

## RASLine PQ IL

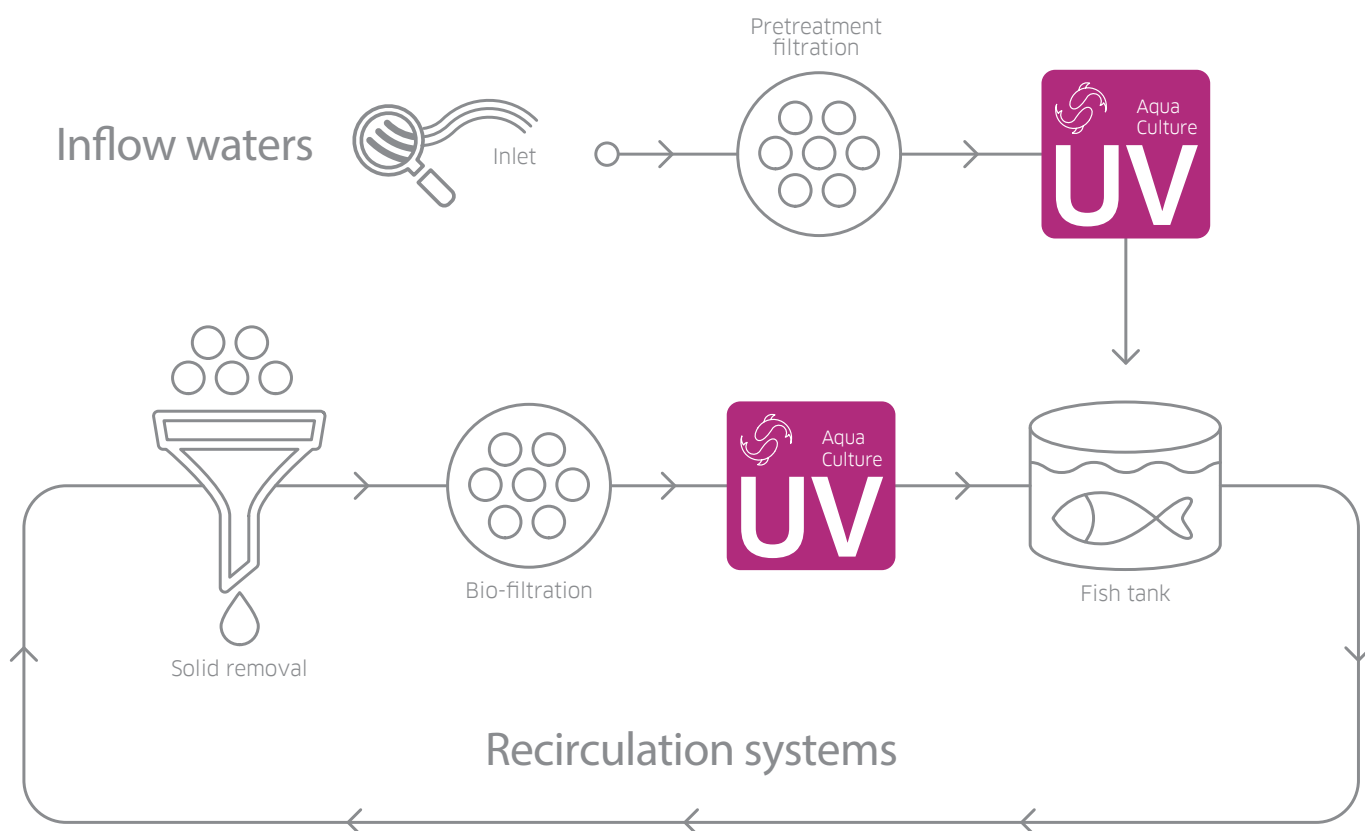
### *NVI APPROVED UV TREATMENT FOR AQUACULTURE*

Our RasLine PQ IL systems are aimed specifically at providing UV treatment for recirculating aquaculture systems. By using an NVI approved UV system you can be certain that the UV dose being produced will eliminate harmful microorganisms, reduce the bio-burden, protect against bio-fouling and lower operating costs. Each system comes with a certified dry UV sensor allowing checking of UV performance. The UV sensor measures the germicidal output of the UV system and a UV dose read out makes it easy to monitor and log performance. The control system also has the ability to take flow and transmittance meter inputs and calculate the UV dose based on real time operating conditions.

