

Enwa Titanium AOP Specification

Introduction

Enwa Titanium AOP is an environmentally friendly “gatekeeper” solution that removes organic matter and prevents contamination with *Legionella* and other organisms entering a water system.

Enwa Titanium AOP is a *h2o.titanium* technology where purification and disinfection is provided by hydroxyl radicals (OH-radicals) and ultraviolet (UV) radiation. The water is radiated by UV-light whilst OH-radicals are simultaneously formed in a photocatalytic process on the inner surface of the titanium dioxide reactor. The OH-radicals decompose (“burns up”) microorganisms and other organic matter through an Advanced Oxidation Process (AOP). The Enwa Titanium AOP system does not cause any by-products or permanent changes to the water’s taste, odour or other chemical or physical characteristics.

Where the ENWA Titanium AOP is used, a steady reduction in the use of disinfectant chemicals can be achieved down to minimum dosage levels. Within just few weeks of commissioning the system, the need for dosing with chemicals will be eliminated altogether¹.



Figure 1: Enwa Titanium AOP – *h2o.titanium* technology

Applications

Enwa Titanium AOP purification and disinfection system can be used wherever there is a bacteriological risk or where protection from bacteriological risk is required.

Fields of application include:

- Disinfection of drinking water in commercial and private installations
- Disinfection of water in evaporative cooling systems
- Disinfection of water in the food industry
- Disinfection of water in swimming pools
- Disinfection of water in bottling plants of beer, beverages, syrups
- Disinfection of production water in the manufacture of medicines and cosmetics
- Reduction of organic matter
- Reduction of chemical oxygen demand (COD) and biochemical oxygen demand (BOD).

¹ Subject to initial starting water analysis and continued monitoring of the water in conjunction with following the operations and maintenance procedures of the equipment.



OH radicals produced by the Titanium AOP are not selective and the system will inactivate and kill living microorganisms as well as decompose resulting matter from dead microorganisms and other organic pollutants in the water.

Specification clause

Disinfection and purification of water is provided by hydroxyl radicals (OH-radicals) and ultraviolet (UV) radiation and without the use of chemicals by the ENWA Titanium AOP (advance oxidation process). The reactor shall be machined from a solid piece of Titanium Dioxide material and be supplied with ultra violet (UV) radiation lamps (80W/105W) and quartz sleeves.

Technical details:

Model SM:	AOP 1 – AOP 100
Lamps:	80w
IP rating:	54
Power Supply:	230V
Monitor:	PRO 11
UV Sensor:	Digital DSIC

- The system should be supplied complete with:
 - o Automatic control and regulating systems
 - o Control panel and necessary cables
 - o UV Sensor & temperature sensor (where applicable)
 - o BMS compatibility
- The equipment shall not affect the physical or chemical parameters of the water.
- The equipment should be able to disinfect water without the addition of chemicals.
- The equipment must be delivered with automatic flushing for cooling off for prolonged water use. This automatic flush should be operated either by a programmable timer or at given maximum temperature where a temperature sensor is used.
- The equipment is to be installed according to the supplier's instructions. A by-pass solution should be installed over the equipment such that it can be isolated for maintenance and cleaning.
- The reactor is installed horizontally on a wall or suitable frame ensuring adequate maintenance space is available around the unit for servicing and maintenance.
- The equipment should be adapted with capacity for the stated maximum flow water flow (L/s).

Further technical details can be found in appendix 1 of this document. For help with selection of suitable size unit(s) please contact ENWA.

Maintenance

To ensure the water quality in systems treated with Enwa Titanium AOP is in accordance to specification, cleaning of quartz sleeves and change of UV-lamps should be conducted periodically. In addition Enwa recommends an annual maintenance and service program.

Maintenance work may only be carried out by ENWA or personnel who have been trained and authorised for this work by the owner and/or user.

Only original spare parts from supplier must be used.



The following are the recommended service intervals for replacement parts:

- UV lamp change: once a year
- Cleaning of quartz sleeves: frequency depending on water quality
- Quartz sleeve change: frequency depending on water quality
- Quartz sleeve O-ring change: once a year
- Lamp holder and connectors; approx. every 36 months.

