



**EXPERTS IN  
ULTRAVIOLET  
DISINFECTION**

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**MARINE & CRUISE SHIPS**  
APPLICATIONS & UV SOLUTIONS

# MARINE & CRUISE SHIP UV APPLICATIONS





UV SYSTEMS PROVIDE A  
CHEMICAL FREE, FULLY  
AUTOMATIC DISINFECTION  
SOLUTION FOR A RANGE OF  
MARINE WATER TREATMENT  
APPLICATIONS



## MARINE SPECIFICATION UV SYSTEMS & PACKAGES

DEFINING THE UV INDUSTRY WITH MARKET LEADING TECHNOLOGY FOR OVER 30 YEARS

OUR SPECIALIST RANGE OF MARINE & OFFSHORE SPECIFICATION UV SYSTEMS PROVIDE A HIGH QUALITY, ROBUST & FIELD PROVEN SOLUTION FOR A RANGE OF MARINE WATER TREATMENT APPLICATIONS

atg UV Technology is the market leader for the marine and shipping industry and has supplied Ultraviolet disinfection systems to a number of key clients in a range of marine applications, including cruise liners, luxury pleasure craft, transport freighters and specialised FPSO (floating production, storage and off-loading) vessels around the world.

Our leading UV systems are compact in design, allowing for ease of installation into restricted spaces and provide protection against microorganisms, bacteria, and viruses without the use of chemicals.

This leads to an environmentally friendly solution to the challenges faced by marine engineers worldwide. Our standard marine applications include: -

- ✓ Drinking water disinfection - Post RO water
- ✓ Drinking water disinfection - Bunkered water
- ✓ Wastewater discharges - Alaska HB80
- ✓ RO Membrane protection
- ✓ RO feed water de-chlorination & disinfection
- ✓ Swimming pools, aquatics and water features
- ✓ Aquaculture & well boats (fish farming)
- ✓ Ballast Water Treatment (BWT)



UV PROVIDES AN  
ADVANCED, CHEMICAL FREE  
WASTEWATER TREATMENT  
SOLUTION THAT FULLY  
COMPLIES WITH THE FINAL  
DISCHARGE ALASKA HB80  
REGULATIONS



## FINAL WASTEWATER DISCHARGES

### Alaska HB80 & Wastewater Discharges

atg UV Technology UV Systems are sized to comply with the Alaskan HB80 wastewater discharge regulations that require all cruise ships and large passenger / shipping vessels planning to discharge effluent wastewater into state waters, to first provide disinfection and treatment of the wastewater using a series of state-of-the-art wastewater treatment technology.

UV disinfection systems form the final stage treatment as part of the Alaska HB80 approved on board advanced wastewater treatment package, and is used to eliminate harmful microorganisms before discharge.

### Performance Benefits

- ✓ Alaska HB80 approved wastewater solution
- ✓ High disinfection performance, typically provides a 3 log (99.9%) reduction in Faecal Coliforms & E Coli
- ✓ Microorganisms cannot build resistance to UV light
- ✓ Single pass, chemical free disinfection solution
- ✓ Eliminates the transportation & storage of chemicals
- ✓ Green technology solution that does not increase the toxicity of the treated water
- ✓ Proven field performance across a range of cruise ship sizes and flow capacities (5 - 500 m<sup>3</sup>/hr)

### Installation & Operation Advantages

- ✓ Ultra compact and easy to install
- ✓ Closed system design installs directly onto pipe work
- ✓ Horizontal and vertical installation options
- ✓ Multiple flange size, type and mounting options
- ✓ Skid mounted for quick and easy installation
- ✓ Can be installed directly against bulkheads
- ✓ Suitable for both new builds and retrofit projects
- ✓ Robust vibration proof, marine specification design
- ✓ Modbus / Profibus / ICSS / BMS integration available
- ✓ Compatible with chemical cleaning CIP systems

# NSF Certified for Shipboard Aquatics

## SWIMMING POOLS & AQUATICS

### UV for Swimming Pools & Aquatics

A correctly sized medium pressure (MP) UV system will allow aquatic facilities to reduce residual chlorine levels down to as little as 0.5 ppm. In addition, the polychromatic wavelengths of MP lamps eliminate problem chloramines, producing sparkling clear water, fresh clean air and significantly reduce skin irritations and sore 'red' eyes.

The NSF-50 requirements for aquatic health and safety regarding protection against the 17 known chlorine-resistant microorganisms such as Cryptosporidium and Giardia are easily met by installing a UV system.

