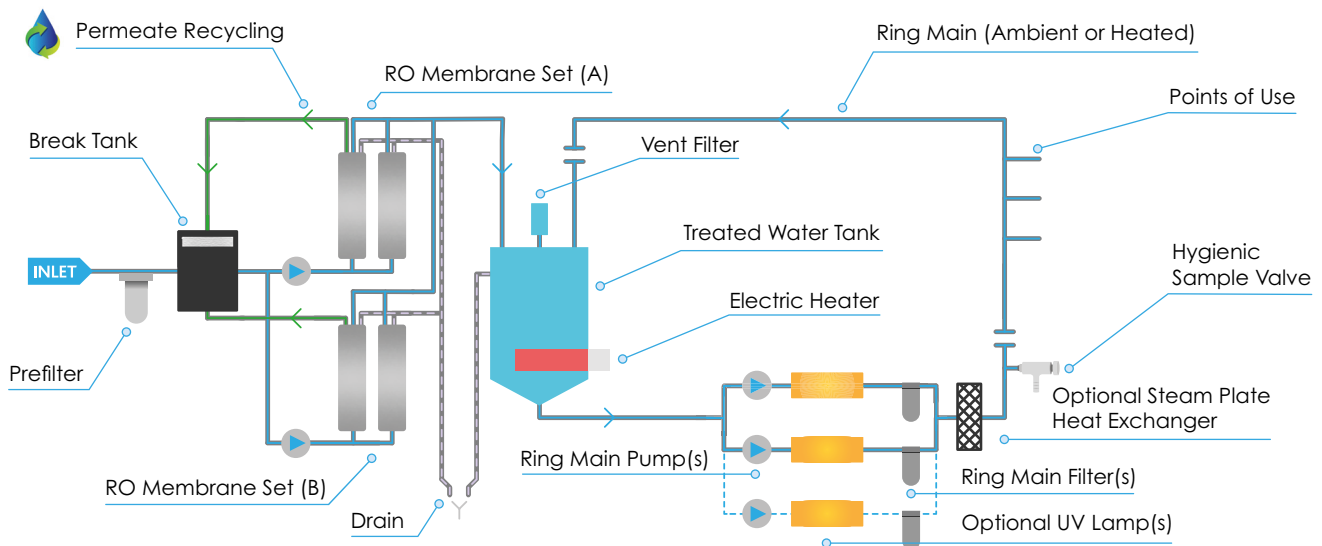
FEATURES & BENEFITS

- Designed to feed multiple endoscopy washers, instrument washers and autoclaves
- Duplex high-efficiency RO systems for maximum resilience with up to 634 gph (2,400 lph) output
- Option of electric and/or steam heating
- Prefabricated, skid mounted modular system means quick installation and less downtime
- Thermal sanitization to >176°F (>80°C) automatically with programmable schedule
- Water can recirculate at elevated temperatures to all points of use if required
- Designed to comply with AAMI ST108 requirements
- Range of dispense rates up to 132 gpm (500 lpm) for rapid filling and shorter wash cycles
- Distribution loops available in orbitally welded stainless steel
- Selection of high-capacity stainless steel tank sizes to buffer demand
- Hygienic sample valve with easy access to validate and verify product water quality
- PLC controller with color touch screen HMI for easy system programming
- Removable USB memory stick for data logging system performance and sanitizations
- Twin pass RO models also available
- Full system design service with project management on every installation
- Comprehensive service maintenance and support
- Remote viewing diagnostic monitoring as standard



Remote wall-mounted alarm indicator

SYSTEM FLOW DIAGRAM



Each system is based on four prefabricated modules for fast installation and optimum use of available space. The size of these modules is selected based on the decontamination equipment to be fed:

Module 1: Duplex RO system

- Either single or twin pass designs
- Three single pass models and two twin pass options available
- RO Membranes sets (A) and (B) can have 1-6 membranes on each

Module 2: Stainless steel treated water tank

- Four capacities available: 132, 264, 396, 528 gallons (500, 1000, 1500, 2000 litres)

Module 3: Recirculation skid

- Various re-circulation options available: 31, 63, 95, 132 gpm flow rates (120, 240, 360, 500 lpm)
- Optional UV Lamp(s) available for systems running at ambient temperatures for endoscopy

Module 4: Optional steam plate heat exchanger

TECHNICAL SPECIFICATION

Treated Water Specification - All models

Conductivity	<10 $\mu\text{S}/\text{cm}^*$
Bacteria	<1 CFU/100ml
Endotoxin	<0.25 EU/ml
Particles	<0.2 μm

*Conductivity of <10 μS when deionization (DI) cylinders option is selected

Feed Water Quality - All models

Hardness (CaCO_3)	<50 mg/l
Free Chlorine (Cl_2)	<0.4 mg/l
Iron/Manganese (Fe/Mn)	<0.05 mg/l
Feedwater Pressure	35-90 psi (2.5-6.0 bar)
Max Conductivity	<1400 $\mu\text{S}/\text{cm}$
Silica (SiO_2)	<30 mg/l