The frequency of cleaning the quartz sleeves will depend on the water quality in the specific system. In the initial operation phase it is recommended to have relatively frequent inspections (minimum once every 3 months), and then evaluate and decide what cleaning frequency is needed for the specific water quality/system.

Yearly Maintenance and Service Agreement

Enwa recommend a yearly maintenance program including:

- General function check with mapping of any defects or leakages.
- Cleaning (and replacement if needed) of quartz sleeves.
- Replacement of UV lamps and o-rings
- Service report

Please contact Enwa for more details and to arrange your maintenance and service agreement.

Connections

Flange connections and desired flows through the unit should be in accordance with the specific site requirements and through consultation with ENWA. Details of flange connections are found in appendix 3.

Installation should only be made by certified engineers and electricians. The AOP should be installed on a bypass across the main water pipes, and isolation valves must be installed on either side of the unit such that the system can be isolated for maintenance and trouble shooting.

AOP Shutdown when there is no flow in the water system

When circulation through the AOP system is temporarily stopped, it is imperative that the AOP is also shutdown immediately in order to prevent overheating and damage to internal components. The shutdown needs to be in sync with the water system's circulation pumps.

Pre-filtration

Non-mains water quality may require pre-filtration prior to treatment with the Enwa Titanium AOP to achieve efficient disinfection. Where pre-filtration is not used the client must make provisions as part of their ongoing maintenance schedule to inspect and clean out the AOP system at least every 3 months (4 times a year). This is important as particles in the water, in particular iron products can become attached to the quartz sleeves and affect the efficiency of the system.

A review of the initial water analysis by ENWA will determine if pre-filtration is required.

Product limitations

- Where pressures exceed 5 bar or there are vacuum pressures, a pressure reduction valve should be installed on inlet side of the unit
- The Titanium AOP should not be used where water pH is lower than 4 or higher than 10
- The AOP is not suitable for use in systems where the water has a Langelier index of less than -0.8 or greater than +0.8 are treated



Commissioning and safe start-up

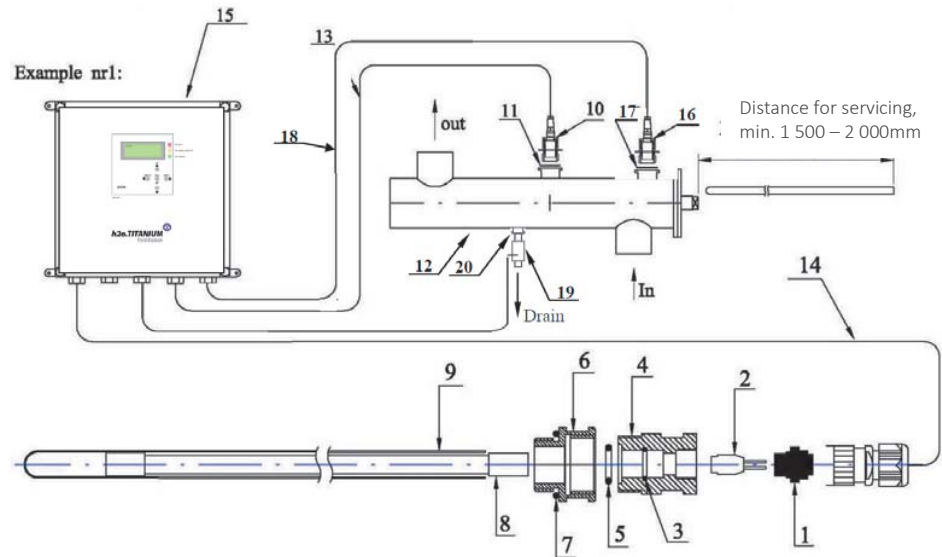
The commissioning and first time start-up should be conducted by Enwa or qualified Enwa partners. The manufacturer and supplier cannot be liable for damage caused by improper commissioning and first-time start-up. Failure to comply will invalidate the warranty.

