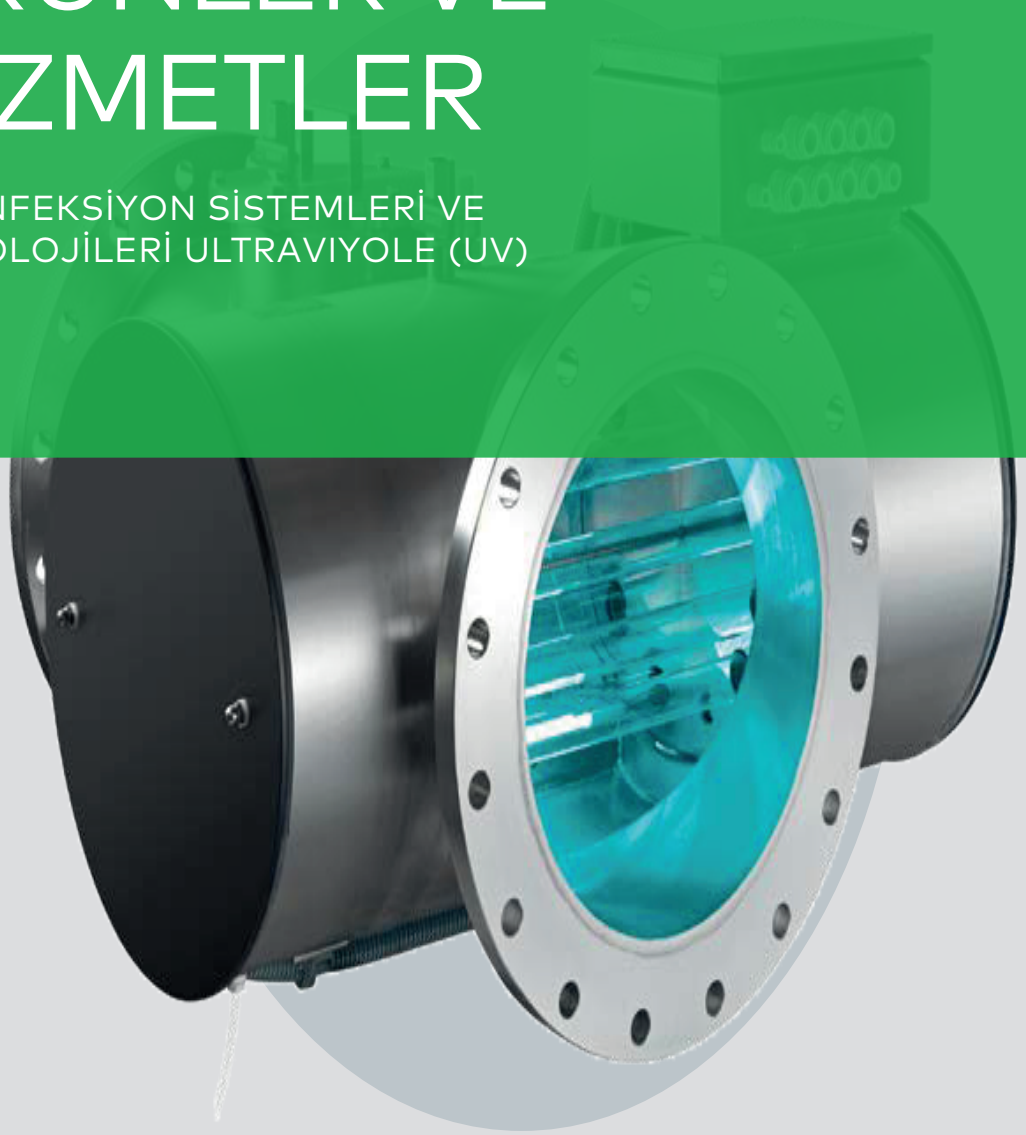
HANASU.COM.TR

Daha yeşil, sürdürülebilir ve
yaşanabilir bir dünya için.

ÜRÜNLER VE HİZMETLER

DEZENFEKSİYON SİSTEMLERİ VE TEKNOLOJİLERİ ULTRAVIYOLE (UV)



HANASU Çevre ve Enerji
Teknolojileri

HANASU

HAKKIMIZDA

HANASU, yılların getirdiği bilgi, uzmanlık ve uygulama birikimini daha etkin bir şekilde kullanarak SU, ÇEVRE ve ENERJİ kaynaklarını dengeli ve verimli bir şekilde kullanarak katma değerli hizmetler ve çözümler sunmak amacıyla 2019 yılında faaliyetlerine başlamıştır.

SU, ÇEVRE ve ENERJİ Teknolojileri ve Uygulamalarındaki geniş tecrübemiz, uzman ekiplerimiz ve iş ortaklarımızla beraber optimum çözümler sunuyoruz.

Misyon - Amacımız

Çevresel sorumluluk, işletmelerin ticari faaliyetlerinden kaynaklanabilecek çevresel zararları önleme ve hafifletme görevidir. Giderek artan sayıda kurumsal yatırımcı, nihayetinde yatırım yapmadan önce şirketin çevresel sorumluluk çabalarını değerlendiriyor. Aynı zamanda, hükümetler de katı çevresel sorumluluk uygulamaları ve düzenlemeleri uyguluyorlar.

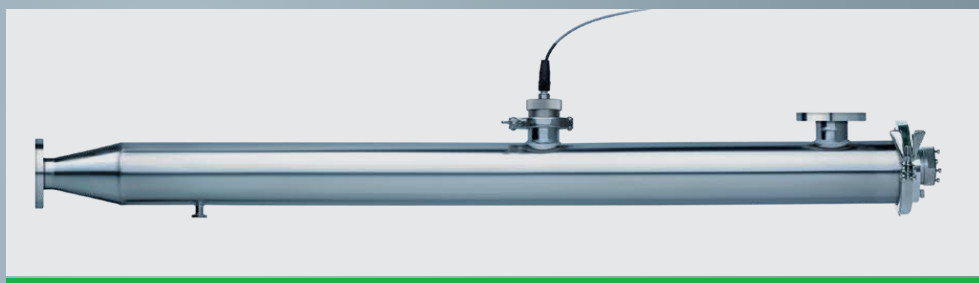
Bizler de HANASU ailesi olarak Uzun yıllara dayanan mühendislik, uygulama ve sektör tecrübemizle Anavatanımız ve Dünyamız için Çevresel Sorumluluk bilinci ile optimum çözümler geliştirmek ve üretmek misyonu ile hareket ediyoruz.

Vizyon - Gelecek Hayalimiz

Çevresel Sorumluluk Bilinci ile hareket ederken, Daha yeşil, sürdürülebilir ve yaşanabilir bir Dünya için, bilim ve teknolojiden azami ölçüde yararlanmak ve Anavatanımıza ve Dünyamıza katkı sağlamak.

ULTRAVİYOLE (UV)

NUVONIC



NUVONIC

APPLİCATİON OPTİMİSED UV FOR WASTE WATER
APPLİCATİON OPTİMİSED UV FOR DRİNKİNG WATER
APPLİCATİON OPTİMİSED UV FOR AQUACULTURE

A Halma company

APPLİCATİON OPTİMİSED UV FOR WASTE WATER

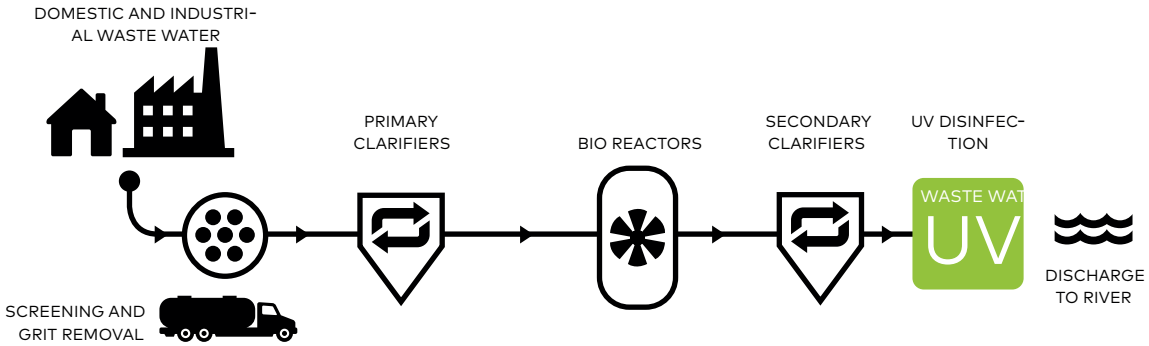
UV TREATMENT FOR WASTE WATER

Our ProLine WW IL systems for UV treatment of waste water are particularly suited to low UVT applications and can be deployed after clarifiers, sand filters and membranes. With increasing urbanisation and water stress the need for tertiary treatment and disinfection of waste water is growing, particularly for discharge to sensitive environments. UV is also growing in popularity as it provides a proven alternative to Chlorination avoiding the generation of potentially harmful by-products. The ProLine WW IL are compact medium pressure lamp systems and are intended as a cost-effective treatment for less critical applications where there is no risk to people or the food chain. For more critical applications we recommend our reuse range.

We UVCare

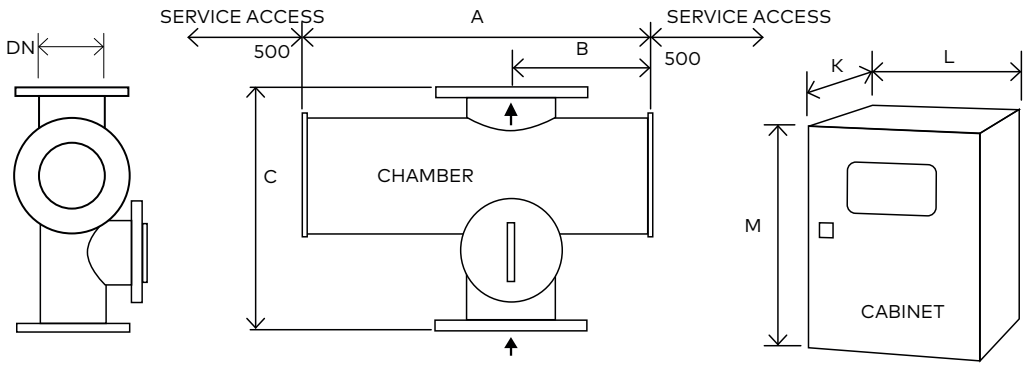
PROLINE WW IL

POTENTİAL LOCATİON OF THE PROLİNE WW IL™ İN WASTE WATER TREATMENT PLANT PROCESS



KEY FEATURES	WHAT IT GIVES YOU	BENEFITS FOR YOU
INTELLIGENCE		
Dry DVGW approved UV sensor measuring germicidal wavelengths	Continuous verification of performance with real time dose reading and in-built low dose warning	Easy to monitor
Flow meter input	Dose reading based on actual flow conditions when meter is connected	Accurate UV dose reading guaranteed under wide range of operating conditions
OPTIMISATION		
UV waste water disinfection	Protects the environment from harmful microbiological contamination	No chemicals
Designed for municipal and industrial reuse and waste water applications	Flanged connections, high standard internal finish	Designed to international standards
	Automatic wiper (quartz cleaning)	Self cleaning to maintain performance
	*Ultrawipe (chemically enhanced wiper)	Clean quartz sleeves despite high fouling potential
INTEGRATION		
Compact design	Can be retrofitted to existing process	Easy integration

* Option



			Dimensions (mm)								Approx weight (Kg)	
Stabilize Tuz Reddi (%)			Chamber				Cab.	Cabinet (fan cooled)a			Chamber	Cabinet
Model Number	Max. Power (kW)	No of lamps	A	B	C	DN	No***	K*	L	M**	Empty	Fan cooled Kg/pc
ProLine WW IL 100	1.8	2	780	310	400	100	1	300	800	1000	42	50
ProLine WW IL 250	5.6	2	780	310	540	150	1	300	1000	1200	55	80
ProLine WW IL 400	11	4	780	310	465	150	1	300	1000	1200	55	100
ProLine WW IL 1000	11	4	780	310	600	200	1	300	1000	1200	80	100
ProLine WW IL 1250	16.5	6	780	310	600	200	1	300	1200	1200	80	165
ProLine WW IL 4500	26	6	896	368	800	350	1	600	1000	2100	170	200
ProLine WW IL 5000	35	8	896	368	800	350	1	600	1200	2100	170	230
ProLine WW IL 7500	52	12	896	368	800	350	1 CC 1 PC	400 600	600 1200	2000 2100	170	130 310
ProLine WW IL 14000	52	8	1052	446	900	500	1 CC 1 PC	400 600	600 1200	2000 2100	260	130 290
ProLine WW IL 15000	52	12	1052	446	900	500	1 CC 1 PC	400 600	600 1200	2000 2100	260	130 310
ProLine WW IL 16000	78	12	1052	446	900	500	1 CC 2 PC	400 600	600 1200	2000 2100	260	130 260
ProLine WW IL 18000	117	18	1052	446	900	500	1 CC 3 PC	600 600	1000 1200	2010 2100	270	130 260

* 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 a 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.