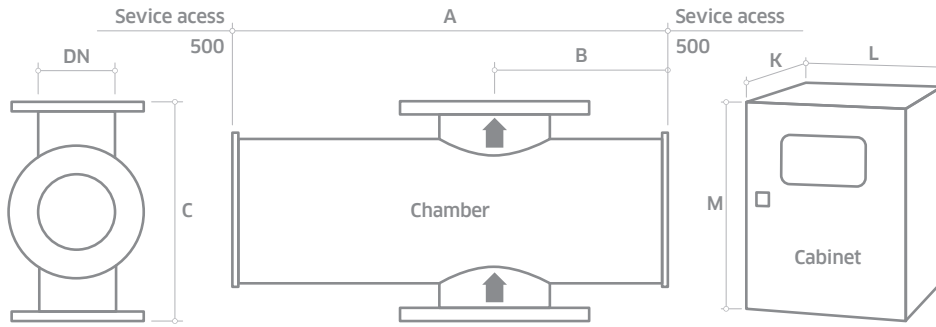


Application  
Optimised UV for  
Aquaculture

# POTENTIAL LOCATIONS OF THE RASLINE PQ IL™ IN A RECIRCULATING AQUACULTURE SYSTEM (RAS)



KEY FEATURES	WHAT IT GIVES YOU	BENEFITS FOR YOU
<b>INTELLIGENCE</b>		
Dry DVGW approved UV sensor measuring active wavelengths	Continuous verification of performance with real time RED dose reading and in-built low dose warning	Easy to monitor and log system performance
Flow and UV transmittance (UVT) meter inputs	Dose reading based on actual process conditions when meters are connected	Accurate UV dose reading guaranteed under wide range of operating conditions
<b>OPTIMISATION</b>		
Third party bioassayed UV systems approved by the Norwegian Veterinary Institute (NVI)	UV system dose equations and sizing have been independently derived	Confidence the system will perform as stated
UV water treatment	Protect your fish, your processes and the environment from harmful contamination without resorting to chemicals.	Proven performance No chemicals
Designed for the treatment of aquaculture water	Constructed of 316L stainless Steel wetted parts, also available in Super Duplex construction for sea water applications	Industry compliant materials
	Chamber with flanged connections and internal finish <math>< 0.8 \mu\text{m}</math>	Designed to international standards
	Automatic wiper (quartz cleaning)	Self cleaning to maintain performance
<b>INTEGRATION</b>		
Compact design	Can be retrofitted to existing process	Easy integration



- \* Allow dimension L in front of cabinet for door opening and panel access.
  - \*\* M dimension includes the space for the cabinet mounting brackets but you need to allow space below the cabinet for cable entry and access (minimum of 250 mm).
  - \*\*\* CC: Control cabinet, PC: Power cabinet Attention: the optional cabinet with A/C is bigger. Ask for dimensions.
- 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.

MODEL NUMBER	MAX POWER (KW)	NO OF LAMPS	DIMENSIONS (MM)								APPROX WEIGHT (KG)	
			Chamber				Cab. No***	Cabinet (fan cooled)a			Chamber Empty	Cabinet Fan cooled
			A	B	C	DN		K*	L	M**		
RASLine PQ IL 450	5.6	2	780	310	400	200	1	300	1000	1200	78	80
RASLine PQ IL 1000	11	4	780	310	400	200	1	300	1000	1200	78	100
RASLine PQ IL 4000	17.5	4	896	368	550	350	1	600	1000	2100	150	180
RASLine PQ IL 4500	26	6	896	368	550	350	1	600	1000	2100	150	200
RASLine PQ IL 12000	39	6	1052	446	680	500	1 CC	600	600	2000	240	130
							1 PC	600	1200	2100		260
RASLine PQ IL 14000	52	8	1052	446	680	500	1 CC	600	600	2000	240	130
							1 PC	600	1200	2100		290