The mechanical and electrical commissioning needs to be co-ordinated with disinfection and cleaning processes and the commissioning of the water treatment system to ensure that the risk of legionella growth and exposure is controlled from the start. Further information on commissioning and safe start-up is given in Appendix 2 - *Start up and commissioning check list*.

Please contact ENWA to arrange commissioning and if you require support with the installation.

TECHNICAL INFORMATION

Enwa Titanium AOP system



Pos.	Description	Pos.	Description
1	Circular connectorM16	11	o-ring
2	4-pin socket	12	Titanium reactor
3	o-ring lamp holder	13	UV-sensor cable
4	quartz sleeve holder	14	Lamp cable
5	o-ring	15	Control cabinet
6	converter	16	Temperature sensor *
7	o-ring	17	o-ring
8	UV lamp	18	Temperature sensor cable *
9	quartz sleeve	19	Auto drain valve (solenoid)(optional)
10	UV sensor	20	Nipple M/M

Figure 3: Enwa Titanium AOP 20 – 1000M system

Table 1: Operational specifications for Enwa Titanium AOP 20-1000M systems

* Supplied as standard only with the ENWA AOP Smart Series

Parameter	AOP 20-200M	AOP 300M-1000M
Temperature system water	0-60 °C	0-60 °C
Max. working pressure/ max. system pressure	6 bar	6 bar
Nominal pressure(PN)	10 bar	10 bar
Max. ambient temperature	40 °C	40 °C
Water pressure drop	<0,1 bar	<0,1 bar
Power requirements	230V/50Hz	400V/50Hz ¹⁾
Fuse rating	10A	25A

1) AOP 300M – 1000M requires its own radial power supply



Table 2: System capacities, UV lamps and power consumption

Model	Max. capacity ¹⁾ (m ³ /h)	Min. capacity (m ³ /h)	UV lamps			Power consumption (W)
			Watt ²⁾	N°	Life time ³⁾ (hrs)	
AOP 20	20	8	80	4	10 000-12 000	385
			105	4	14 000-16 000	490
AOP 50M	50	20	80	8	10 000-12 000	765
			105	6	14 000-16 000	720
AOP 100M	100	40	80	14	10 000-12 000	1 320
			105	10	14 000-16 000	1200
AOP 200M	200	80	105	18	14 000-16 000	2 140
AOP 300M	300	120	105	28	14 000-16 000	3 320
AOP 400M	400	160	105	38	14 000-16 000	4 500
AOP 500M	500	200	105	48	14 000-16 000	5 680
AOP 700M	700	280	105	66	14 000-16 000	7 820
AOP 900M	900	360	105	84	14 000-16 000	9 980
AOP 1000M	1 000	400	105	94	14 000-16 000	11 120

1) If the system flow exceeds the given max. capacity, a good and efficient disinfection can not be guaranteed. If the AOP unit is installed on circulating water, it is, depending on the purpose of the treatment, possible to increase the flow above the max. capacity. Please contact Enwa for further information.

2) For water temperature <20°C, 105W UV lamps are recommended

3) UV lamp's life time at continuously operation.