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
Inspection hatch:	Removable plate (except WW IL 100)
Degree of protection:	IP54 equivalent to NEMA 12
Wiper:	Automatic (electrically driven)
Arc tube (lamp):	Medium pressure
Arc tube enclosure:	Pure quartz (F200)
Number of arc tubes (lamps):	See table above
Expected lamp life:	12000 hours
Temperature sensor:	Yes
UV sensor:	Dry DVGW compliant UV sensor (one per UV chamber)
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 (CONTINUED)
Water level sensor: Full water detection UV chamber
Water leak detection: Detects water leaks from quartz sleeve
Quartz sleeve F240 (reduces performance)
UL 508A shop approval
Welder pack

CUSTOMER COMMUNICATIONS PORT
Modbus RS 485 serial RTU for SCADA connection

APPROVALS
CE marked

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

CABINET (CONTROLLER UVTRONIC)	
Material:	Polyester coated carbon steel, RAL 7035
Degree of protection:	IP54 (NEMA 12)
Supply voltages:	WW IL 100-1250: 200-277 V (+/- 10%) (2ph L1,L2 or 1ph L1+N) WW IL 4500 - 18000: 380-480 V (-5% to +10%), (3ph L1, L2, L3) 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:	4 Line LCD, indicating system status including general alarms
Operating menu:	3 levels (2 with password protection)
Fault finding:	Event log

CUSTOMER OUTPUTS	
4-20 mA passive output:	UV dose, 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, full water level detection water leak, water temperature warning, water and cabinet temp. alarm

OPTIONS (CONTINUED)
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 slooping 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
Operating pressure: 10 Bar
Ultrawipe (for WW IL 250-18000)

* See sales drawings for dimensions

ALSO AVAİLABLE İN OUR WASTE WATER PRODUCT RANGE...

PROLINE WW IL

PROLINE PQ WW AL

Range of amalgam products wiht NWRI validation for waste water reuse

PROLINE PQ WW IL

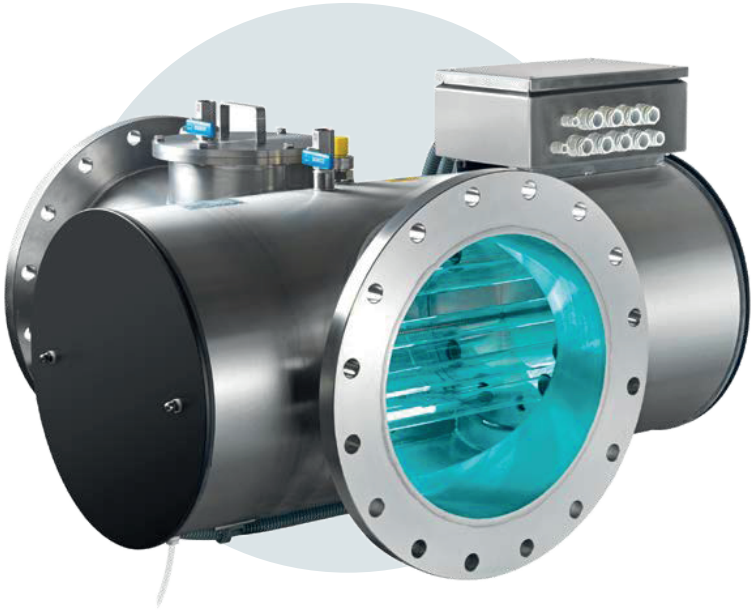
Range of medium pressure products with NWRI validation for waste water reuse

NWRI VALİDATED UV TREATMENT FOR WASTE WATER REUSE

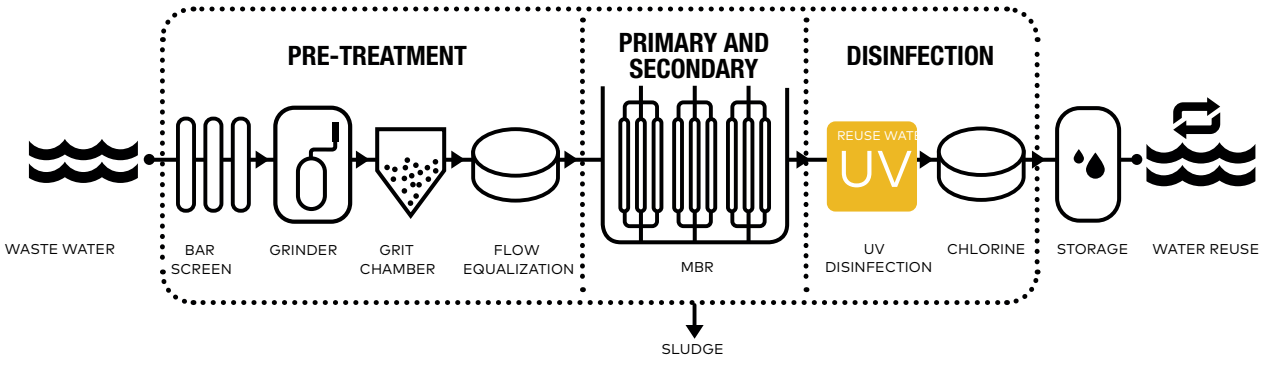
Our ProLine PQ WW IL range of Waste Water Reuse UV solutions have been protecting people and the environment from harmful contamination from bacteria and viruses for decades. With increasing urbanisation and water stress the need for tertiary treatment and disinfection of waste water is growing to enable safe and secure recovery of waste water for use as irrigation water, aquifer recharge or for direct reuse as process water in industry or as drinking water. UV is also growing in popularity in this application as it provides a proven alternative to Chlorination avoiding the generation of potentially harmful by-products. This is particularly useful when the waste water is discharged into sensitive environments of critical reuse applications. The ProLine PQ WW IL are compact medium pressure lamp systems and have been validated by a third party to the NWRI standard across a wide range of dose, flow and UVT parameters and have proven performance for disinfection after sand filter and membrane filters.

We UVCare

PROLINE PQ WW IL

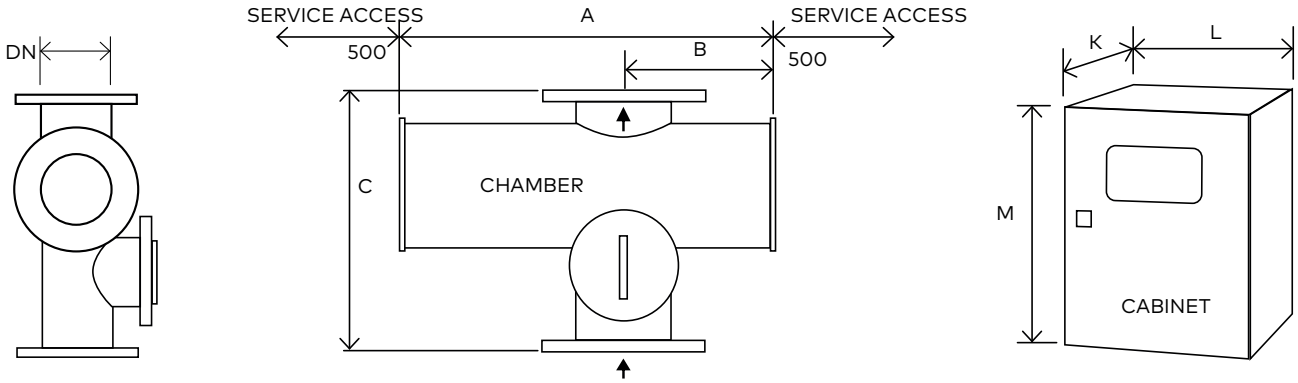


POTENTİAL LOCATİON OF THE PROLİNE PQ WW IL™ İN A DECENTRALİZED TREATMENT SYSTEM



KEY FEATURES	WHAT IT GIVES YOU	BENEFITS FOR YOU
INTELLIGENCE		
Dry DVGW approved UV sensor measuring germicidal wavelengths	Continuous verification of performance with real time RED dose reading and inbuilt 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
OPTIMISATION		
Third party validated UV systems tested in accordance with the National Water Research Institute for Water Reuse (NWRI)	UV system dose equations and sizing have been independently derived	Confidence the system will perform as stated
UV waste water disinfection	Protects the environment from harmful microbiological contamination	No chemicals
Designed for reuse and waste water applications	Flanged connections, high standard internal finish	Designed to international standards
	Automatic wiper (quartz cleaning)	Self cleaning to maintain performance
	*Ultrawipe (chemically enhanced wiper)	Clean quartz sleeves despite high fouling potential
INTEGRATION		
Compact design	Can be retrofitted to existing process	Easy integration

* Option



			Dimensions (mm)								Approx weight (Kg)	
			Chamber				Cab.	Cabinet (fan cooled)[a]			Chamber	Cabinet
Model Number	Max. Power (kW)	No of lamps	A	B	C	DN	No***	K*	L	M**	Empty	Fan cooled Kg/pc
ProLine PQ WW IL 250	5.6	2	780	310	540	150	1	300	1000	1200	55	80
ProLine PQ WW IL 400	11	4	780	310	465	150	1	300	1000	1200	55	100
ProLine PQ WW IL 1000	11	4	780	310	600	200	1	300	1000	1200	80	100
ProLine PQ WW IL 1250	16.5	6	780	310	600	200	1	300	1200	1200	80	165
ProLine PQ WW IL 5000	26	6	896	368	800	350	1	600	1000	2100	170	200
ProLine PQ WW IL 4500	35	8	896	368	800	350	1	600	1200	2100	170	230
ProLine PQ WW IL 7500	52	12	896	368	800	350	1 CC 1 PC	400 600	600 1200	2000 2100	170	130 310
ProLine PQ WW IL 16000	78	12	1052	446	900	500	1 CC 2 PC	400 600	600 1200	2000 2100	260	130 260
ProLine PQ WW IL 18000	117	18	1052	446	900	500	1 CC 3 PC	400 600	600 1200	2000 2100	270	130 260

* 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
a 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.

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 slooping 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 and 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
Operating pressure: 10 Bar
UL 508A shop apWelder packl
Welder pack

* See sales drawings for dimensions

OPTIONS (CONTINUED)

Ultrawipe
Water level sensor: UV chamber full water detection
Water leak detection: Detects water leaks from quartz sleeve

CABINET (CONTROLLER UVTOUCH)

Material:	Polyester coated carbon steel, RAL 7035
Degree of protection:	IP54 (NEMA 12)
Supply voltages:	PQ WW IL 250-1250: 200-277 V (+/- 10%) (2ph L1,L2 or 1ph L1+N) PQ WW IL 4500-18000: 380-480 V (-5% to +10%), (3ph L1, L2, L3) 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)

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
Inspection hatch	Removable plate
Degree of protection:	IP54 equivalent to NEMA 12
Wiper:	Automatic (electrically driven)
Arc tube (lamp):	Medium pressure
Arc tube enclosure:	Pure quartz (F200)
Number of arc tubes (lamps):	See table above
Expected lamp life:	12000 hours
Temperature sensor:	Yes
UV sensor:	Dry DVGW compliant UV sensor (one per chamber)
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

HMI / CONTROL	
Display:	4 line LCD, 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, 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, full water level detection water leak, water temperature warning, water and cabinet temperature alarm

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

CUSTOMER COMMUNICATIONS PORT
Modbus RS 485 serial RTU for SCADA connection

APPROVALS
CE marked, NWRI validated

ALSO AVAİLABLE İN OUR WASTE WATER PRODUCT RANGE...

PROLINE PQ WW IL

PROLINE PQ WW AL

Range of amalgam products with NWRI validation for waste water reuse

PROLINE WW IL

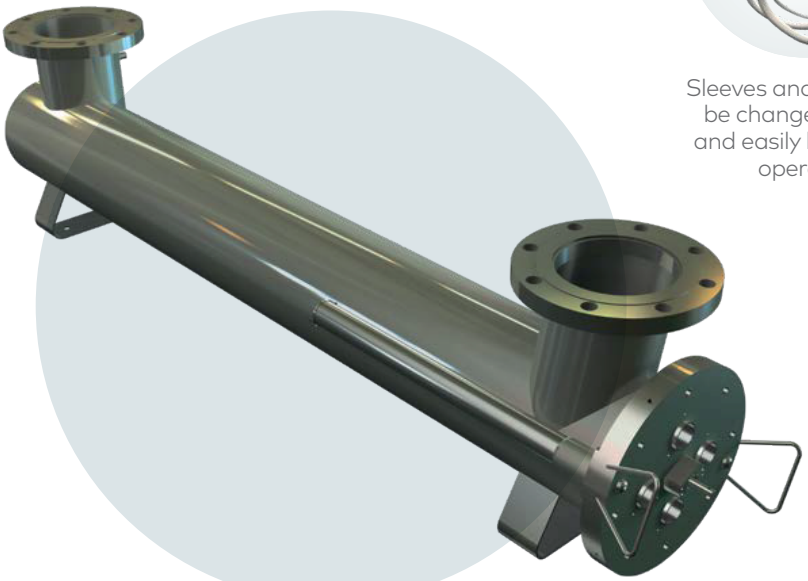
Range of compact medium pressure products for waste water disinfection

NWRI VALİDATED UV TREATMENT FOR WASTE WATER REUSE

Our ProLine PQ WW AL UV systems are low energy, amalgam lamp systems optimised to deliver effective UV disinfection for waste water reuse. The PQ WW AL is third party validated to NWRI and integrates an innovative multiple low pressure lamp chamber design with sensors and intelligent control technology to automatically deliver optimum disinfection performance with high operational efficiency. The PQ WW AL will eliminate harmful micro-organisms, reduce the bio-burden, protect against bio-fouling and lower operating costs. Each system comes with a certified dry UV sensor that measures the germicidal output of the UV system and a UV dose read out makes it easy to monitor and log performance.

