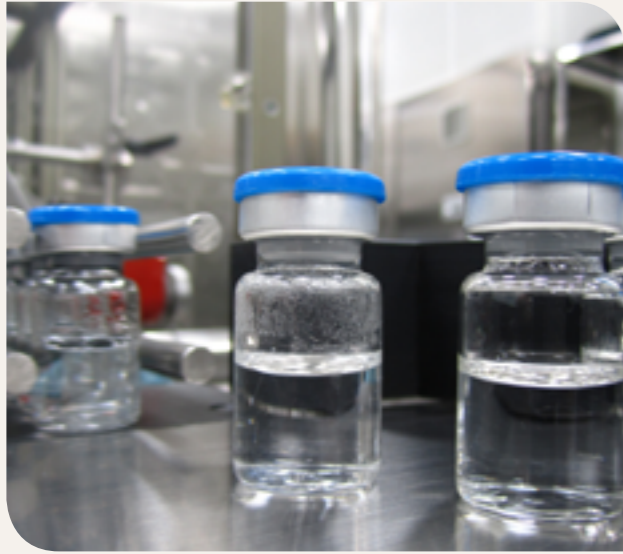




Polaris MED

Efficient and Effective WFI Solutions

WATER TECHNOLOGIES



Your WFI Need... The POLARIS Solution

Quantity and quality of water

- Standard units are available from 50 - 15,000 l/hr
- Column geometry, design and efficient droplet separation gives the MED excellent decontamination performance
- Labyrinth baffles reduce steam velocity and optimize droplet separation
- Evaporator columns are dry running, avoiding the risk of bacterial contamination associated with static water
- High running pressures and ease of balancing offers excellent steam and water quality, with low industrial steam and cooling water consumption

Opex - Cost of ownership

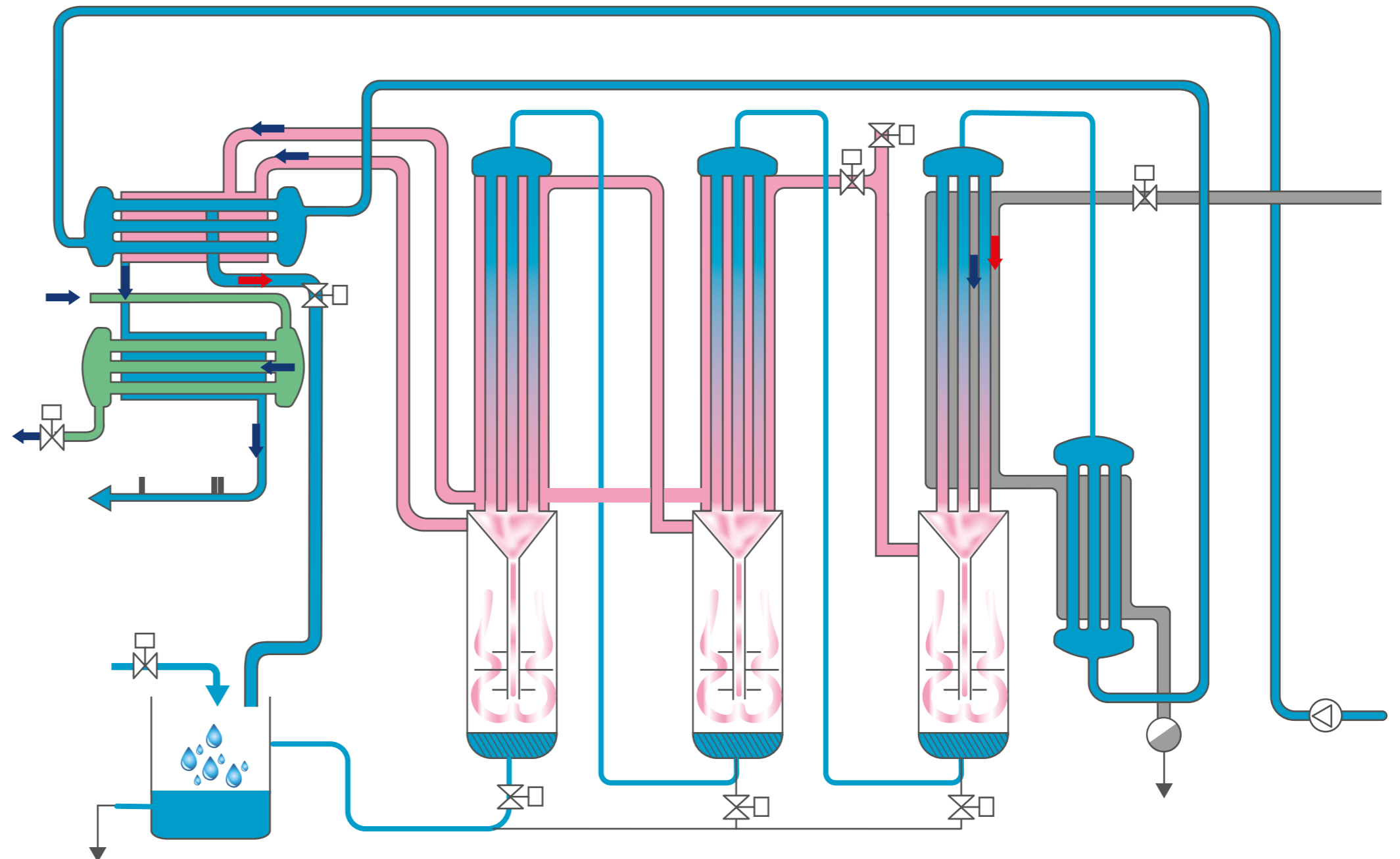
- High efficiency, dry running, falling film evaporator columns
- 3-8 columns
- 10% blowdown offers a small water footprint
- Tall heat exchangers to optimize heat transfer performance
- Super fast startup, minimizing water losses
- Hot standby not required, saving energy, but maintaining fast startup times