Dimensions and Connections

Reactor

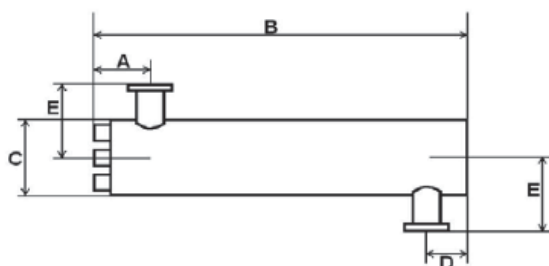


Table 3: Enwa Titanium AOP 20-1000M reactor dimensions

Model	CxB; Diameter x length (mm)	B-A-D; distance between axis (mm)	2xE; distance between flanges (mm)	Connections inlet/ outlet (flanges) ¹⁾²⁾	Weight (kg)
AOP 20	160 x 956	645	394	DN100 PN10	13,2
AOP 50M	224 x 954	625	424	DN125 PN10	20,7
AOP 100M	304 x 954	595	504	DN150 PN10	32,9
AOP 200M	405 x 1 070	536	606	DN200 PN10	51,6
AOP 300M	455 x 1 132	541	656	DN250 PN10	69,1
AOP 400M	505 x 1 138	495	766	DN300 PN10	93,8
AOP 500M	605 x 1 163	495	866	DN300 PN10	124,0
AOP 700M	706 x 1 246	497	1 006	DN350 PN10	163,3
AOP 900M	756 x 1 316	507	1 056	DN400 PN10	210,6
AOP 1000M	805 x 1 327	507	1 108	DN400 PN10	234,9

1) Standard EN 1092:2002 (DIN 2576)

2) It is recommended to put loose flanges with ring in the inlet and outlet installation pipes

Control cabinet

Table 4: Control cabinet; outer dimensions and protection class

Model	Dimension (mm)	IP class	mounting
AOP 20	400x600x250	54	wall
AOP 50M	600x800x250	54	wall
AOP 100M	1 000x800x250	54	wall
AOP 200M	1 200x800x250	54	floor
AOP 300M	1 200x1 000x250	54	floor
AOP 400M	1 600x1 000x300	54	floor
AOP 500M	2 200x800x400	54	floor
AOP 700M	2 200x1 000x400	54	floor
AOP 900M	2 200x1 200x400	54	floor
AOP 1000M	2 200x1 200x400	54	floor

ENWA Titanium AOP start up and commissioning check list

Step	Description
<input type="checkbox"/>	1 The water system is decontaminated and disinfected.
<input type="checkbox"/>	2 The water system is in accordance to Titanium AOP specifications: <ul style="list-style-type: none"> ✓ Water temperature $\leq 40^{\circ}\text{C}$ (55°C) ✓ Water system pressure ≤ 6 bar ✓ If needed, pre-filtration/ other pre-treatment is installed.
<input type="checkbox"/>	3 The installation location is in accordance to recommendations: <ul style="list-style-type: none"> ✓ Ambient temperature $0-40^{\circ}\text{C}$ ✓ Space requirements OK (Note: space at the reactor end to install and remove quartz tubes and UV-lamps, min. 2 meters). ✓ Drain within 5 meters from installation location. ✓ By-pass is mounted/ established ✓ Maximum flow rate in accordance to size of unit being installed. ✓ Shut-off valves mounted on inlet- and outlet side at the installation location ✓ Power supply in accordance to requirements <ul style="list-style-type: none"> • 230V AC 50-60Hz. Fuse: 10A. <i>Note:</i> AOP 300M-1000M requires separate radial power supply 400V/50Hz, fuse: 25A • Power supply is earthed in accordance to BS7671 • External readily accessible safety all-pole switch • Residual Current Device (RCD); rated residual operating current not exceeding 30mA.
<input type="checkbox"/>	4 All system components ready and easy available <ul style="list-style-type: none"> ✓ Purpose build frame if needed ✓ Stainless steel or plastic connections (not supplied by Enwa) ✓ Reactor ✓ Quartz sleeves ✓ UV lamps ✓ UV- and temperature sensor (if temp. sensor is included in delivery) ✓ Solenoid drain valve (if included in delivery) ✓ Control cabinet ✓ Cables
<input type="checkbox"/>	5 Appropriate mounting tools available
<input type="checkbox"/>	6 Instructions for installation/ user manual available
<input type="checkbox"/>	7 Personal Protection Equipment available

Enwa Titanium AOP

Technical data sheet - Flange specifications



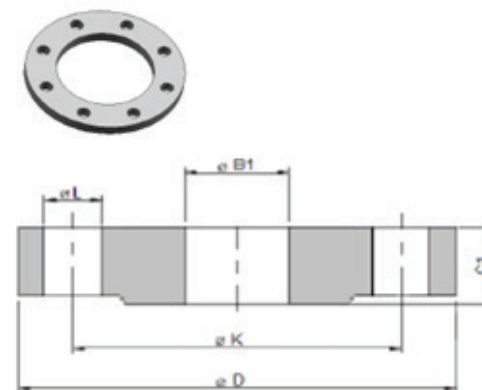
FLAT FLANGE EN-1092-1 TYPE 1 PN-10

Types of faces

Type A: Flat Face Type C: Tongue Type E: Spigot Type G: O-ring Spigot
 Type B1/B2: Raising face Type D: Groove Type F: Recess Type H: O-ring Groove