We UVCare

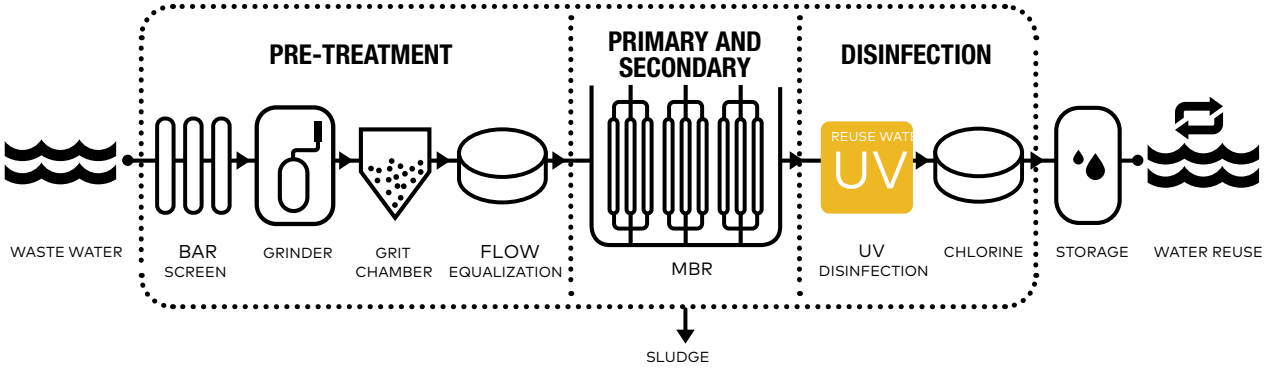
PROLINE PQ WW AL



Sleeves and wiper can be changed quickly and easily by a single operator

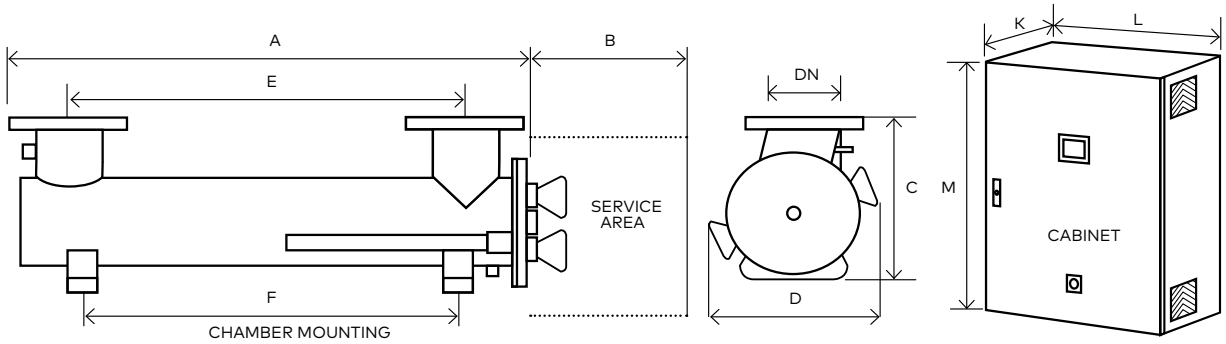
Patented lamp connector provides user safety and easy servicing

POTENTİAL LOCATİON OF PROLİNE PQ WW AL™ İN DECENTRALİZED TREATMENT SYSTEM



KEY FEATURES	WHAT IT GIVES YOU	BENEFITS FOR YOU
INTELLIGENCE		
UV sensor	Continuous verification of performancewith real time red UV dose reading andin-built low UV dose alarm	Easy to monitor and log system performance
Flow and UV transmittance (UVT) meter inputs	Stepless adjustment of lamp power based on real time operating conditions	Optimised use of energy, saving operating costs
OPTIMISATION		
Multiple low pressure lamps	Provides optimum wavelength to disinfect your reuse and waste water	No chemicals
	High treatment capacity	Compact footprint and reduced operating cost
Innovative chamber design	Maximises the water's exposure to UV light	Reduces energy costs
Designed for reuse and waste water applications	Flanged connections, high standard internal finish	Designed to international standards
	Automatic wiper	Self cleaning to maintain performance
INTEGRATION		
Designed for your process	*Skid mountable	Easy to install

* Option



			Dimensions (mm)										Approx weight (Kg)	
			Chamber							Control				
Model	Max Power (kW)		A	B	C	D	E	F	DN	K*	L	M**	Chamber (Empty)	Control Cabinet
	Starting	Running												
ProLine PQ WW AL 100	2.4	1.2-2.4	1710	1500	420	400	1417	1372	150	300	800	1000	150	70
ProLine PQ WW AL 300	7.2	3.6-7.2	1800	1500	605	560	1372	1475	250	400	1200	1200	300	140

* 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).
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
Internal finish:	As made pipe and tube, <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 PN16
Drain connection:	BSP socket
End plate:	Removable end plate
Degree of protection:	IP54 equivalent to NEMA 12 but not for outside use
Arc tube (lamp):	Low pressure
Arc tube enclosure:	Pure quartz (F200)
Number of arc tubes (lamps):	4 (PQ WW AL 100), 12 (PQ WW AL 300)
Expected lamp life:	9000 hours
Temperature sensor:	Yes
UV sensor:	Calibrated DVGW compliant dry sensor
Working fluid temperature:	5°C to 40°C
Hydrostatically pressure tested:	Yes
Wiper:	Automatic (electrically driven)
Chamber mounting:	Horizontal only
Operating pressure:	10 bar (positive pressure only)
Seals:	EPDM, ADI free, EC 1935/2004, FDA 21 CFR 177.2600 approved

OPTIONS

Document Support Pack
Cabinet material: Stainless steel 304, IP54 (NEMA 12)
Cabinet material: Stainless steel 304 with air conditioning (5-50°C), IP66 (NEMA 4x), relative humidity <95% non condensing. See sales drawings for sizes
Operation and Maintenance manual and printed Installation and Commissioning manual in Chinese, English, French, German and Spanish
Flange options: ANSI 150, JIS, Table 'E'
Lead length: 20 and 29 m
Welder Document Pack for chamber construction
Skid mounting (not ship board or earthquake zone)
Air vent connection
In field UV reference sensor kit
UL 508A labeled for cabinet

CABINET (CONTROLLER UVTOUCH)

Material:	Polyester coated carbon steel
Degree of protection:	IP54 / NEMA 12
Supply voltages:	230 V (+/- 10%), 50/60 Hz
Operating temp range:	5°C to 40°C
Relative humidity:	<85% non-condensing
Cooling fans:	Yes
Variable power:	Stepless variable power (50% reduction from maximum ballast power)
Interconnecting cable lengths:	10 m to chamber

CUSTOMER OUTPUTS

4-20 mA outputs:	UV RED dose, lamp driven output power (%)
VFC outputs:	System ready, system stand by, system running, common warning, common trip, system in remote

CUSTOMER INPUTS

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

CUSTOMER COMMUNICATIONS PORT

Modbus RS 485 serial RTU for SCADA connection

APPROVALS

CE marked, NWRI validated (PQ WW AL 100 only)

ALSO AVAİLABLE İN OUR WASTE WATER PRODUCT RANGE...

PROLINE PQ WW AL

PROLINE PQ WW AL

Range of medium pressure products with NWRI validation for waste water reuse

PROLINE WW IL

Range of compact medium pressure products for waste water disinfection

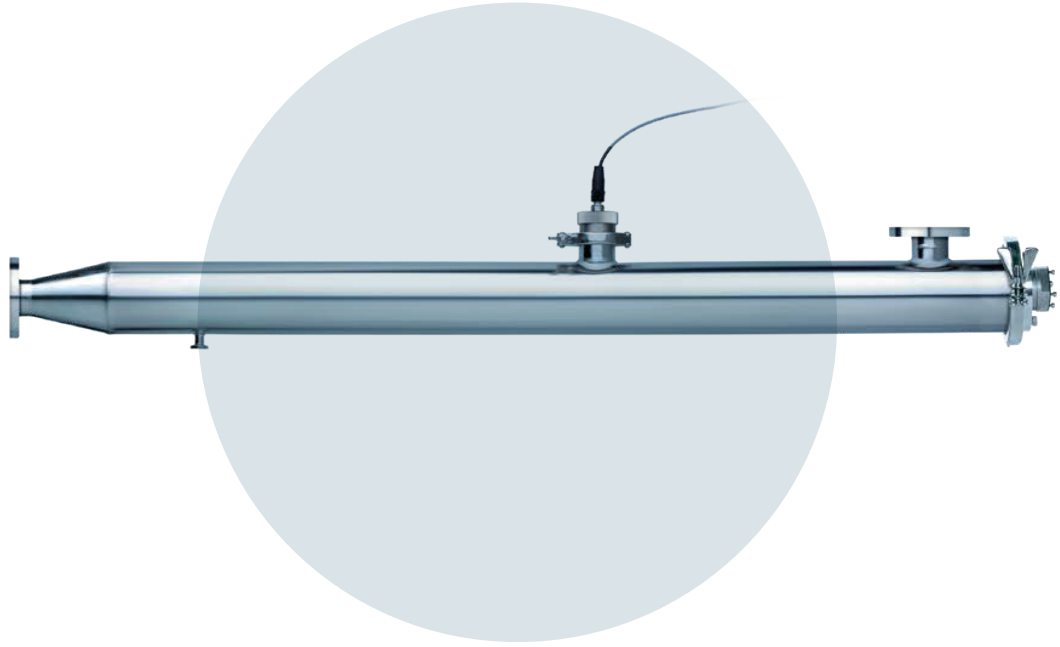
APPLİCATİON OPTİMİSED UV FOR DRİNKİNG WATER

VALİDATED UV TREATMENT FOR DRİNKİNG WATER

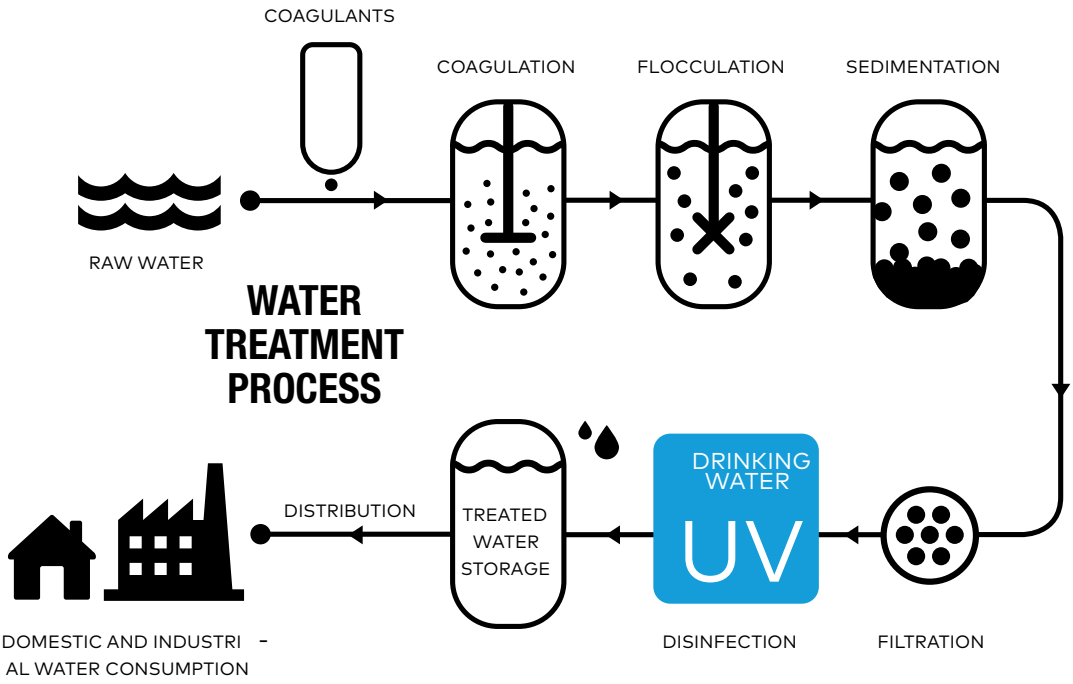
Our ProLine PQ AF range of Drinking Water UV solutions protects people from harmful contamination from bacteria and viruses. Even at low doses UV provides protection against Chlorine resistant pathogens such as Cryptosporidium and Giardia. UV is therefore used for Drinking Water worldwide as a Cryptosporidium barrier. Often used in conjunction with Chlorine UV provides an additional level of safety and allows lower Chlorine consumption at much lower costs than Ozone or membrane filtration. At higher doses UV provides general disinfection and at higher doses still it can provide Virus protection, depending on your design philosophy. The PQ AF integrates a single low pressure lamp chamber design with sensors and intelligent control technology to automatically deliver optimum disinfection performance with high operational efficiency. Each system comes with a certified dry UV sensor that measures the germicidal output of the UV system and a UV dose read out makes it easy to monitor and log performance.

