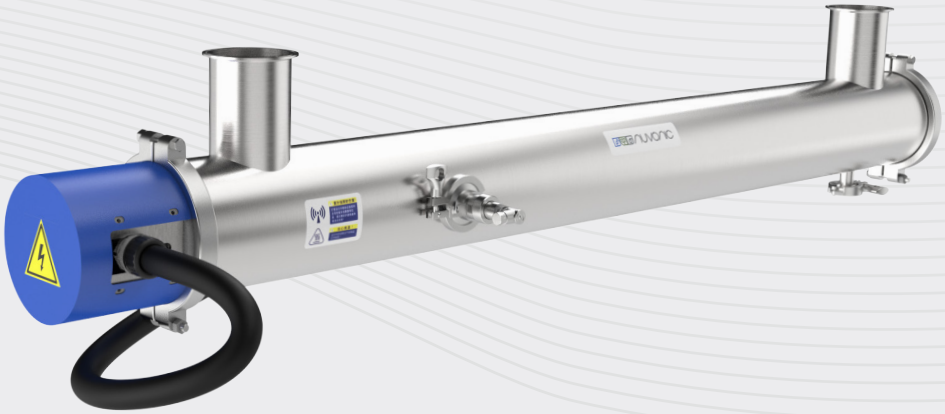
NUVONIC

formerly Aquionics, Berson, Hanovia and Orca GmbH



PharmaLine ECO

OPTIMIZED UV TREATMENT FOR PHARMACEUTICALS & HEALTHCARE

ECO is purpose-built to ensure uncompromised purity, offering an unmatched level of confidence in critical pharmaceutical and healthcare processes.

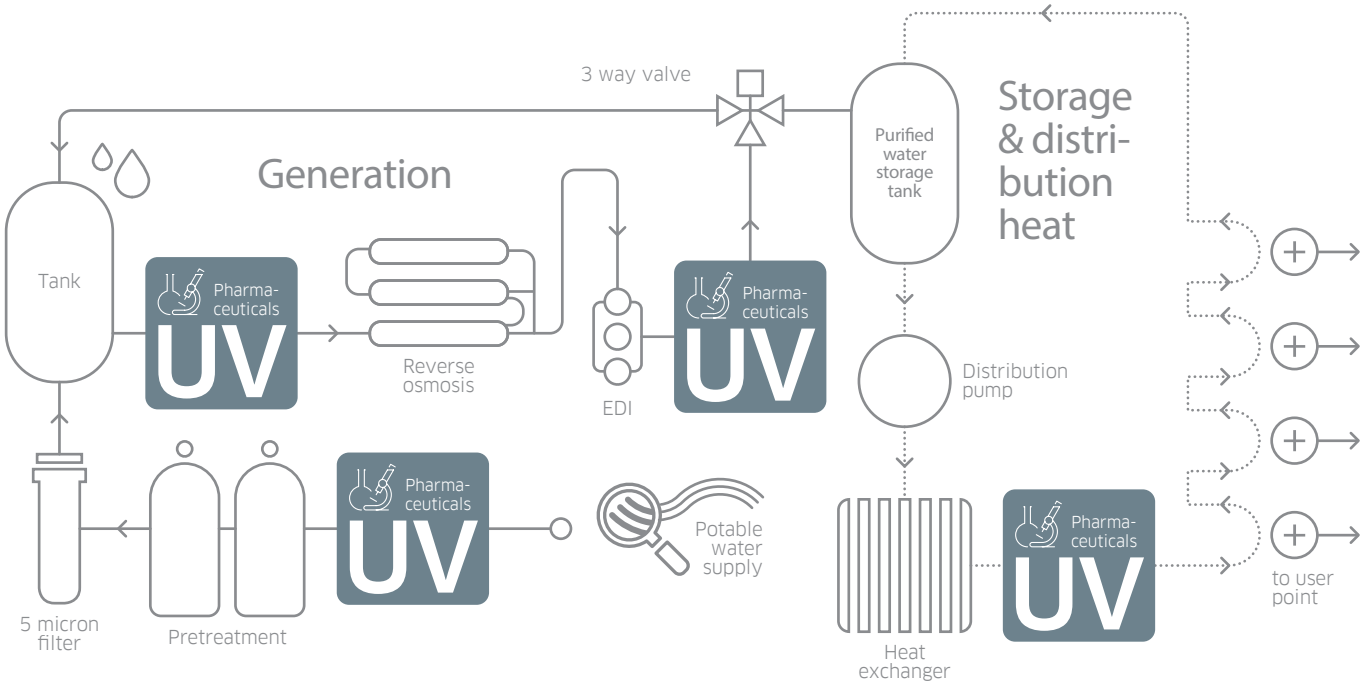
Efficiency: Reduce your carbon footprint significantly while maintaining the highest quality standards in your operations.