Dimensions in millimeters (mm)

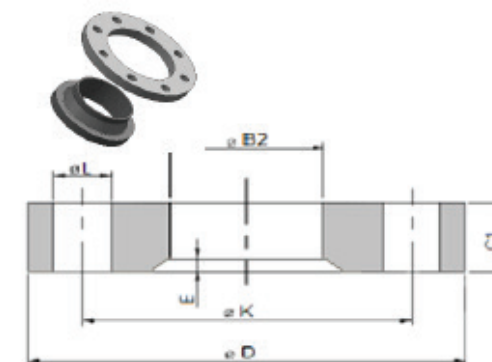
Coupling dimensions				Drills		Inside	Flange	Weight (kg)
DN	D	K	L	N°	Metrics	Diameter B1	thickness C1	
100	220	180	18	8	M16	116	22	4.39
125	250	210	18	8	M16	141.5	22	5.41
150	285	240	18	8	M20	170.5	24	7.14
200	340	295	22	8	M20	221.5	24	9.27
250	395	350	22	12	M20	276.5	26	11.8
300	445	400	22	12	M20	327.5	26	13.6
350	505	460	22	16	M20	359.5	28	20.4
400	565	515	26	16	M24	411	32	27.5
450	615	565	26	20	M24	462	36	33.6



LOOSE FLANGE EN-1092-1 TYPE 1 PN-10

Dimensions in millimeters (mm)

Coupling dimensions				Drills		Inside	Flange	Bevel E	Weight (kg)
DN	D	K	L	N°	Metrics	Diameter B1	thickness C1		
100	220	180	18	8	M16	120	22	6	4.2
125	250	210	18	8	M16	145	22	6	5.21
150	285	240	18	8	M20	174	24	6	6.89
200	340	295	22	8	M20	226	24	6	8.87
250	395	350	22	12	M20	218	26	8	11.2
300	445	400	22	12	M20	333	26	8	12.8
350	505	460	22	16	M20	365	28	8	19.4
400	565	515	26	16	M24	416	32	8	26.4
450	615	565	26	20	M24	467	36	8	32.2





TECHNICAL SPECIFICATIONS

H2O TITANIUM REACTORS



SMART SERIE HQ



FROM 1 M3/H TO 1000 M3/H

THE MOST COMPLETE AND DEMANDING NORWEGIAN QUALITY STANDARDS

SPECIFICATIONS SERIE		SMART	2020
MODELS	HQ	AOP 1 - AOP 1.000	
MATERIALS QUALITY		High quality	
IP		55	
POWER		230-110	
E.C.B. MATERIAL		Metal	
E.C.B. POSITION		Wall ≤ AOP 100 Floor ≥ AOP 200	
COMMUNICATION		Smart	
BMS CONNECTION		Yes	
EMERGENCY STOP BUTTON		Yes	
MONITOR		ZCON Mini	
BALLAST		Smart	
NR OF BALLASTS AOP 10		1 ballast / 1 lamp	
BALLAST FAILURE		Monitor illumination	
UV LAMPS		105 W	
LAMP CABLES OUTPUT		Wall: bottom Floor: side	
HOLDERS		PVDF	
UV SENSOR		Digital DSIC	
UV VALUE		% Absolut	
TRANSMITTANCE CALIBRATION		Yes	
AUTOMATIC DRAIN VALVE		Digital	
PACKAGING		Ecologic carton	