PRODUCT SPECIFICATION - RO OUTPUT OPTIONS

Module 1	-	900	1800	2400
Single Pass	gpm (l/hr)	23 (900)*	475 (1800)*	643 (2400)*
Twin Pass Option	gpm (l/hr)	-	132 (500)*	264 (1000)*
Typical RO Recovery Rate	%	75	75	75
**Dimensions: Depth	inches (mm)	31 (800)	42 (1070)	50 (1250)
**Dimensions: Width	inches (mm)	24 (600)	24 (600)	24 (600)
**Dimensions: Height	inches (mm)	72 (1840)	72 (1840)	72 (1840)
Shipping Weight	lbs (kg)	575 (260)	640 (290)	725 (330)
Inlet Connection	NPT	3/4" NPT		2" Solvent
Electrical Supply	-	3ph, 480V, 20A		
Power Consumption	kW	4	7	7
Noise Level	dba	< 70	< 70	< 70

*Production Rate at >59°F (>15°C)

**Options available for large or small electrical panel (dimensions for smaller units displayed)

PRODUCT SPECIFICATION - TANK OPTIONS

Module 2	-	500	1000	1500	2000
Tank Capacity	g (l)	132 (500)	264 (1000)	396 (1500)	528 (2000)
*Dimensions: Depth	inches (mm)	47 (1180)	47 (1180)	60 (1530)	60 (1530)
*Dimensions: Width	inches (mm)	29 (730)	29 (730)	31 (780)	39 (980)
*Dimensions: Height	inches (mm)	54 (1360)	81 (2055)	81 (2055)	81 (2055)
Shipping Weight	lbs (kg)	335 (152)	385 (175)	495 (225)	560 (254)
Inlet Connection	NPT	1	1	1	1
Ringmain Connection Return (Triclamp)	inch	1.5	1.5	1.5	1.5
Electrical Heater Size	kW	18-36	18-36	72-120	72-120

PRODUCT SPECIFICATION - RO DELIVERY PUMP OPTIONS

		18 kW Heater		36 kW Heater	
Module 3	-	2 Pump	3 Pump	2 Pump	3 Pump
Maximum Flow Rate	gpm (l/min)	31 (120)	63 (240)	31 (120)	63 (240)
Dimensions: Depth	inches (mm)	36 (890)	46 (1150)	39 (980)	52 (1300)
Dimensions: Width	inches (mm)	32 (800)	32 (800)	32 (800)	32 (800)
Dimensions: Height	inches (mm)	50 (1250)	50 (1250)	50 (1250)	50 (1250)
Shipping Weight	lbs (kg)	340 (155)	440 (200)	530 (240)	660 (300)
Ringmain Connection (Triclamp)	inch	1.5	2	1.5	2
Noise Level	dBA	<70	<70	<70	<70
Maximum Electrical Load	Amps	40	40	72	72
Electrical Connection	3 phase	63A	63A	80A Isolator	80A Isolator

The electrical supply required will depend on the specific tank heater option selected:

Tank Size	Heater	Electrical Connection	Load
132G or 264G (500L or 1000L)	18 kW	Requires 63A Commando Socket	40A
132G or 264G (500L or 1000L)	36 kW	Requires 80A Isolator	72A

Larger tanks and heater options are available upon request.

PRODUCT SPECIFICATION - OPTIONAL PLATE HEAT EXCHANGER

Module 4 (Optional)	-	120	240	360	500
Maximum Flow Rate	gpm (l/min)	31 (120)	63 (240)	95 (360)	132 (500)
*Dimensions: Depth	inches (mm)	40 (1000)	40 (1000)	40 (1000)	40 (1000)
*Dimensions: Width	inches (mm)	44 (1100)	44 (1100)	44 (1100)	44 (1100)
*Dimensions: Height	inches (mm)	30 (750)	30 (750)	40 (1000)	40 (1000)
Shipping Weight	lbs (kg)	330 (150)	385 (175)	440 (200)	550 (250)
Ringmain Connection (Triclamp)	inch	1.5	2.0	2.5	3.0
Steam Supply	lb/hr, 30-60 psi (Kg/hr, 2-4 bar)	330 (150)	725 (300)	935 (425)	1290 (585)

*Options available for large or small electrical panel (dimensions for smaller units displayed)

ABOUT ENVIROGEN

Envirogen is a leading international provider of water and wastewater treatment solutions. We solve complex challenges relating to water availability and quality, and help our customers to increase productivity, reduce costs and meet environmental and sustainability targets.

We do this through offering:

- Best in class water and wastewater treatment and process filtration technology
- Expertise in design, project management and engineering
- World class manufacturing and servicing capability



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