We UVCare

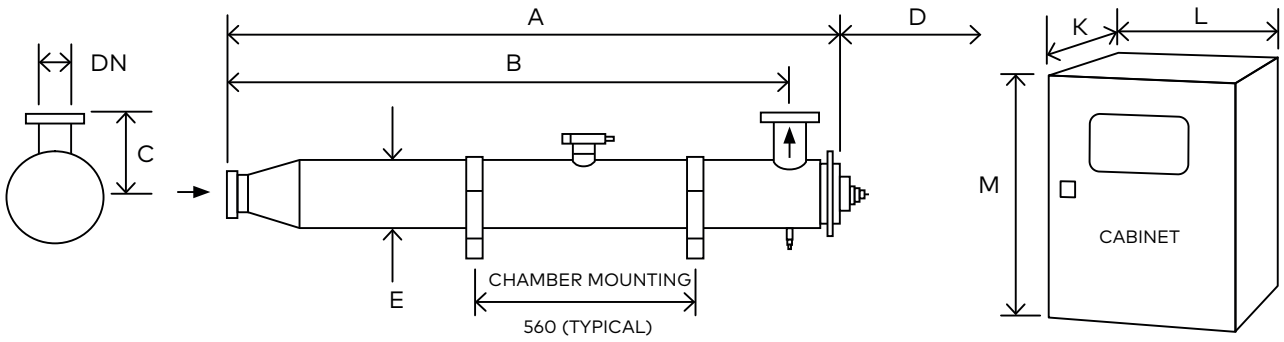
PROLINE PQ AF



POTENTİAL LOCATİONS OF THE PROLİNE PQ AF™ İN DRİNKİNG WATER TREATMENT PROCESS



KEY FEATURES	WHAT IT GIVES YOU	BENEFITS FOR YOU
INTELLIGENCE		
Dry DVGW approved UV sensor measuring germicidal wavelengths	Continuous verification of performancewith real time RED dose reading and inbuilt low dose warning	Easy to monitor and log system performance
Flow and UV transmittance (UVT) meter inputs	UV system dose equations and sizing have been independently derived	Confidence the system will perform as stated
OPTIMISATION		
Third party validated UV systems tested in accordance with the USEPA UV Disinfection Guidance Manual	UV system dose equations and sizing have been independently derived	Confidence the system will perform as stated
UV water disinfection	Protects your drinking water from microbiological contamination including chlorine resistant Cryptosporidium and Giardia	Does not affect taste and odour
		No chemicals
Designed for treatment of drinking water	FDA-approved materials used for all wetted parts	Designed to international standards
	Flanged connections, high standard internal finish	Self cleaning to maintain performance
	Automatic wiper (quartz cleaning)	Self cleaning to maintain performance
INTEGRATION		
Compact Design	*Skid mountable	Easy to install
	Can be retrofitted to existing process	
RS 485 interface	Single cable connection to customer control system	Easy integration to SCADA or plant control systems



			Dimensions (mm)									Approx weight (Kg)	
Model Number	Max Power (W)	Min T_{10}(%)	A	B	C	D	E	DN	K*	L	M**	Chamber (Empty)	Control Cabinet
ProLine PQ AF 0008	200	60	1388	1273	82	1300	102	50	224	600	890	9	36
ProLine PQ AF 0016	350	60	1388	1273	82	1300	102	50	224	600	890	9	36
ProLine PQ AF 0090	750	60	1825	1825	200	1900	206	150	224	600	890	46	36

* 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).
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.

OPTIONS
Transmittance compensating dose equation
Document Support Pack
Cabinet material: Stainless steel 304 or 316 with sloping roof
Operation and Maintenance manual and printed Installation and Commissioning manual in Chinese, English, French, German and Spanish
Flange options: ANSI 150 (NPT drain), JIS, Table 'E'
UVShield™
Water leak detection
UL listing
UL 508A panel shop
Bleed: BSPT connection and valve
Lead length: 20 & 29 m PQ AF 0008, 14 m PQ AF 0016 - 0090

OPTIONS (CONTINUED)
In-field UV reference sensor kit
Welder Document Pack for chamber construction
Skid mounting (not ship board or earthquake zone)

CABINET (CONTROLLER UVTRONIC)	
Material:	Polyester coated carbon steel
Degree of protection:	IP66 / NEMA 4
Supply voltages (nominal):	230 V (+/- 10%) 50/60 Hz
Operating temperature range:	5°C to 40°C
Relative humidity:	<95% non-condensing
Cooling fans:	No
Interconnecting cable:	10 m
Variable power:	Stepless variable power on PQ AF 0090 only (40% reduction from max ballast power, 20% dose reduction)

UV CHAMBER	
Material:	StSt 316L / 1.4404
Internal finish:	As made pipe and tube, welds as laid, electropolished and passivated
External finish:	Sateen polish (120 grit) electropolished and passivated
Process (mating) connections:	Flange EN 1092-1 PN16
Drain connection:	BSPT
End plate:	Removable tri-clamp except PQ AF 0090 which is flanged
Degree of protection:	IP65 equivalent to NEMA 4 but not for outside use
Arc tube (lamp):	Low pressure amalgam
Wiper:	Automatic (pneumatically driven)
Arc tube enclosure:	Pure quartz (F200)
Number of arc tubes (lamps):	1
Expected lamp life:	12000 hours
Temperature sensor:	Yes
UV sensor:	Dry DVGW compliant UV sensor with UVGuard™ window
Working fluid temperature:	5°C to 40°C
Hydrostatically pressure tested:	Yes to PED requirements EN 13445
Chamber mounting:	Horizontal only
Operating pressure:	10 bar (positive pressure only)
Seals:	EPDM, ADI free, EC 1935/2004, FDA 21 CFR 177.2600 approved

HMI / CONTROL	
Display:	4 line LCD, indicating system status including alarms
Operating menu:	3 levels with password protection
Fault finding:	Event log

CUSTOMER OUTPUTS	
4-20 mA active outputs:	UV dose and UV intensity
24 V dc 10 mA max outputs:	Lamp ON, any trip, any warning, system ready, system in remote, bleed valve

CUSTOMER INPUTS	
4-20 mA active or passive inputs:	Flow meter and transmittance meter
VFC inputs:	Remote stop/start and remote reset

CUSTOMER COMMUNICATIONS PORT	
RS 485:	Modbus

APPROVALS
CE marked, USEPA (UVDGM)

ALSO AVAİLABLE İN OUR DRİNKİNG WATER PRODUCT RANGE...

PROLINE PQ AF

PROLINE PQ EO

Energy Optimised medium pressure range, USEPA validated with built in UVT compensation

PROLINE PQ AL

Small to mid-sized community, low energy multi-lamp amalgam range with USEPA validation and built in UVT compensation

PROLINE PQ IL

Compact medium pressure range with USEPA validation, for use where space is tight in small to mid-sized communities

PROLINE PQ IL DVGW

Compact medium pressure range with DVGW certification, for use where space is tight in small to mid-sized communities

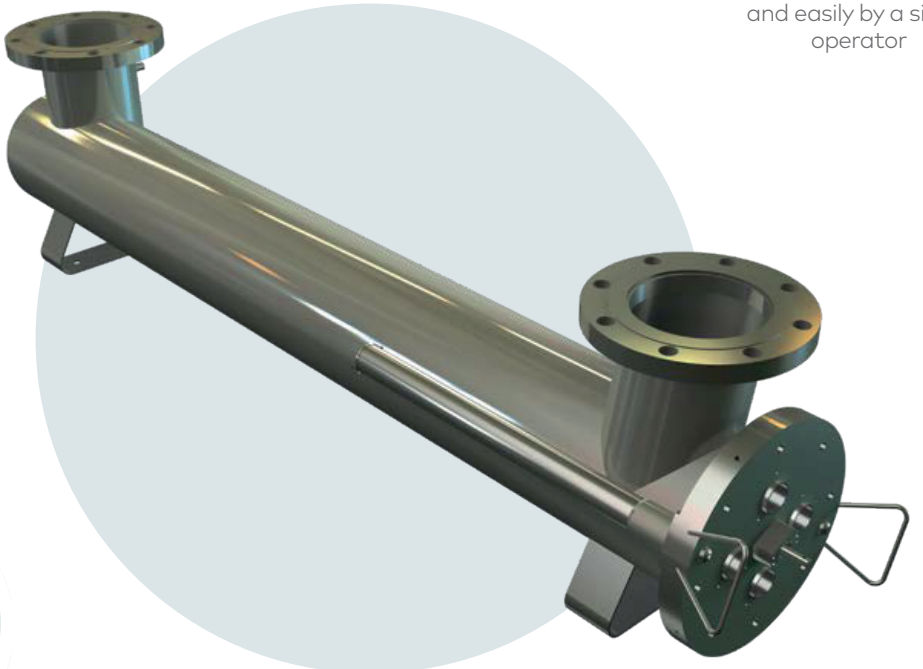
VALİDATED UV TREATMENT FOR DRİNKİNG WATER

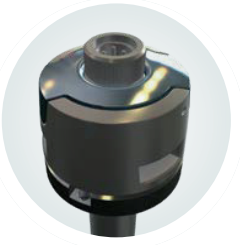
Our Proline PQ AL UV systems are optimised to deliver effective UV disinfection for drinking water. The PQ AL integrates an innovative multiple low pressure lamp chamber design with sensors and intelligent control technology to automatically deliver optimum disinfection performance with high operational efficiency. The PQ AL will disinfect the water, 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.

We UVCare

PROLINE PQ AL

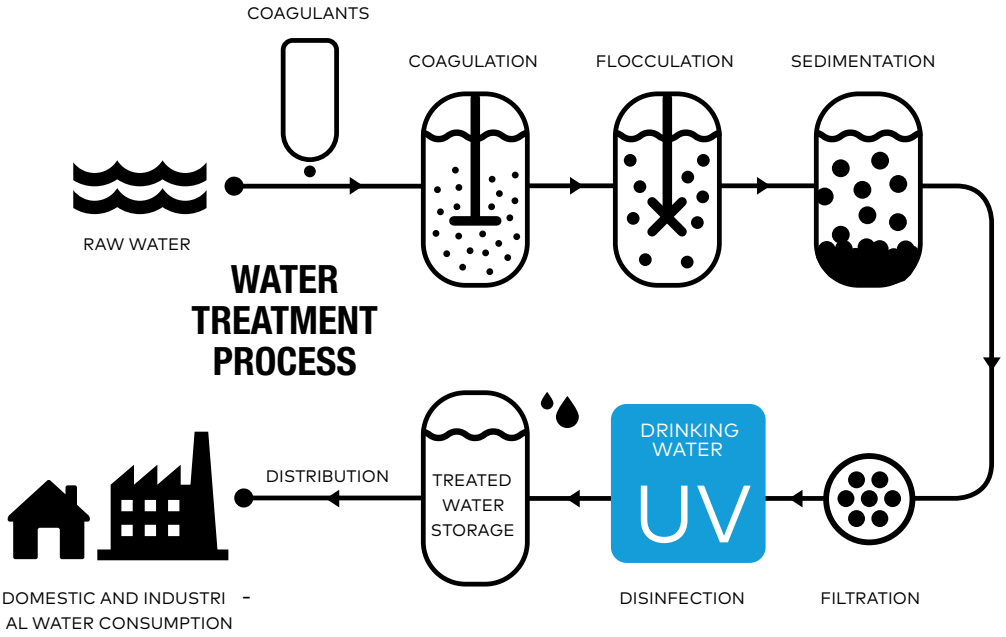
Sleeves and wiper can be changed quickly and easily by a single operator





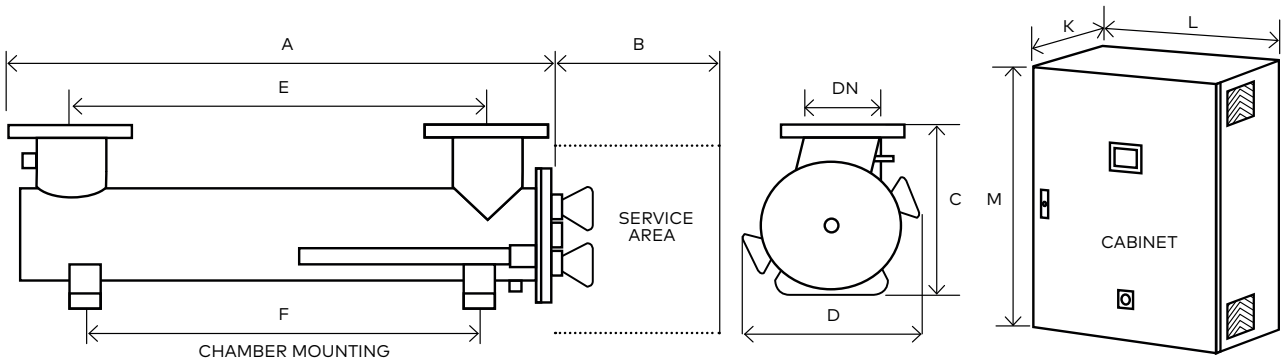
Patented lamp connector provides user safety and easy servicing

POTENTİAL LOCATİON OF PROLİNE PQ AL™ İN DRİNKİNG WATER TREATMENT PROCESS



KEY FEATURES	WHAT IT GIVES YOU	BENEFITS FOR YOU
INTELLIGENCE		
UV sensor	Continuous verification of performance with real time red UV dose reading and in-built low UV dose alarm	Easy to monitor and log system performance
Flow and UV transmittance (UVT) meter inputs	Stepless adjustment of lamp power based on real time operating conditions	Optimised use of energy, saving operating costs
OPTIMISATION		
Third party validated UV systems tested in accordance with the USEPA UV Disinfection Guidance Manual	UV system dose equations and sizing have been independently derived	Confidence the system will perform as stated
Multiple low pressure lamps	Provides optimum wavelength to disinfect your drinking water	Does not affect taste and odour
		No chemicals
	High treatment capacity	Compact footprint and reduced operating cost
Innovative chamber design	Maximises the water's exposure to UV light	Reduces energy costs
Designed for treatment of drinking water	Flanged connections, high standard internal finish	Designed to international standards
	FDA and EC approved seals	Industry compliant materials
	Automatic wiper	Self cleaning to maintain performance
INTEGRATION		
Designed for your process	*Skid mountable	Easy to install

* Option



			Dimensions (mm)										Approx weight (Kg)	
			Chamber							Control				
Model	Max Power (kW)		A	B	C	D	E	F	DN	K*	L	M**	Chamber (Empty)	Control Cabinet
	Starting	Running												
ProLine PQ AL 100	2.4	1.2-2.4	1710	1500	420	400	1417	1372	150	300	800	1000	150	70
ProLine PQ AL 300	7.2	3.6-7.2	1800	1500	605	560	1372	1475	250	400	1200	1200	300	140

* 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).
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.