Service and Support

- Local support & service from our global offices
- Yearly service and protection plans

Flexibility & Choice

- Combi units - producing steam and water from the same unit
- Uplift frames & raised cooler / condenser sub assemblies
- Siemens or Allen Bradley PLC, with large touchscreen panel, complete with SCADA option



Standard Features

Mechanical

- > Sanitary WFI sample point
- > Thermal insulation
- > Stainless steel frame and control panel IP 54
- > Surface finishing Ra<0.6 µm
- > Feed water pump
- > Drain Cooling System

Functional

- > Operation in stop/start or proportional control
- > Automatic blow down
- > WFI quality switchover system

Controls and Instrumentation

- > PLC control + HMI interface
- > Non compensated conductivity meter
- > Automatic pressure temperature and level controller

Validation and Documentation

- > Operating manual in English, qualification documentation in English

Optional Features

Mechanical

- > Electropolishing Ra<0.4 µm
- > Feed water CO2 removal membrane
- > Feed water tank
- > WFI tank + pressurising transfer pump
- > Nitrogen pressurising system

Functional

- > Proportional Control – 50% to 100%
- > WFI and Pure Steam available as alternative production
- > WFI and Pure Steam available as simultaneous production
- > Automatic steam sterilization

Controls and Instrumentation

- > SCADA supervision system (2 month operating data recording) /HMI in 4 language + printer (only interface required)
- > Automatic system drain-down

Validation and Documentation

- > DQ, IQ, OQ, PQ protocols
- > Operating manual in 4 languages



POLARIS - Service & Support

All POLARIS 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 pharmacopeia, including the USP and Ph Eur, giving you peace of mind and compliance assurance, wherever your facility is.