#### UV CHAMBER

Material:	StSt 316L / 1.4404
Internal finish:	< 0.8 µm Ra, welds ground out, electropolished and passivated
External finish:	Brushed to K280, electropolished and passivated
Process (mating) connections:	Flange EN 1092-1 PN10
Drain connection:	BSP socket or NPT if ANSI flange
Air vent connection:	BSP socket or NPT if ANSI flange
End plate:	Removable end plate
Degree of protection:	IP54 equivalent to NEMA 12
Wiper:	Automatic (electrically driven)
Arc tube (lamp):	Medium pressure
Arc tube enclosure:	Doped quartz (F240)
Number of arc tubes (lamps):	2 (PQ IL 450), 4 (PQ IL 1000-4000), 6 (PQ IL 4500-12000) 8 (PQ IL 14000)
Expected lamp life:	12000 hours
Temperature sensor:	Yes
UV sensor:	Dry DVGW compliant UV sensor (one per lamp)
Working fluid temperature:	1°C to 60°C
Hydrostatically pressure tested:	Yes
Chamber mounting:	Flow horizontal or vertical (lamps horizontal only)
Operating pressure:	6 bar (positive pressure only)
Seals:	EPDM, ADI free, EC 1935/2004, FDA 21 CFR 177.2600 approved

#### OPTIONS

Document Support Pack	
Cabinet: Stainless steel 304	
Cabinet: Stainless steel 304 with air conditioning (5°-50°C), IP66 (NEMA 4X), relative humidity <95% non condensing*	
Cabinet: Stainless steel 316 with air conditioning with sloping roof (5°-50°C), IP66 (NEMA 4X), relative humidity <95% non condensing*	
Operation and Maintenance manual and printed Installation and Commissioning manual in Chinese, English, French, German & Spanish	
Flange options: PN16, ANSI 150, JIS, Table 'E'	
Lead length: 20 and 29 m	
In-field UV reference sensor kit	
Bleed: valve with BSP connection or NPT if ANSI flange	
UL 508A shop approval	
Welder pack	
Skid mounting (not shipboard or earthquake zone)	
Halogen free cables	

\* See sales drawings for dimensions

#### OPTIONS (CONTINUED)

Water leak detection:	Detects water leaks from quartz sleeve
Water level sensor:	UV chamber full water detection
Operating pressure:	10 Bar
Aggressive water package:	For 400 ppm to 20000 ppm chloride water
UPS for controller:	(30 mins)

#### CABINET (CONTROLLER UVTOUCH™)

Material:	Polyester coated carbon steel, RAL 7035
Degree of protection:	IP54 (NEMA 12)
Supply voltages:	PQ IL 450-1000: 208-277V (+/-10%) 1L+N, 2L, 3L 50/60 Hz 360-480V (-5/+10%) 3L+N, 50/60 Hz PQ IL 4000-14000: 380-480V (-5/+10%) 3L, 3L+N 50/60 Hz
Operating temperature range:	5°C to 35°C
Relative humidity:	<85% non-condensing
Cooling fans:	Yes
Interconnecting cable:	10 m
Variable power:	Stepless variable power (70% reduction from maximum ballast power)

#### HMI/CONTROL

Display:	7" HMI, indicating system status including alarms
Operating menu:	3 levels (2 with password protection)
Fault finding:	Event log

#### CUSTOMER OUTPUTS

4-20 mA passive output:	UV dose, UV intensity, ballast power
VFC outputs:	Standby in remote, system standby, system cooling down, any trip, any warning, UV dose failure, system ready, wiper failure, lamp failure, water leak, water temperature warning, Full water detection, water & cabinet temperature alarm

#### CUSTOMER INPUTS

4-20 mA active or passive inputs:	Flow meter and UVT transmittance meter
VFC inputs:	Remote stop/start, remote clear message, remote wipe, remote set power high

#### CUSTOMER COMMUNICATIONS PORT

RS 485 Industrial Ethernet

#### APPROVALS

CE marked, NVI approved



# RASLine PQ IL

Also available in our Aquaculture product range...



Energy Optimised general treatment suitable for clear waters



Suitable for a wide range of general treatment applications across a range of UVTs and flows

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# NUVONIC

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*formerly Aquionics, Berson, Hanovia and Orca GmbH*