OPTIONS
Document Support Pack
Cabinet material: Stainless steel 304, IP54 (NEMA 12)
Cabinet material: Stainless steel 304 with air conditioning (5-50°C), IP66 (NEMA 4x), relative humidity <95% non condensing. See sales drawings for sizes
Operation and Maintenance manual and printed Installation and Commissioning manual in Chinese, English, French, German and Spanish
Flange options: ANSI 150, JIS, Table 'E'
Lead length: 20 and 29 m
Welder Document Pack for chamber construction
Skid mounting (not ship board or earthquake zone)
Air vent connection
In field UV reference sensor kit
UL 508A labeled for cabinet

CABINET (CONTROLLER UVTOUCH)	
Material:	Polyester coated carbon steel
Degree of protection:	IP54 / NEMA 12
Supply voltages:	230V (+/- 10%), 50/60 Hz
Operating temp range:	5°C to 40°C
Relative humidity:	<85% non-condensing
Cooling fans:	Yes
Variable power:	Stepless variable power (50% reduction from maximum ballast power)
Interconnecting cable lengths:	10 m to chamber

UV CHAMBER	
Material:	StSt 316L / 1.4404
Internal finish:	As made pipe and tube, <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 PN16
Drain connection:	BSP socket
End plate:	Removable end plate
Degree of protection:	IP54 equivalent to NEMA 12 but not for outside use
Arc tube (lamp):	Low pressure
Arc tube enclosure:	Pure quartz (F200)
Number of arc tubes (lamps):	4 (PQ AL 100), 12 (PQ AL 300)
Expected lamp life:	9000 hours
Temperature sensor:	Yes
UV sensor:	Calibrated DVGW compliant dry sensor
Working fluid temperature:	5°C to 40°C
Hydrostatically pressure tested:	Yes
Wiper:	Automatic (electrically driven)
Chamber mounting:	Horizontal only
Operating pressure:	10 bar (positive pressure only)
Seals:	EPDM, ADI free, EC 1935/2004, FDA 21 CFR 177.2600 approved

CUSTOMER OUTPUTS	
4-20 mA outputs:	UV RED dose, lamp driven output power (%)
VFC outputs:	System ready, system stand by, system running, common warning, common trip, system in remote

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

CUSTOMER COMMUNICATIONS PORT
Modbus RS 485 serial RTU for SCADA connection

APPROVALS
CE marked, USEPA (UVDGM)

ALSO AVAİLABLE İN OUR DRİNKİNG WATER PRODUCT RANGE...

PROLINE PQ AL

PROLINE PQ EO

Energy Optimised medium pressure range, USEPA validated with built in UVT compensation

PROLINE PQ AF

Small community, low energy amalgam range with USEPA validation

PROLINE PQ IL

Compact medium pressure range with USEPA validation, for use where space is tight in small to mid-sized communities

PROLINE PQ IL DVGW

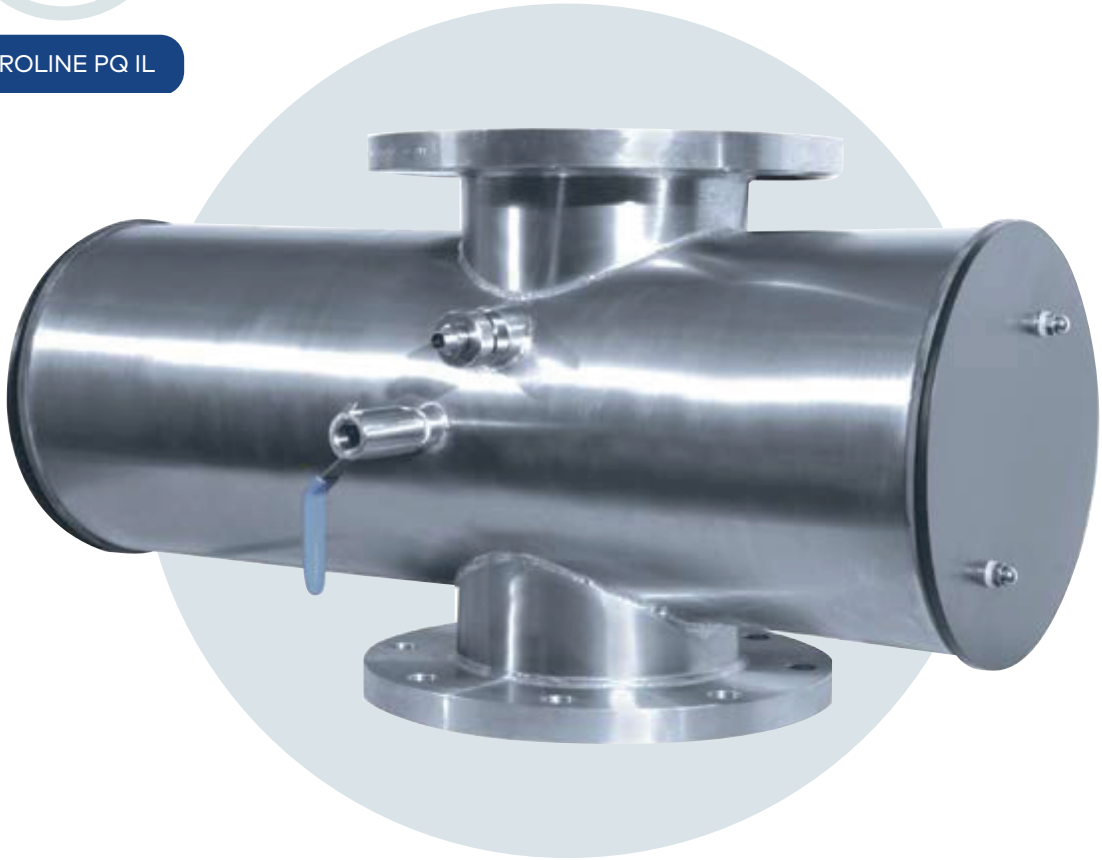
Compact medium pressure range with DVGW certification, for use where space is tight in small to mid-sized communities

VALİDATED UV TREATMENT FOR DRİNKİNG WATER

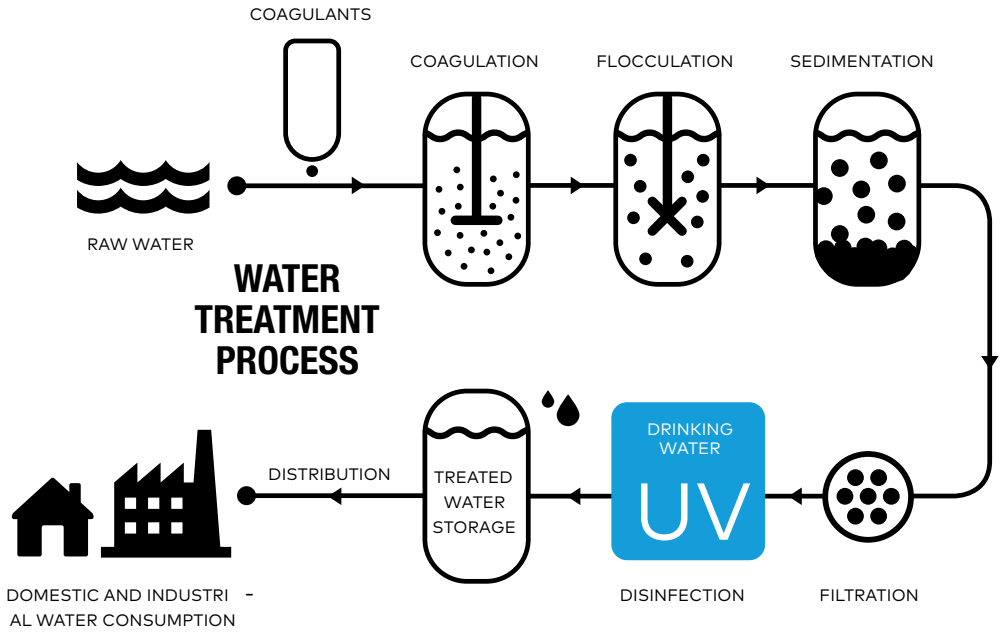
Our ProLine PQ IL systems are aimed specifically at providing third party validated UV disinfection for municipal drinking water. By using a third party validated UV system you can be certain that the UV dose being produced will disinfect the water, eliminate harmful micro-organisms, reduce the bio-burden, 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.

We UVCare

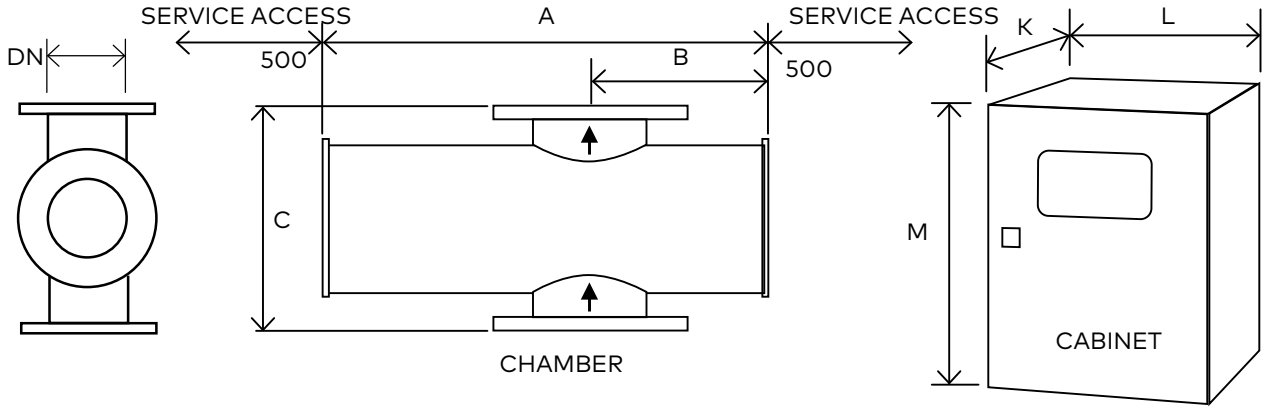
PROLINE PQ IL



POTENTİAL LOCATİONS OF PROLİNE PQ IL™ İN DRİNKİNG WATER TREATMENT PROCESS



KEY FEATURES	WHAT IT GIVES YOU	BENEFITS FOR YOU
INTELLIGENCE		
Dry DVGW approved UV sensor measuring germicidal wavelengths	Continuous verification of performance with real time RED dose reading and inbuilt 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
OPTIMISATION		
Third party validated UV systems tested in accordance with the USEPA UV Disinfection Guidance Manual	UV system dose equations and sizing have been independently derived	Confidence the system will perform as stated
UV water disinfection	Protects your drinking water from microbiological contamination including chlorine resistant Cryptosporidium and Giardia	Does not affect taste and odour
		No chemicals
	High treatment capacity	Compact footprint and reduced operating cost
Designed for treatment of drinking water	FDA-approved materials used for all wetted parts	Industry compliant materials
	Flanged connections, high standard internal finish	Designed to international standards
	Automatic wiper (quartz cleaning)	Self cleaning to maintain performance
INTEGRATION		
Compact design	Can be retrofitted to existing process	Easy to install



			Dimensions (mm)								Approx weight (Kg)	
			Chamber				Cab.	Cabinet (fan cooled)[a]			Chamber	Cabinet
Model Number	Max. Power (kW)	No of lamps	A	B	C	DN	No***	K*	L	M**	Empty	Fan cooled
ProLine PQ IL 450	5.6	2	780	310	400	200	1	300	1000	1200	78	80
ProLine PQ IL 1000	11	4	780	310	400	200	1	300	1000	1200	78	100
ProLine PQ IL 4000	17.5	4	896	368	550	350	1	600	1000	2100	150	180
ProLine PQ IL 4500	26	6	896	368	550	350	1	600	1000	2100	150	200
ProLine PQ IL 12000	39	6	1052	446	680	500	1 CC 1 PC	400 600	600 1200	2000 2100	240	130 260
ProLine PQ IL 14000	52	8	1052	446	680	500	1 CC 1 PC	400 600	600 1200	2000 2100	240	130 290

* 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
a 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.