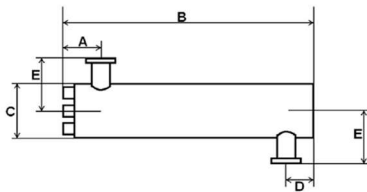
ELECTRICAL CONTROL BOXES SPECIFICATIONS

h2o.TITANIUM SMART SERIES MODELS	UV Lamps Power (W)	UV Lamps Nr Installed capacity (W)	Voltage (V)	IP	Aprox weight (kg)	Electrical control box dimensions (mm)	Door type	Position
AOP 1 HQ	24	1 30	230V 110V; 50-60Hz	55	13,00	300x400x200	Simple	Pared
AOP 3 HQ	105	1 130	230V 110V; 50-60Hz	55	16,00	400x600x250	Simple	Pared
AOP 5 HQ	105	1 130	230V 110V; 50-60Hz	55	21,00	400x600x250	Simple	Pared
AOP 10 HQ	105	2 250	230V 110V; 50-60Hz	55	29,00	400x600x250	Simple	Pared
AOP 20 HQ	105	4 490	230V 110V; 50-60Hz	55	30,00	600x600x250	Simple	Pared
AOP 50 M HQ	105	6 720	230V 110V; 50-60Hz	55	32,00	600x600x250	Simple	Pared
AOP 100 M HQ	105	10 1.200	230V 110V; 50-60Hz	55	50,00	1.000x800x250	Simple	Pared
AOP 200 M HQ	105	18 2.140	400 V; 50-60 Hz	55	80,00	1.000x1.000x300	Doble	Suelo
AOP 300 M HQ	105	28 3.320	400 V; 50-60 Hz	55	Consultar	1.600x1.000x300	Doble	Suelo
AOP 400 M HQ	105	38 4.500	400 V; 50-60 Hz	55	Consultar	1.800x1.200x400	Doble	Suelo
AOP 500 M HQ	105	48 5.680	400 V; 50-60 Hz	55	Consultar	2.000x1.000x400	Doble	Suelo
AOP 700 M HQ	105	66 7.820	400 V; 50-60 Hz	55	Consultar	Consultar	Doble	Suelo
AOP 900 M HQ	105	84 9.980	400 V; 50-60 Hz	55	Consultar	Consultar	Doble	Suelo
AOP 1000 M HQ	105	94 11.120	400 V; 50-60 Hz	55	Consultar	Consultar	Doble	Suelo

UV lamps lifetime working continuously: 14.000-16.000 h

Optimal working temperature of UV lamps :4-40 °C

REACTORS SPECIFICATIONS



- C: External diameter reactor
- B: Total lenght reactor
- 2E: Distance between flanges
- B-A-D: Distance between axis

h2o.TITANIUM SMART SERIES MODELS	Dimension (mm) CxB	Flow (m3/h) Maximum	Minimum	*Nominal diameter (DN)	Distance between axis (DN) (mm) B-A-D	Distance between flanges (mm) 2xE	*Nominal pressure (PN)	Drop pressure (bar)	Weight (kg)
AOP 1 HQ	Φ76x472	1	0,4	G¾"	392	186	6	0,1	1,600
AOP 3 HQ	Φ60x883	3	1,2	G1"	728	160	6	0,1	1,600
AOP 5 HQ	Φ76x894	5	2,0	G1½"	728	220	6	0,1	2,900
AOP 10 HQ	Φ120x891	10	4,0	G2"	728	250	6	0,1	5,500
AOP 20 HQ	Φ160x956	20	8,0	DN100	645	394	6	0,1	13,200
AOP 50 M HQ	Φ224x954	50	20,0	DN125	625	424	5	0,1	20,700
AOP 100 M HQ	Φ304x954	100	40,0	DN150	595	504	5	0,1	32,900
AOP 200 M HQ	Φ405x1.070	200	80,0	DN200	536	606	5	0,1	51,600
AOP 300 M HQ	Φ455x1.132	300	120,0	DN250	541	656	5	0,1	69,100
AOP 400 M HQ	Φ505x1.138	400	160,0	DN300	495	766	5	0,2	93,800
AOP 500 M HQ	Φ605x1.163	500	200,0	DN300	495	866	5	0,2	124,000
AOP 700 M HQ	Φ706x1.246	700	280,0	DN350	497	1006	5	0,2	163,300
AOP 900 M HQ	Φ756x1.316	900	360,0	DN400	507	1056	5	0,2	210,600
AOP 1000 M HQ	Φ806x1.327	1000	400,0	DN400	507	1108	5	0,2	234,900

* Standards of EN 1092:2002 (HG 20592:2009) according to DIN 2576

* It is convenient to insert loose flanges with ring in the inlet and the outlet installation pipes.