Compact Brilliance: ECO fits where others can't, delivering uncompromised results in limited space.

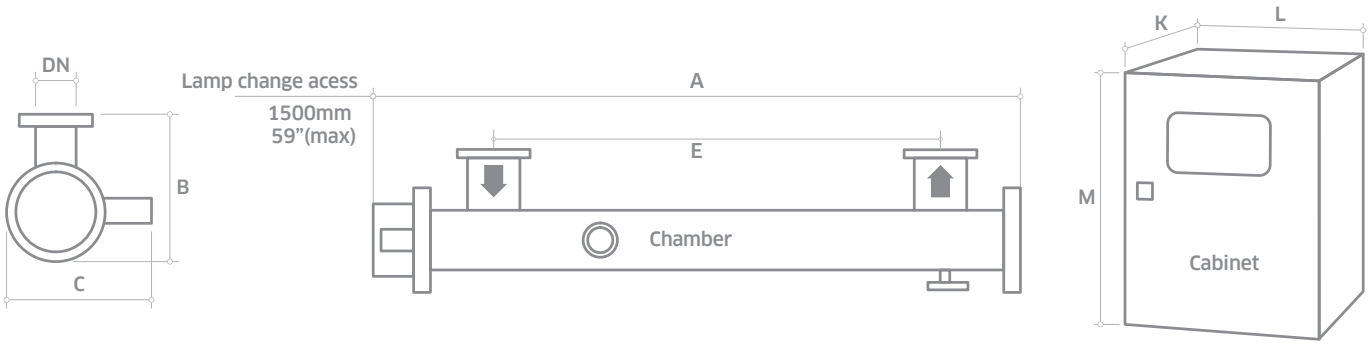
Optimized Performance: ECO is optimized for peak performance, providing consistently reliable water treatment solutions.

Application
Optimized UV for Pharmaceuticals

POTENTIAL LOCATIONS OF THE PHARMALINE ECO



KEY FEATURES	WHAT IT GIVES YOU	BENEFITS FOR YOU
INTELLIGENCE		
UV intensity monitor measuring active wavelengths	Continuous verification of performance with in-built low intensity alarm	Easy to monitor and log system performance
OPTIMIZATION		
UV water treatment	Protect your process waters from microbiological contamination including chlorine resistant Cryptosporidium and Giardia	Does not affect taste and colour of final product
		No chemicals
Designed for biopharmaceutical	FDA-approved materials used for all wetted parts	Industry compliant materials
	Chamber with tri-clamp connections and 0.5 µm internal finish (0.38 µm is optional)	Sanitary design
INTEGRATION		
Compact design	Can be retrofitted to existing process	Easy integration