OPTIONS (CONTINUED)
UL 508 A shop approval
Welder pack

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

HMI / CONTROL	
Display:	4 line LCD, indicating system status including alarms
Operating menu:	l3 levels (2 with password protection)
Fault finding:	Event log

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

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:	IIP54 equivalent to NEMA 12
Wiper:	Automatic (electrically driven)
Arc tube (lamp):	Medium pressure
Arc tube enclosure:	Doped quartz (F240)
Number of arc tubes (lamps):	See table above
Expected lamp life:	12000 hours
Temperature sensor:	Yes
UV sensor:	Dry DVGW compliant UV sensor (one per chamber)
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 slooping 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
Water leak detection: Detects water leaks from quartz sleeve
Water level sensor: UV chamber full water detection
Operating pressure: 10 Bar

CUSTOMER COMMUNICATIONS PORT
Modbus RS 485 serial RTU for SCADA connection

APPROVALS
CE marked, USEPA (UVDGM), NSF 61

ALSO AVAİLABLE İN OUR DRİNKİNG WATER PRODUCT RANGE...

PROLINE PQ IL

PROLINE PQ AF

Small community, low energy amalgam range with USEPA validation.

PROLINE PQ AL

Small to mid-sized community, low energy multi-lamp amalgam range with USEPA validation and built in UVT compensation

PROLINE PQ EO

Energy Optimised medium pressure range, USEPA validated with built in UVT compensation

PROLINE PQ IL DVGW

Compact medium pressure range with DVGW certification, for use where space is tight in small to mid-sized communities

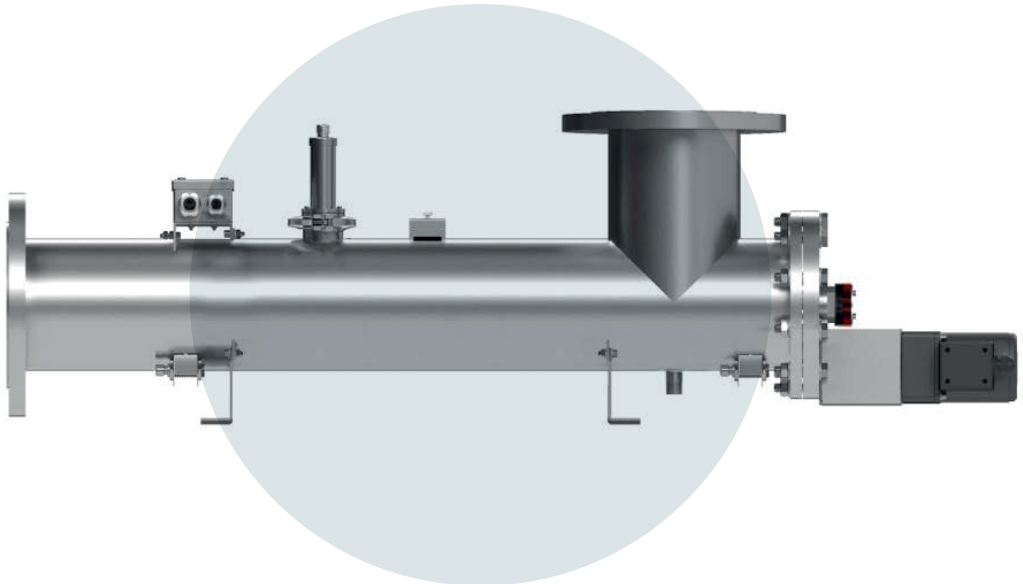
APPLİCATİON OPTİMİSED UV FOR AQUACULTURE

OPTİMİSED UV TREATMENT FOR AQUACULTURE

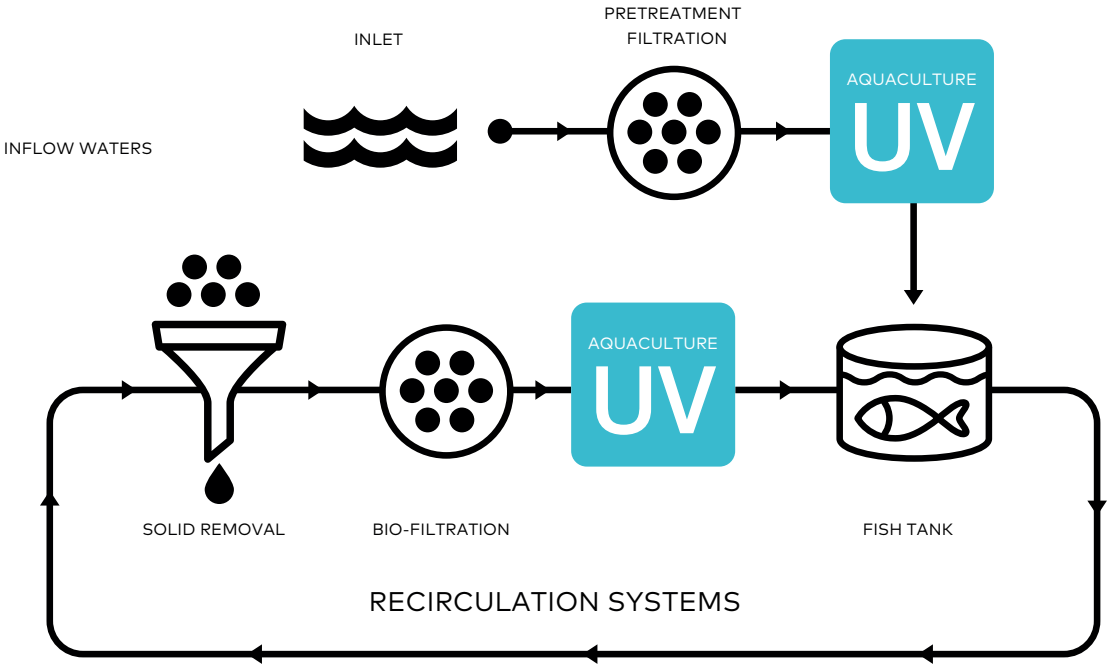
Our RASLine D EO UV systems are optimised to deliver effective UV disinfection for recirculating aquaculture systems. The D EO integrates an innovative single medium pressure lamp chamber design with sensors and intelligent control technology to automatically deliver optimum disinfection performance with high operational efficiency. The D EO will eliminate harmful microorganisms, reduce the bio-burden, protect against biofouling and lower operating costs. Each system comes with a certified dry UV sensor that measures the germicidal output of the UV system and a UV dose read out makes it easy to monitor and log performance.

We UVCare

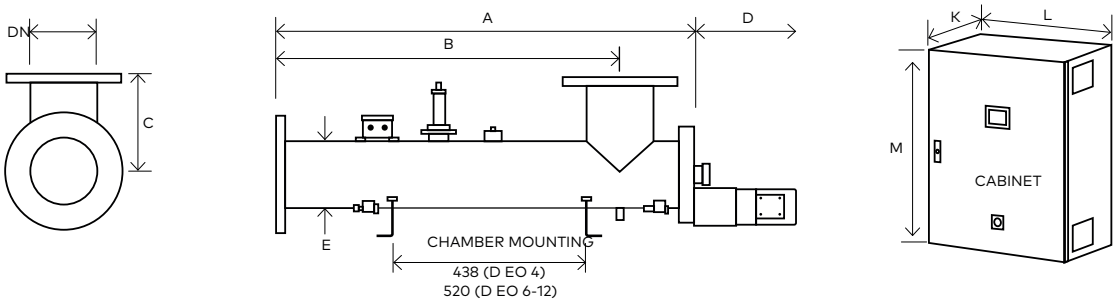
RASLINE D EO



POTENTİAL LOCATİONS OF THE RASLİNE D EO™ UV SYSTEM



KEY FEATURES	WHAT IT GIVES YOU	BENEFITS FOR YOU
INTELLIGENCE		
UV sensor	Continuous verification of performance with in-built low intensity alarm	Easy to monitor and log system performance
UVGuard™ on UV sensor window	Protects against UV exposure when checking a UV duty sensor with a reference sensor while the system is operating	Ability to safely audit the UV performance without interrupting production
Flow and UV transmittance (UVT) meter inputs	Stepless adjustment of lamp power based on real time operating conditions	Optimised use of energy, saving operating costs
OPTIMISATION		
Single medium pressure lamp	Provides germicidal wavelengths to disinfect the water	Protect your fish, your processes and the environment from harmful contamination without resorting to chemicals.
	Lower maintainance cost compared to multi-lamp system	Reduced operating costs
Automatic wiper (quartz cleaning)	Self cleaning	
INTEGRATION		
Designed for the treatment of aquaculture water	UVShield™ power cut-out for lamp access (option)	Enhanced operator safety when changing a lamp
	Can be retrofitted to existing process	Easy to install
	RS 485 Industrial Ethernet	Easy integration to building management systems



			Dimensions (mm)												Approx weight (Kg)		
			Chamber						Control Cabinet (fan cooled)			Control Cabinet (with A/C)			Cham-ber	Con-trol	Cabi-net
Model Number	Max Power (W)	Min T_{10}(%)	A	B	C	D	E	DN	K*	L	M**	K*	L	M**	Cham-ber (Empty)	Con-trol Cabi-net	Max Power (W)
	Starting																
RASLine D EO 4	4.5	80	1009/1232 with motor	823	165	900	114	100	400	800	1200	400	1250	1200	30	96	120
RASLine D EO 6	4.5	80	1035/1286 with motor	850	245	950	168	150	400	800	1200	400	1250	1200	44	96	120
RASLine D EO 8	4.5	80	1110 /1361 with motor	875	320	1000	210	200	400	800	1200	400	1250	1200	65	96	120
RASLine D EO 10	4.5	80	1190/1441 with motor	903	430	1100	273	250	400	800	1200	400	1250	1200	96	96	120
RASLine D EO 12	6.8	80	1430 /1685 with motor	1093	475	1325	324	300	400	800	1200	400	1250	1200	145	96	120

* 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).
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.

OPTIONS (CONTINUED)
Skid mounting (not ship board or earthquake zone)
Document Support Pack
UVShield™: Power cut-out for lamp access
UL 508A
Halogen free cables
Water leak detection
In field UV reference sensor kit

CABINET (CONTROLLER UVTOUCH™)	
Material:	Polyester coated carbon steel
Degree of protection:	IP55 / NEMA 12
Supply voltages:	380 V to 480 V (-5% to +10%), 50/60 Hz
Operating temp range:	5°C to 40°C
Relative humidity:	<85% non-condensing
Cooling fans:	Yes

UV CHAMBER	
Material:	StSt 316L / 1.4404
Internal finish:	As made pipe and tube, welds as laid, electropolished and passivated
External finish:	BS EN 10088-2 or 10088-3, 1J or 2J and ASTM No. 4
Process (mating) connections:	Flange EN 1092-1 PN16
Drain connection:	BSPT
End plate:	Removable end plate
Degree of protection:	IP65 equivalent to NEMA 4 but not for outside use
Wiper:	Automatic (electrically driven)
Arc tube (lamp):	Medium pressure
Arc tube enclosure:	Doped quartz (F240)
Number of arc tubes (lamps):	1
Expected lamp life:	9000 hours
Temperature sensor:	Yes
UV sensor:	Calibrated DVGW compliant dry sensor with UVGuard™ sensor window
Working fluid temperature:	1°C to 60°C
Hydrostatically pressure tested:	Yes to PED requirements EN 13445
Chamber mounting:	Horizontal only
Operating pressure:	6 bar (positive pressure only)
Seals:	EPDM, DVGW-W270 D1 and D2, NSF 51 and 61 approved

CUSTOMER OUTPUTS	
4-20 mA passive outputs::	UV intensity, UV dose and chamber temperature
VFC outputs:	Lamp ready (enable flow), System running, Common warning, Common trip, Low UV warning, Water leak detected, System in remote

OPTIONS
Cabinet: Stainless steel 304 with fans (5°-40°C), IP55 (NEMA 4X)
Cabinet: Stainless steel 304 with air conditioning (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 and Spanish
Flange options: ANSI 150 (NPT drain), JIS and Table 'E'
Operation and Maintenance manual and printed Installation and Commissioning manual in Chinese, English, French, German & Spanish
Lead length: 20 and 29 m
Bleed valve: valve supplied
Vent valve: manual valve
Welder Pack
Operating pressure: 10 bar and 16 bar
Aggressive water package: For 400 ppm to 20000 ppm chloride water

CABINET (GENERAL)	
Ballast power adjustment:	Stepless variable power (30 to 100% of maximum ballast rating)
Interconnecting cable:	10 m cabinet to chamber

CUSTOMER INPUTS	
4-20 mA passive inputs:	Stepless variable power (30 to 100% of maximum ballast rating)
VFC inputs:	Remote stop/start, Remote reset, Reduce power
24 V dc pulsed inputs:	Start and stop

CUSTOMER COMMUNICATIONS PORT	
RS 485:	Modbus

APPROVALS
CE marked

ALSO AVAİLABLE İN OUR AQUACULTURE PRODUCT RANGE...