### Cruise ship Specification Designs

- ✓ NSF-50 Certified UV Systems
- ✓ Model Aquatic Health Code (MAHC) Compliant
- ✓ 230V / 400V / 440V / 690V & 50 Hz or 60 Hz Designs
- ✓ LSZH (Low smoke zero halogen) cabling
- ✓ Suitable for high vibration environments
- ✓ Suitable for high temperatures & humidities
- ✓ Increased IP protection available
- ✓ US EPA UVDGM Independent Performance Validation
- ✓ 5 m<sup>3</sup>/hr to over 1,000 m<sup>3</sup>/hr capacities
- ✓ 316L SS or Super Duplex 25% Cr Steel UV Chambers





## POTABLE DRINKING WATER

The process of disinfecting water with UV light is a proven technology, and has been widely used throughout the offshore petrochemical sector for crew drinking water supplies on board platforms and FSPO's for over 30 years.

atg UV Technology is the worlds' leading provider of UV drinking water packages for the marine and offshore sector, and offer a range of standardised 'off-the-shelf' UV systems and skid package designs for potable drinking water treatment.

The standard UV packages can treat flow rates of 0.1 m<sup>3</sup>/hr to over 1,000 m<sup>3</sup>/hr. All solutions are designed to meet the high specification requirements of the marine and offshore industries.

In addition atg UV Technology are one of the few suppliers in the world who can offer a solution for hazardous area installations

for ATEX & IC CEX Zones 1 and 2 using a certified Ex d (flame proof) solution for the control & power panels.

- ✓ UV packages for installation post RO
- ✓ UV packages for bunkered water
- ✓ US EPA UVDGM Validated
- ✓ NSF-55 & WHO guidelines compliant
- ✓ NiPH Certified (FHI Water Report 120)
- ✓ 5 m<sup>3</sup>/hr - 1,000 m<sup>3</sup>/hr capacities
- ✓ ATEX hazardous zones 1 & 2
- ✓ Single pass treatment technology
- ✓ Chemical free & cannot be overdosed
- ✓ Full marine documentation
- ✓ Offshore documentation available
- ✓ Skid mounted packages and bespoke designs available
- ✓ DNV, Lloyds & ABS Certification available

ONE OF THE FEW  
MANUFACTURERS  
IN THE WORLD WHO  
CAN SUPPLY NiPH  
CERTIFIED (WATER  
REPORT 120) UV  
SYSTEMS





TO PROTECT RO  
MEMBRANES, UV  
SYSTEMS CAN BE USED  
TO DE-CHLORINATE  
FEED WATER, DISINFECT  
MICROORGANISMS &  
REDUCE THE FORMATION OF  
BIOFILMS



## MARKET LEADING UV SOLUTIONS FOR THE MARINE INDUSTRY

### Aquaculture (Well Boats)

- ✓ Chemical free solution, that does not increase the toxicity of the treated water.
- ✓ Tested & approved for aquaculture & fish farming
- ✓ Protects against all major fish viruses & diseases
- ✓ High UV doses - 80 mJ/cm<sup>2</sup> to 600 mJ/cm<sup>2</sup>
- ✓ Single pass treatment or recirculation designs
- ✓ Skid mounted installation available
- ✓ Ultra compact and light weight design
- ✓ 10 m<sup>3</sup>/hr to 5,000 m<sup>3</sup>/hr single unit flow capacity

### Ballast Water Treatment (BWT)

- ✓ IMO approved disinfection solution for BWT
- ✓ Chemical free solution, that does not increase the toxicity of the treated water or cause corrosion
- ✓ Eliminates the transportation & storage of chemicals
- ✓ UV is fully automatic, and cannot be overdosed
- ✓ Microorganisms cannot build resistance to UV light
- ✓ No requirement for dilution before discharge
- ✓ No effect on performance by variations in water salinity or types from different locations

### RO Membrane Protection

- ✓ Standardised UV packages for installation pre RO
- ✓ Significantly increases membrane life by protecting against the formation of biofilms
- ✓ 0.1 m<sup>3</sup>/hr to 1,000 m<sup>3</sup>/hr
- ✓ Single pass treatment technology
- ✓ Chemical free de-chlorination for feed water to protect membranes & eliminate the requirement chlorine removal using chemicals and associated chemical storage and handling

# LISTENING TO & WORKING WITH OUR CUSTOMERS FOR OVER 30 YEARS

**CONTACT US TODAY**



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