VEOLIA

Polaris™ 2.0 MED

Multiple Effect Distiller

WATER TECHNOLOGIES

Your WFI Needs... The Polaris™ 2.0 Solution

Applications

- Manufacturing of sterile pharmaceutical and biotech finished products
- Plant cleaning in place (CIP)

Quantity and quality of water

- Standard units are available with 250 - 4500 l/h capacities
- High operating pressure and efficient droplet separation allows excellent decontamination performance
- The WFI produced meets Ph.Eur, USP and JP standards

OPEX - Operational costs

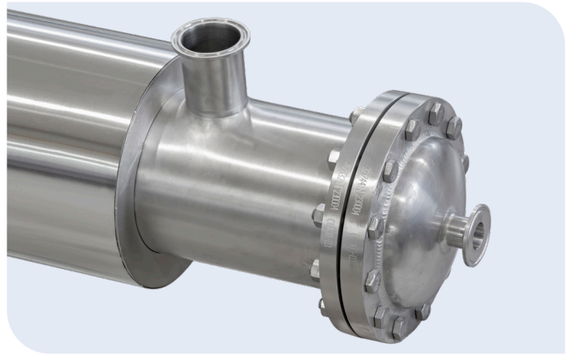
- High efficiency and fast start up with 'falling film' columns
- 3 to 8 columns available to reduce utilities consumption
- 10% blowdown offers a small water footprint

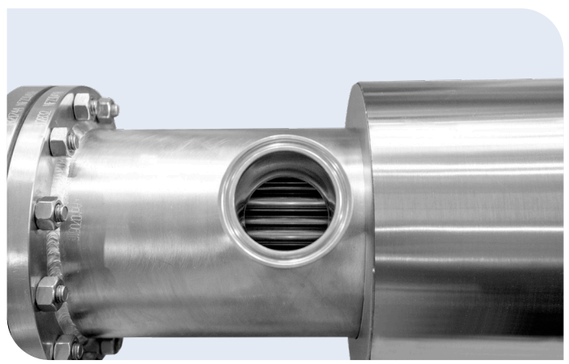
Service and support

- Local support and service from our global offices
- Yearly service and preventative maintenance plans available

Flexibility and choice

- A range of standard options are available to meet varying customer requirements





Hot-WFI production (85°- 97°C)

Capacities 250 - 4500 l/h

Compliance with ASME BPE

Standard Features

Mechanical

> Designed according to PED and EN13445 (ASME design optional)
> Pipework and fittings comply with ASME BPE
> Full vacuum design
> 304 stainless steel frame designed for easy column dismantling during maintenance
> 3 to 8 columns available depending on the model size
> Double tube sheet heat exchangers (first column, condenser and final cooler)
> Insulated industrial steam pipework heat exchangers and columns
> 316 SS vertical multistage centrifugal feed water pump
> Droplet separation system in each column
> Surface mechanical finish ≤ 0.51 µm for process contact parts
> Centralised drain tank with raw/softened water

Functional

> PID pressure and flow control
> Start and stop operation
> Automatic continuous blowdown
> Automatic sampling with sanitary sampling point

Controls and instrumentation

> IP54 painted carbon steel control panel
> S7-1500 HMI Siemens Comfort Panel
> GAMP V Validated software CFR21 Part 11 compliant
> WFI continuous temperature and conductivity monitoring
> Automatic pressure, temperature and level control

Validation and documentation

> Standard design documents and qualification protocols are provided in English
> O&M manual provided in local language

Optional Features

Mechanical and functional

> Feed water tank
> SS 304 control board
> Blowdown cooler
> Electropolishing of WFI outlet line
> Automatic feed water valve
> WFI outlet block valve
> WFI sample cooler with temperature control
> Sight glass on columns
> Electropolished Feed water pump with Ra ≤ 0.8 µm
> Proportional WFI production
> Programmable sanitisation
> Automatic drain
> Hubgrade compatible for remote monitoring and assistance

Polaris™ 2.0 – Service and support

All **Polaris™ 2.0** solutions are designed in accordance with GAMP, cGMP, ISPE and FDA guidelines and will meet the product quality specifications of all of the world's major pharmacopoeia, including Ph. Eur. and USP, giving you peace of mind and compliance assurance wherever your facility is located.

Polaris™ 2.0 systems are backed by a comprehensive range of service and maintenance products.

A preventative maintenance approach applies. Scheduling service on a pre-planned basis and ensuring the time-based replacement of specific parts and consumables can significantly reduce the risk of downtime. This approach also enables us to guarantee the quality and value of your system for a twenty-year lifetime.

These new MED units have been designed to reduce the consumption of industrial steam and cooling water, making them more sustainable.

POLARIS™ 2.0 MED Treated Water Quality	
Conductivity	< 1.3 µS/cm @ 25°C.
Pressure	atmospheric
TOC	< 500 ppb
Bacterial Endotoxins	< 0.25 EU/mL
Bacteria	< 10 CFU/100 mL
Nitrate	< 0.2 ppm
Heavy Metals	< 0.1 ppm

Utilities Required	
Feed Water Temperature	15 - 20°C
Feed Water Pressure	1 - 2 barg*
Power Supply	400/230 V, 3PH+N+PE, 50 Hz
Compressed Air	6 - 8 bar
Cooling Water	15°C IN - 85°C OUT (where applicable)
Industrial steam	5 - 8 barg*

* If feed water tank option is excluded.

Feed Water Requirement (Minimum)	
Purified water according to Ph. Eur.	
Total Hardness	< 0.1° F (1 ppm as $CaCO_3$)
Conductivity	≤ 4.3 µS/cm @ 25°C
TOC	< 500 ppb
Bacteria Count	< 100 CFU/mL
Silica	< 1 ppm
Carbon Dioxide	≤ 2 ppm
Free Chlorine	≤ 0.1 ppm

Material Specification	
Evaporating Columns	Inox 316L (1.4404)
Heat Exchangers	Inox 316L (1.4404)
Feed Pump	Inox 316
Support Frame	Inox 304
Process contact pipework and fittings	Inox 316L (1.4404) ASME BPE
Control Panel	Painted Carbon steel (SS 304 optional)
Sealing and Gaskets	PTFE (FDA/USP VI/TSE conformity certificate)

Resourcing the world

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