RASLINE D EO

RASLINE D PH

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

RASLINE PQ IL

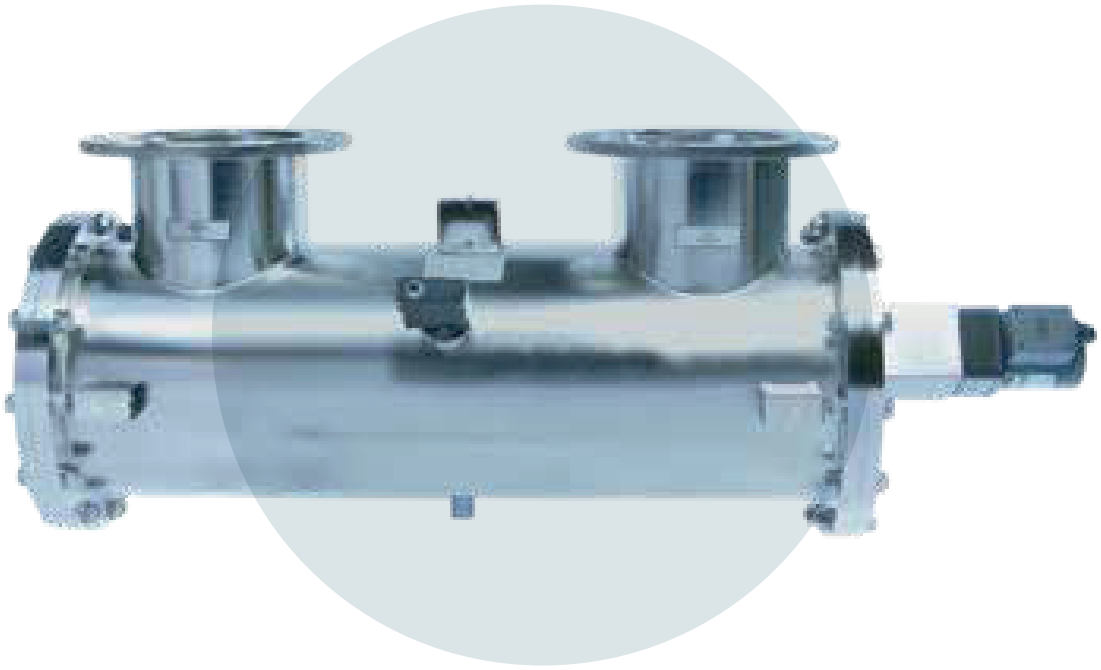
3rd party NVI validated systems for critical disinfection requiring approvals and a wide range of UVT applications.

UV TREATMENT FOR AQUACULTURE

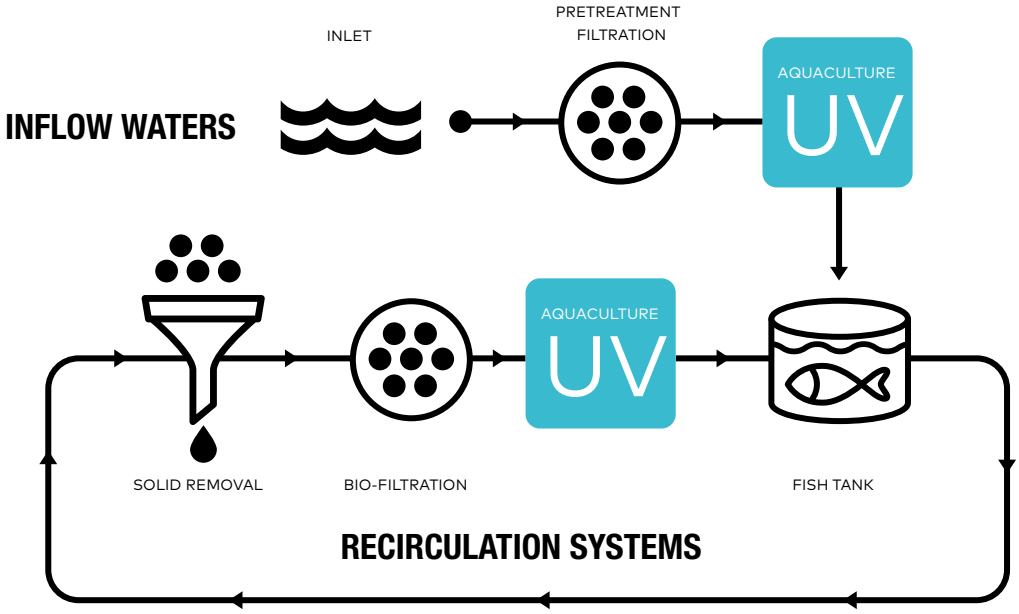
Our RASLine D PH systems are aimed specifically at providing UV disinfection for product and process waters used in the aquaculture industry. By using a UV system you will disinfect the water, eliminate harmful micro-organisms, reduce the bioburden, protect against bio-fouling and lower operating costs. Each system comes with a UV monitor to measure the germicidal output of the UV system and make it easy to monitor and log performance.

We UVCare

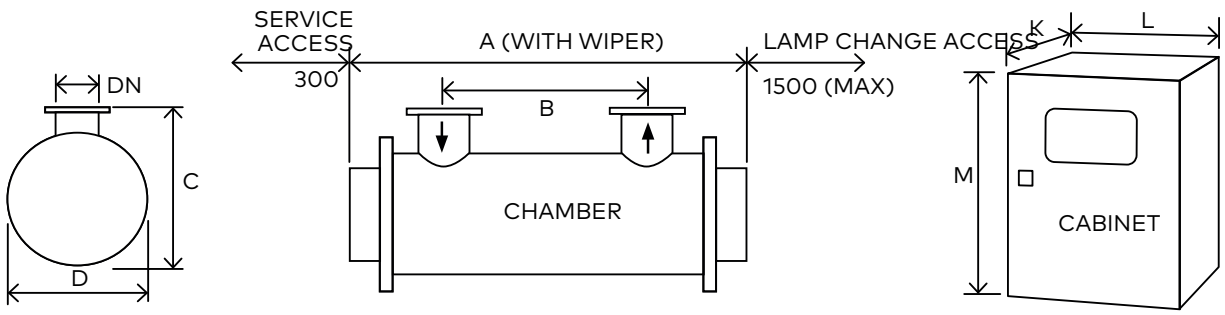
RASLINE D PH



POTENTİAL LOCATİONS OF THE RASLİNE D PH™ İN A RECİRCULATİNG AQUACULTURE SYSTEM (RAS)



KEY FEATURES	WHAT IT GIVES YOU	BENEFITS FOR YOU
INTELLIGENCE		
UV intensity monitor measuring germicidal wavelengths	Continuous verification of performance with in-built low intensity alarm	Easy to monitor and log system performance
OPTIMISATION		
UV water disinfection	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
	Automatic wiper (quartz cleaning)	Self cleaning
INTEGRATION		
Compact design	Can be fitted to skids	Easy integration
	Can be retrofitted to existing process	



			Dimensions (mm)								Approx weight (Kg)	
Model Number	Max Power (W)	Min T_{10}(%)	A	B	C	D	DN	K*	L	M**	Chamber (Empty)	Control Cabinet
RASLine D PH 0060	1.6	85	850	240	320	240	80	330	750	850	40	85
RASLine D PH 0080	2.7	91	1300	710	319	240	80	330	750	850	50	85
RASLine D PH 0083	2.7	91	1300	710	319	240	100	330	750	850	50	85
RASLine D PH 0095	4.4	81	1300	710	319	240	80	330	750	850	50	85
RASLine D PH 0100	4.4	811	1300	710	319	240	100	330	750	850	50	85
RASLine D PH 0209	4.4	90	1300	660	420	290	150	330	750	850	65	85
RASLine D PH 0240	5.8	84	1300	660	420	290	150	330	900	1100	65	85
RASLine D PH 0300	5.8	93	1300	610	505	410	200	330	900	1100	140	165
RASLine D PH 0400	16.5	62	1300	660	420	290	150	330	1100	1600	65	282
RASLine D PH 0530	7.8	90	1300	550	505	410	250	330	900	1100	140	165
RASLine D PH 0550	16.5	62	1300	610	505	410	200	330	1100	1600	140	282
RASLine D PH 0900***	25.2	62	1300	550	505	410	250	330	900	1600	140	165
								330	1100	1600		282
RASLine D PH 0950***	33	62	1300	610	505	410	250	330	1100	1600	140	282
								330	1100	1600		282
RASLine D PH 0970***	33	76	1300	500	505	430	300	330	1100	1600	160	282
								330	1100	1600		282

* 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).
*** System consists of two cabinets; separate dimensions K, L, M and weights are given for each cabinet.
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.

OPTIONS (CONTINUED)
Stainless steel cabinet with air to air heat exchangers IP 56, NEMA 4X, relative humidity <95% non condensing. If fitted no UL listing. See sales drawings for sizes.
Aggressive water package: For 400 ppm to 20000 ppm chloride water
UVShield™: Power cut-out for lamp access for D PH 0060-0300 and 0530
0530Water leak detection: Detects water leaks from quartz sleeve for D PH 0060-0300 and 0530
Halogen free cables
Arc tube enclosure: Doped quartz F240 (reduces performance)

CABINET (CONTROLLER UVTOUCH™)	
Material:	Polyester coated carbon steel
Degree of protection:	IP54 NEMA 12
Supply voltages:	D PH 0060-0083 95 V to 260 V (+/-10%) D PH 0095-0300 and 0530 190 V to 480 V (+/-10%) D PH 0400-0970 380 V to 480 V (+/-10%) 50/60 Hz
Operating temperature range:	5°C to 40°C
Relative humidity:	<85% non-condensing
Cooling fans:	Yes
Interconnecting cable:	10 m cabinet to chamber

UV CHAMBER	
Material:	Stainless steel 316L / 1.4404
Internal finish:	As made pipe and tube, welds as laid, electropolished and passivated
External finish:	Sateen polish (120 grit) electropolished and passivated
Process (mating) connections:	Flange EN 1092-1 PN16
Drain connection:	BSPT or NPT if ANSI flange
End plate:	Removable end plate
Degree of protection:	IP65 equivalent to NEMA 4 but not for outside use
Wiper:	Automatic (electrically driven)
Arc tube (lamp):	Medium pressure
Arc tube enclosure:	Pure quartz (F200)
Number of arc tubes (lamps):	1 (D PH 0060-0300 and 0530), 4 (D PH 0400 - 0550), 6 (D PH 0900), 8 (D PH 0950 - 0970)
Expected lamp life:	8000 hrs, 4000 hrs D PH 0240, 0300 and 0530
Temperature sensor:	Yes
UV monitor:	Wet UV monitor (if above minimum T_{10})
Working fluid temperature:	1°C to 60°C
Hydrostatically pressure tested:	Yes to PED requirements EN 13445
Chamber mounting:	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 material: Stainless steel 316
Operation and Maintenance manual and printed Installation and Commissioning manual in Chinese, English, French, German and Spanish
Flange options: ANSI 150, JIS, Table 'E'
Lead length: 20 m, 30 m or 50 m cabinet to chamber
Welder Document Pack for chamber construction
Bleed valve: BSPT or NPT if ANSI flange
Skid mounting (not ship board or earthquake zone)
Operating pressure: 10 bar
Power adjustment: 4 level power switching
Air vent connection: BSPT blanked off or NPT if ANSI flange

CUSTOMER OUTPUTS	
4-20 mA passive or active output:	UV intensity %, or dose if Power stepping option is added
VFC outputs:	System warning, lamp ready, low UV intensity, common trip, remote reset, ELCB or water leak, system available, local or remote mode

CUSTOMER INPUTS	
4-20 mA passive or active output:	Flow meter
VFC inputs:	Remote stop/start and remote reset

CUSTOMER COMMUNICATIONS PORT
None

APPROVALS
CE marked, UL Listed E14 9108

ALSO AVAİLABLE İN OUR AQUACULTURE PRODUCT RANGE...