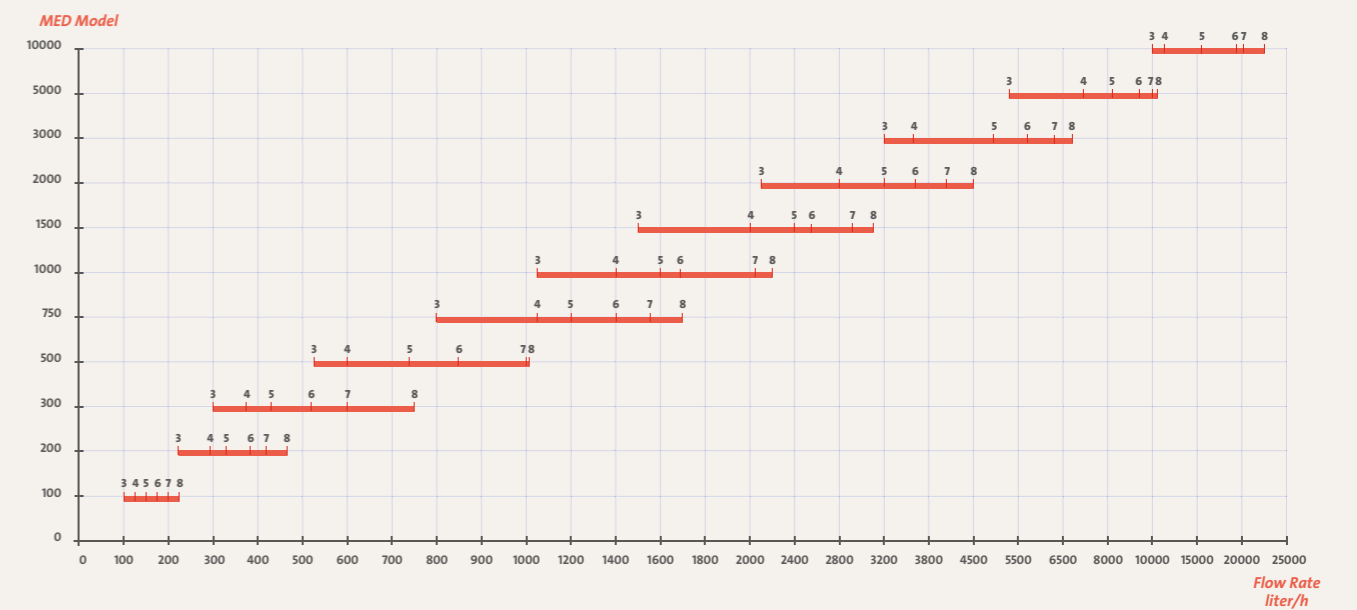
POLARIS systems are backed by a comprehensive range of service maintenance products.

Standardised Performance Qualification Maintenance Contracts (PQMC) are tailored to your system and ensure continuing compliance.

Scheduling service on a pre-planned basis coupled with time-based replacement of specific parts and consumables, significantly reduces the risk of downtime. This approach enables us to guarantee the quality and value of your system for a lifetime.



Polaris MED capability (according to industrial steam pressure)



POLARIS MED Treated Water Quality

Conductivity	< 1.3 µS/cm @ 25° C
TOC	< 500 ppb
Bacterial Endotoxins	< 0.25 EU
Bacteria	< 10 CFU / 100 ml
Nitrate	< 0.2 ppm
Heavy Metals	< 0.1 ppm

Feed Water Requirement (Minimum)

Potable Water	
Total Hardness	< 0.1° F (1 ppm as CaCO ₃)
Conductivity	< 5 µS/cm
Silica	< 1 ppm

Services Required

Feed Water Temperature	15-25° C
Feed Water Pressure 1	1 < P < 6 bar
Power Supply	380/480 V; 3 Phase; 50/60 Hz
Compressed Air	6-8 bar
Water Drainage	By gravity
Cooling Water	15° C (if necessary)

Material Specification

Evaporating Columns	Inox 316L ASME BPE
Heat Exchanger (Pre-heater)	Inox 316L (EN 1.4435) ASME BPE
Heat Exchanger (Condenser)	Inox 316L ASME BPE
Feed Pump	Inox 316
Support Frame	Inox 304
Pipeline and Fittings	Inox 316L ASME BPE
Control Panel	Inox 304
Valve	316L/EPDM FDA approved
Sealing and Gaskets	PTFE
Pipe Welding	Orbital