STANDARD SERIES SM



FROM 1 M3/H TO 100 M3/H

ONLY THE NECESSARY
UK QUALITY STANDARDS

SPECIFICATIONS SERIE		STANDARD	2020
MODELS	SM	AOP 1-AOP 100	
MATERIALS QUALITY		Top-range	
IP		54	
POWER		230	
E.C.B. MATERIAL		Metal	
E.C.B. POSITION		Wall	
COMMUNICATION		Electric	
BMS CONNECTION		Yes	
EMERGENCY STOP BUTTON		Yes	
MONITOR		PRO 11	
BALLAST		Electric	
NR OF BALLASTS AOP 10		1 ballasts / 2 lamps	
BALLAST FAILURE		Open ECB	
UV LAMPS		80 W	
LAMP CABLES OUTPUT		Wall: bottom	
HOLDERS		POM-C	
UV SENSOR		Digital DSIC	
UV VALUE		% Absolut	
TRANSMITTANCE CALIBRATION		Yes	
AUTOMATIC DRAIN VALVE		Yes. Timer	
PACKAGING		Carton	

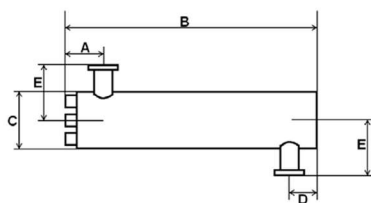
ELECTRICAL CONTROL BOX SPECIFICATIONS

h2o.TITANIUM STANDARD SERIES MODELS	UV Lamps Power (W)	UV Lamps Nr Installed capacity (W)	Voltage (V)	IP	Aprox weight (kg)	Electrical control box dimensions (mm)	Door type	Position
AOP 1 SM	25	1 30	230V; 50-60Hz	54	11,00	300x300x200	Simple	Pared
AOP 3 SM	80	1 110	230V; 50-60Hz	54	15,00	500x400x250	Simple	Pared
AOP 5 SM	80	1 110	230V; 50-60Hz	54	20,00	400x600x250	Simple	Pared
AOP 10 SM	80	2 200	230V; 50-60Hz	54	26,00	400x600x250	Simple	Pared
AOP 20 SM	80	4 385	230V; 50-60Hz	54	28,00	600x600x250	Simple	Pared
AOP 50 M SM	80	8 765	230V; 50-60Hz	54	30,00	600x600x250	Simple	Pared
AOP 100 M SM	80	14 1.320	230V; 50-60Hz	54	48,00	1.000x800x250	Simple	Pared

UV lamps lifetime working continuously: 10.000-12.000 h

Optimal working temperature of UV lamps: 20-55 °C

REACTORS SPECIFICATIONS



- C: External diameter reactor
- B: Total lenght reactor
- 2E: Distance between flanges
- B-A-D: Distance between axis

h2o.TITANIUM STANDARD SERIES MODELS	Dimension (mm) CxB	Flow (m3/h) Maximum Minimum	*Nominal diameter (DN)	Distance between axis (DN) (mm) B-A-D	Distance between flanges (mm) 2xE	*Nominal pressure (PN)	Drop pressure (bar)	Weight (kg)
AOP 1 SM	Φ76x472	1 0,4	G¾"	392	186	6	0,1	1,600
AOP 3 SM	Φ60x883	3 1,2	G1"	728	160	6	0,1	1,600
AOP 5 SM	Φ76x894	5 2,0	G1½"	728	220	6	0,1	2,900
AOP 10 SM	Φ120x891	10 4,0	G2"	728	250	6	0,1	5,500
AOP 20 SM	Φ160x956	20 8,0	DN100	645	394	6	0,1	13,200
AOP 50 M SM	Φ224x954	50 20,0	DN125	625	424	5	0,1	20,700
AOP 100 M SM	Φ304x954	100 40,0	DN150	595	504	5	0,1	32,900

* Standards of EN 1092:2002 (HG 20592:2009) according to DIN 2576

* It is convenient to insert loose flanges with ring in the inlet and the outlet installation pipes.