RASLINE D PH

RASLINE D EO

Energy Optimised general disinfection suitable for clear waters

RASLINE PQ IL

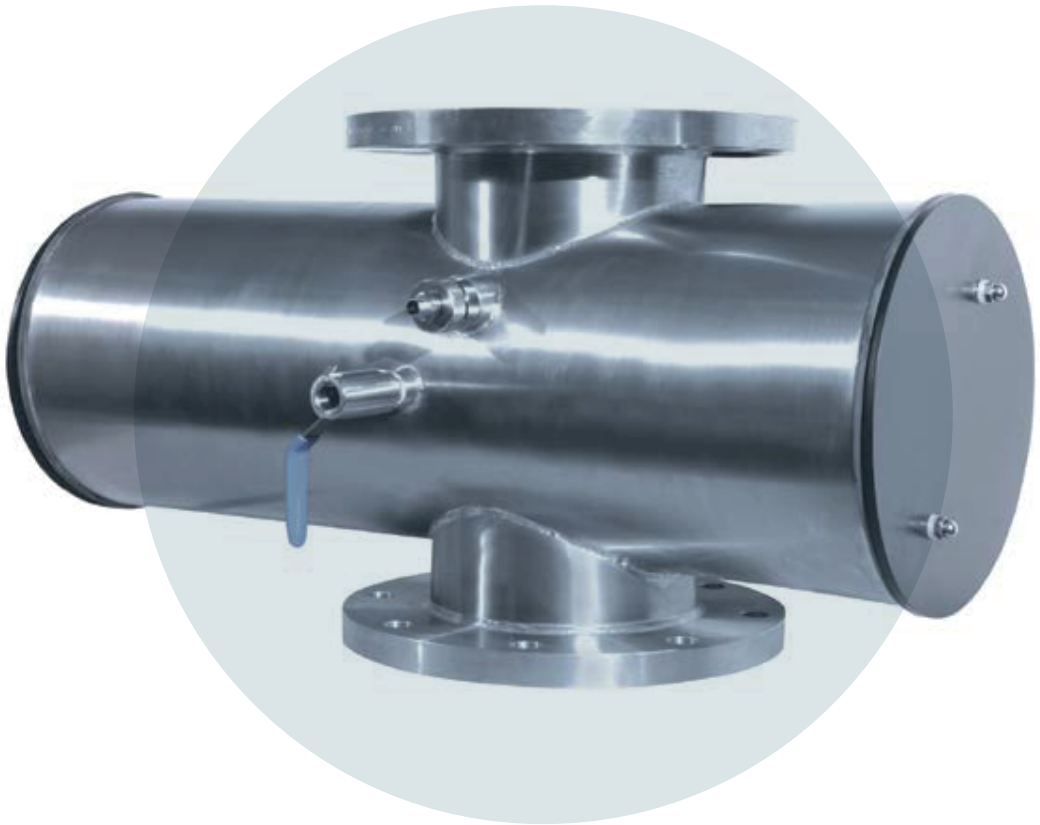
3rd party NVI validated systems for critical disinfection requiring approvals and a wide range of UVT applications.

NVI APPROVED UV TREATMENT FOR AQUACULTURE

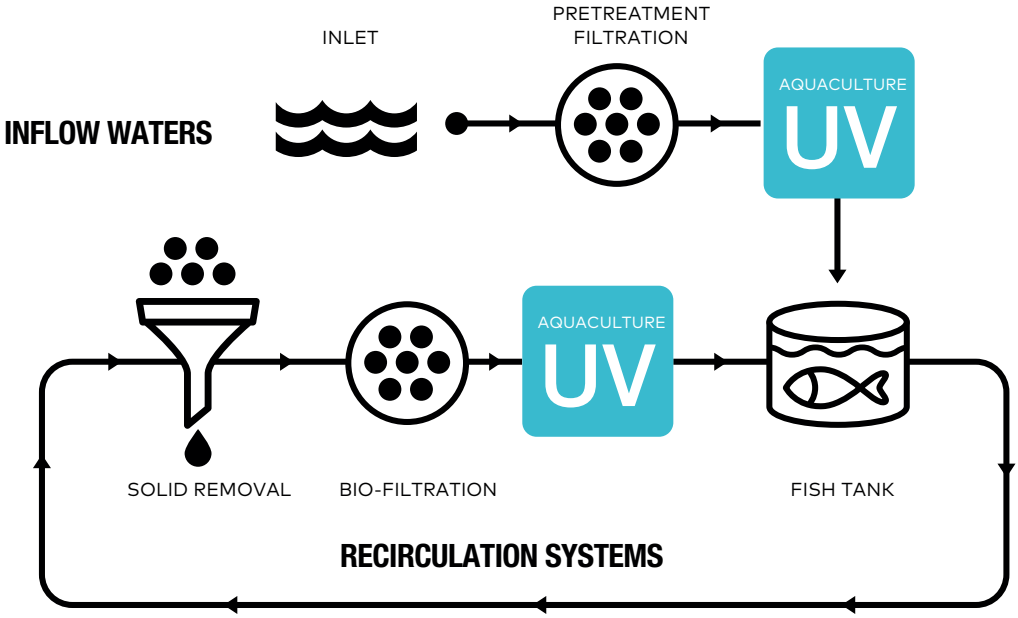
Our RasLine PQ IL systems are aimed specifically at providing UV disinfection for recirculating aquaculture systems. By using an NVI approved UV system you can be certain that the UV dose being produced will disinfect the water, eliminate harmful microorganisms, reduce the bio-burden, protect against 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.

We UVCare

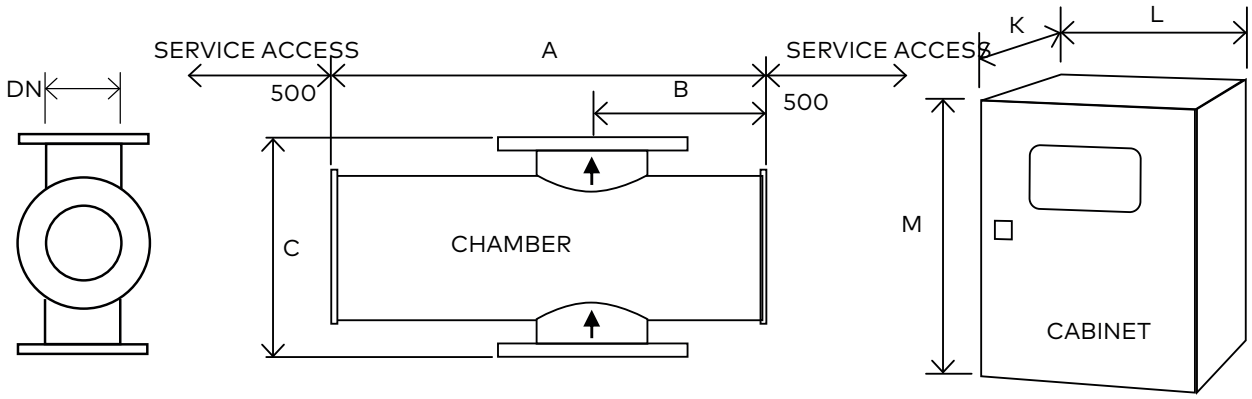
RASLINE PQ IL



POTENTİAL LOCATİONS OF THE RASLİNE PQ IL™ İN A RECİRCULATİNG AQUACULTURE SYSTEM (RAS)



KEY FEATURES	WHAT IT GIVES YOU	BENEFITS FOR YOU
INTELLIGENCE		
Dry DVGW approved UV sensor measuring germicidal wavelengths	Continuous verification of performance with real time RED dose reading and inbuilt 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
OPTIMISATION		
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 disinfection	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 <0.8 µm internal finish	Designed to international standards
	Automatic wiper (quartz cleaning)	Self cleaning to maintain performance
INTEGRATION		
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 a 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.

			Dimensions (mm)								Approx weight (Kg)	
			Chamber				Cab.	Cabinet (fan cooled)[a]			Chamber	Cabinet
Model Number	Max. Power (kW)	No of lamps	A	B	C	DN	No***	K*	L	M**	Empty	Fan cooled
ProLine PQ IL 450	5.6	2	780	310	400	200	1	300	1000	1200	78	80
ProLine PQ IL 1000	11	4	780	310	400	200	1	300	1000	1200	78	100
ProLine PQ IL 4000	17.5	4	896	368	550	350	1	600	1000	2100	150	180
ProLine PQ IL 4500	26	6	896	368	550	350	1	600	1000	2100	150	200
ProLine PQ IL 12000	39	6	1052	446	680	500	1 CC 1 PC	600 600	600 1200	2000 2100	240	130 260
ProLine PQ IL 14000	52	8	1052	446	680	500	1 CC 1 PC	600 600	600 1200	2000 2100	240	130 290

OPTIONS (CONTINUED)
Operating pressure: 10 Bar
Aggressive water package: For 400 ppm to 20000 ppm chloride water
UPS for controller (30 mins)

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

UV CHAMBER	
Material:	Polyester coated carbon steel, RAL 7035
Degree of protection:	IP54 (NEMA 12)
Supply voltages:	PQ IL 450-1000: 200-277 V (+/-10%) (2ph L1,L2 or 1ph L1+N) PQ IL 4000-14000: 380-480 V (-5% to +10%) (3ph L1, L2, L3) 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)

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:	IIP54 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 slooping 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 ship board or earthquake zone)
Halogen free cables
Water leak detection: Detects water leaks from quartz sleeve
Water level sensor: UV chamber full water detection

* See sales drawings for dimensions

CUSTOMER COMMUNICATIONS PORT
RS 485 Industrial Ethernet

APPROVALS
CE marked, NVI approved

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

ALSO AVAİLABLE İN OUR AQUACULTURE PRODUCT RANGE...

RASLINE PQ IL

RASLINE D EO

Energy Optimised general disinfection suitable for clear waters

RASLINE D PH

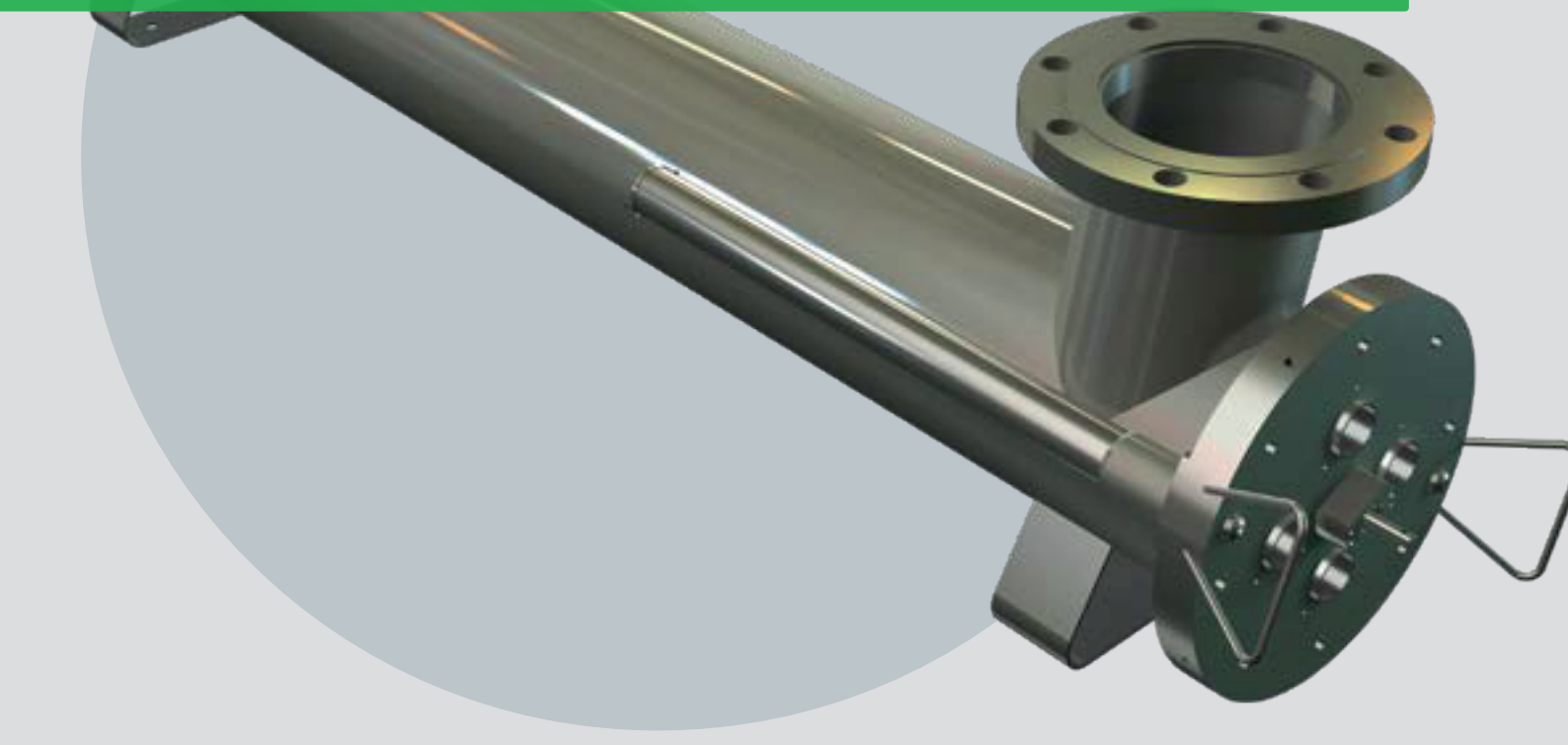
Suitable for a wide range of general disinfection applications across a range of UVTs and flows

HANASU

Daha yeşil, sürdürülebilir ve
yaşanabilir bir dünya için.

TECHNICAL SERVICES AND SOLUTIONS

DISINFECTION SYSTEMS & TECHNOLOGIES



Adres
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