MODEL NUMBER	FLOW* (gpm)	MAX POWER (W)	LAMP (QTY)	CHAMBER SIZE (inch)					CABINET			APPROX WEIGHT (lb)	
				A	B	C	DN	E	K	L	M	Chamber w/o wiper	Cabinet
Pharmaline ECO 4	18	90	1	29.3	8.3	9.5	1	17.7	7.1	18.5	21.1	23.1	45.2
Pharmaline ECO 8	51	150	1	49	9.1	9.5	2	34.6	7	18.5	21.1	27.1	45.2
Pharmaline ECO 15	96	250	1	49	9.1	9.5	2	34.6	7	18.5	21.1	27.1	45.2
Pharmaline ECO 32	150	360	1	70.3	9.1	9.5	3	53.1	7	18.5	21.1	49.8	45.2
Pharmaline ECO 40	270	380	1	70.3	13.2	12	3	52.4	7	18.5	21.1	90.8	45.2
Pharmaline ECO 85	446	750	2	70.3	13.2	12	4	52.4	8	19	23.6	92.6	60.8
Pharmaline ECO 125	627	1080	3	70.3	13.2	12	*6	50.4	8	19	23.6	94.8	64.2
Pharmaline ECO 215	1000	1420	4	70.3	17.9	14	6	50	8	19.6	27.6	146.4	78.3
Pharmaline ECO 225	1000	1750	5	70.3	17.9	14	6	50	8	19.6	27.6	145.5	81.4
Pharmaline ECO 330	1700	1750	5	70.5	20.7	17.3	8	47.6	8	19.6	27.6	251.5	81.4
Pharmaline ECO 350	1700	2100	6	70.5	20.7	17.3	8	47.6	8	20	31.5	253.5	98.1
Pharmaline ECO 380	1700	2440	7	70.5	20.7	17.3	8	47.6	8	20	31.5	255.7	101.2

*the DN is 5" when connection type is PN10/ANSI

The disinfection capacity is based on UV Average dose 30mJ/cm² at 99% T_{10}, end of lamp life.
Allow dimension L in front of cabinet for door opening and panel access.
All dimensions are approximate for clearance purposes only. We have a policy of continuous product development, exact drawings are available on request.
All specifications are subject to change without notification. Your distributor or our account manager can advise on correct sizing and specification requirements.

UV CHAMBER

Material:	StSt 316L / 1.4404
Process (Mating) connection:	Tri-Clamp BS4825 (for ECO 4 to 225) ANSI B 16.5 Class 150 (for ECO 330 to 380)
End plate:	Removable plate (Tri-Clamp upto ECO 225, then flanged for larger models)
Drain connection:	Tri-Clamp 1" BS4825
Degree of protection:	IP54 equivalent to NEMA 12
Internal finish:	< 0.5 µm Ra (Welds ground out)
Lamp type:	Low Pressure Amalgam
Expected Lamp life:	12,000 hours
UV sensor:	Dry sensor
Temperature sensor	Yes, PT100
Seals:	EPDM, FDA 21 CFR 177.2600
Maximum CIP temperature:	203°F with cabinet electrically isolated
Working fluid temperature:	41-104°F
Operating pressure:	10 bar

OPTIONS

- Interconnecting cable lengths: 16.4 ft
- Chamber internal finish: < 0.38 µm Ra (Welds ground out)
- Document support pack
- Process (Mating) connection: ANSI B 16.5 Class 150 (for ECO 225 and smaller models)
- PN10 to EN1092-1 process (mating) connection
- Carbon Steel Cabinet

CABINET (UV CONTROLLER)

Material:	Stainless Steel 304
Controller:	UV Controller
HMI:	7" Touch screen
Interconnecting cable lengths:	3 m
IP rating:	IP54 / NEMA 12

CABINET (UV CONTROLLER)

Power supply:	220 V ± 10%, 50/60 Hz, single phase, L+N+G. 110V (for ECO 4-215)
Operating temperature range:	5-40°C
Humidity:	< 90% no condense cabinet fan installed for ECO 32 and larger systems
Control & Display:	Stepless power adjustment 50-100%
	All alarms and warnings
	Fixed dose running
	Water temperature
	Lamp running hours
	Flow rate (m³/h or gpm)
	UV dose
Alarm & Warning:	Low UV dose
	Lamp end pre-warning (time adjustable)
	Lamp fault alarm
	Chamber over temperature alarm
	UV sensor fault alarm
	Temperature sensor fault alarm
	Warning for lamp and quartz resetting
Input:	Flow 4-20 mA
	T_{10} 4-20 mA
	Remote On/Off
Output:	UV dose 4-20 mA
	Any system alarm VFC
	Any system warning VFC
	Low UV dose alarm VFC
	Lamp fault alarm VFC
	Lamp preheat VFC
	Lamp ready VFC

APPROVALS

CE marked, UL

PharmaLine ECO

Also available in our ECO product range...

PURELINE ECO

Utility and service water treatment

TOCLINE ECO

Breakdown and reduction of TOC using medium pressure lamp

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NUVONIC

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