BASIC SERIES LE



FROM 1 M3/H TO 20 M3/H

ONLY PRICE
MINIMUM ORDER 5 UNITS/MODEL

SPECIFICATIONS SERIE		BASIC	2020
MODELS	LE	AOP 1-AOP 20	
MATERIALS QUALITY		Medium range	
IP		54	
POWER		230	
E. C.B. MATERIAL		Plastic	
E. C.B. POSITION		Wall	
COMMUNICATION		Electric	
BMS CONNECTION		No	
EMERGENCY STOP BUTTON		No	
MONITOR		Green-RedLed	
BALLAST		Electric	
NR OF BALLASTS AOP 10		1 ballast / 2 lamps	
BALLAST FAILURE		Only lamp fail	
UV LAMPS		80 W	
LAMP CABLES OUTPUT		Bottom	
HOLDERS		POM-C	
UV SENSOR		No	
UV VALUE		No	
TRANSMITTANCE CALIBRATION		No	
AUTOMATIC DRAIN VALVE		No	
PACKAGING		Carton	

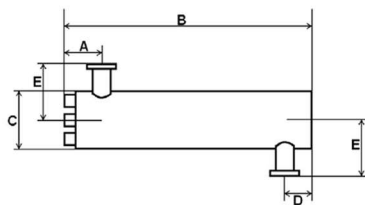
ELECTRICAL CONTROL BOX SPECIFICATIONS

h2o.TITANIUM BASIC SERIES MODELS	UV Lamps Power (W)	UV Lamps Nr Installed capacity (W)	Voltage (V)	IP	Aprox weight (kg)	Electrical control box dimensions (mm)	Door type	Position
AOP 1 LE	24	1 30	230V; 50-60Hz	54	11,00	300x300x200	Simple	Wall
AOP 3 LE	80	1 110	230V; 50-60Hz	54	15,00	252x352x142	Simple	Wall
AOP 5 LE	80	1 110	230V; 50-60Hz	54	20,00	252x352x142	Simple	Wall
AOP 10 LE	80	2 200	230V; 50-60Hz	54	26,00	356x456x162	Simple	Wall
AOP 20 LE	80	4 385	230V; 50-60Hz	54	28,00	356x456x162	Simple	Wall

UV lamps lifetime working continuously: 10.000-12.000 h

Optimal working temperature of UV lamps: 20-55 °C

SPECIFICATIONS REACTORS



- C: External diameter reactor
- B: Total length reactor
- 2E: Distance between flanges
- B-A-D: Distance between axis

h2o.TITANIUM BASIC SERIES MODELS	Dimension (mm) CxB	Flow (m3/h) Maximum Minimum	*Nominal diameter (DN)	Distance between axis (DN) (mm) B-A-D	Distance between flanges (mm) 2xE	*Nominal pressure (PN)	Drop pressure (bar)	Weight (kg)
AOP 1 LE	Φ76x472	1 0,4	G¾"	392	186	6	0,1	1,600
AOP 3 LE	Φ60x883	3 1,2	G1"	728	160	6	0,1	1,600
AOP 5 LE	Φ76x894	5 2,0	G1½"	728	220	6	0,1	2,900
AOP 10 LE	Φ120x891	10 4,0	G2"	728	250	6	0,1	5,500
AOP 20 LE	Φ160x956	20 8,0	DN100	645	394	6	0,1	13,200

* Standards of EN 1092:2002 (HG 20592:2009) according to DIN 2576

* It is convenient to insert loose flanges with ring in the inlet and the outlet installation pipes.